⚠ Safety Precautions

- Important Notes on exporting this product or equipment containing this product;
  If the end-user or application of this product is related to military affairs or weapons, its export may be controlled by “Foreign Exchange and Foreign Trade Control Law” of Japan where export license will be required before product can be exported from Japan.
- This product is designed and manufactured for use in General Purpose Industrial Equipment and it is not intended to be used in equipment or system that may cause personal injury or death.
- All servicing such as installation, wiring, operation, maintenance and etc., should be performed by qualified personnel only.
- Tighten mounting screws with an adequate torque by taking into consideration strength of the screws and the characteristics of material to which the product will be mounted. Over tightening can damage the screw and/or material; under tightening can result in loosening.
  *Example: apply 2.7 N·m – 3.3 N·m torque when tightening steel screw (M5) to steel surface.
- Install safety equipment to prevent serious accidents or loss that is expected in case of failure of this product.
- Consult us before using this product under such special conditions and environments as nuclear energy control, aerospace, transportation, medical equipment, various safety equipments or equipments which require a lesser air contamination.
- We have been making the best effort to ensure the highest quality of our products, however, some applications with exceptionally large external noise disturbance and static electricity, or failure in input power, wiring and components may result in unexpected action. It is highly recommended that you make a fail-safe design and secure the safety in the operative range.
- If the motor shaft is not electrically grounded, it may cause an electrolytic corrosion to the bearing, depending on the condition of the machine and its mounting environment, and may result in the bearing noise. Checking and verification by customer is required.
- Failure of this product depending on its content may generate smoke of about one cigarette. Take this into consideration when the application of the machine is clean room related.
- Please be careful when using the product in an environment with high concentrations of sulfur or sulfuric gases, as sulfuration can lead to disconnection from the chip resistor or a poor contact connection.
- Do not input a supply voltage which significantly exceeds the rated range to the power supply of this product. Failure to heed this caution may lead to damage of the internal parts, causing smoke and/or fire and other troubles.
- The user is responsible for matching between machine and components in terms of configuration, dimensions, life expectancy, characteristics, when installing the machine or changing specification of the machine. The user is also responsible for complying with applicable laws and regulations.
- Manufacturer’s warranty will be invalid if the product has been used outside its stated specifications.
- Component parts are subject to minor change to improve performance.
- Read and observe the instruction manual to ensure correct use of the product.

Repair	Consult to the dealer from whom you have purchased this product for details of repair work. When the product is incorporated to the machine you have purchased, consult to the machine manufacturer or its dealer.
URL	Electric data of this product (Instruction Manual, CAD data) can be download from the following web site; http://industrial.panasonic.com/ww/products/motors-compressors/fa-motors

Contact to :

ISO 9001 **ISO9001 Certificate division**

ISO 14001 **ISO14001 Certificate division**

Panasonic Corporation,
Automotive & Industrial Systems Company,
Smart Factory Solutions Business Division,
Motor Business Unit
1-1 Morofuku 7-chome, Daito, Osaka 574-0044, Japan
Tel : +81-72-871-1212
Fax: +81-72-870-3151

The contents of this catalog apply to the products as of April 2015.

- This product is for industrial equipment. Don't use this product at general household.
- Printed colors may be slightly different from the actual products.
- Specifications and design of the products are subject to change without notice for the product improvement.

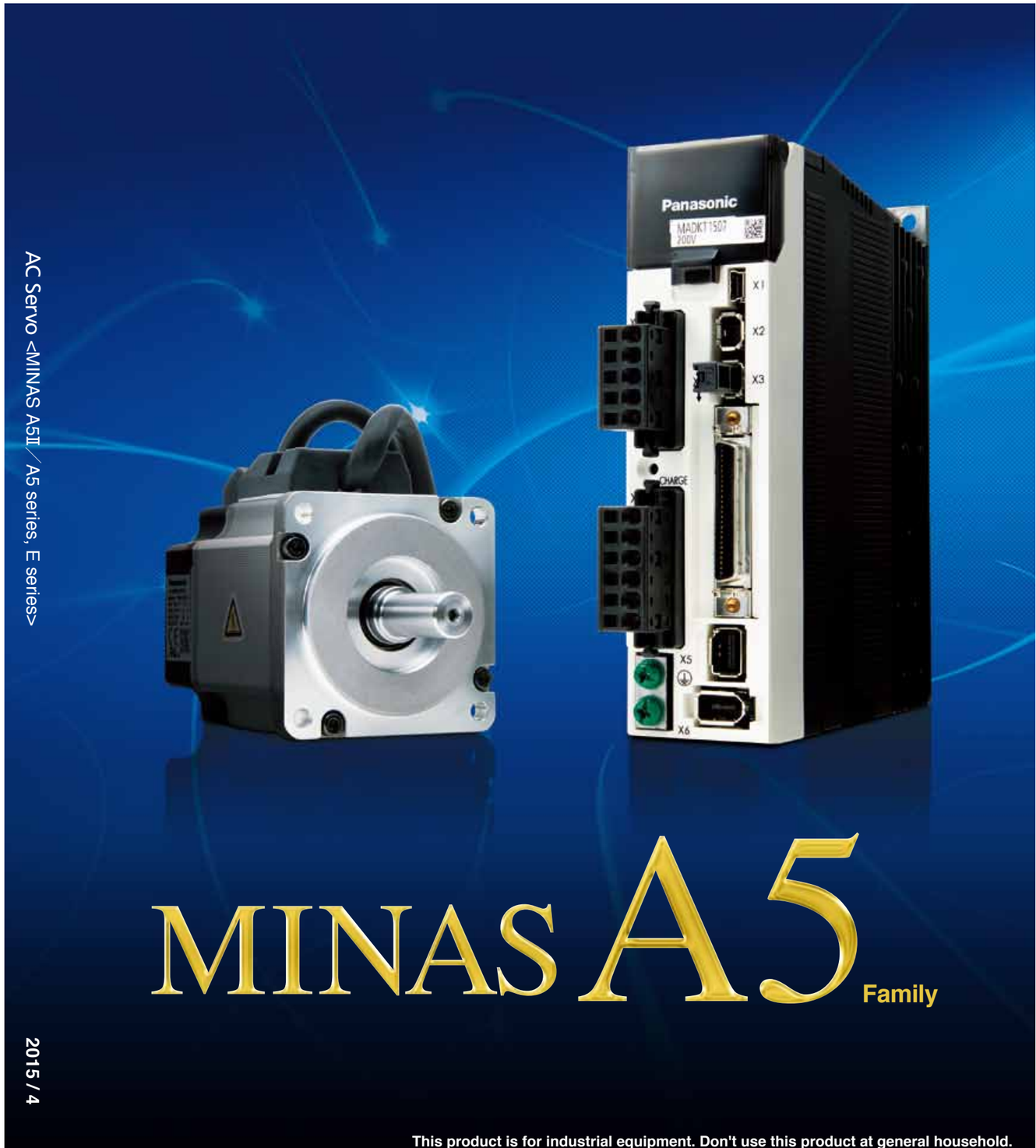
<15.04Ⓢ>

Panasonic

Panasonic

AC Servo
MINAS A5Ⅱ／A5 series
MINAS E series

2015/4
Catalog



Servo motor that brings out potential of the machine. MINAS A5 Family

Two-degree-of-freedom control system

All-in-one type

A5Ⅱ series

Rated output: **50 W to 15.0 kW**

- 20 bit incremental encoder, 17 bit absolute/ incremental encoder
- All-in-one: Speed, Position, Torque*1, Full-closed*1 control type

*1 Not applicable to two-degree-of-freedom control system.

All-in-one type

A5 series

Rated output: **50 W to 15.0 kW**

- 20 bit incremental encoder, 17 bit absolute/ incremental encoder
- All-in-one: Speed, Position, Torque, Full-closed control type

Two-degree-of-freedom control system

Position control type

A5Ⅱ E series

Rated output: **50 W to 5.0 kW**

- 20 bit incremental encoder
- Position control (pulse train commands)

Position control type

A5E series

Rated output: **50 W to 5.0 kW**

- 20 bit incremental encoder
- Position control (pulse train commands)

Slim design and position control type

E series

Rated output: **50 W to 400 W**

- Ultra-small design and pulse train command type only
- Real-time auto gain tuning
- DIN-rail mountable (using mounting Kit)

High-speed communication “Realtime Express” support model

Ultra high-speed Network type

A5ⅡN series Special Order Product

RTEX Realtime Express

Rated output:
50 W to 15.0 kW

- Synchronized motion and precise CP control up to 32 axes with 100 Mbps communication
- Standard Ethernet cable*2 using
- Two-degree-of-freedom control system

Linear motor and DD motor control type

A5ⅡNL series Special Order Product

RTEX Realtime Express

Capacity of applying Linear motor:
Compatible with 15.0 kW rotary AC servo motor

- Position, Speed and Thrust control
- Automatic setup function & Automatic magnetic pole detection function
- Two-degree-of-freedom control system

DC 24 V type

A5ⅡMN series Special Order Product

RTEX Realtime Express

Rated output:
10 W, 20 W, 30 W

- Synchronized motion and precise CP control up to 32 axes with 100 Mbps communication
- Standard Ethernet cable*2 using
- Two-degree-of-freedom control system

Linear motor control, DC 24 V type

A5ⅡMNL series Special Order Product

RTEX Realtime Express

Capacity of applying Linear motor:
Compatible with 30 W rotary AC servo motor

- Position, Speed and Thrust control
- Automatic setup function & Automatic magnetic pole detection function
- Two-degree-of-freedom control system

Linear motor and DD motor control type

A5L series Special Order Product

Capacity of applying Linear motor:
Compatible with 15.0 kW rotary AC servo motor

- Position, Speed, Thrust control
- Drastically reduced setup time by automatic setup
- Automatic magnetic pole detection function will detect the magnetic pole position of the linear motor.

EtherCAT communication driver type

A5B series Special Order Product

EtherCAT

Rated output:
50 W to 15.0 kW

- Supports PC-based controller
- Passed Official EtherCAT Conformance Test
- Standard Ethernet cable*2 using
- Two-degree-of-freedom control system

General-purpose RS485 communication AE-LINK support type

A5A series Special Order Product

AE-LINK®

Rated output:
50 W to 5.0 kW

- Positioning is possible by built-in NC function
- Can connect up to 31 axes
- Standard Ethernet cable*2 using
- Two-degree-of-freedom control system

• AE-LINK is a registered trade mark of Asahi Engineering.

Special Order Product : For details, see the website or request for information. *2 Shielded twisted pair cable (CAT5e or higher)

Contents

A5Ⅱ, A5ⅡE, A5, A5E series

Quicker, Wiser and Friendlier A5Ⅱ series

Two-degree-of-freedom control system All-in-one type

• Full-closed control and torque control are not applicable to 2DOF control system.

A5Ⅱ series

Ball screw settling time **0 ms**

Belt device settling time **4 ms**

• The above is a measure based on our test environment.

Two-degree-of-freedom control system Only for position control type

A5ⅡE series

Realizes quick and accurate movement. **Fast response & High-precision positioning**

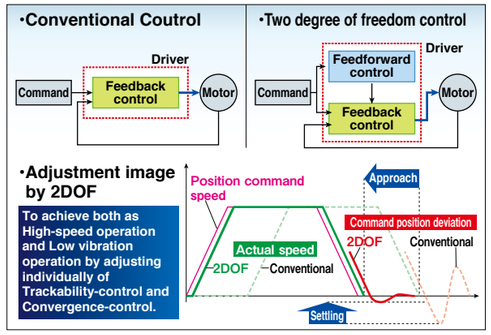
Adopted New Algorithm "Two-degree-of-freedom control" (2DOF) to improve productivity and machining accuracy.

In the conventional model, because we could not adjust separately feedforward control and feedback controls, in other words even if we only adjust "Approach" of feedforward, it had connection with "Settling" of feedback control, mutual adjustment was required.

In 2DOF adopted A5Ⅱ series, feedforward and feedback controls are adjusted separately, meaning "Approach" reaction to the given command, and the "Settling" can be adjusted separately.

Realized low vibration and reduction of settling time.

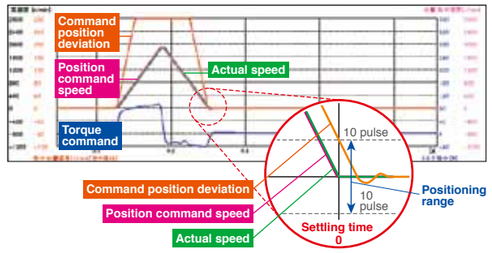
Realizes tact speed of the electronic component mounting machines, improves the accuracy of surface treatment of metal processing machines, allows for smooth operation and High speed industrial robots.



• Full-closed control and torque control are not applicable to 2DOF control system.

• **Waveform of PANATERM**

(the case of the ball screw: 0 ms / waveform measured settling time)



Easy and quick adjusting time. **5 times faster* than conventional**

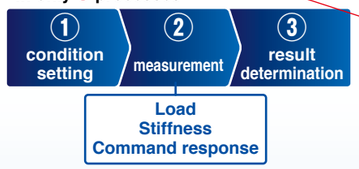
Greatly improved "operability", easy-to-use software "PANATERM".

We have upgraded setup support software PANATERM, the convenient tool for parameter setting and monitoring often required during start-up of the machine for adjustment motor and driver. Improved to more easy-understandable screen.

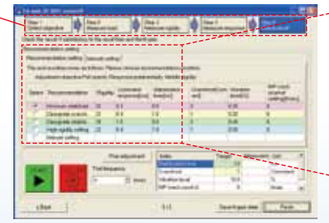
Equipped with "Fit Gain" function to realize speedy setup.

Newly developed feature "Fit Gain" maximizes the characteristics of A5II series. And adaptive notch filter function can reduce the vibration that occurs when the rigidity of the device is low, you can set and adjust automatically the best variety of gain.

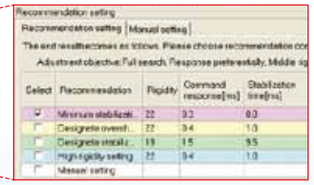
• **Adjustment is completed in only 3 processes**



• **Fit gain adjustment window**



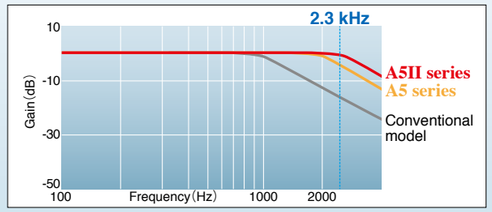
• **Automatically proposes various settings**



Realized 2.3 kHz frequency response to improve productivity

Comparison* 1.15 times faster than conventional

Realized 2.3 kHz response makes possible high-speed operation and improves productivity.



* Comparison with conventional product A5-series.

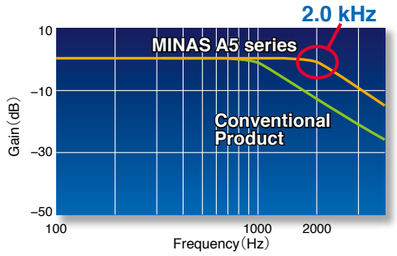
1 Quick

2.0 kHz Frequency Response A5 A5E

Example application Semiconductor production equipment, packaging, etc.

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

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

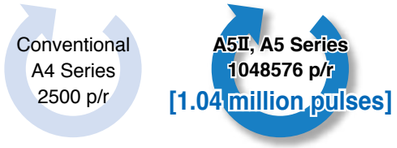


20 bits/revolution, 1.04 million pulses (At incremental type) A5Ⅱ A5 A5ⅡE A5E

Example application Machine tools, textile machinery, etc.

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.

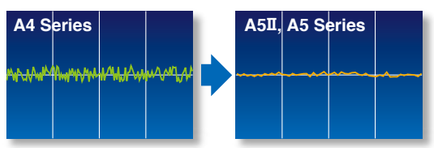


Low Cogging Torque (Excluding MSMD, MHMD, MDME 11.0 kW. 15.0 kW) A5Ⅱ A5 A5ⅡE A5E

Example application Semiconductor production equipment, textile machinery, etc.

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.**



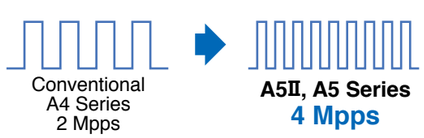
Vibration reduced to only **1/8**

The Input/Output Pulse 4 Mpps A5Ⅱ A5 A5ⅡE A5E

Example application Semiconductor production equipment, machine tools, etc.

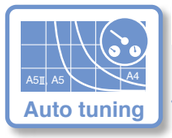
Accommodates the industry's leading positioning resolution commands (with pulse train commands).

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 A5Ⅱ, A5 only.)



2 Smart

Highly Functional Real-time Auto-Gain Tuning A5Ⅱ A5 A5ⅡE A5E

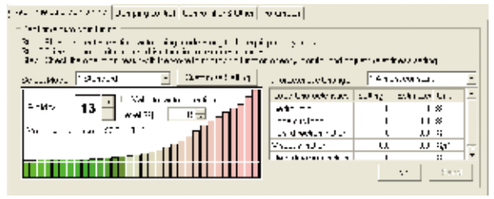


Example application Semiconductor production equipment, food processing machinery, etc.

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.

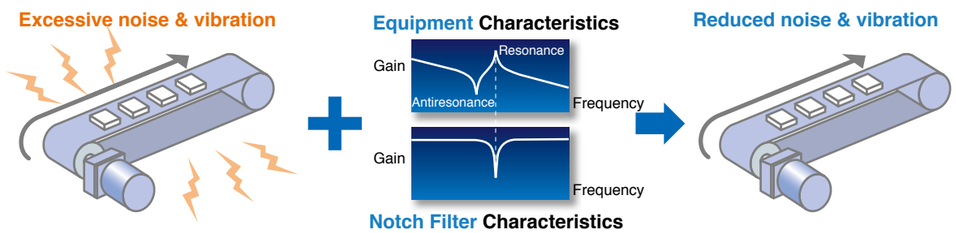


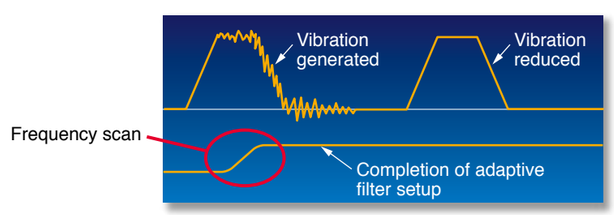
Manual/Auto Notch Filters A5Ⅱ A5 A5ⅡE A5E

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

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 A5Ⅱ, A5 series features an industry-largest total of four notch filters with setup frequencies of 50 Hz to 5000 Hz. This approach enables depth adjustment within this frequency range. (Two of the filters share the auto set-up.)





Manual/Auto Damping Filter

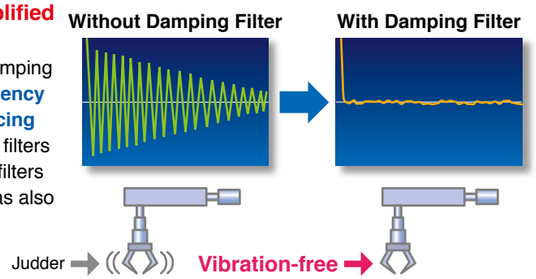
A5Ⅱ A5 A5ⅡE A5E

Damping filter

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

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 Hz to 200 Hz.



Motion Simulation

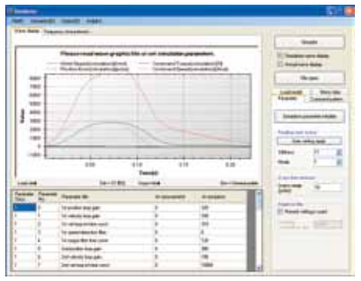
A5Ⅱ A5 A5ⅡE A5E

Simulation

Example application: General production machinery, etc.

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

A5Ⅱ A5 A5ⅡE A5E

New structure
Innovative core
Innovative encoder

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

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 kg to 6 kg) reduction in motor weight in the 1 kW and larger class when compared with conventional motors.**

[Examples for MSM or MDM]

Series	A4	A5Ⅱ A5	Weight Reduction
MSM 1 kW	4.5 kg	3.5 kg	▲1 kg
MSM 2 kW	6.5 kg	5.3 kg	▲1.2 kg
MDM 1 kW	6.8 kg	5.2 kg	▲1.6 kg
MDM 2 kW	10.6 kg	8.0 kg	▲2.6 kg

4 Safe

Complies with European Safety Standards.

A5Ⅱ A5

Safe torque off

Example application: Semiconductor and LCD production equipment, etc.

Compliance with EU safety standards.

Features non-software-based independent redundant circuitry for motor power isolation. 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

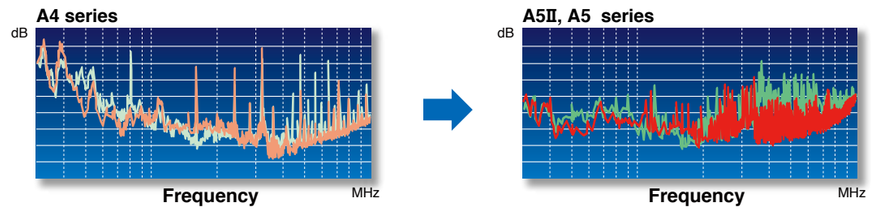
A5Ⅱ A5 A5ⅡE A5E

Low noise

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

Complies with the European EMC Directive

By incorporating the latest circuit technology, A5Ⅱ, A5 series achieves a further noise reduction of 3 dB 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.)

A5Ⅱ A5 A5ⅡE A5E

IP67

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

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.

* IP67 motor is build to order items.

5 Easy

PANATERM Set-up Support Software

A5Ⅱ A5 A5ⅡE A5E

The PANATERM Set-up Support Software, with many added features.

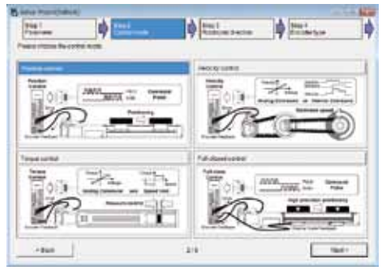
The PANATERM assists users in setting parameters, monitoring control conditions, setup support, and analyzing mechanical operation data on the PC screen, when installed in a commercially available personal computer, and connected to the MINAS A5 Family through the USB interface.

Localized in 4 languages

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

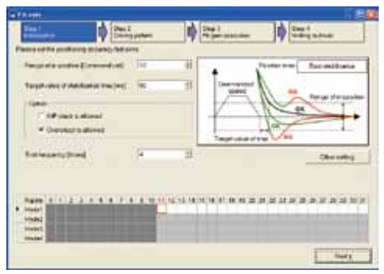
Setup Wizard

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.



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.

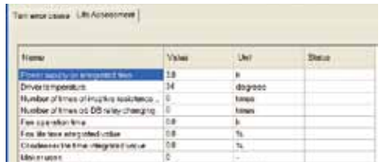


The fit gain function for setting two-degree-of-freedom control.

1) Select the adjustment method
2) Load measurement
3) Adjust gain to meet your needs by confirming results. (for A5Ⅱ, A5ⅡE)

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

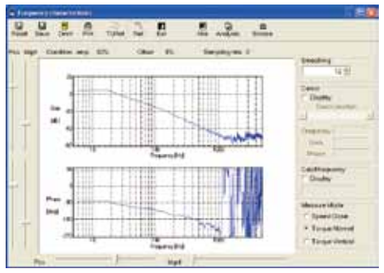
The Encoder Temperature Monitor is a new function capable of **real-time measurement of the interior temperature of the encoder, something that has been difficult to achieve in the past**. It is valuable for monitoring the motor and can be used as a diagnostic in the event of a malfunction (provided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

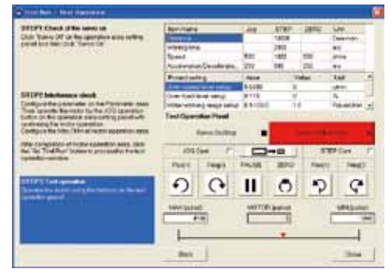
Frequency characteristics measurement function

Can check frequency response characteristics of the mechanism and motor. Since resonance frequency of the mechanism is measurable, it is effective for start-up time reduction.

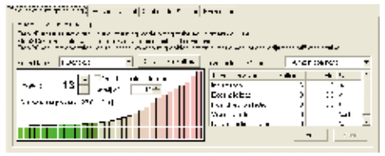


Trial run

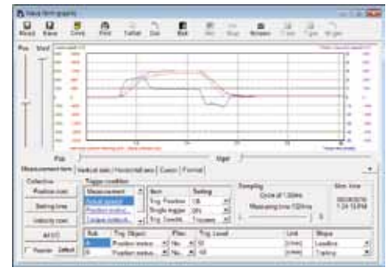
This function supports positioning with the Z-phase search and software limit.



Added New screen for gain adjustment, equipped with stiffness oscillation auto-reduction function



Significant increase of measuring objects Multi-functional waveform graphic



<CAUTION>
This software is applicable only to A5Ⅱ, A5, A5ⅡE, A5E series.
To apply this software to conventional product (A, AⅢ, E or A4 series), consult our distributors.

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/products/motors-compressors/fa-motors

Other Functions

Command Control Mode A5II 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 A5II A5

AB-phase linear scale (for general all-purpose products) or serial scale (for products with Panasonic's exclusive format) scales can be used (P.14).

SEMI F47 A5II A5 A5IIE 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 A5II A5 A5IIE 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 A5II A5 A5IIE A5E

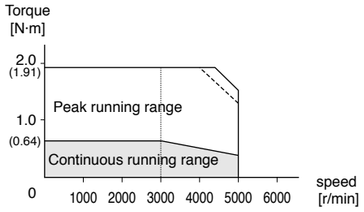
- A regenerative resistor is used to discharge regenerative energy, which is the energy generated when stopping a load with a large moment of inertia or when using this unit in vertical operation. This energy is returned to the driver from the motor.
- Frame A, B, G and frame H model drivers do not contain 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.

6000-rpm capability (build to order item) A5II A5 A5IIE A5E

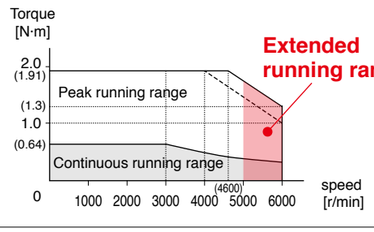
The MSME motor (under 750 W) can accommodate a maximum speed of 6000 r/min.

[Comparison of new and conventional 200 W]

〈5000 r/min motor〉 MSMD022∗∗∗



〈6000 r/min motor〉 MSME022∗∗∗



- **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 A5II A5 A5IIE 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.

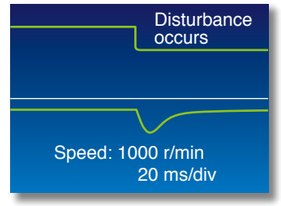
Parameter Initialization A5II A5 A5IIE A5E

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

Disturbance Observer A5II A5 A5IIE 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 A5II A5 A5IIE A5E

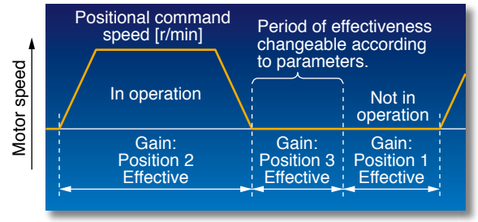
The Torque Feed Forward function performs a comparison with feedback and calculates the amount of torque to add to the necessary torque command in the command for actuation.

Friction Torque Compensation A5II A5 A5IIE 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 A5II A5 A5IIE 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 A5II A5 A5IIE 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 A5II A5 A5IIE 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 A5II A5 A5IIE 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

A5Ⅱ A5 A5ⅡE A5E

(A5Ⅱ, A5 series) (A5ⅡE, 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	ISO13849-1(PL d) (Cat. 3) EN61508(SIL2) EN62061(SILCL 2) EN61800-5-2(STO) IEC61326-3-1	—
UL Standards		UL508C (E164620)	UL1004-1, UL1004-6 (E327868)
CSA Standards		C22.2 No.14	C22.2 No.100
Radio Waves Act (South Korea) (KC) *2		KN11 KN61000-4-2, 3, 4, 5, 6, 8, 11	—

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.

*1 A5ⅡE and A5E series doesn't correspond to the functional safety standard.

*2 Information related to the Korea Radio Law
This servo driver is a Class A commercial broadcasting radio wave generator not designed for home use.
The user and dealer should be aware of this fact.

A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용(A 급) 전자파적합기기로서 판매자
또는 사용자는 이 점을 주의하시기 바라며, 가정외의
지역에서 사용하는 것을 목적으로 합니다.

(대상기종 : Servo Driver)

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

Applicable External Scales

A5Ⅱ A5

Applicable External Scale	Manufacturer	Model No.	Resolution [µs]	Maximum Speed (m/s) *3
Parallel Type (AB-phase)	General	—	Maximum speed after 4 × multiplication: 4 Mpps	
Serial Type (Incremental)	Magnescale Co., Ltd.	SR75	0.01 to 1	3.3
		SR85	0.01 to 1	3.3
		SL700-PL101RP/RHP	0.1	10
		SL710-PL101RP/RHP	0.1	10
		BF1	0.001/0.01	0.4/1.8
	Nidec Sankyo Corporation	PSLH	0.1	6
Serial Type (Absolute)	DR. JOHANNES HEIDENHAIN GmbH	LIC2197P/LIC2199P	0.05/0.1	10
		LIC4193P/LIC4195P LIC4197P/LIC4199P	0.001 /0.005 /0.01	10
	Fagor Automation S.Coop.	SVAP	0.05	2.5
		SAP	0.05	2.5
		GAP	0.05	2.5
		LAP	0.1	2
	Magnescale Co., Ltd.	SR77	0.01 to 1	3.3
		SR87	0.01 to 1	3.3
	Mitutoyo Corporation	AT573A	0.05	2.5
		ST778A(L)	0.1	5
	Renishaw plc	RESOLUTE	0.001	0.4
			0.05	20
			0.1	40

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

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		100 V 200 V	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
			200 V	0.75	3000 (4500)					
	MSME		100 V 200 V	0.05 0.1 0.2 0.4	3000 (6000)	○	○	IP67	• Small capacity • Suitable for high speed application • Suitable for all applications	
			200 V	0.75						
			400 V	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
			200 V 400 V	1.0 1.5 2.0 3.0						
				4.0 5.0	3000 (4500)					
Middle inertia	MDME		400 V	0.4 0.6	2000 (3000)	○	○	IP65(*2)	• Middle capacity • Suitable for low stiffness machines with belt driven	• Conveyors • Robots • Machine tool etc
			200 V 400 V	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)		200 V 400 V	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)		200 V 400 V	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		100 V 200 V	0.2 0.4	3000 (5000)	○	○	IP65	• Leadwire type • Small capacity • Suitable for low stiffness machines with belt driven	• Conveyors • Robots etc
			200 V	0.75	3000 (4500)					
	MHME		200 V 400 V	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 P.21 to P.28, 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 * *

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

Motor rated output

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

Voltage specifications

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

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
G	Incremental	20-bit	1048576	5
S	Absolute	17-bit	131072	7

* S: can be used in incremental.

Special specifications

Motor specifications

MSME(50 W to 750 W [200 V]), 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(750 W [400 V], 1.0 kW to 15.0 kW), 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 (100 W to 750 W)
MSME	Low inertia (100 W to 750 W)
MHMD	High inertia (200 W to 750 W)

Motor rated output

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

Voltage specifications

Symbol	Specifications
1	100 V
2	200 V

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
G	Incremental	20-bit	1048576	5
S	Absolute	17-bit	131072	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 100 W is not prepared.

Motor structure

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

Servo Driver

Speed, Position, Torque, Full-closed type: M A D K T 1 5 0 5 * * * — Special specifications

Position control type: M A D K T 1 5 0 5 E * * — Special specifications

Frame symbol *

Symbol	Frame	Symbol	Frame
MAD	Frame A	MED	Frame E
MBD	Frame B	MFD	Frame F
MCD	Frame C	MGD	Frame G
MDD	Frame D	MHD	Frame H

* A5ⅡE, A5E series is up to F-frame.

Series

Symbol	Velocity, Position, Torque, Full-Closed type	Position control type
K	A5Ⅱ series	A5ⅡE series
H	A5 series	A5E series

Power device Max. current rating

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

Supply voltage specifications

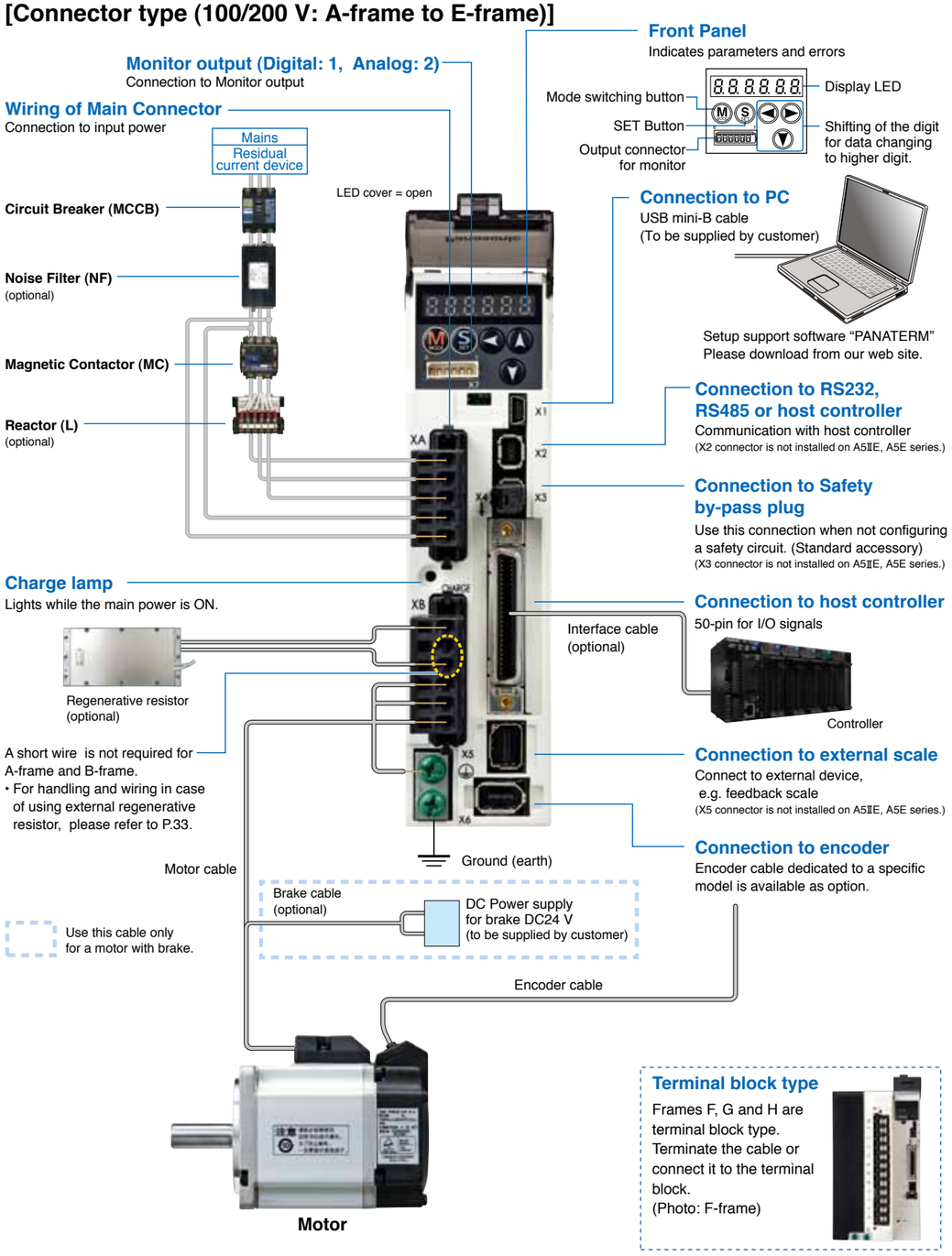
Symbol	Specifications
1	Single phase, 100 V
3	3-phase, 200 V
4	3-phase, 400 V
5	Single/3-phase, 200 V

Only position control

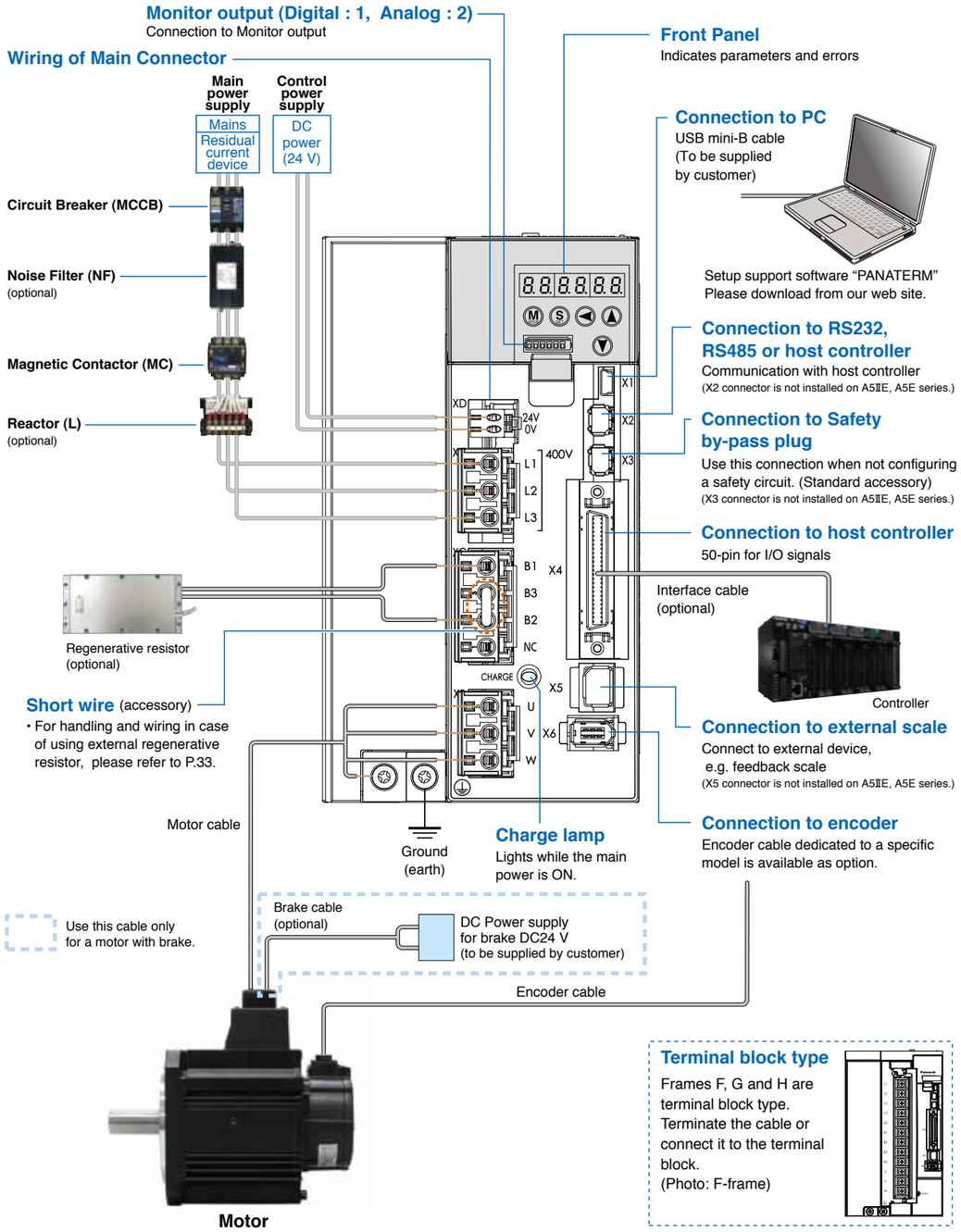
Current detector current rating

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

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

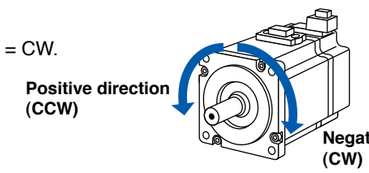


[Connector type (400 V: D, E-frame)]



<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 N·m 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 *1	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) *2	Diameter and withstand voltage of main circuit cable	Crimp terminal for main circuit terminal block *4	Diameter and withstand voltage of control power supply cable	Crimp terminal for control power supply terminal block	Diameter and withstand voltage of motor cable *5	Diameter and withstand voltage of brake cable
MADH MADK	MSME MSMD MHMD	Single phase, 100 V	50 W to 100 W	approx. 0.4 kVA	10 A	DV0P4170	DV0P4190	DV0P1460	20 A (3P+1a)	0.75 mm²/ AWG18 600 VAC or more	Connection to exclusive connector	0.75 mm²/ AWG18 600 VAC or more	Connection to exclusive connector	0.75 mm²/ AWG18 600 VAC or more	0.28 mm² to 0.75 mm²/ AWG22 to AWG18 100 VAC or more
		Single/ 3-phase, 200 V	50 W to 200 W	approx. 0.5 kVA		DV0P4170 / DV0PM20042	DV0P4190 / DV0P1450								
MBDH MBDK	MSME MSMD MHMD	Single 100 V	200 W	approx. 0.5 kVA		DV0P4170	DV0P4190								
		Single/ 3-phase, 200 V	400 W	approx. 0.9 kVA		DV0P4170 / DV0PM20042	DV0P4190 / DV0P1450								
MCDH MCDK	MSME MSMD MHMD	Single 100 V	400 W	approx. 0.9 kVA		DV0PM20042	DV0P4190								
		Single/ 3-phase, 200 V	750 W	approx. 1.3 kVA	15 A		DV0P4190 / DV0P1450								
MDDH MDDK	MDME	Single/ 3-phase, 200 V	1.0 kW	approx. 1.8 kVA	20 A	DV0P4220			30 A (3P+1a)	2.0 mm²/ AWG14 600V VAC or more				2.0 mm²/ AWG14 600V VAC or more	
	MHME														
	MGME		0.9 kW	approx. 1.8 kVA											
	MSME		1.0 kW	approx. 1.8 kVA											
	MHME		1.5 kW	approx. 2.3 kVA											
	MDME														
	MFME														
	MSME														
	MDME	3-phase, 400 V	400 W	approx. 0.9 kVA	10 A	FN258L-16-07 (Recommended component)	DV0PM20050		20 A (3P+1a)			0.52 mm²/ AWG20 100 VAC or more			
	MDME		600 W	approx. 1.2 kVA											
	MSME		750 W	approx. 1.6 kVA											
	MSME		1.0 kW	approx. 1.8 kVA											
	MDME														
	MHME														
	MGME		0.9 kW												
	MSME		1.5 kW	approx. 2.3 kVA											
	MDME														
	MFME														
	MHME														
MEDH MEDK	MDME	3-phase, 200 V	2.0 kW	approx. 3.3 kVA	30 A	DV0PM20043	DV0P1450	DV0P1460 RJ8035 (Recommended component) *6	60 A (3P+1a)			0.75 mm²/ AWG18 600 VAC or more			
	MSME														
	MHME														
	MFME		2.5 kW	approx. 3.8 kVA											
	MSME	3-phase, 400 V	2.0 kW	approx. 3.3 kVA	15 A	FN258L-16-07 (Recommended component)	DV0PM20050	DV0P1460	30 A (3P+1a)			0.52 mm²/ AWG20 100 VAC or more			
	MDME														
	MHME														
	MFME		2.5 kW	approx. 3.8 kVA											
MFDH MFDK	MGME	3-phase, 200 V	2.0 kW	approx. 3.8 kVA	50 A	DV0P3410	DV0P1450	DV0P1460 RJ8035 (Recommended component) *6	60 A (3P+1a)	3.5 mm²/ AWG12 600 VAC or more	11 mm or smaller φ5.3 Terminal block M5	0.75 mm²/ AWG18 600 VAC or more	11 mm or smaller φ5.3 Terminal block M5	3.5 mm²/ AWG12 600 VAC or more	0.75 mm²/ AWG18 100 VAC or more
	MDME		3.0 kW	approx. 4.5 kVA											
	MHME														
	MSME														
	MFME		4.5 kW	approx. 6.8 kVA					100 A (3P+1a)						
	MGME														
	MDME		5.0 kW	approx. 7.5 kVA											
	MHME														
	MSME														
	MGME	3-phase, 400 V	2.0 kW	approx. 3.8 kVA	30 A	FN258L-30-07 (Recommended component)	DV0PM20050	DV0P1460	60 A (3P+1a)		10 mm or smaller φ4.3 Terminal block M4	0.75 mm²/ AWG18 100 VAC or more	7 mm or smaller φ3.2 Terminal block M3		
	MSME		3.0 kW	approx. 4.5 kVA											
	MDME														
	MGME														
	MHME		4.0 kW	approx. 6.0 kVA											
	MSME														
	MDME														
	MHME		4.5 kW	approx. 6.8 kVA											
	MFME														
	MGME														
	MSME		5.0 kW	approx. 7.5 kVA											
	MDME														
	MHME														
MGDH MGDK	MDME	3-phase, 200 V	7.5 kW	approx. 11 kVA	60 A	FS5559-60-34 (Recommended component)	DV0P1450	DV0P1460 RJ8095 (Recommended component) T400-61D (Recommended component) *6	100 A (3P+1a)	5.3 mm²/ AWG10 600 VAC or more	11 mm or smaller φ5.3 Terminal block M5	0.75 mm²/ AWG18 600 VAC or more	10 mm or smaller φ5.3 Terminal block M5	13.3 mm²/ AWG6 600 VAC or more	
	MGME		6.0 kW	approx. 9.0 kVA											
	MHME		7.5 kW	approx. 11 kVA								0.75 mm²/ AWG18 100 VAC or more			
	MDME	3-phase, 400 V	7.5 kW	approx. 11 kVA	30 A	FN258-42-07 or FN258-42-33 (Recommended component)	DV0PM20050		60 A (3P+1a)						
	MGME		6.0 kW	approx. 9.0 kVA											
	MHME		7.5 kW	approx. 11 kVA											
MHDH MHDK	MDME	3-phase, 200 V	11 kW	approx. 17 kVA	100 A	FS5559-80-34 (Recommended component)	DV0P1450		150 A (3P+1a)	13.3 mm²/ AWG6 600 VAC or more *3	16 mm or smaller φ6.4 Terminal block M6	0.75 mm²/ AWG18 600 VAC or more	10 mm or smaller φ4.3 Terminal block M4	21.1 mm²/ AWG4 600 VAC or more	
			15 kW	approx. 22 kVA	125 A										
		3-phase, 400 V	11 kW	approx. 17 kVA	50 A	FN258-42-07 or FN258-42-33 (Recommended component)	DV0PM20050		100 A (3P+1a)			0.75 mm²/ AWG18 100 VAC or more		13.3 mm²/ AWG6 600 VAC or more	
			15 kW	approx. 22 kVA	60 A									21.1 mm²/ AWG4 600 VAC or more	

*1 Select peripheral equipments for single/3phase common specification according to the power source.
*2 For the external dynamic brake resistor, use the magnetic contactor with the same rating as that for the main circuit.
*3 When use the external regenerative resistor of the option (DV0PM20058, DV0PM20059), use the cable with the same diameter as the main circuit cable.
*4 For the ground screw, use the same crimp terminal as that for the main circuit terminal block.
*5 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)
*6 Use thses products to suit an international standard.

• Related page
Noise filter .....P.250 “Composition of Peripheral Equipments”
Surge absorber.....P.253 “Composition of Peripheral Equipments”
Noise filter for signal.....P.254 “Composition of Peripheral Equipments”
Motor/brake connector .....P.186, P.187 “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 5000 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-frame to E-frame, and maintain the peeled off length of 8 mm to 9 mm.

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.

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

Motor						Driver			Power capacity (at rated load) (kVA)	Optional parts								
Motor series		Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5II series A5 series Part No. (Speed, Position, Torque, Full-Closed type) Note) 2	A5IIE series A5E series Part No. (Position control type) Note) 3,4	Frame		Encoder Cable: 20-bit Incremental Note) 5	Encoder Cable: 17-bit Absolute Note) 4,5,8		Motor Cable: without Brake Note) 5	Motor Cable: with Brake Note) 5	Brake Cable Note) 5	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter (Single phase / 3-phase)
Low inertia	MSMD (Leadwire type) 3000 r/min	Single phase 100 V	50	MSMD5AZ□1∗	49	MAD◇T1105	MAD◇T1105E	A-frame	Approx. 0.4	MFECA 0**0EAM	MFECA 0**0EAE Note) 7		MFMCA 0**0EED		MFMCB 0**0GET	DV0P4280	DV0P227	DV0P4170
			100	MSMD011□1∗	51	MAD◇T1107	MAD◇T1107E		Approx. 0.4									
			200	MSMD021□1∗	53	MBD◇T2110	MBD◇T2110E	B-frame	Approx. 0.5						DV0P4283	DV0P228		
			400	MSMD041□1∗	55	MCD◇T3120	MCD◇T3120E	C-frame	Approx. 0.9						DV0P4282		DV0PM20042	
		Single phase/ 3-phase 200 V	50	MSMD5AZ□1∗	50	MAD◇T1505	MAD◇T1505E	A-frame	Approx. 0.5						DV0P4281	DV0P227 / DV0P220	DV0P4170 / DV0PM20042	
			100	MSMD012□1∗	52	MAD◇T1505	MAD◇T1505E		Approx. 0.5									
			200	MSMD022□1∗	54	MAD◇T1507	MAD◇T1507E		Approx. 0.5						DV0P4283			
			400	MSMD042□1∗	56	MBD◇T2510	MBD◇T2510E	B-frame	Approx. 0.9							DV0P228 / DV0P220		
			750	MSMD082□1∗	57	MCD◇T3520	MCD◇T3520E	C-frame	Approx. 1.3								DV0PM20042	
	MSME (Connector type) 3000 r/min	Single phase 100 V	50	MSME5AZ□1∗	65	MAD◇T1105	MAD◇T1105E	A-frame	Approx. 0.4	MFECA 0**0MJD (For movable, direction of motor shaft)	MFECA 0**0MJE (For movable, direction of motor shaft)		MFMCA 0**0NJD (For movable, direction of motor shaft)		MFMCB 0**0PJT (For movable, direction of motor shaft)	DV0P4280	DV0P227	DV0P4170
			100	MSME011□1∗	67	MAD◇T1107	MAD◇T1107E		Approx. 0.4									
			200	MSME021□1∗	69	MBD◇T2110	MBD◇T2110E	B-frame	Approx. 0.5	MFECA 0**0MKD (For movable, opposite direction of motor shaft)	MFECA 0**0MKE (For movable, opposite direction of motor shaft)		MFMCA 0**0NKD (For movable, opposite direction of motor shaft)		MFMCB 0**0PKT (For movable, opposite direction of motor shaft)	DV0P4283	DV0P228		
			400	MSME041□1∗	71	MCD◇T3120	MCD◇T3120E	C-frame	Approx. 0.9						DV0P4282		DV0PM20042	
		Single phase/ 3-phase 200 V	50	MSME5AZ□1∗	66	MAD◇T1505	MAD◇T1505E	A-frame	Approx. 0.5	MFECA 0**0TJD (For fixed, direction of motor shaft)	MFECA 0**0TJE (For fixed, direction of motor shaft)		MFMCA 0**0RJD (For fixed, direction of motor shaft)		MFMCB 0**0SJT (For fixed, direction of motor shaft)	DV0P4281	DV0P227 / DV0P220	DV0P4170 / DV0PM20042	
			100	MSME012□1∗	68	MAD◇T1505	MAD◇T1505E		Approx. 0.5									
			200	MSME022□1∗	70	MAD◇T1507	MAD◇T1507E		Approx. 0.5						DV0P4283			
			400	MSME042□1∗	72	MBD◇T2510	MBD◇T2510E	B-frame	Approx. 0.9							DV0P228 / DV0P220		
			750	MSME082□1∗	73	MCD◇T3520	MCD◇T3520E	C-frame	Approx. 1.3								DV0PM20042	
High inertia	MHMD (Leadwire type) 3000 r/min	Single phase 100 V	200	MHMD021□1∗	59	MBD◇T2110	MBD◇T2110E	B-frame	Approx. 0.5	MFECA 0**0EAM	MFECA 0**0EAE Note) 7		MFMCA 0**0EED		MFMCB 0**0GET	DV0P4283	DV0P228	DV0P4170
			400	MHMD041□1∗	61	MCD◇T3120	MCD◇T3120E	C-frame	Approx. 0.9						DV0P4282		DV0PM20042	
		Single phase/ 3-phase 200 V	200	MHMD022□1∗	60	MAD◇T1507	MAD◇T1507E	A-frame	Approx. 0.5						DV0P4283	DV0P227 / DV0P220	DV0P4170 / DV0PM20042	
			400	MHMD042□1∗	62	MBD◇T2510	MBD◇T2510E	B-frame	Approx. 0.9							DV0P228 / DV0P220		
			750	MHMD082□1∗	63	MCD◇T3520	MCD◇T3520E	C-frame	Approx. 1.3								DV0PM20042	

Note) 1 Rotary encoder specifications: □ Motor specification: ∗ (refer to P.16)
Note) 2 ◇: Drivers series K: A5II series H: A5 series
Note) 3 ◇: Drivers series K: A5IIE series H: A5E series
Note) 4 Because A5IIE, 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) 5 Cable length: ** (03: 3 m, 05: 5 m, 10: 10 m, 20: 20 m) (Example. 3 m: MFECA0030EAM)
Note) 6 Cables for opposite to output shaft cannot be used with 50 W or 100 W motor.
Note) 7 When you use a 17-bit absolute encoder as an incremental encoder, please use the encoder cable MFECA0**0EAD.
Note) 8 Please note that a battery is not supplied together with 17-bit absolute encoder cable (with battery box). Please buy the battery part number "DV0P2990" separately.

• 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	Direction of motor shaft
K	Opposite direction of motor shaft

□ : 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	Direction of motor shaft
K	Opposite direction of motor shaft

• Brake cable

Example: MFMCB0∗∗0 ◇ △ T

◇ : Cable type

Symbol	Specifications
P	Movable
S	Fixed

△ : Cable direction

Symbol	Specifications
J	Direction of motor shaft
K	Opposite direction of motor shaft

• Options

Title			Part No.	Page
Interface Cable			DV0P4360	197
Interface Conversion Cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A-frame to D-frame	Single row type	DV0PM20032	200
		Double row type	DV0PM20033	
Connector Kit for Motor Connection	A-frame to D-frame		DV0PM20034	201
Connector Kit for Motor/Encoder Connection			DV0P4290	202
			DV0P4380	
			DV0PM20035	203
Connector Kit for Motor/Brake Connection			DV0PM20040	206
Connector Kit	RS485, RS232		DV0PM20024	198
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	199
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	207
Battery Box Note) 8			DV0P4430	
Mounting Bracket	A-frame		DV0PM20027	208
	B-frame		DV0PM20028	
	C-frame		DV0PM20029	
Encoder Cable	without Battery Box		MFECA0**0EAD	188
			MFECA0**0EAM	
			MFECA0**0MJD	189
			MFECA0**0MKD	
			MFECA0**0TJD	
			MFECA0**0TKD	
	with Battery Box Note) 8		MFECA0**0EAE	188
			MFECA0**0MJE	189
			MFECA0**0MKE	
			MFECA0**0TJE	
			MFECA0**0TKE	
Motor Cable	without Brake		MFMCA0**0EED	191
			MFMCA0**0NJD	
			MFMCA0**0NKD	
			MFMCA0**0RJD	
			MFMCA0**0RKD	
Brake Cable			MFMCB0**0GET	196
			MFMCB0**0PJT	
			MFMCB0**0PKT	
			MFMCB0**0SJT	
			MFMCB0**0SKT	
External Regenerative Resistor	50 Ω 25 W		DV0P4280	210
	100 Ω 25 W		DV0P4281	
	25 Ω 50 W		DV0P4282	
	50 Ω 50 W		DV0P4283	
	30 Ω 100 W		DV0P4284	
	20 Ω 130 W		DV0P4285	
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0P20047			209
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043			250
	DV0P3410			251
Surge Absorber	Single phase		DV0P4190	253
	3-phase (200 V)		DV0P1450	
Noise Filter for Signal Lines			DV0P1460	254

0.4 kW to 5.0 kW IP65 motor

Motor						Driver			Power capacity (at rated load) (kVA)	Optional parts							
Motor series		Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5Ⅱ series A5 series Part No. (Speed, Position, Torque, Full-Closed type) Note) 2	A5ⅡE series A5E series Part No. (Position control type) Note) 3,4	Frame		Encoder Cable			Motor Cable		Brake Cable	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
										20-bit Incremental Note) 5	17-bit Absolute Note) 4,5,8		without Brake Note) 5	with Brake Note) 5	Note) 5			
Low inertia	MSME 3000 r/min	Single phase/ 3-phase 200 V	1000	MSME102 □ C ✻	74	MDD ◇ T5540	MDD ◇ T5540E	D-frame	Approx. 1.8	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MSME152 □ C ✻	75	MDD ◇ T5540	MDD ◇ T5540E		Approx. 2.3								DV0PM20047 / DV0P222	
		3-phase 200 V	2000	MSME202 □ C ✻	76	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3							DV0P4285 Note) 6	DV0P223	DV0PM20043
			3000	MSME302 □ C ✻	77	MFD ◇ TA390	MFD ◇ TA390E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MSME402 □ C ✻	78	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 6								DV0P225	
			5000	MSME502 □ C ✻	79	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 7.5								— Note) 7	
		3-phase 400 V	750	MSME084 □ C ✻	104	MDD ◇ T2412	MDD ◇ T2412E	D-frame	Approx. 1.6	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 7	Recommended components P.252
			1000	MSME104 □ C ✻	105	MDD ◇ T3420	MDD ◇ T3420E		Approx. 1.8									
			1500	MSME154 □ C ✻	106	MDD ◇ T3420	MDD ◇ T3420E		Approx. 2.3									
			2000	MSME204 □ C ✻	107	MED ◇ T4430	MED ◇ T4430E	E-frame	Approx. 3.3							DV0PM20049		
			3000	MSME304 □ C ✻	108	MFD ◇ T5440	MFD ◇ T5440E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MSME404 □ C ✻	109	MFD ◇ TA464	MFD ◇ TA464E		Approx. 6									
			5000	MSME504 □ C ✻	110	MFD ◇ TA464	MFD ◇ TA464E		Approx. 7.5									
Middle inertia	MDME 2000 r/min	Single phase/ 3-phase 200 V	1000	MDME102 □ C ✻	80	MDD ◇ T3530	MDD ◇ T3530E	D-frame	Approx. 1.8	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MDME152 □ C ✻	81	MDD ◇ T5540	MDD ◇ T5540E		Approx. 2.3								DV0PM20047 / DV0P222	
		3-phase 200 V	2000	MDME202 □ C ✻	82	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3							DV0P4285 Note) 7	DV0P223	DV0PM20043
			3000	MDME302 □ C ✻	83	MFD ◇ TA390	MFD ◇ TA390E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MDME402 □ C ✻	84	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 6								DV0P225	
			5000	MDME502 □ C ✻	85	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 7.5								— Note) 7	
		3-phase 400 V	400	MDME044 □ C ✻	111	MDD ◇ T2407	MDD ◇ T2407E	D-frame	Approx. 0.9	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 7	Recommended components P.252
			600	MDME064 □ C ✻	112	MDD ◇ T2407	MDD ◇ T2407E		Approx. 1.2									
			1000	MDME104 □ C ✻	113	MDD ◇ T2412	MDD ◇ T2412E		Approx. 1.8									
			1500	MDME154 □ C ✻	114	MDD ◇ T3420	MDD ◇ T3420E		Approx. 2.3									
			2000	MDME204 □ C ✻	115	MED ◇ T4430	MED ◇ T4430E	E-frame	Approx. 3.3							DV0PM20049		
			3000	MDME304 □ C ✻	116	MFD ◇ T5440	MFD ◇ T5440E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MDME404 □ C ✻	117	MFD ◇ TA464	MFD ◇ TA464E		Approx. 6									
			5000	MDME504 □ C ✻	118	MFD ◇ TA464	MFD ◇ TA464E		Approx. 7.5									
	MGME (Low speed/ High torque type) 1000 r/min	Single phase/ 3-phase 200 V	900	MGME092 □ C ✻	92	MDD ◇ T5540	MDD ◇ T5540E	D-frame	Approx. 1.8	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA **2FCD	—	DV0P4284	DV0P228 / DV0P221	DV0P4220
		3-phase 200 V	2000	MGME202 □ C ✻	93	MFD ◇ TA390	MFD ◇ TA390E	F-frame	Approx. 3.8				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P223	DV0P3410
			3000	MGME302 □ C ✻	94	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 4.5								DV0P224	
		3-phase 400 V	900	MGME094 □ C ✻	125	MDD ◇ T3420	MDD ◇ T3420E	D-frame	Approx. 1.8	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 7	Recommended components P.252
			2000	MGME204 □ C ✻	126	MFD ◇ T5440	MFD ◇ T5440E	F-frame	Approx. 3.8				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			3000	MGME304 □ C ✻	127	MFD ◇ TA464	MFD ◇ TA464E		Approx. 4.5									
High inertia	MHME 2000 r/min	Single phase/ 3-phase 200 V	1000	MHME102 □ C ✻	97	MDD ◇ T3530	MDD ◇ T3530E	D-frame	Approx. 1.8	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228/ DV0P222	DV0P4220
			1500	MHME152 □ C ✻	98	MDD ◇ T5540	MDD ◇ T5540E		Approx. 2.3								DV0PM20047/ DV0P222	
		3-phase 200 V	2000	MHME202 □ C ✻	99	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3				MFMCE 0**2ECD	MFMCE 0**2FCD		DV0P4285 Note) 6	DV0P223	DV0PM20043
			3000	MHME302 □ C ✻	100	MFD ◇ TA390	MFD ◇ TA390E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MHME402 □ C ✻	101	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 6								DV0P225	
			5000	MHME502 □ C ✻	102	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 7.5								— Note) 7	
		3-phase 400 V	1000	MHME104 □ C ✻	130	MDD ◇ T2412	MDD ◇ T2412E	D-frame	Approx. 1.8	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0P20049	— Note) 7	Recommended components P.252
			1500	MHME154 □ C ✻	131	MDD ◇ T3420	MDD ◇ T3420E		Approx. 2.3				MFMCE 0**2ECD	MFMCE 0**2FCD				
			2000	MHME204 □ C ✻	132	MED ◇ T4430	MED ◇ T4430E	E-frame	Approx. 3.3									
			3000	MHME304 □ C ✻	133	MFD ◇ T5440	MFD ◇ T5440E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MHME404 □ C ✻	134	MFD ◇ TA464	MFD ◇ TA464E		Approx. 6									
			5000	MHME504 □ C ✻	135	MFD ◇ TA464	MFD ◇ TA464E		Approx. 7.5									

Note) 1 Rotary encoder specifications: □ Motor specification: ✻ (refer to P.16)
Note) 2 ◇ : Drivers series K: A5Ⅱ series H: A5 series
Note) 3 ◇ : Drivers series K: A5ⅡE series H: A5E series
Note) 4 Because A5ⅡE, 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) 5 Cable length: ** (03: 3 m, 05: 5 m, 10: 10 m, 20: 20 m), (Example. 3 m: MFECA0030EAM)
Note) 6 Other combinations exist, and refer to P.210 for details.
Note) 7 Reactor should be prepared by the user.
Note) 8 Please note that a battery is not supplied together with 17-bit absolute encoder cable (with battery box). Please buy the battery part number “DV0P2990” separately.

• Options (IP65 motor)

Title			Part No.	Page
Interface Cable			DV0P4360	197
Interface Conversion Cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A-frame to D-frame	Single row type	DV0PM20032	200
		Double row type	DV0PM20033	
	E-frame (200 V)		DV0PM20044	
	D-frame (400 V)		DV0PM20051	
	E-frame (400 V)		DV0PM20052	
Connector Kit for Control Power Supply Input Connection	D-frame and E-frame (400 V)		DV0PM20053	201
Connector Kit for Motor Connection	A-frame to D-frame		DV0PM20034	
	E-frame (200 V)		DV0PM20046	
	D-frame (400 V)		DV0PM20054	
Connector Kit for Regenerative Resistor	E-frame		DV0PM20045	
	D-frame (400 V)		DV0PM20055	
Connector Kit for Motor/Encoder Connection			DV0P4310	204
			DV0P4320	
			DV0P4330	205
			DV0P4340	
Connector Kit	RS485, RS232		DV0PM20024	198
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	199
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	207
Battery Box Note) 8			DV0P4430	
Mounting Bracket	D-frame		DV0PM20030	208
Encoder Cable	without Battery Box		MFECA0**0ESD	189
	with Battery Box Note) 8		MFECA0**0ESE	190
Motor Cable	without Brake		MFMCA0**2ECD	191
			MFMCD0**2ECD	192
			MFMCE0**2ECD	
			MFMCF0**2ECD	
			MFMCA0**3ECT	193
			MFMCD0**3ECT	
	with Brake		MFMCA0**2FCD	194
			MFMCE0**2FCD	
			MFMCA0**3FCT	195
External Regenerative Resistor	50 Ω 25 W		DV0P4280	210
	100 Ω 25 W		DV0P4281	
	25 Ω 50 W		DV0P4282	
	50 Ω 50 W		DV0P4283	
	30 Ω 100 W		DV0P4284	
	20 Ω 130 W		DV0P4285	
	120 Ω 80 W		DV0PM20048	
	80 Ω 190 W		DV0PM20049	
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0PM20047			209
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043			250
	DV0P3410			251
Surge Absorber	Single phase		DV0P4190	253
	3-phase (200 V)		DV0P1450	
	3-phase (400 V)		DV0PM20050	
Noise Filter for Signal Lines			DV0P1460	254

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

Motor						Driver			Power capacity (at rated load) (kVA)	Optional parts								
Motor series		Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5II series A5 series Part No. (Speed, Position, Torque, Full-Closed type) Note) 2	A5IIE series A5E series Part No. (Position control type) Note) 3,4	Frame		Encoder Cable		Motor Cable		Brake Cable	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
										20-bit Incremental Note) 5	17-bit Absolute Note) 4,5,9	without Brake Note) 5	with Brake Note) 5	Note) 5			
Low inertia	MSME 3000 r/min	Single phase/ 3-phase 200 V	1000	MSME102 □ 1 ✻	74	MDD ◇ T5540	MDD ◇ T5540E	D-frame	Approx. 1.8	MFECA 0**0ETD	MFECA 0**0ETE	MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MSME152 □ 1 ✻	75	MDD ◇ T5540	MDD ◇ T5540E		Approx. 2.3							DV0P222 / DV0PM20047	
		3-phase 200 V	2000	MSME202 □ 1 ✻	76	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3						DV0P4285 Note) 7	DV0P223	DV0PM20043
			3000	MSME302 □ 1 ✻	77	MFD ◇ TA390	MFD ◇ TA390E	F-frame	Approx. 4.5			MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MSME402 □ 1 ✻	78	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 6							DV0P225	
			5000	MSME502 □ 1 ✻	79	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 7.5							— Note) 8	
		3-phase 400 V	750	MSME084 □ 1 ✻	104	MDD ◇ T2412	MDD ◇ T2412E	D-frame	Approx. 1.6	MFECA 0**0ETD	MFECA 0**0ETE	MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 8	Recommended components P.252
			1000	MSME104 □ 1 ✻	105	MDD ◇ T3420	MDD ◇ T3420E		Approx. 1.8								
			1500	MSME154 □ 1 ✻	106	MDD ◇ T3420	MDD ◇ T3420E		Approx. 2.3								
			2000	MSME204 □ 1 ✻	107	MED ◇ T4430	MED ◇ T4430E	E-frame	Approx. 3.3						DV0PM20049		
			3000	MSME304 □ 1 ✻	108	MFD ◇ T5440	MFD ◇ T5440E	F-frame	Approx. 4.5			MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MSME404 □ 1 ✻	109	MFD ◇ TA464	MFD ◇ TA464E		Approx. 6								
			5000	MSME504 □ 1 ✻	110	MFD ◇ TA464	MFD ◇ TA464E		Approx. 7.5								
Middle inertia	MDME 2000 r/min	Single phase/ 3-phase 200 V	1000	MDME102 □ 1 ✻	80	MDD ◇ T3530	MDD ◇ T3530E	D-frame	Approx. 1.8	MFECA 0**0ETD	MFECA 0**0ETE	MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MDME152 □ 1 ✻	81	MDD ◇ T5540	MDD ◇ T5540E		Approx. 2.3							DV0PM20047 / DV0P222	
		3-phase 200 V	2000	MDME202 □ 1 ✻	82	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3						DV0P4285 Note) 7	DV0P223	DV0PM20043
			3000	MDME302 □ 1 ✻	83	MFD ◇ TA390	MFD ◇ TA390E	F-frame	Approx. 4.5			MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MDME402 □ 1 ✻	84	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 6							DV0P225	
			5000	MDME502 □ 1 ✻	85	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 7.5							— Note) 8	
			7500	MDME752 □ 1 ✻	86	MGD ◇ TC3B4	—	G-frame	Approx. 11			— Note) 6	— Note) 6		DV0P4285 ×3 in parallel		Recommended components P.252
			11000	MDMEC12 □ 1 ✻	87	MHD ◇ TC3B4		H-frame	Approx. 17						DV0PM20058		
			15000	MDMEC52 □ 1 ✻	88	MHD ◇ TC3B4			Approx. 22								
		3-phase 400 V	400	MDME044 □ 1 ✻	111	MDD ◇ T2407	MDD ◇ T2407E	D-frame	Approx. 0.9	MFECA 0**0ETD	MFECA 0**0ETE	MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 8	Recommended components P.252
			600	MDME064 □ 1 ✻	112				Approx. 1.2								
			1000	MDME104 □ 1 ✻	113	MDD ◇ T2412	MDD ◇ T2412E		Approx. 1.8								
			1500	MDME154 □ 1 ✻	114	MDD ◇ T3420	MDD ◇ T3420E		Approx. 2.3								
			2000	MDME204 □ 1 ✻	115	MED ◇ T4430	MED ◇ T4430E	E-frame	Approx. 3.3						DV0PM20049		
			3000	MDME304 □ 1 ✻	116	MFD ◇ T5440	MFD ◇ T5440E	F-frame	Approx. 4.5			MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MDME404 □ 1 ✻	117	MFD ◇ TA464	MFD ◇ TA464E		Approx. 6								
			5000	MDME504 □ 1 ✻	118	MFD ◇ TA464	MFD ◇ TA464E		Approx. 7.5								
			7500	MDME754 □ 1 ✻	119	MGD ◇ TB4A2	—	G-frame	Approx. 11			— Note) 6	— Note) 6		DV0PM20049 ×3 in parallel		Recommended components P.252
			11000	MDMEC14 □ 1 ✻	120	MHD ◇ TB4A2		H-frame	Approx. 17						DV0PM20059		
			15000	MDMEC54 □ 1 ✻	121	MHD ◇ TB4A2			Approx. 22								
	MFME (Flat type) 2000 r/min	Single phase/ 3-phase 200 V	1500	MFME152 □ 1 ✻	89	MDD ◇ T5540	MDD ◇ T5540E	D-frame	Approx. 2.3	MFECA 0**0ETD	MFECA 0**0ETE	MFMCA 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
		3-phase 200 V	2500	MFME252 □ 1 ✻	90	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.8			MFMCF 0**2ECD	MFMCE 0**2FCD		DV0P4285 Note) 7	DV0P224	DV0PM20043
			4500	MFME452 □ 1 ✻	91	MFD ◇ TB3A2	MFD ◇ TB3A2E	F-frame	Approx. 6.8			MFMCD 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	— Note) 8	DV0P3410
		3-phase 400 V	1500	MFME154 □ 1 ✻	122	MDD ◇ T3420	MDD ◇ T3420E	D-frame	Approx. 2.3	MFECA 0**0ETD	MFECA 0**0ETE	MFMCF 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 8	Recommended components P.252
			2500	MFME254 □ 1 ✻	123	MED ◇ T4430	MED ◇ T4430E	E-frame	Approx. 3.8						DV0PM20049		
			4500	MFME454 □ 1 ✻	124	MFD ◇ TA464	MFD ◇ TA464E	F-frame	Approx. 6.8			MFMCD 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		

Note) 1 Rotary encoder specifications: □ Motor specification: ✻ (refer to P.16)
Note) 2 ◇ : Drivers series K: A5Ⅱ series H: A5 series
Note) 3 ◇ : Drivers series K: A5ⅡE series H: A5E series
Note) 4 Because A5ⅡE, 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) 5 Cable length: ** (03: 3 m, 05: 5 m, 10: 10 m, 20: 20 m), (Example. 3 m: MFECA0030EAM)

Note) 6 Recommend to get the connector kit of options.
Note) 7 Other combinations exist, and refer to P.210 for details.
Note) 8 Reactor should be prepared by the user.
Note) 9 Please note that a battery is not supplied together with 17-bit absolute encoder cable (with battery box). Please buy the battery part number “DV0P2990” separately.

• Options (IP67 motor)

Title			Part No.	Page
Interface Cable			DV0P4360	197
Interface Conversion Cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A-frame to D-frame	Single row type	DV0PM20032	200
		Double row type	DV0PM20033	
	E-frame (200 V)		DV0PM20044	
	D-frame (400 V)		DV0PM20051	
	E-frame (400 V)		DV0PM20052	
Connector Kit for Control Power Supply Input Connection	D-frame and E-frame (400 V)		DV0PM20053	201
Connector Kit for Motor Connection	A-frame to D-frame		DV0PM20034	
	E-frame (200 V)		DV0PM20046	
	D-frame (400 V)		DV0PM20054	
Connector Kit for Regenerative Resistor	E-frame		DV0PM20045	
	D-frame (400 V)		DV0PM20055	
Connector Kit for Motor/Encoder Connection			DV0PM20036	203
			DV0PM20037	204
			DV0PM20038	
			DV0PM20039	205
Connector Kit	RS485, RS232		DV0PM20024	198
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	199
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	207
Battery Box Note) 9			DV0P4430	
Mounting Bracket	D-frame		DV0PM20030	208
Encoder Cable	without Battery Box		MFECA0**0ETD	190
	with Battery Box Note) 9		MFECA0**0ETE	
Motor Cable	without Brake		MFMCA0**2ECD	191
			MFMCD0**2ECD	192
			MFMCE0**2ECD	
			MFMCF0**2ECD	
			MFMCA0**3ECT	193
			MFMCD0**3ECT	
	with Brake		MFMCA0**2FCD	194
			MFMCE0**2FCD	
			MFMCA0**3FCT	195
External Regenerative Resistor	50 Ω 25 W		DV0P4280	210
	100 Ω 25 W		DV0P4281	
	25 Ω 50 W		DV0P4282	
	50 Ω 50 W		DV0P4283	
	30 Ω 100 W		DV0P4284	
	20 Ω 130 W		DV0P4285	
	120 Ω 80 W		DV0PM20048	
	80 Ω 190 W		DV0PM20049	
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0PM20047			209
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043			250
	DV0P3410			251
Surge Absorber	Single phase		DV0P4190	253
	3-phase (200V)		DV0P1450	
	3-phase (400V)		DV0PM20050	
Noise Filter for Signal Lines			DV0P1460	254

0.9 kW to 7.5 kW 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)	A5Ⅱ series A5 series Part No. (Speed, Position, Torque, Full-Closed type) Note) 2	A5ⅡE series A5E series Part No. (Position control type) Note) 3,4	Frame	(kVA)	Encoder Cable: 20-bit Incremental Note) 5	Encoder Cable: 17-bit Absolute Note) 4,5,9	Motor Cable: without Brake Note) 5	Motor Cable: with Brake Note) 5	Brake Cable Note) 5	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
Middle inertia	MGME (Low speed/ High torque type) 1000 r/min	Single phase/ 3-phase 200 V	900	MGME092 □ 1 ＊	92	MDD ◇ T5540	MDD ◇ T5540E	D-frame	Approx. 1.8	MFECA 0**0ETD	MFECA 0**0ETE	MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P221	DV0P4220
		3-phase 200 V	2000	MGME202 □ 1 ＊	93	MFD ◇ TA390	MFD ◇ TA390E	F-frame	Approx. 3.8			MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P223 / DV0P224	DV0P3410
			3000	MGME302 □ 1 ＊	94	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 4.5								
			4500	MGME452 □ 1 ＊	95	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 7.5								
			6000	MGME602 □ 1 ＊	96	MGD ◇ TC3B4	—	G-frame	Approx. 9.0			— Note) 6	— Note) 6		DV0P4285 ×3 in parallel	— Note) 7	Recommended components P.252
		3-phase 400 V	900	MGME094 □ 1 ＊	125	MDD ◇ T3420	MDD ◇ T3420E	D-frame	Approx. 1.8	MFECA 0**0ETD	MFECA 0**0ETE	MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 7	Recommended components P.252
			2000	MGME204 □ 1 ＊	126	MFD ◇ T5440	MFD ◇ T5440E	F-frame	Approx. 3.8			MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			3000	MGME304 □ 1 ＊	127	MFD ◇ TA464	MFD ◇ TA464E		Approx. 4.5								
			4500	MGME454 □ 1 ＊	128	MFD ◇ TA464	MFD ◇ TA464E		Approx. 7.5								
			6000	MGME604 □ 1 ＊	129	MGD ◇ TB4A2	—	G-frame	Approx. 9.0			— Note) 6	— Note) 6		DV0PM20049 ×3 in parallel		
High inertia	MHME 2000 r/min	Single phase/ 3-phase 200 V	1000	MHME102 □ 1 ＊	97	MDD ◇ T3530	MDD ◇ T3530E	D-frame	Approx. 1.8	MFECA 0**0ETD	MFECA 0**0ETE	MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MHME152 □ 1 ＊	98	MDD ◇ T5540	MDD ◇ T5540E		Approx. 2.3							DV0PM20047 / DV0P222	
		3-phase 200 V	2000	MHME202 □ 1 ＊	99	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3			MFMCE 0**2ECD	MFMCE 0**2FCD		DV0P4285 Note) 8	DV0P223	DV0PM20043
			3000	MHME302 □ 1 ＊	100	MFD ◇ TA390	MFD ◇ TA390E	F-frame	Approx. 4.5			MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224 / DV0P225	DV0P3410
			4000	MHME402 □ 1 ＊	101	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 6								
			5000	MHME502 □ 1 ＊	102	MFD ◇ TB3A2	MFD ◇ TB3A2E		Approx. 7.5								
			7500	MHME752 □ 1 ＊	103	MGD ◇ TC3B4	—	G-frame	Approx. 11			— Note) 6	— Note) 6		DV0P4285 ×3 in parallel	— Note) 7	Recommended components P.252
		3-phase 400 V	1000	MHME104 □ 1 ＊	130	MDD ◇ T2412	MDD ◇ T2412E	D-frame	Approx. 1.8	MFECA 0**0ETD	MFECA 0**0ETE	MFMCD 0**2ECD	MFMCE 0**2FCD	—	DV0PM20048	— Note) 7	Recommended components P.252
			1500	MHME154 □ 1 ＊	131	MDD ◇ T3420	MDD ◇ T3420E		Approx. 2.3								
			2000	MHME204 □ 1 ＊	132	MED ◇ T4430	MED ◇ T4430E	E-frame	Approx. 3.3			MFMCE 0**2ECD			DV0PM20049		
			3000	MHME304 □ 1 ＊	133	MFD ◇ T5440	MFD ◇ T5440E	F-frame	Approx. 4.5			MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel		
			4000	MHME404 □ 1 ＊	134	MFD ◇ TA464	MFD ◇ TA464E		Approx. 6								
			5000	MHME504 □ 1 ＊	135	MFD ◇ TA464	MFD ◇ TA464E		Approx. 7.5								
			7500	MHME754 □ 1 ＊	136	MGD ◇ TB4A2	—	G-frame	Approx. 9.0			— Note) 6	— Note) 6		DV0PM20049 ×3 in parallel		

Note) 1 Rotary encoder specifications: □ Motor specification: ＊ (refer to P.16)
Note) 2 ◇ : Drivers series K: A5Ⅱ series H: A5 series
Note) 3 ◇ : Drivers series K: A5ⅡE series H: A5E series
Note) 4 Because A5ⅡE, 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) 5 Cable length: ** (03: 3 m, 05: 5 m, 10: 10 m, 20: 20 m), (Example. 3 m: MFECA0030EAM)
Note) 6 Recommend to get the connector kit of options.
Note) 7 Reactor should be prepared by the user.
Note) 8 Other combinations exist, and refer to P.210 for details.
Note) 9 Please note that a battery is not supplied together with 17-bit absolute encoder cable (with battery box). Please buy the battery part number “DV0P2990” separately.

・Options (IP67 motor)

Title			Part No.	Page
Interface Cable			DV0P4360	197
Interface Conversion Cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A-frame to D-frame	Single row type	DV0PM20032	200
		Double row type	DV0PM20033	
	E-frame (200 V)		DV0PM20044	
	D-frame (400 V)		DV0PM20051	
	E-frame (400 V)		DV0PM20052	
Connector Kit for Control Power Supply Input Connection	D-frame and E-frame (400 V)		DV0PM20053	201
Connector Kit for Motor Connection	A-frame to D-frame		DV0PM20034	
	E-frame (200 V)		DV0PM20046	
	D-frame (400 V)		DV0PM20054	
Connector Kit for Regenerative Resistor	E-frame		DV0PM20045	
	D-frame (400 V)		DV0PM20055	
Connector Kit for Motor/Encoder Connection			DV0PM20036	203
			DV0PM20037	204
			DV0PM20038	
			DV0PM20039	205
Connector Kit	RS485, RS232		DV0PM20024	198
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	199
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	207
Battery Box Note) 9			DV0P4430	
Mounting Bracket	D-frame		DV0PM20030	208
Encoder Cable	without Battery Box		MFECA0**0ETD	190
	with Battery Box Note) 9		MFECA0**0ETE	
Motor Cable	without Brake		MFMCA0**2ECD	191
			MFMCD0**2ECD	192
			MFMCE0**2ECD	
			MFMCF0**2ECD	
			MFMCA0**3ECT	193
			MFMCD0**3ECT	
	with Brake		MFMCA0**2FCD	194
			MFMCE0**2FCD	
			MFMCA0**3FCT	195
External Regenerative Resistor	50 Ω 25 W		DV0P4280	210
	100 Ω 25 W		DV0P4281	
	25 Ω 50 W		DV0P4282	
	50 Ω 50 W		DV0P4283	
	30 Ω 100 W		DV0P4284	
	20 Ω 130 W		DV0P4285	
	120 Ω 80 W		DV0PM20048	
	80 Ω 190 W		DV0PM20049	
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0PM20047			209
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043			250
	DV0P3410			251
Surge Absorber	Single phase		DV0P4190	253
	3-phase (200 V)		DV0P1450	
	3-phase (400 V)		DV0PM20050	
Noise Filter for Signal Lines			DV0P1460	254

A5Ⅱ, A5 series (Speed, Position, Torque, Full-Closed type)

Basic Specifications

Input power	100 V	Main circuit		Single phase, 100 V to 120 V +10 % –15 % 50 Hz/60 Hz
		Control circuit		Single phase, 100 V to 120 V +10 % –15 % 50 Hz/60 Hz
	200 V	Main circuit	A-frame to D-frame	Single/3-phase, 200 V to 240 V +10 % –15 % 50 Hz/60 Hz
			E-frame to H-frame	3-phase, 200 V to 230 V +10 % –15 % 50 Hz/60 Hz
		Control circuit	A-frame to D-frame	Single phase, 200 V to 240 V +10 % –15 % 50 Hz/60 Hz
			E-frame to H-frame	Single phase, 200 V to 230 V +10 % –15 % 50 Hz/60 Hz
	400 V	Main circuit	D-frame to H-frame	3-phase, 380 V to 480 V +10 % –15 % 50 Hz/60 Hz
		Control circuit	D-frame to H-frame	DC 24 V ± 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 1000 m
		Vibration		5.88 m/s^2 or less, 10 Hz to 60 Hz (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: DR. JOHANNES HEIDENHAIN GmbH Fagor Automation S.Coop. Magnescale Co., Ltd. Mitutoyo Corporation Nidec Sankyo Corporation Renishaw plc
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-frame to F-frame: Built-in regenerative resistor (external resistor is also enabled.)
Dynamic brake				A-frame 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) Speed control (3) Toque control (4) Position/Speed control (5) Position/Torque control (6) Speed/Torque control (7) Full-closed control

*1 Air containing water vapor will become saturated with water vapor as the temperature falls, causing dew.
*2 Not applicable to 2DOF control system.

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: 500 kpps Exclusive interface for line driver : 4 Mpps
		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 times 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
	2DOF settings		Only available at A5Ⅱ Series
Speed 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. (6 V/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 s to 10 s/1000 r/min. Sigmoid acceleration/deceleration is also enabled.
	Zero-speed clamp		Speed zero clamp input is enabled.
	Instantaneous Speed Observer		Available
	Speed Control filter		Available
	2DOF settings		Only available at A5Ⅱ Series
Torque control*2	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. (3 V/rated torque Default)
	Speed limit function		Speed limit value with parameter is enabled.
Full-closed control*2	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: 500 kpps Exclusive interface for line driver : 4 Mpps
		Input pulse signal format	Differential input
		Electronic gear (Division/Multiplication of command pulse)	1/1000 times 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 times to 160 times
	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.

A5ⅡE, A5E series (Position control type)

Basic Specifications	Input power	100 V	Main circuit	Single phase, 100 V to 120 V +10 % –15 % 50 Hz/60 Hz
			Control circuit	Single phase, 100 V to 120 V +10 % –15 % 50 Hz/60 Hz
		200 V	Main circuit: A-frame to D-frame	Single/3-phase, 200 V to 240 V +10 % –15 % 50 Hz/60 Hz
			Main circuit: E-frame to F-frame	3-phase, 200 V to 230 V +10 % –15 % 50 Hz/60 Hz
			Control circuit: A-frame to D-frame	Single phase, 200 V to 240 V +10 % –15 % 50 Hz/60 Hz
			Control circuit: E-frame to F-frame	Single phase, 200 V to 230 V +10 % –15 % 50 Hz/60 Hz
		400 V	Main circuit: D-frame to F-frame	3-phase, 380 V to 480 V +10 % –15 % 50 Hz/60 Hz
			Control circuit: D-frame to F-frame	DC 24 V ± 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 1000 m
			Vibration	5.88 m/s^2 or less, 10 Hz to 60 Hz (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-fram 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

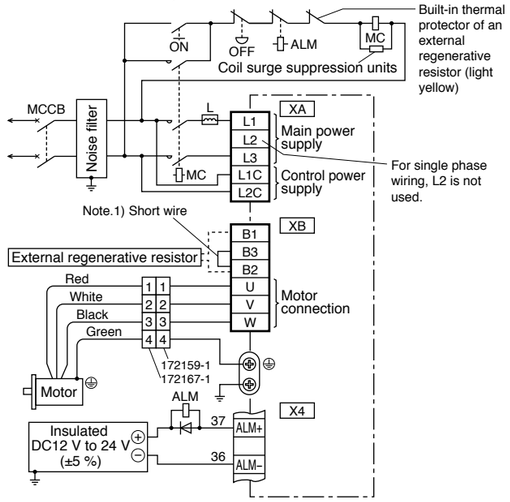
*1 Air containing water vapor will become saturated with water vapor as the temperature falls, causing dew.

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: 500 kpps Exclusive interface for line driver : 4 Mpps
			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 times 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
		2DOF settings		Only available at A5ⅡE Series
	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-frame to D-frame, 100 V / 200 V type

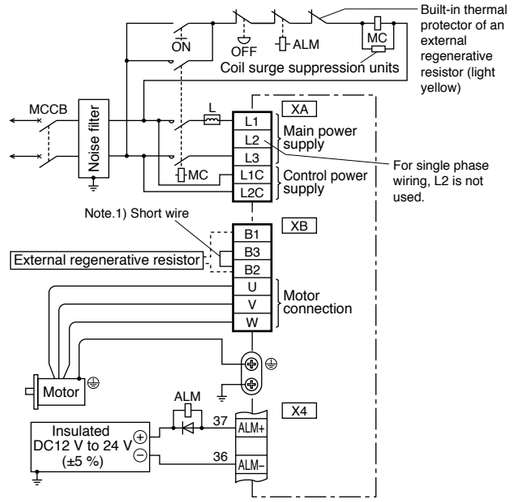
• In Case of MSMD, MHMD



Note.1)

Frame No.	Short wire (Accessory)	Built-in regenerative resistor	Connection of the connector XB	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
A-frame B-frame	without	without	• Always open between B2-B3 • Connect an external regenerative resistor between B1-B2	• Always open between B2-B3
C-frame D-frame	with	with	• Remove the short wire accessory from between B2-B3. • Connect an external regenerative resistor between B1-B2	• Shorted between B2-B3 with an attached short wire

• In Case of MSME

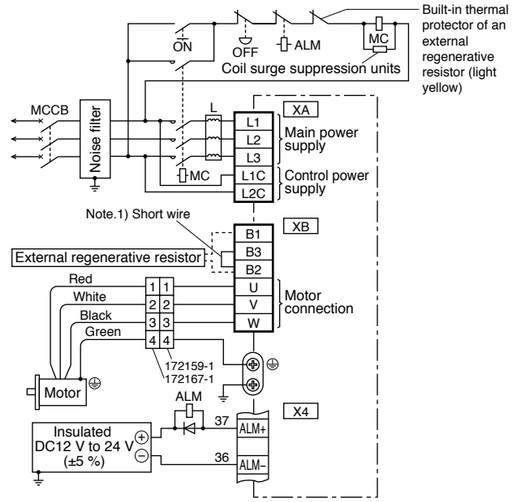


Note.1)

Frame No.	Short wire (Accessory)	Built-in regenerative resistor	Connection of the connector XB	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
A-frame B-frame	without	without	• Always open between B2-B3 • Connect an external regenerative resistor between B1-B2	• Always open between B2-B3
C-frame D-frame	with	with	• Remove the short wire accessory from between B2-B3. • Connect an external regenerative resistor between B1-B2	• Shorted between B2-B3 with an attached short wire

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

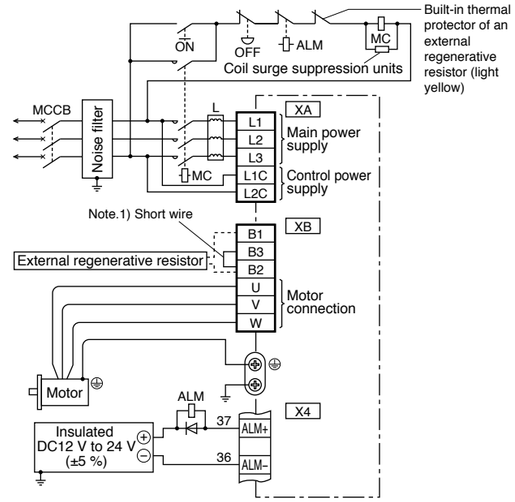
• In Case of MSMD, MHMD



Note.1)

Frame No.	Short wire (Accessory)	Built-in regenerative resistor	Connection of the connector XB	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
A-frame B-frame	without	without	• Always open between B2-B3 • Connect an external regenerative resistor between B1-B2	• Always open between B2-B3
C-frame D-frame	with	with	• Remove the short wire accessory from between B2-B3. • Connect an external regenerative resistor between B1-B2	• Shorted between B2-B3 with an attached short wire

• In Case of MSME

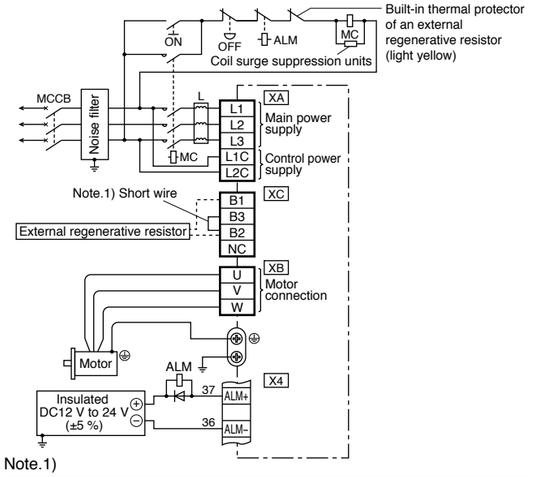


Note.1)

Frame No.	Short wire (Accessory)	Built-in regenerative resistor	Connection of the connector XB	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
A-frame B-frame	without	without	• Always open between B2-B3 • Connect an external regenerative resistor between B1-B2	• Always open between B2-B3
C-frame D-frame	with	with	• Remove the short wire accessory from between B2-B3. • Connect an external regenerative resistor between B1-B2	• Shorted between B2-B3 with an attached short wire

* Refer to P.186, P.187, Specifications of Motor connector.

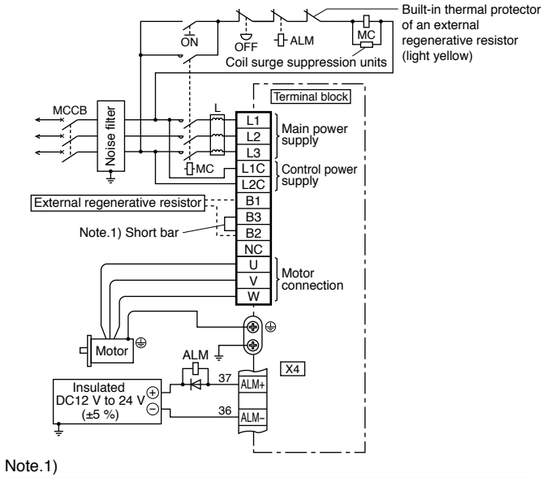
In Case of 3-phase, E-frame, 200 V type



Note.1)

Frame No.	Short wire (Accessory)	Built-in regenerative resistor	Connection of the connector XC	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
E-frame	with	with	• Remove the short wire accessory from between B2-B3. • Connect an external regenerative resistor between B1-B2	• Shorted between B2-B3 with an attached short wire

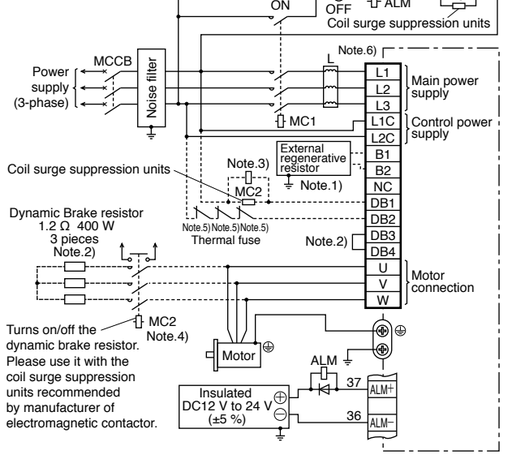
In Case of 3-phase, F-frame, 200 V type



Note.1)

Frame No.	Short bar (Accessory)	Built-in regenerative resistor	Connection of terminal block	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
F-frame	with	with	• Remove the short bar accessory from between B2-B3. • Connect an external regenerative resistor between B1-B2	• Shorted between B2-B3 with an attached short bar

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



Note.1) About regenerative resistor

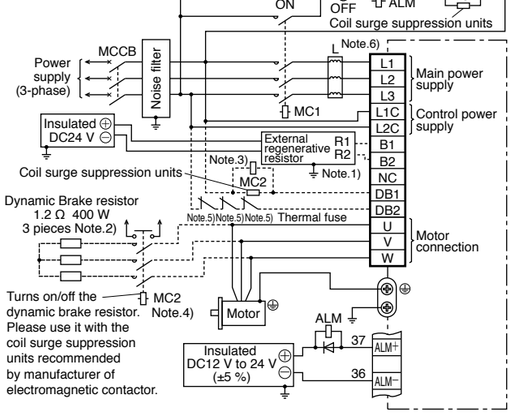
Frame No.	Short bar (Accessory)	Built-in regenerative resistor	Connection of terminal block	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
G-frame	without	without	• Connect an external regenerative resistor between B1-B2	• Open between B1-B2

Note.2) About dynamic brake resistor

Frame No.	Short bar (Accessory)	Built-in dynamic brake resistor.	Connection of terminal block	
			In case of using an external dynamic brake resistor.	In case of not using an external dynamic brake resistor.
G-frame	with	with	• Remove attached short bar between DB3-DB4. • Connect external dynamic brake resistor as shown above.	• Shorted with attached short bar between DB3-DB4 • Open between DB1-DB2

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

Note 1) Built-in thermal protector of an external regenerative resistor (T1 and T2 terminals)



Note.1) About regenerative resistor

Frame No.	Short bar (Accessory)	Built-in regenerative resistor	Connection of terminal block	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
H-frame	without	without	(External regenerative resistor terminal) • Terminal R1, R2 connect to B1, B2 • Terminal T1, T2 connection as shown above • Terminal 24 V, 0 V connect to DC power supply of DC24 V. • E terminal connect to the ground	• Open between B1-B2

Specification of external regenerative resistor, please refer to P.139, “Options Components”.

Note.2) About dynamic brake resistor

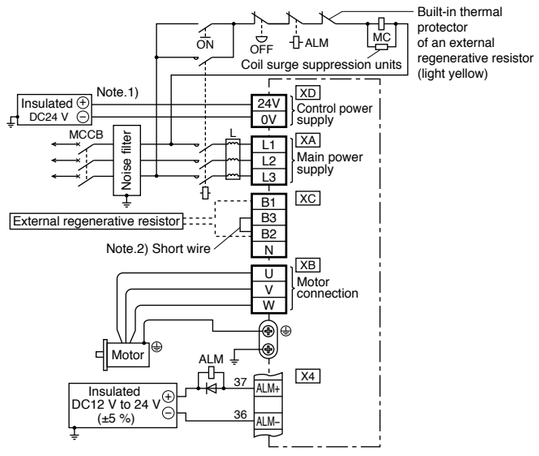
Frame No.	Short bar (Accessory)	Built-in dynamic brake resistor.	Connection of terminal block	
			In case of using an external dynamic brake resistor.	In case of not using an external dynamic brake resistor.
H-frame	without	without	• Connect external dynamic brake resistor as shown above.	• Open between DB1-DB2

<common for G & H frame>
Note.3) Magnetic contactor MC2 must be the same rating as the contactor MC1 in the main circuit.
Note.4) Servo may be turned on in the external sequence if the contact deposits: to protect the system, provide the auxiliary contact.
Note.5) Provide an external protective device (e.g. thermal fuse) to monitor the temperature of the external dynamic brake resistor.
Note.6) Reactor should be prepared by the customer.

* Refer to P.186, P.187, Specifications of Motor connector.

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

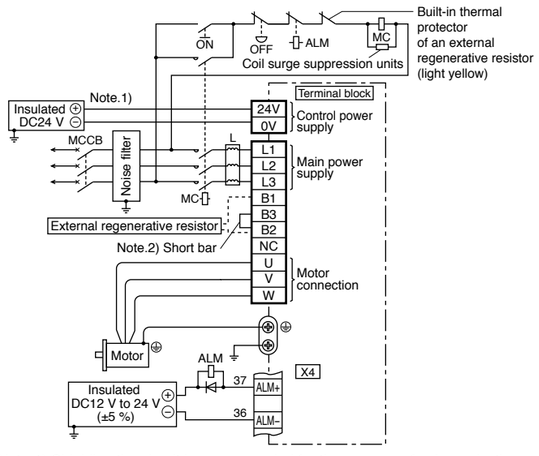
In Case of 3-phase, D-frame and E-frame, 400 V type



Note.1) Shielding the circuit is recommended for the purpose of noise reduction.
Note.2)

Frame No.	Short wire (Accessory)	Built-in regenerative resistor	Connection of the connector XC	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
E-frame	with	with	• Remove the short wire accessory from between B2-B3. • Connect an external regenerative resistor between B1-B2	• Shorted between B2-B3 with an attached short wire

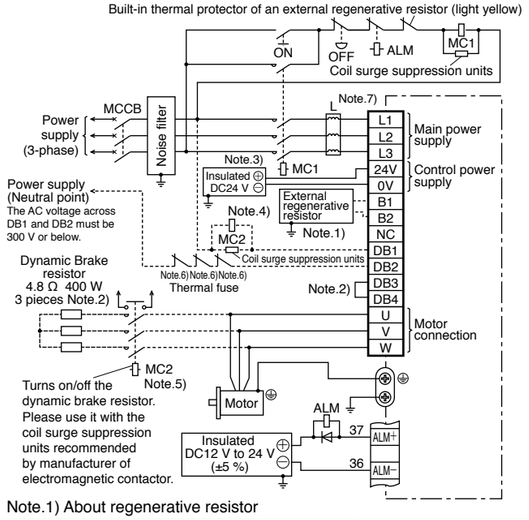
In Case of 3-phase, F-frame, 400 V type



Note.1) Shielding the circuit is recommended for the purpose of noise reduction.
Note.2)

Frame No.	Short bar (Accessory)	Built-in regenerative resistor	Connection of terminal block	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
F-frame	with	with	• Remove the short bar accessory from between B2-B3. • Connect an external regenerative resistor between B1-B2	• Shorted between B2-B3 with an attached short bar

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



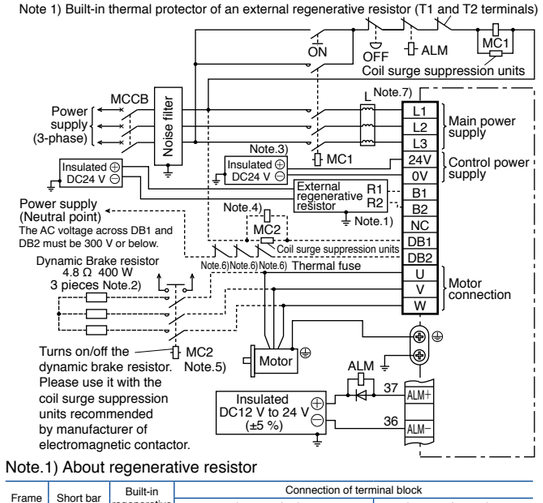
Note.1) About regenerative resistor

Frame No.	Short bar (Accessory)	Built-in regenerative resistor	Connection of terminal block	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
G-frame	without	without	• Connect an external regenerative resistor between B1-B2	• Open between B1-B2

Note.2) About dynamic brake resistor

Frame No.	Short bar (Accessory)	Built-in dynamic brake resistor.	Connection of terminal block	
			In case of using an external dynamic brake resistor.	In case of not using an external dynamic brake resistor.
G-frame	with	with	• Remove attached short bar between DB3-DB4. • Connect external dynamic brake resistor as shown above.	• Shorted with attached short bar between DB3-DB4 • Open between DB1-DB2

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



Note.1) About regenerative resistor

Frame No.	Short bar (Accessory)	Built-in regenerative resistor	Connection of terminal block	
			In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
H-frame	without	without	(External regenerative resistor terminal) • Terminal R1, R2 connect to B1, B2 • Terminal T1, T2 connection as shown above • Terminal 24 V,0 V connect to DC power supply of DC24 V . • E terminal connect to the ground	• Open between B1-B2

Specification of external regenerative resistor, please refer to P.139, “Options Components”.

Note.2) About dynamic brake resistor

Frame No.	Short bar (Accessory)	Built-in dynamic brake resistor.	Connection of terminal block	
			In case of using an external dynamic brake resistor.	In case of not using an external dynamic brake resistor.
H-frame	without	without	• Connect external dynamic brake resistor as shown above.	• Open between DB1-DB2

<common for G & H frame>
Note.3) Shielding the circuit is recommended for the purpose of noise reduction.
Note.4) Magnetic contactor MC2 must be the same rating as the contactor MC1 in the main circuit.
Note.5) Servo may be turned on in the external sequence if the contact deposits: to protect the system, provide the auxiliary contact.
Note.6) Provide an external protective device (e.g. thermal fuse) to monitor the temperature of the external dynamic brake resistor.
Note.7) Reactor should be prepared by the customer.

* Refer to P.186, P.187, Specifications of Motor connector.

Wiring to the Connector, X3 (Excluding A5IIE, 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.

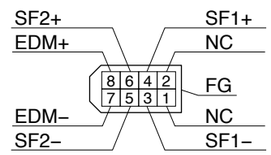
Outline Description of Safe Torque Off (STO)

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.

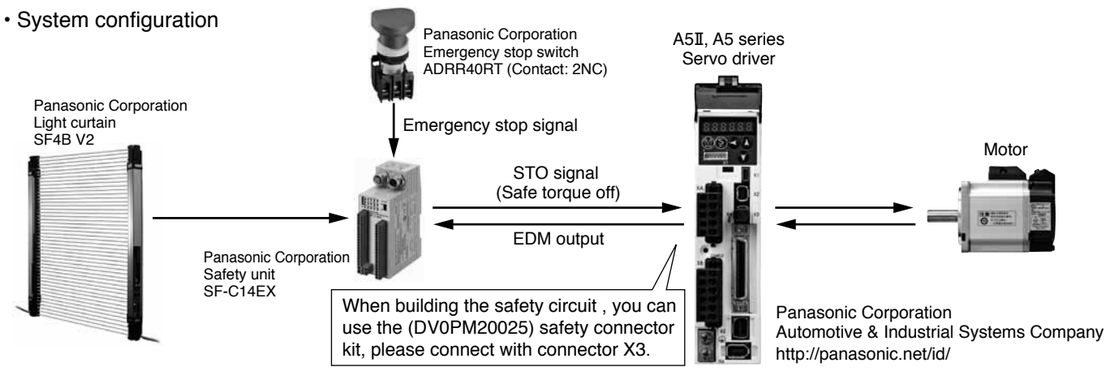
Safety Precautions

- 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 (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)



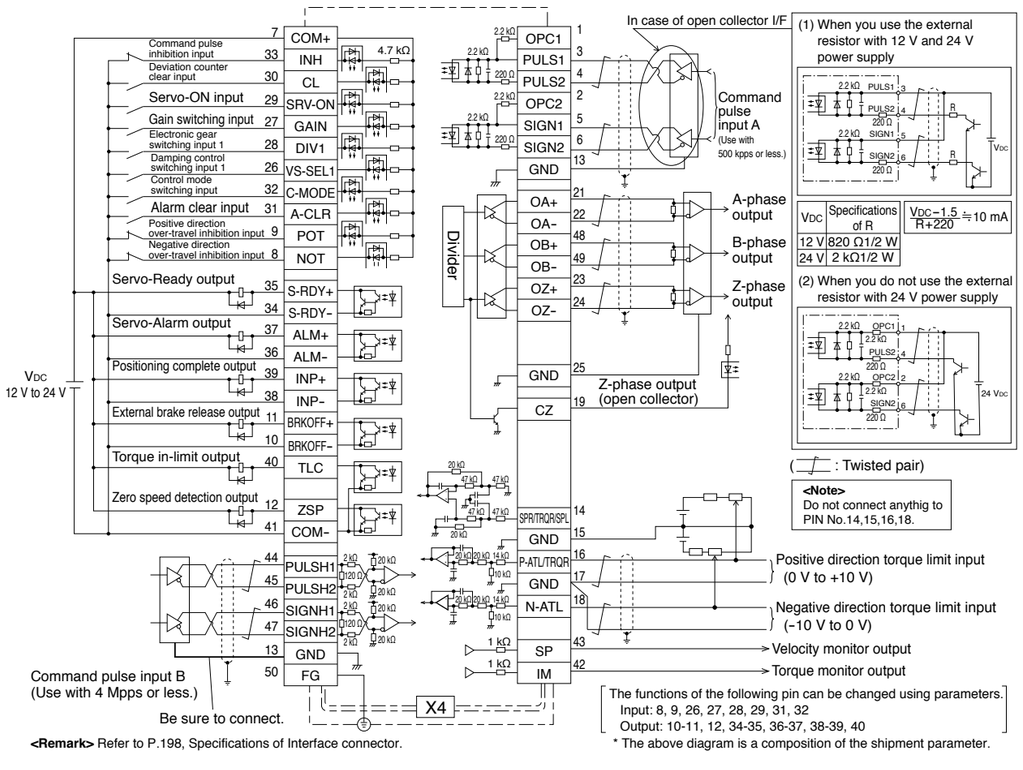
• System configuration



Panasonic Corporation
Automotive & Industrial Systems Company
http://panasonic.net/id/

Wiring to the Connector, X4

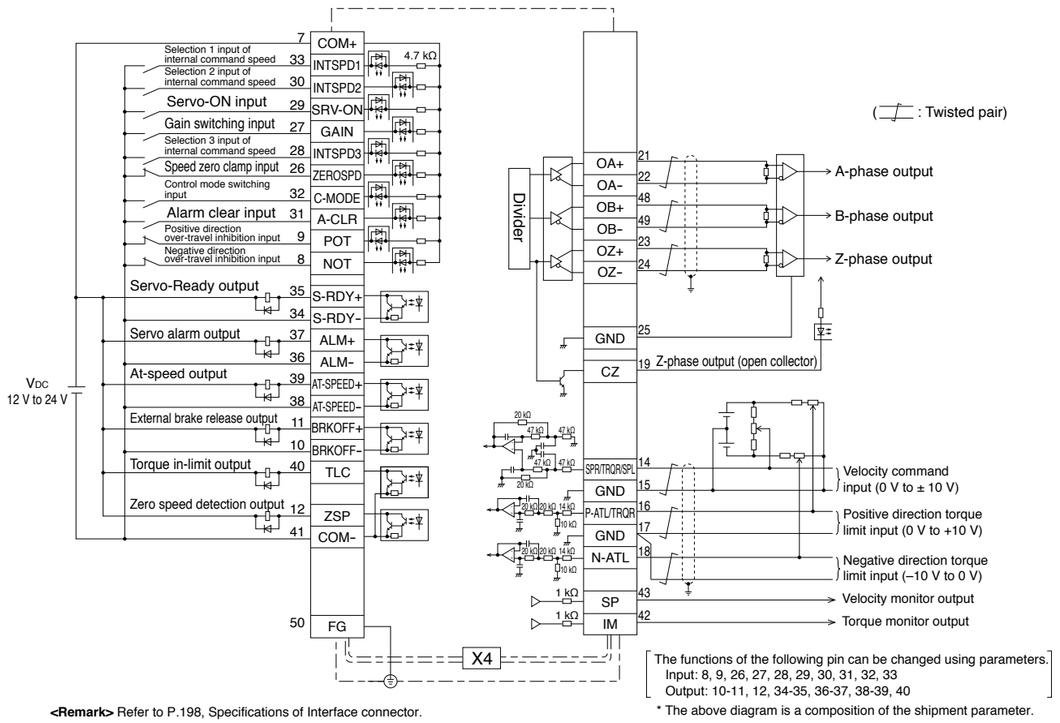
Wiring Example of Position Control Mode



<Remark> Refer to P.198, Specifications of Interface connector.

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

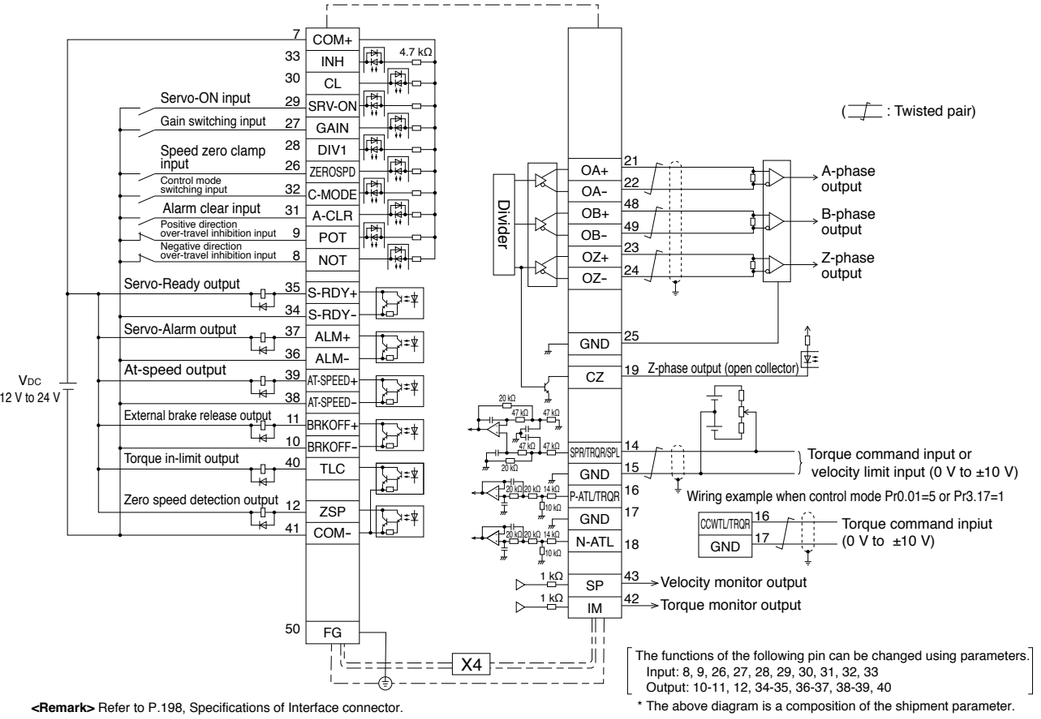
Wiring Example of Velocity Control Mode (Excluding A5IIE, A5E series)



<Remark> Refer to P.198, Specifications of Interface connector.

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

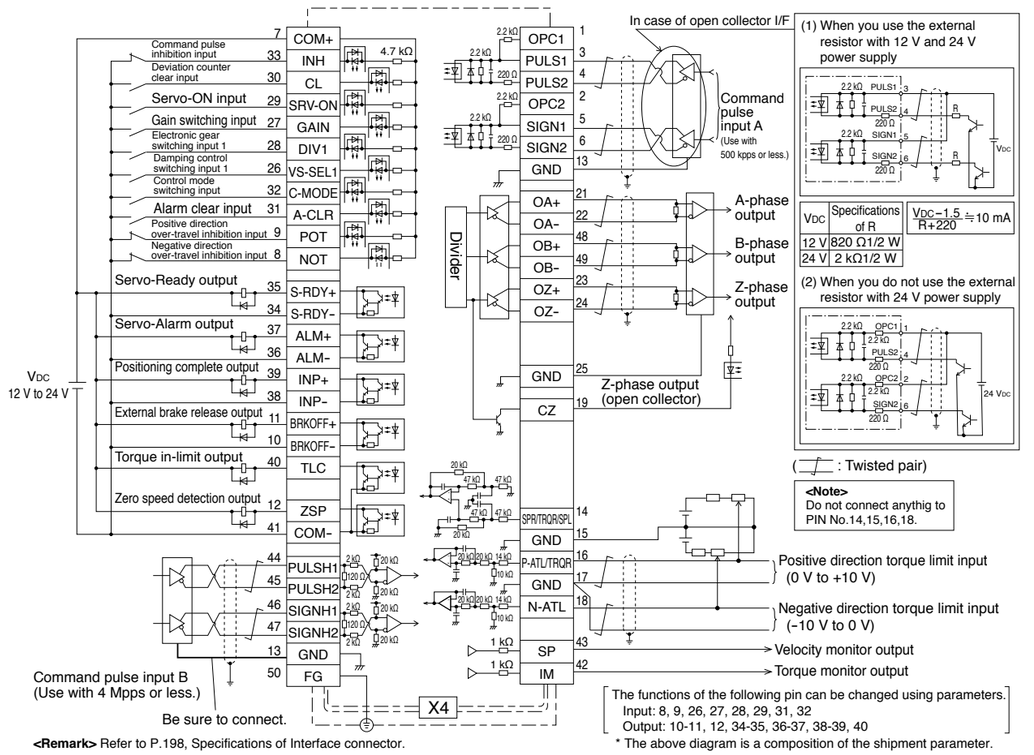
Wiring Example of Torque Control Mode (Excluding A5IIE, A5E series)



<Remark> Refer to P.198, Specifications of Interface connector.

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

Wiring Example of Full-closed Control Mode (Excluding A5IIE, A5E series)



<Remark> Refer to P.198, Specifications of Interface connector.

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

Wiring to the Connector, X5 (Excluding A5ΠE, A5E series)

Applicable External Scale

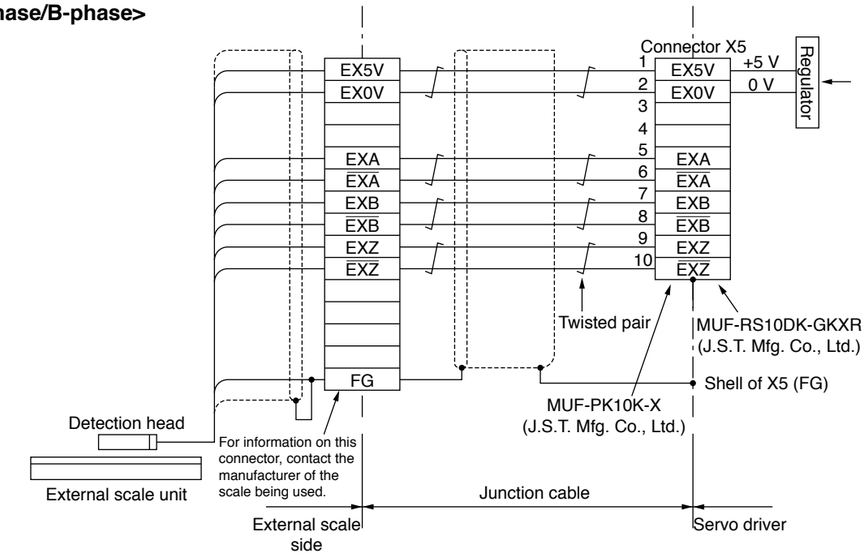
The manufacturers applicable external scales for this product are as follows.

- DR. JOHANNES HEIDENHAIN GmbH
- Fagor Automation S.Coop.
- Magnescale Co., Ltd.
- Mitutoyo Corporation
- Nidec Sankyo Corporation
- Renishaw plc

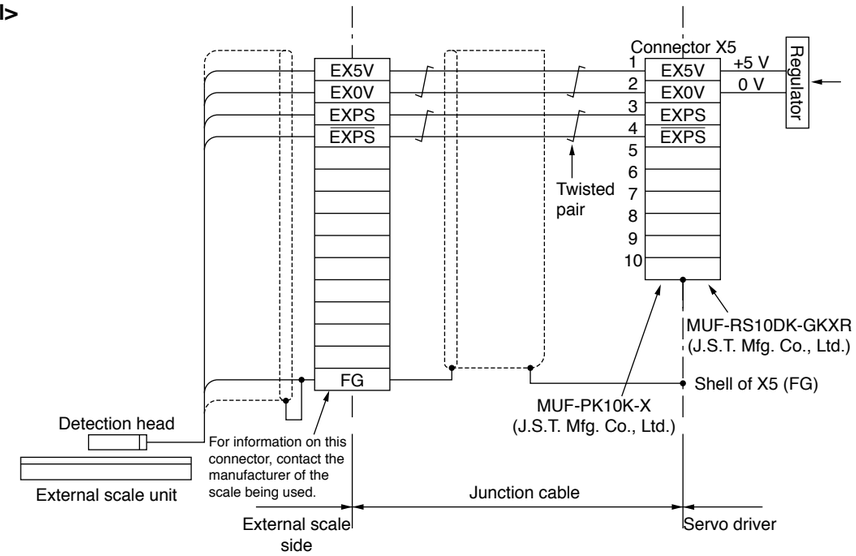
* For the details of the external scale product, contact each company.

Wiring Diagram of X5

<A-phase/B-phase>



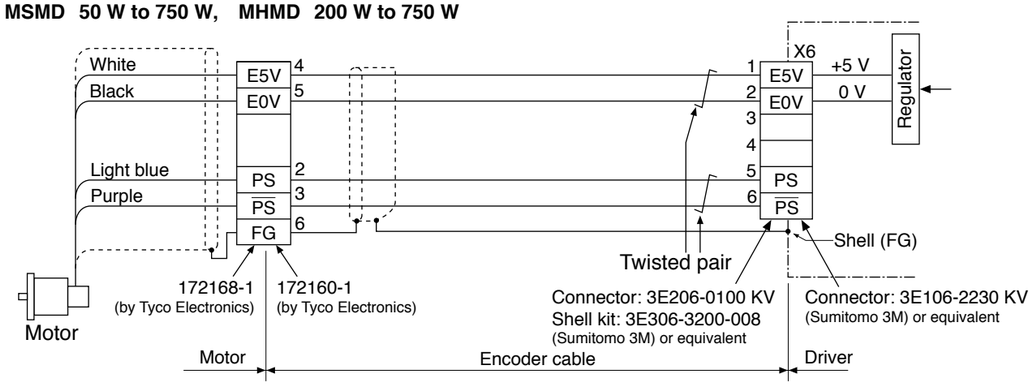
<Serial>



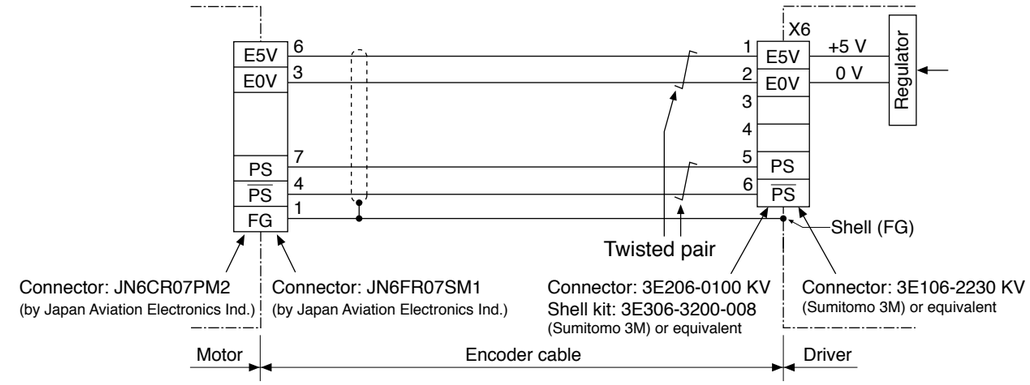
Wiring to the Connector, X6

In Case of 20-bit Incremental Encoder

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



MSME 50 W to 750 W (200 V)



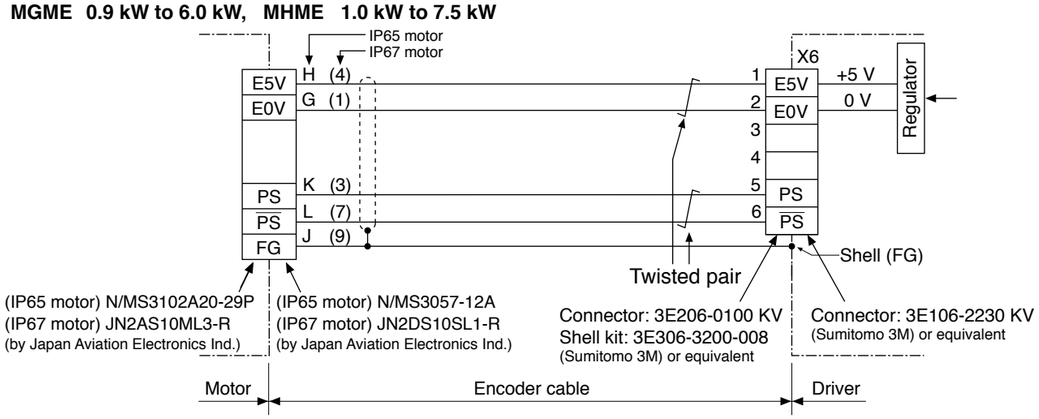
<Caution>

- Tighten the motor connector mounting screw (M2) with a torque between 0.19 N·m 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 750 W (400 V), 1.0 kW to 5.0 kW, MDME 400 W to 15.0 kW, MFME 1.5 kW to 4.5 kW
MGME 0.9 kW to 6.0 kW, MHME 1.0 kW to 7.5 kW

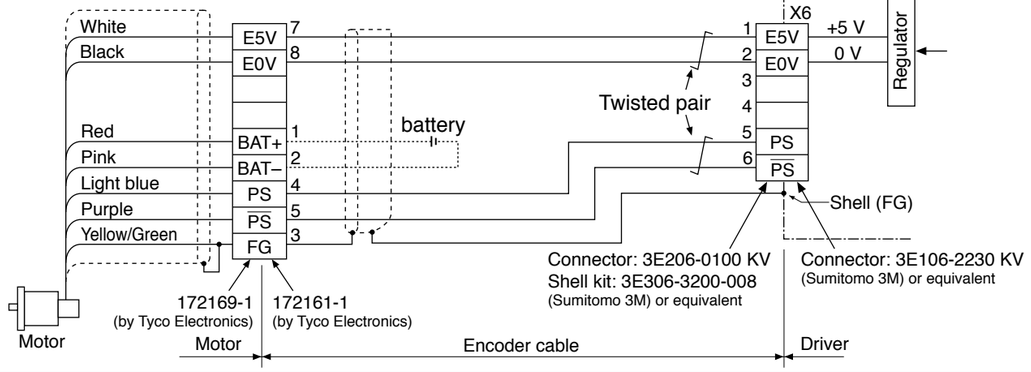


[Connector pin assignment] Refer to P.186, P.187 “Specifications of Motor connector”.

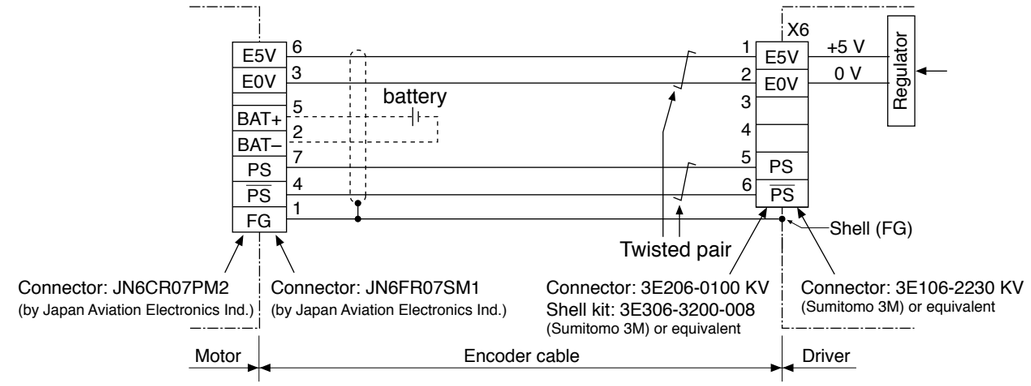
Wiring to the Connector, X6

In Case of 17-bit Absolute Encoder (A5ⅡE, A5E series does not correspond.)

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



MSME 50 W to 750 W (200 V)



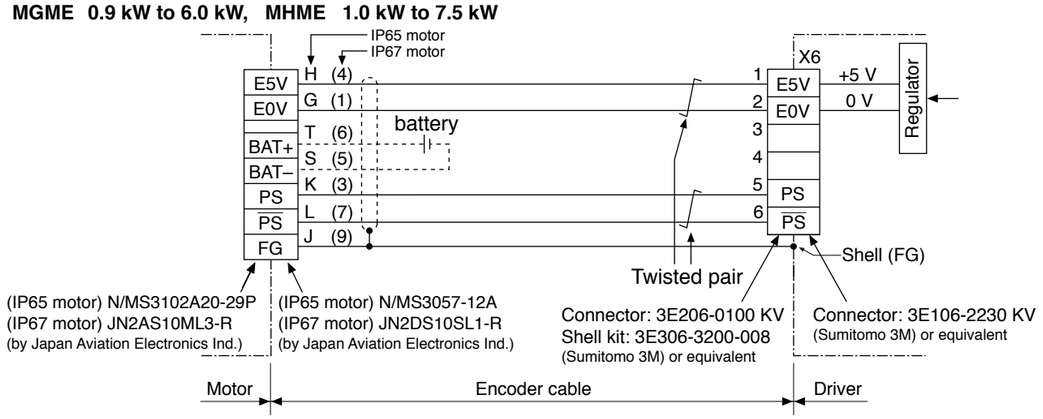
<Caution>

- Tighten the motor connector mounting screw (M2) with a torque between 0.19 N·m 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 750 W (400 V), 1.0 kW to 5.0 kW, MDME 400 W to 15.0 kW, MFME 1.5 kW to 4.5 kW
MGME 0.9 kW to 6.0 kW, MHME 1.0 kW to 7.5 kW



[Connector pin assignment] Refer to P.186, P.187 “Specifications of Motor connector”.

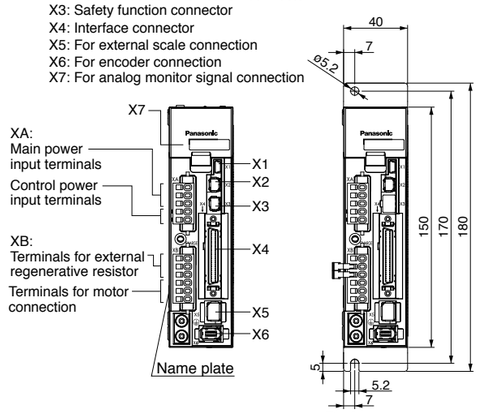
- The size of A5Ⅱ, A5 series and A5ⅡE, A5E series is same.

*1 The height of the safety by-pass provided plug is one of the 14 mm or 24 mm to connector X3.

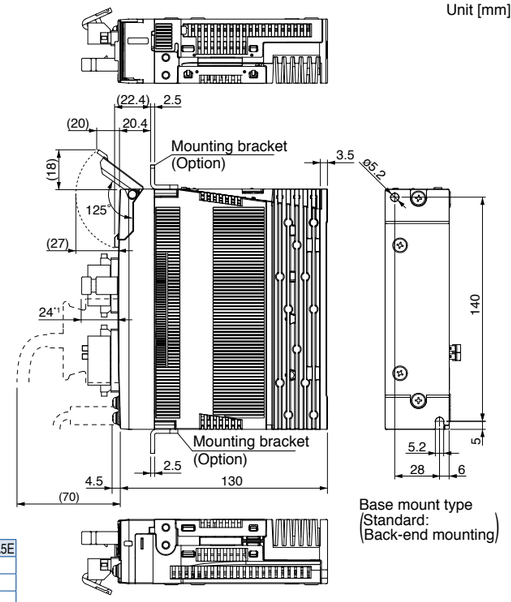
A-frame

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: 0.8 kg

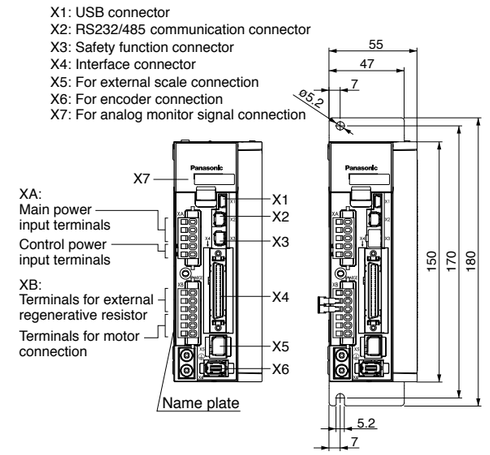
Connector of driver side			A5Ⅱ,A5	A5ⅡE,A5E
Connector XA	S05B-F32SK-GGXR	J.S.T. Mfg. Co., Ltd.	●	●
Connector XB	S06B-F32SK-GGXR	J.S.T. Mfg. Co., Ltd.	●	●
Connector X1	UB-M5BR-DMP14-4S (or equivalent)	J.S.T. Mfg. Co., Ltd.	●	●
Connector X2	1-2040537-1 (or equivalent)	Tyco Electronics	●	–
Connector X3	2040537-1 (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)			A5Ⅱ,A5	A5ⅡE,A5E
Connector XA	05JFAT-SAXGF	J.S.T. Mfg. Co., Ltd.	●	●
Connector XB	06JFAT-SAXGF	J.S.T. Mfg. Co., Ltd.	●	●

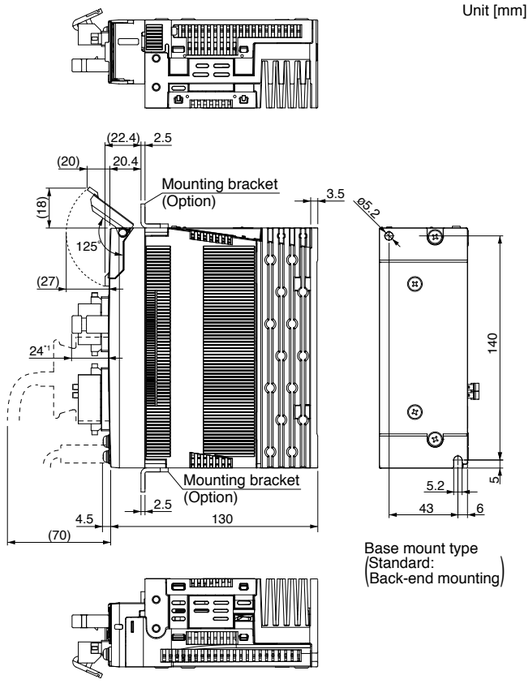
B-frame

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: 1.0 kg

Dimensions of Driver

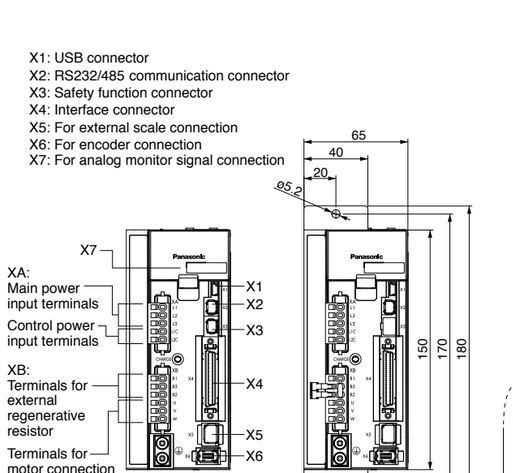
● The size of A5Ⅱ, A5 series and A5ⅡE, A5E series is same.

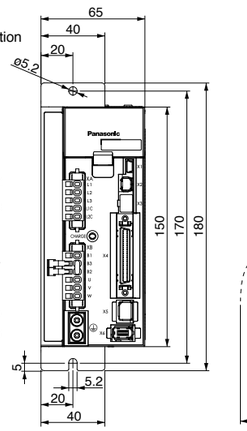
*1 The height of the safety by-pass provided plug is one of the 14 mm or 24 mm to connector X3.

C-frame

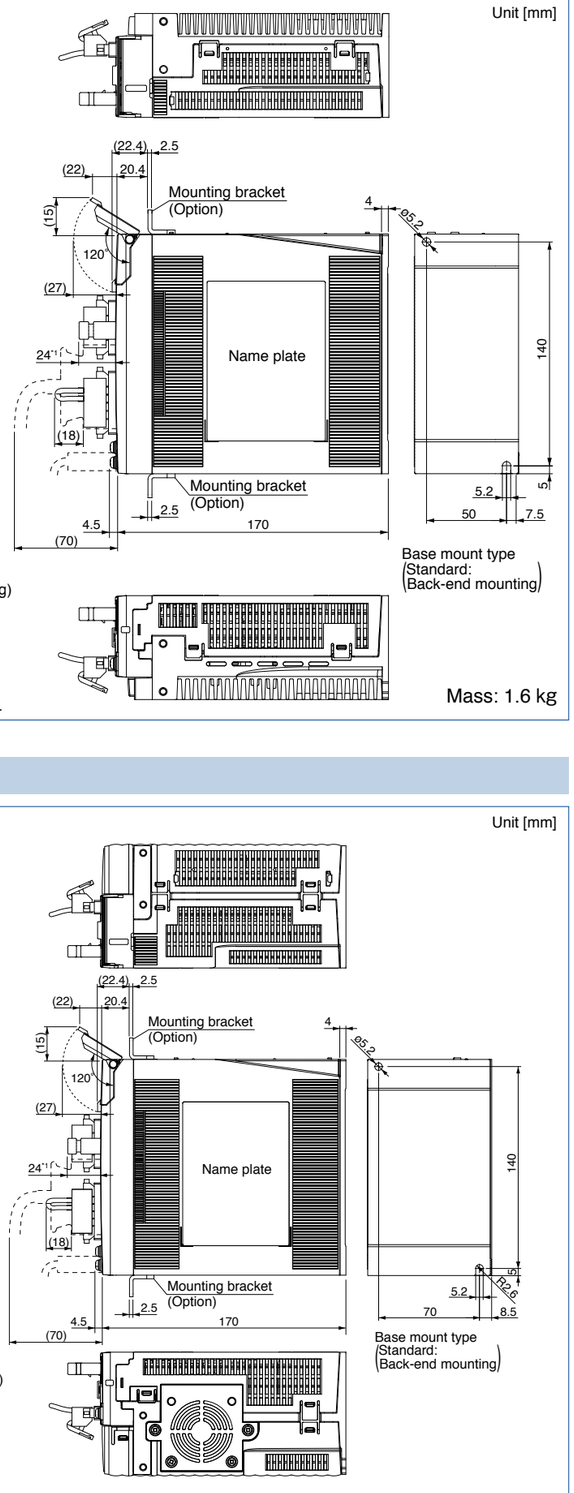
Unit [mm]

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)

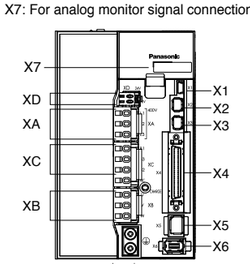
* For connectors used to connect to the driver, power supply and motor, refer to the A-frame table because both frames use the same connectors.

Mass: 1.6 kg

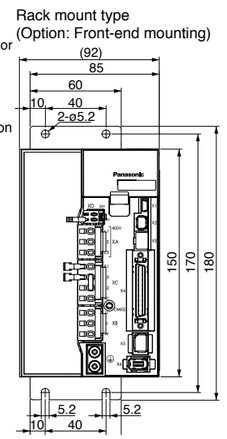
D-frame (400 V)

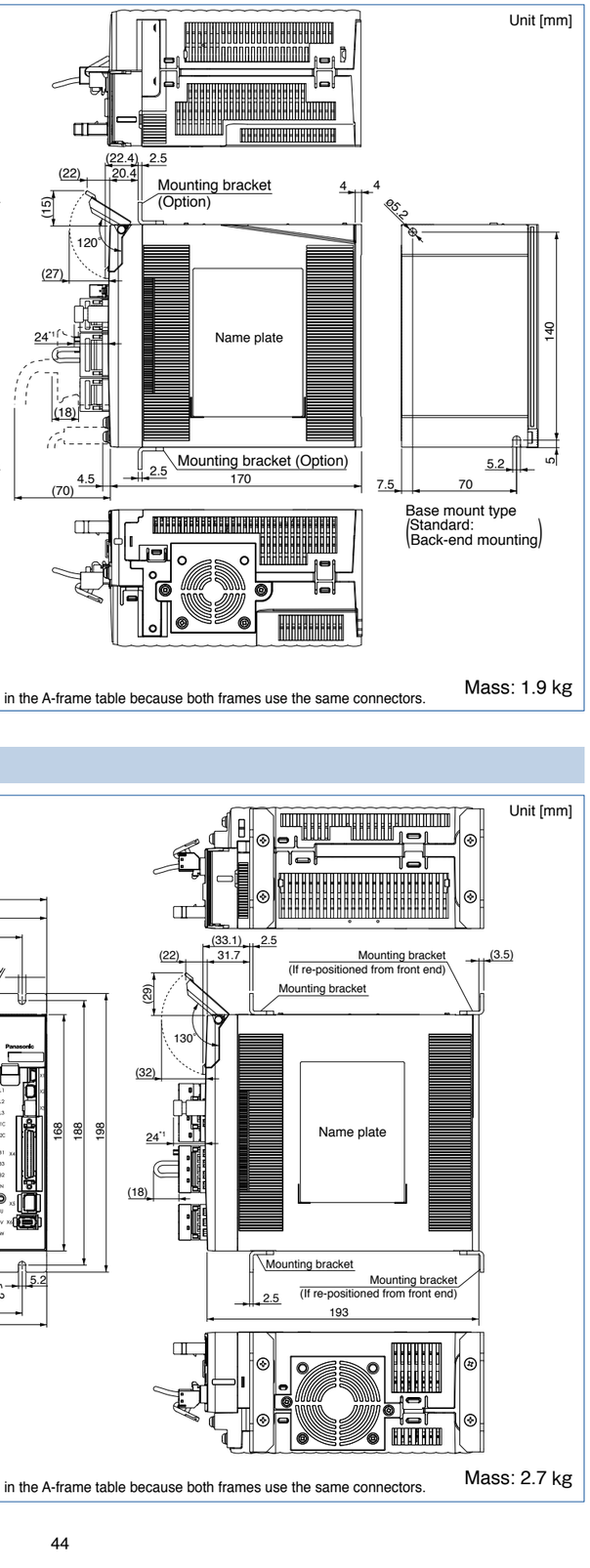
Unit [mm]

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



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.

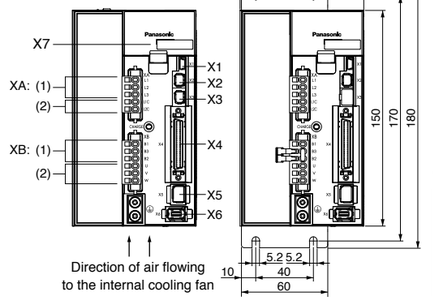
* For connectors X1 to X7 for connection to the driver, refer to those listed in the A-frame table because both frames use the same connectors.

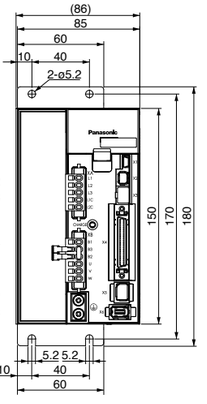
Mass: 1.9 kg

D-frame (200 V)

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)

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

* 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.

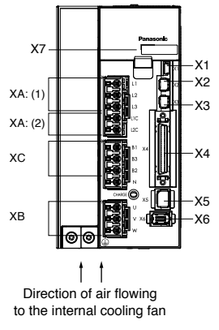
Mass: 1.8 kg

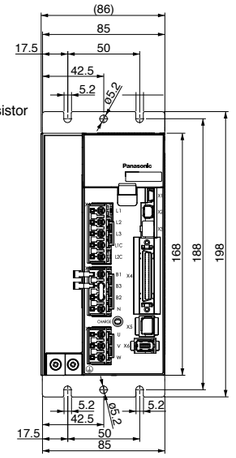
E-frame (200 V)

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





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.

* 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.

Mass: 2.7 kg

Dimensions of Driver

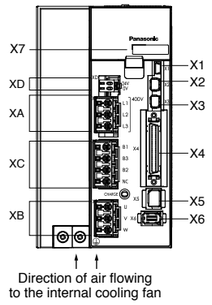
● The size of A5Ⅱ, A5 series and A5ⅡE, A5E series is same.

*1 The height of the safety by-pass provided plug is one of the 14 mm or 24 mm to connector X3.

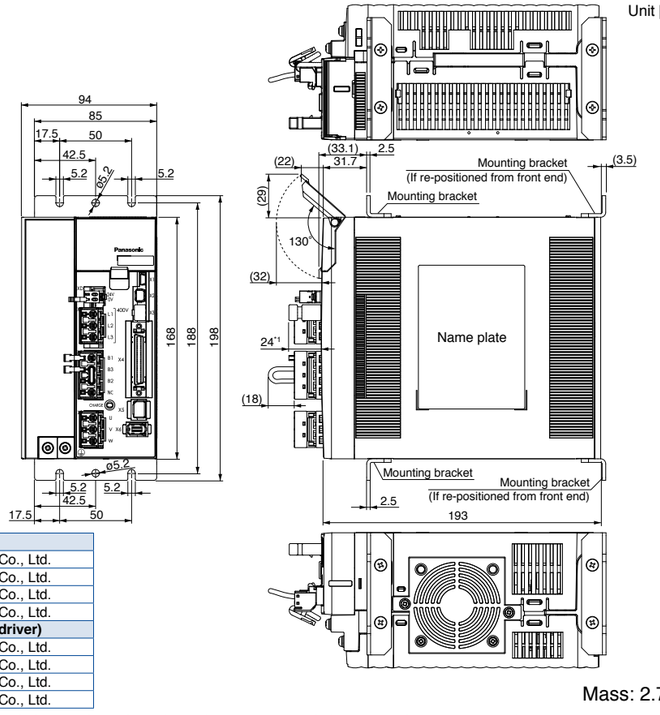
E-frame (400 V)

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]



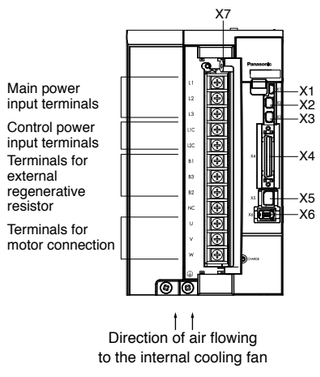
Connector of driver side		
Connector XA	S03B-JTSLSS-GSANYR	J.S.T. Mfg. Co., Ltd.
Connector XB	S03B-JTSLSK-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector XC	S04B-JTSLSK-GSANXR	J.S.T. Mfg. Co., Ltd.
Connector XD	S02B-J25SK-GGR	J.S.T. Mfg. Co., Ltd.
Connector of power and motor side (Attached to the driver)		
Connector 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: 2.7 kg

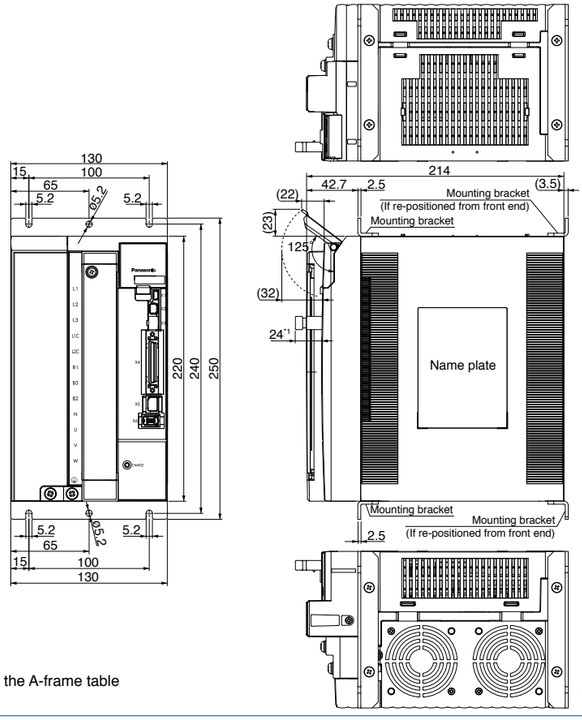
* For connectors X1 to X7 for connection to the driver, refer to those listed in the A-frame table because both frames use the same connectors.

F-frame (200 V/400 V)

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]

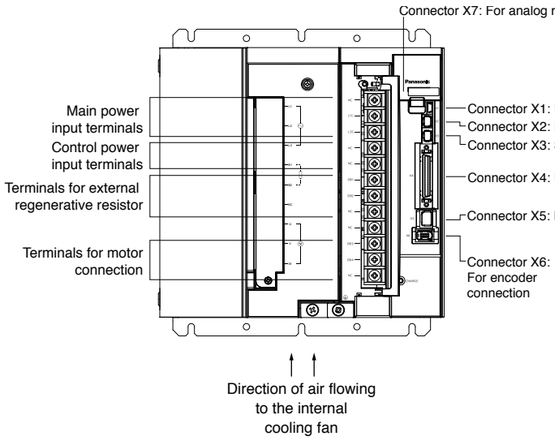


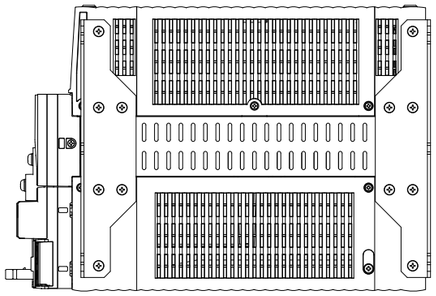
* For connectors used to connect to the driver, refer to the A-frame table because both frames use the same connectors.

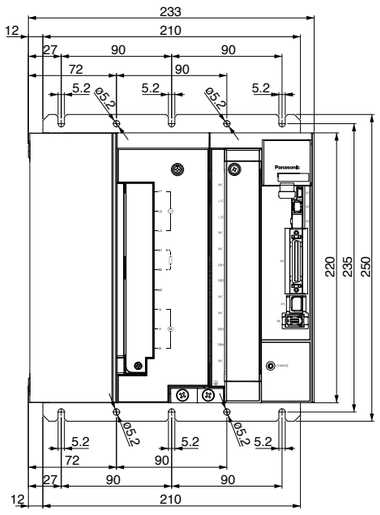
Mass: 4.8 kg

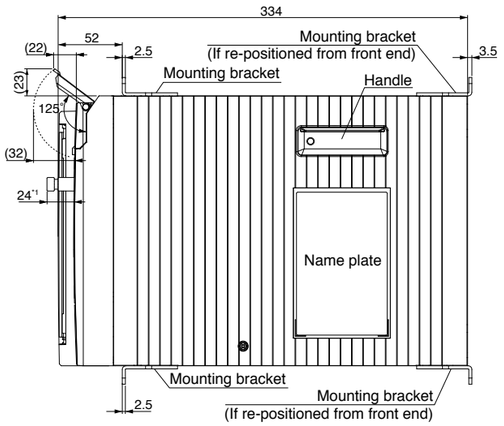
G-frame (200 V/400 V) * A5ⅡE, A5E series is out of the lineup.

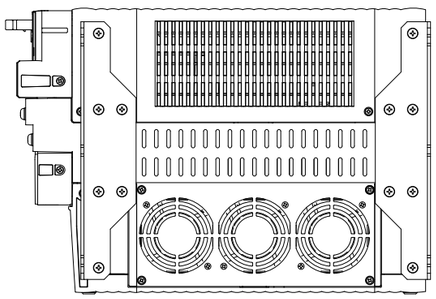
Unit [mm]











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

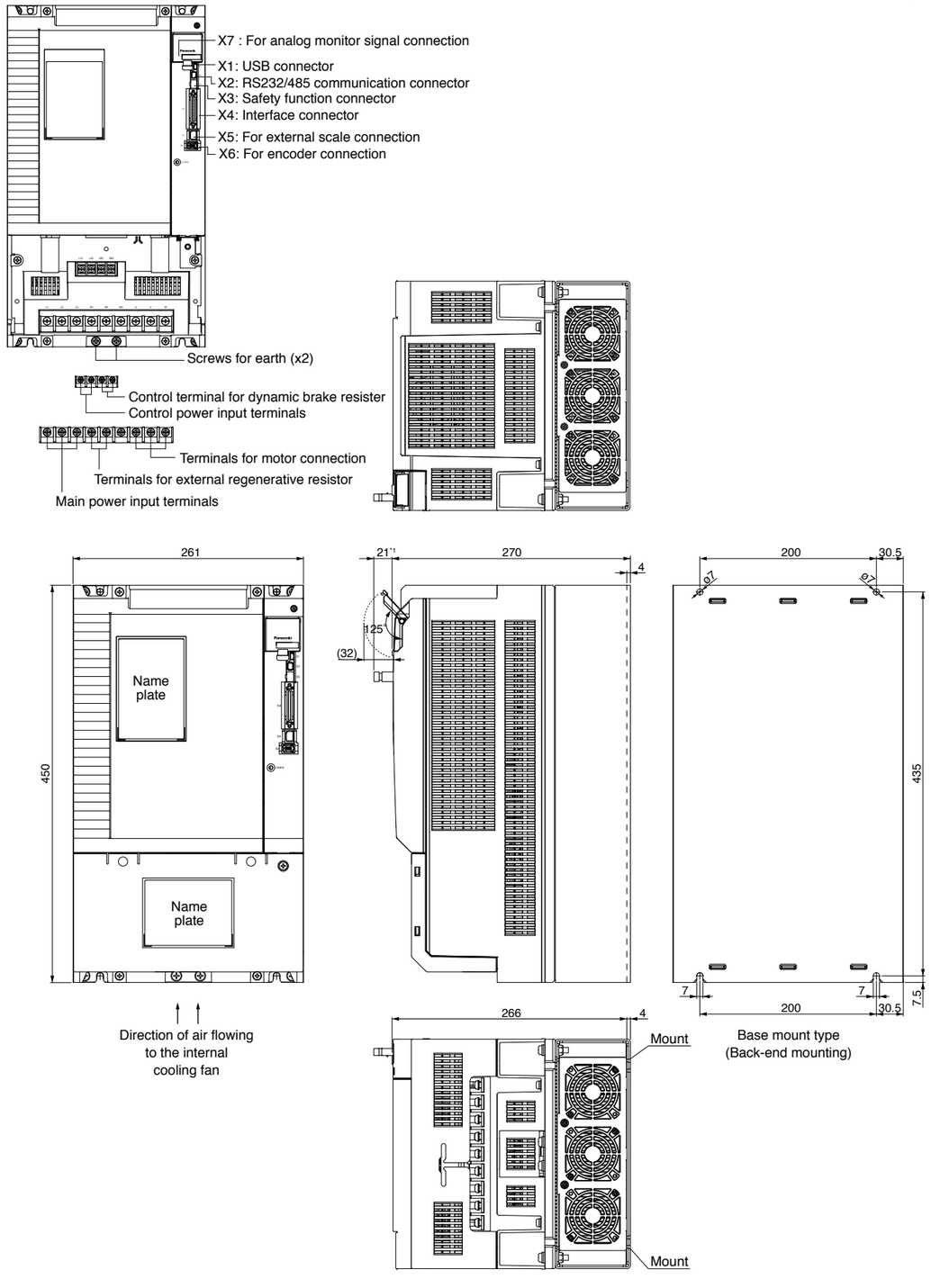
Mass: 13.5 kg

● A5ⅡE, A5E series is out of the lineup.

*1 The height of the safety by-pass provided plug is one of the 11 mm or 21 mm to connector X3.

H-frame (200 V/400 V)

Unit [mm]



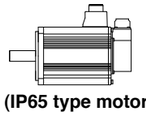
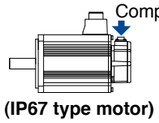
Mass: 21.0 kg

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

Features

- Line-up IP65 motor: 50 W to 5.0 kW
  IP67 motor: 50 W to 15.0 kW
- Max speed: 6000r/min (MSME 50 W to 750 W)
- Low inertia (MSME) to High inertia (MHME).
- Low cogging torque: Rated torque ratio 0.5 % (typical value).
- 20-bit incremental encoder (1048576 pulse)
- 17-bit absolute encoder (131072 pulse).

Motor Lineup

Small capacity	 **MSME** **Low inertia** Max. speed: 6000 r/min Rated speed: 3000 r/min Rated output: 50 W to 750 W(200 V) Enclosure: IP67	 **MSMD** **Low inertia** Max. speed: 5000 r/min : 4500 r/min(750 W) Rated speed: 3000 r/min Rated output: 50 W to 750 W Enclosure: IP65	 **MHMD** **High inertia** Max. speed: 5000 r/min : 4500 r/min(750 W) Rated speed: 3000 r/min Rated output: 200 W to 750 W Enclosure: IP65
Middle capacity	 **MSME** **Low inertia** Max. speed: 5000r /min : 4500 r/min (from 4.0 kW) Rated speed: 3000 r/min Rated output: 750 W(400 V), 1.0 kW to 5.0 kW Enclosure: IP65, IP67	 **MDME** **Middle inertia** Max. speed: 3000 r/min : 2000 r/min (from 11.0 kW) Rated speed: 2000 r/min : 1500 r/min (from 7.5 kW) Rated output IP65: 400 W to 5.0 kW IP67: 400 W to 15.0 kW Enclosure: IP65, IP67	 **MFME** (Flat type)* **Middle inertia** Max. speed: 3000 r/min Rated speed: 2000 r/min Rated output: 1.5 kW to 4.5 kW Enclosure: IP67
	 **MGME** (Low speed/ High torque type) **Middle inertia** Max. speed: 2000 r/min Rated speed: 1000 r/min Rated output IP65: 0.9 kW to 3.0 kW IP67: 0.9 kW to 6.0 kW Enclosure: IP65, IP67	 **MHME** **High inertia** Max. speed: 3000 r/min Rated speed: 2000 r/min : 1500 r/min(7.5 kW) Rated output IP65: 1.0 kW to 5.0 kW IP67: 1.0 kW to 7.5 kW 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

Motor Contents

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

Specifications

			AC100 V	
Motor model *1	IP65		MSMD5AZG1□	MSMD5AZS1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1105	
		A5ⅡE, A5E series	MAD◇T1105E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

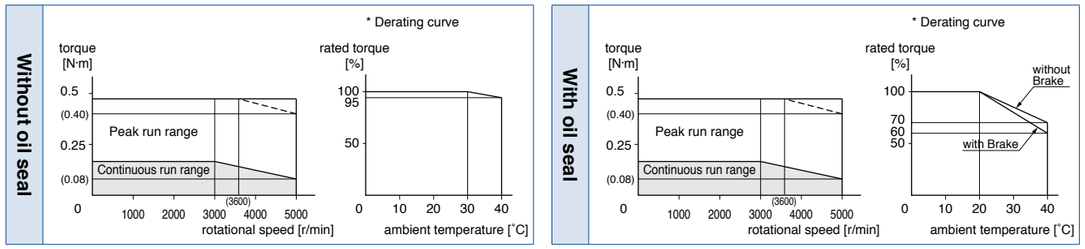
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.183)

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

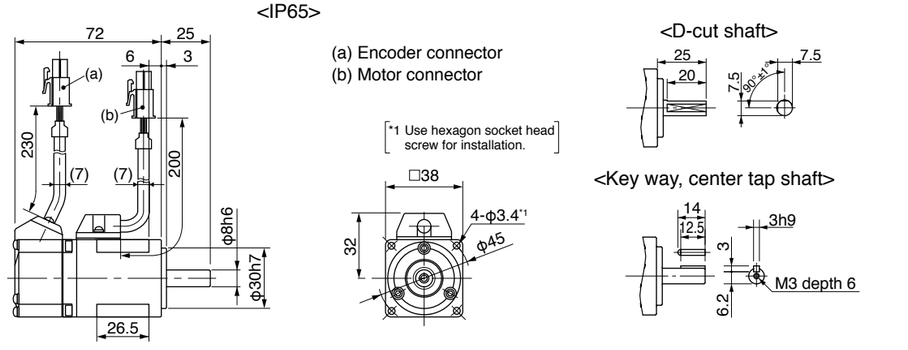
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MSMD5AZG1□	MSMD5AZS1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1505	
		A5ⅡE, A5E series	MAD◇T1505E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

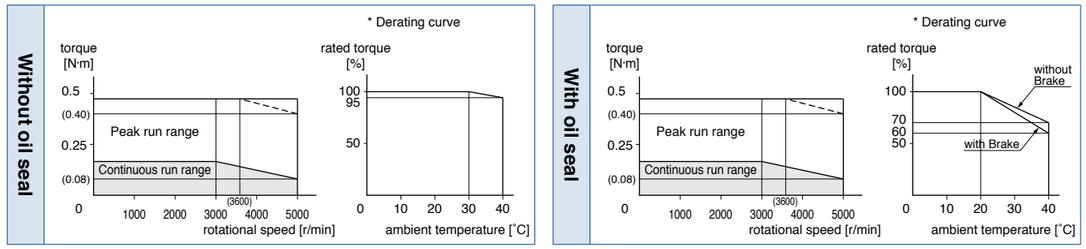
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.183)

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

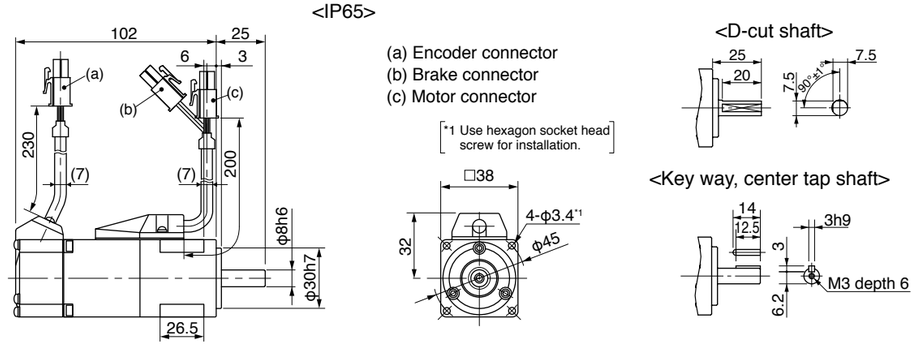
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

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

Specifications

			AC100 V	
Motor model *1	IP65		MSMD011G1□	MSMD011S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1107	
		A5ⅡE, A5E series	MAD◇T1107E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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

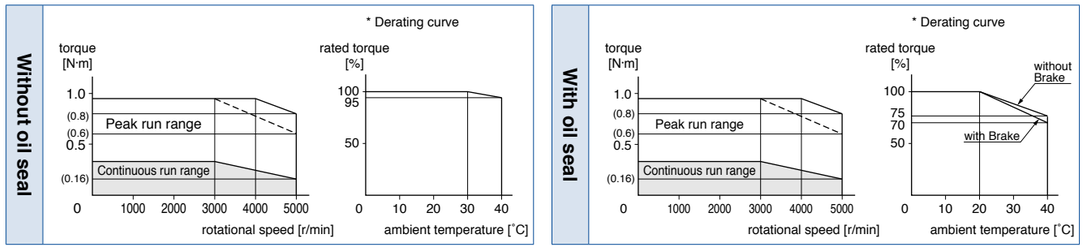
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.42.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

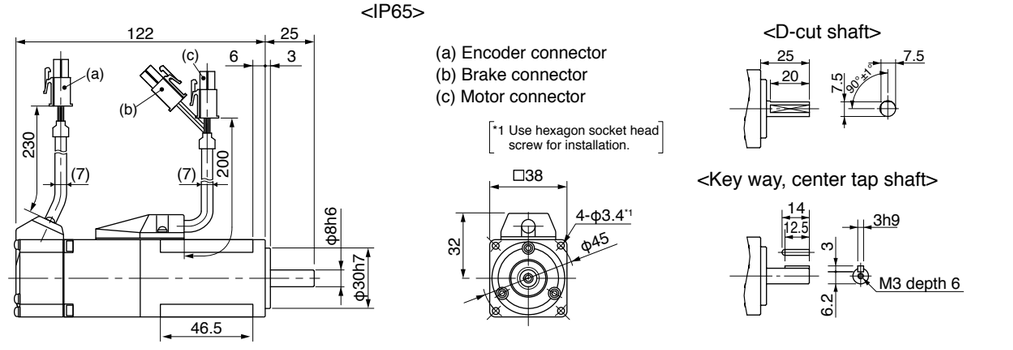
Torque characteristics (at AC100 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MSMD012G1□	MSMD012S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1505	
		A5ⅡE, A5E series	MAD◇T1505E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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

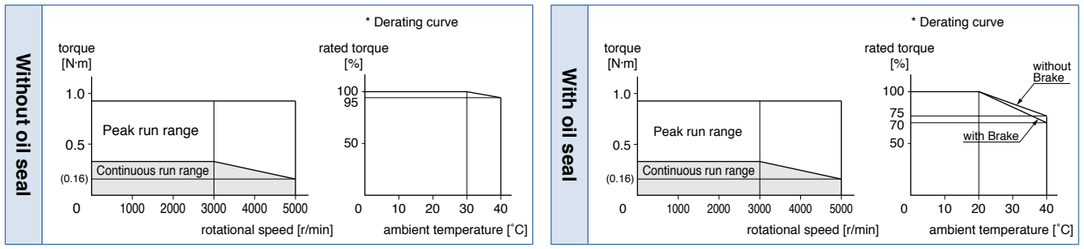
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.42.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

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

Specifications

			AC100 V	
Motor model *1	IP65		MSMD021G1□	MSMD021S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MBD◇T2110	
		A5ⅡE, A5E series	MBD◇T2110E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.42.

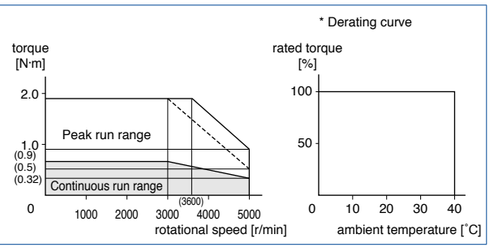
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

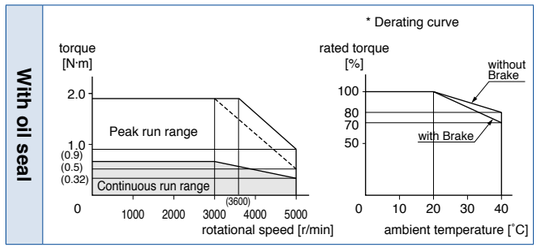
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal



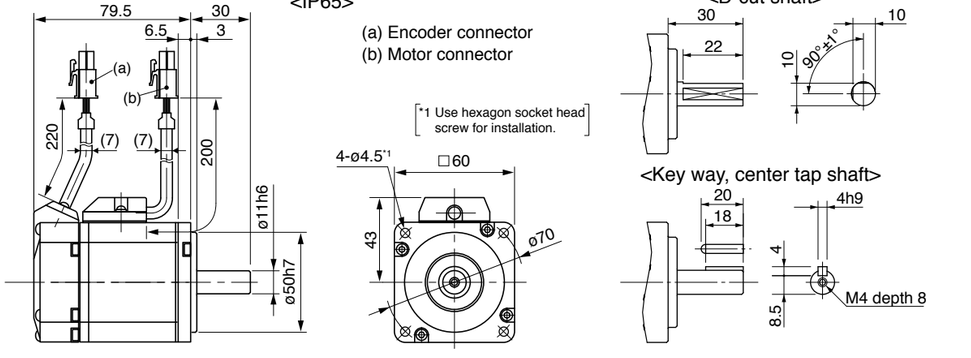
With oil seal



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MSMD022G1□	MSMD022S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1507	
		A5ⅡE, A5E series	MAD◇T1507E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.42.

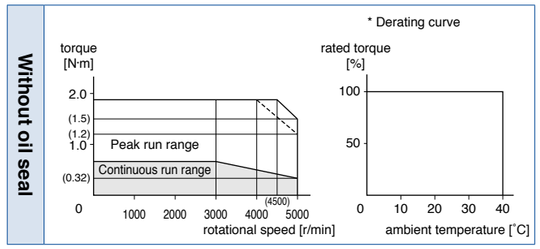
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

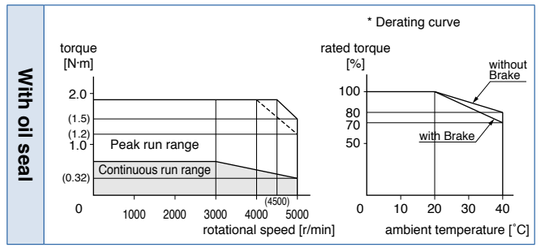
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal



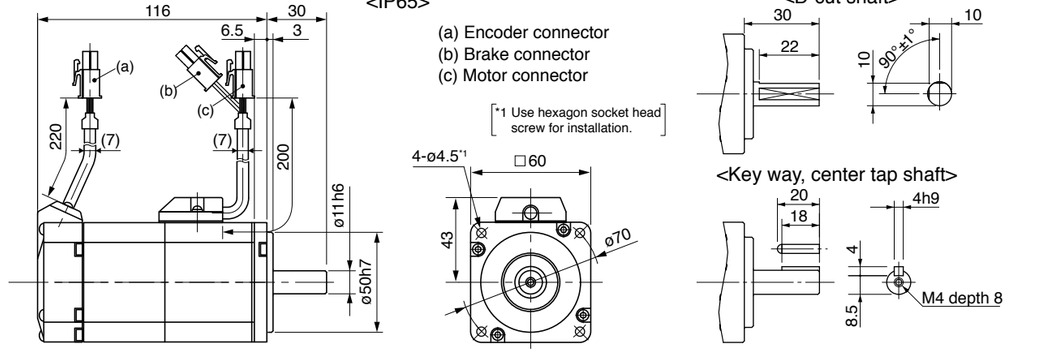
With oil seal



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.

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

Specifications

			AC100 V	
Motor model *1	IP65		MSMD041G1□	MSMD041S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MCD◇T3120	
		A5ⅡE, A5E series	MCD◇T3120E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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

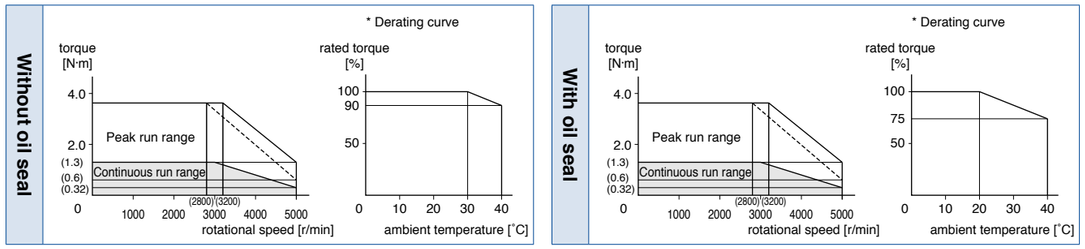
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.43.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

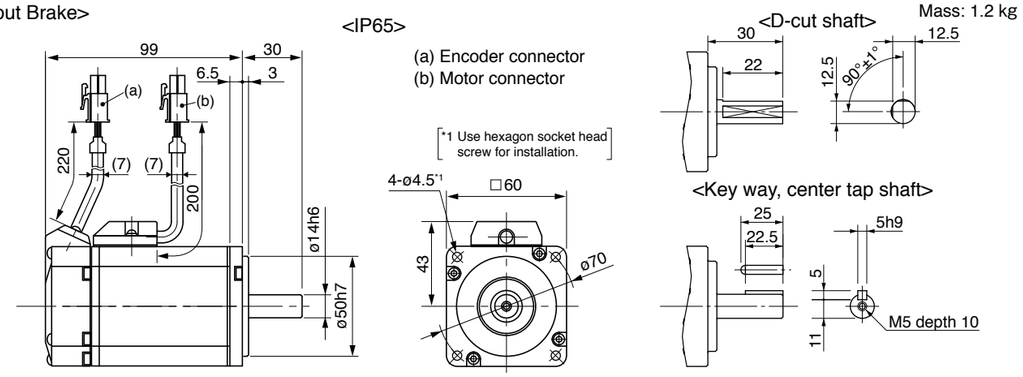
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MSMD042G1□	MSMD042S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MBD◇T2510	
		A5ⅡE, A5E series	MBD◇T2510E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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

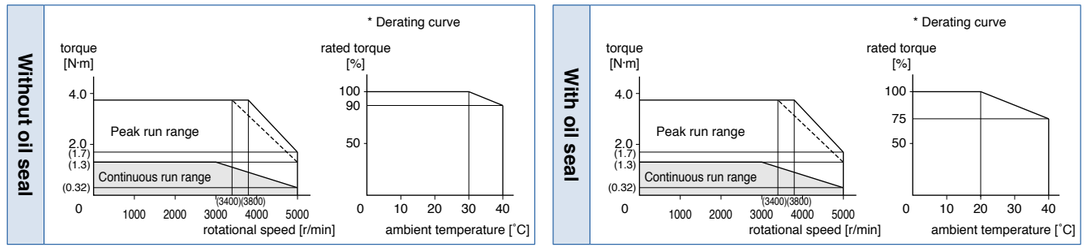
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.42.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

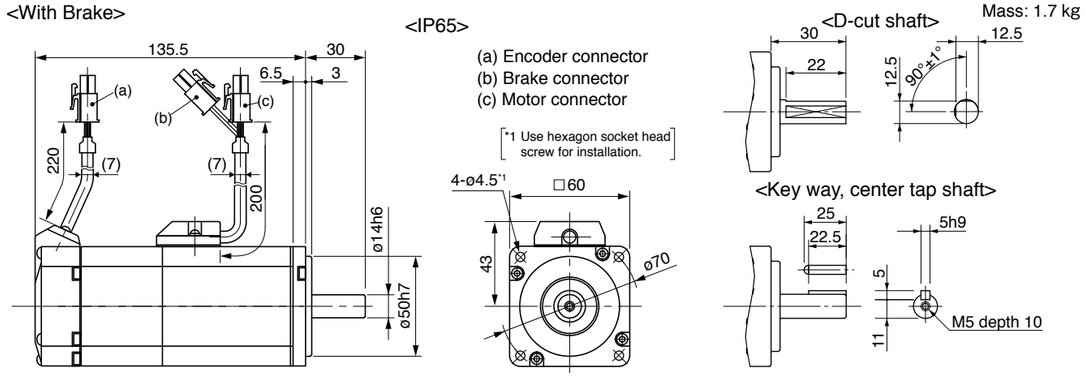
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

Motor Specifications

200 V **MSMD** 750 W [Low inertia, Small capacity]

Specifications

			AC200 V	
Motor model *1	IP65		MSMD082G1□	MSMD082S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MCD◇T3520	
		A5ⅡE, A5E series	MCD◇T3520E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

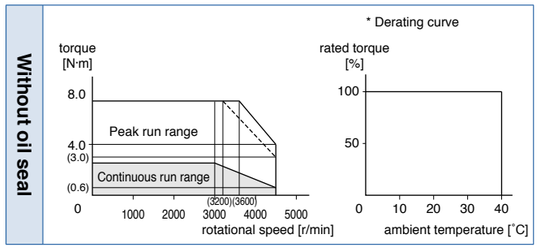
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

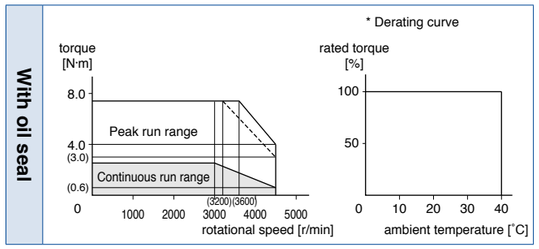
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

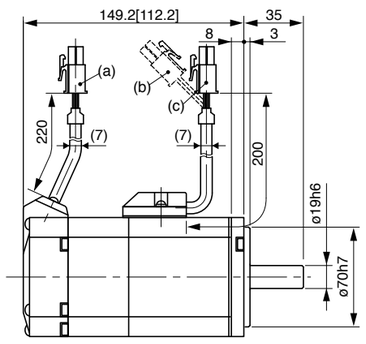




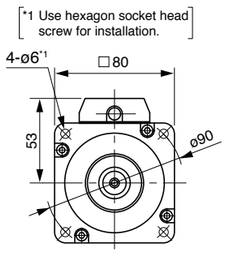
Dimensions

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

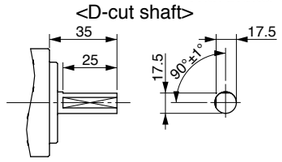
<IP65>



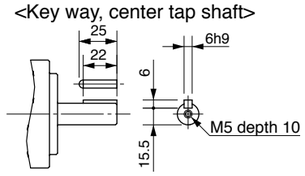
(a) Encoder connector
(b) Brake connector
(c) Motor connector



<D-cut shaft>



<Key way, center tap shaft>



[Unit: mm]

* Figures in [ ] represent the dimensions without brake.

<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

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

Specifications

			AC100 V	
Motor model *1	IP65		MHMD021G1□	MHMD021S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MBD◇T2110	
		A5ⅡE, A5E series	MBD◇T2110E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.42.

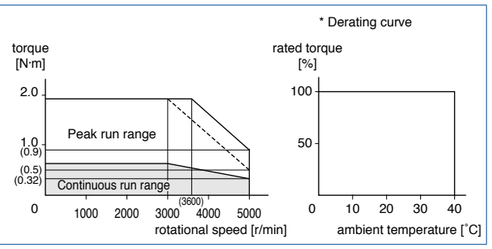
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

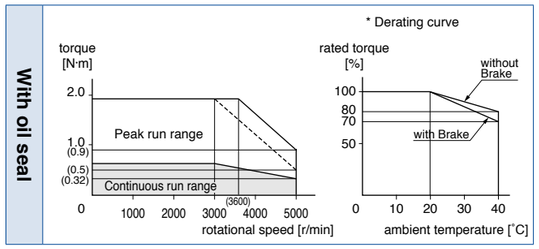
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal

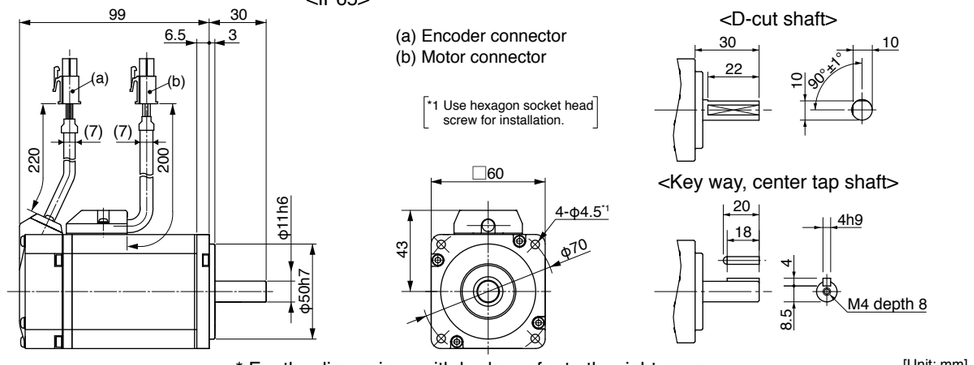


With oil seal



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MHMD022G1□	MHMD022S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1507	
		A5ⅡE, A5E series	MAD◇T1507E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.42.

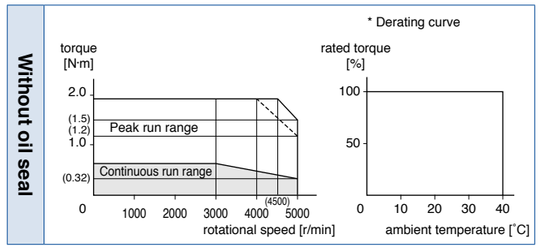
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

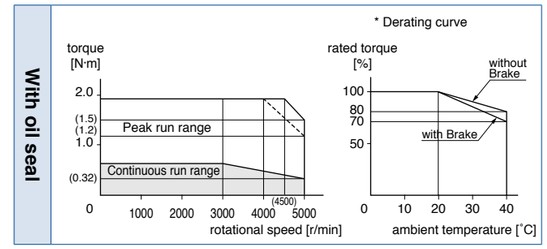
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal

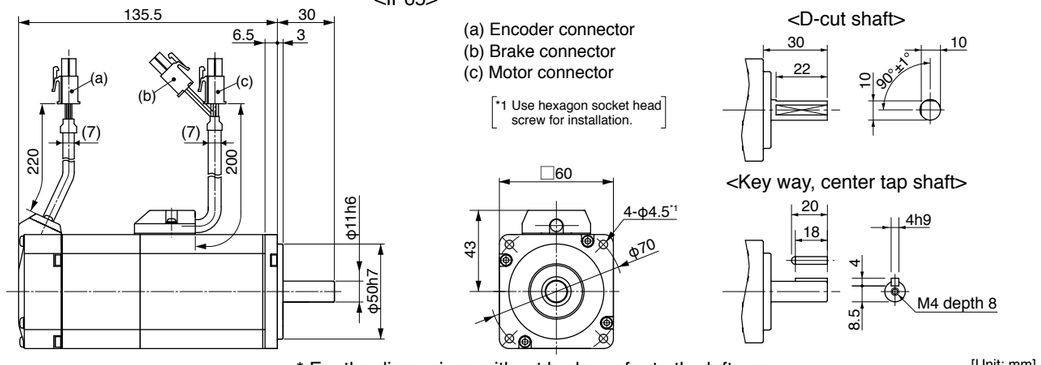


With oil seal



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.

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

Specifications

			AC100 V	
Motor model *1	IP65		MHMD041G1□	MHMD041S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MCD◇T3120	
		A5ⅡE, A5E series	MCD◇T3120E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

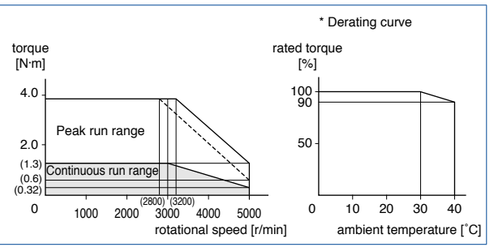
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

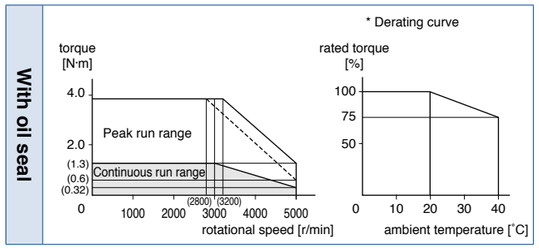
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal



With oil seal

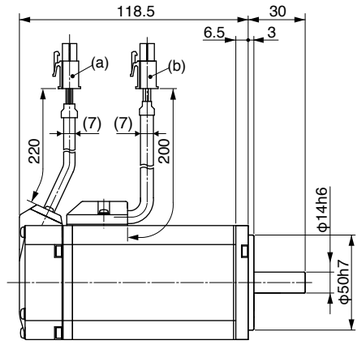


Dimensions

<Without Brake>

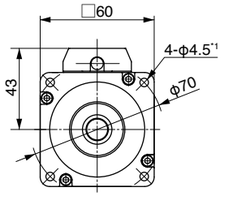
Mass: 1.4 kg

<IP65>

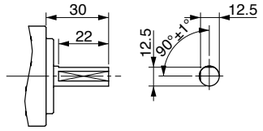


(a) Encoder connector
(b) Motor connector

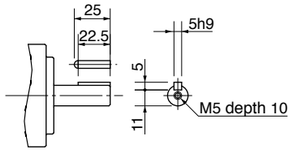
*1 Use hexagon socket head screw for installation.



<D-cut shaft>



<Key way, center tap shaft>



[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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MHMD042G1□	MHMD042S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MBD◇T2510	
		A5ⅡE, A5E series	MBD◇T2510E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.42.

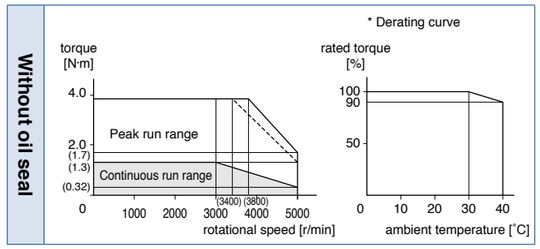
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

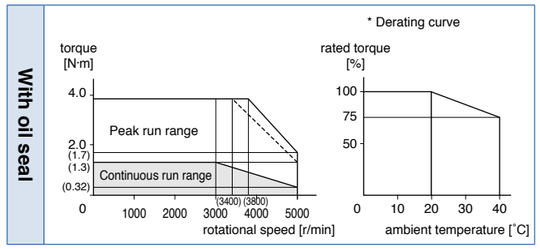
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal



With oil seal

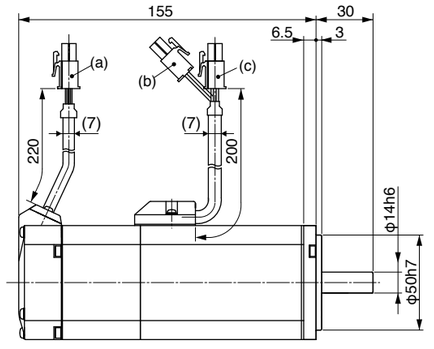


Dimensions

<With Brake>

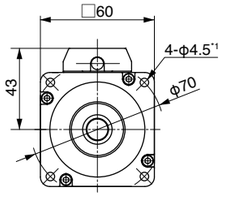
Mass: 1.8 kg

<IP65>

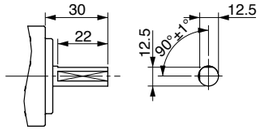


(a) Encoder connector
(b) Brake connector
(c) Motor connector

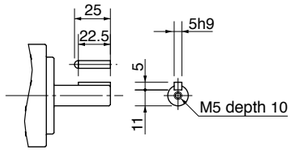
*1 Use hexagon socket head screw for installation.



<D-cut shaft>



<Key way, center tap shaft>



[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.

Motor Specifications

200 V **MHMD 750 W [High inertia, Small capacity]**

Specifications

			AC200 V	
Motor model *1	IP65		MHMD082G1□	MHMD082S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MCD◇T3520	
		A5ⅡE, A5E series	MCD◇T3520E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

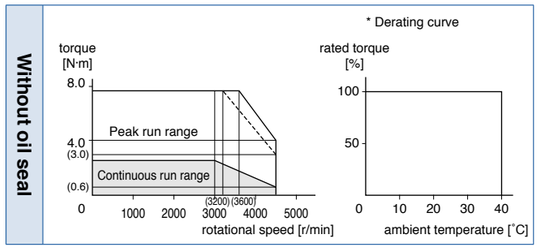
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

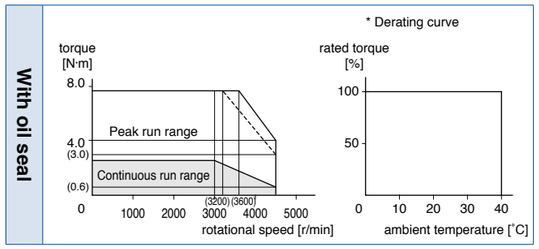
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



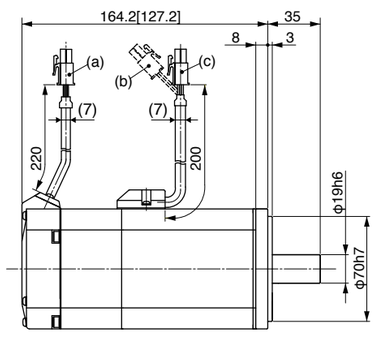


Dimensions

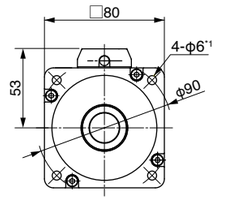
Mass: Without brake/ 2.5 kg
With brake/ 3.5 kg

<IP65>

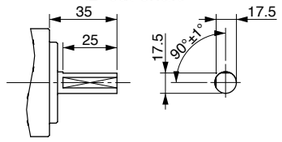
(a) Encoder connector
(b) Brake connector
(c) Motor connector



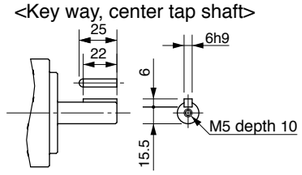
*1 Use hexagon socket head screw for installation.



<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

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

Specifications

			AC100 V	
Motor model *1	IP65		–	–
	IP67		MSME5AZG1□	MSME5AZS1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1105	
		A5ⅡE, A5E series	MAD◇T1105E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)
(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

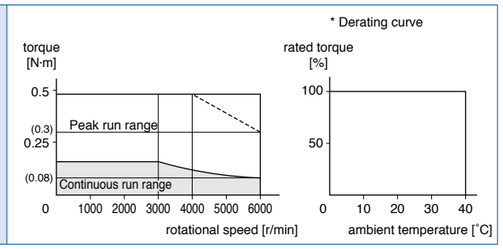
• Permissible load (For details, refer to P.183)

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

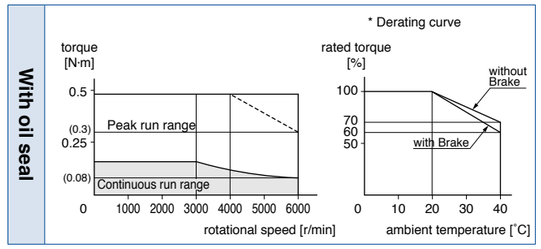
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V of power voltage) <Dotted line represents the torque at 10 % less supply voltage.>

Without oil seal



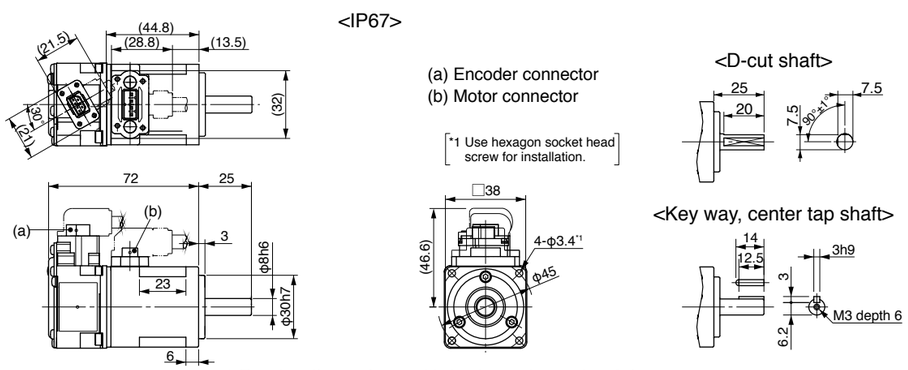
With oil seal



Dimensions <In Case of Without Brake, Cable direction to output shaft.>

• Motor cables for opposite to output shaft cannot be used with 50 W motor.

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.

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

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MSME5AZG1□	MSME5AZS1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1505	
		A5ⅡE, A5E series	MAD◇T1505E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)
(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

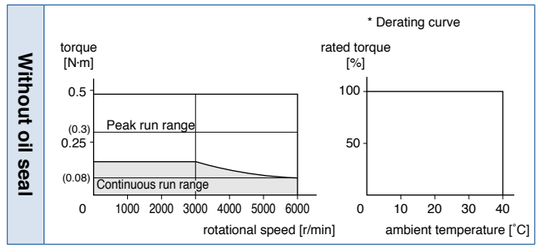
• Permissible load (For details, refer to P.183)

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

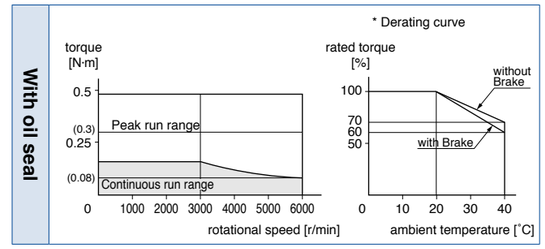
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200V of power voltage)

Without oil seal



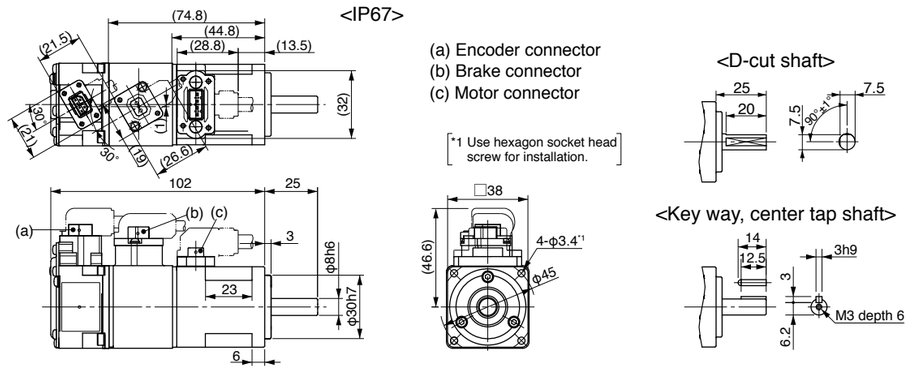
With oil seal



Dimensions <In Case of With Brake, Cable direction to output shaft.>

• Motor cables for opposite to output shaft cannot be used with 50 W motor.

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.

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

Specifications

			AC100 V	
Motor model *1	IP65		–	–
	IP67		MSME011G1□	MSME011S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1107	
		A5ⅡE, A5E series	MAD◇T1107E	–
	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			1048576	131072

• Brake specifications (For details, refer to P.183)
(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.42.

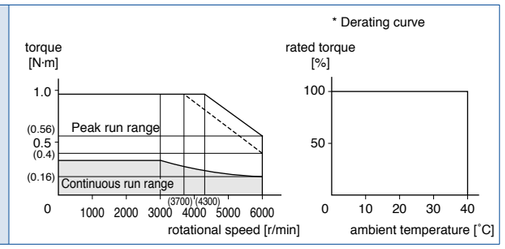
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

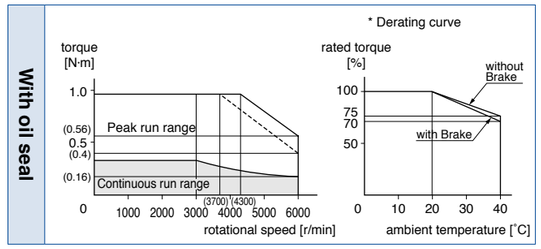
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal



With oil seal

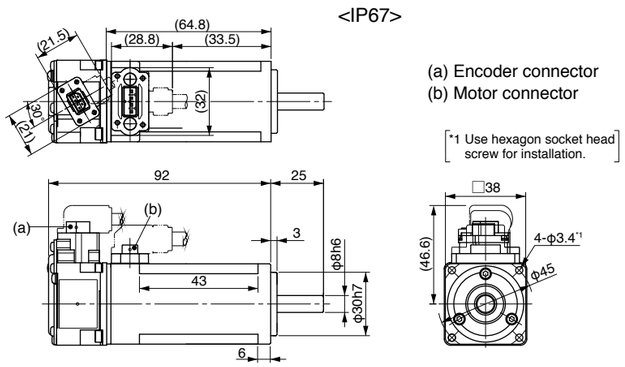


Dimensions <In Case of Without Brake, Cable direction to output shaft.>

• Motor cables for opposite to output shaft cannot be used with 100 W motor.

Mass: 0.46 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MSME012G1□	MSME012S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1505	
		A5ⅡE, A5E series	MAD◇T1505E	–
	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			1048576	131072

• Brake specifications (For details, refer to P.183)
(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.42.

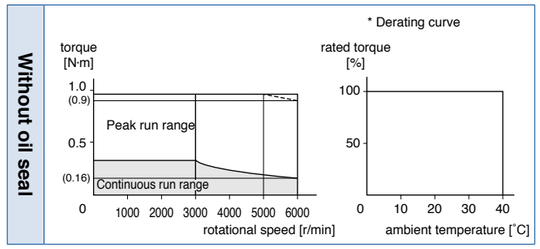
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

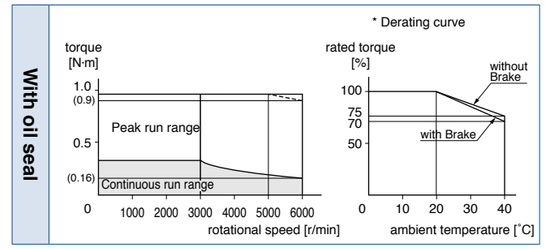
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal



With oil seal

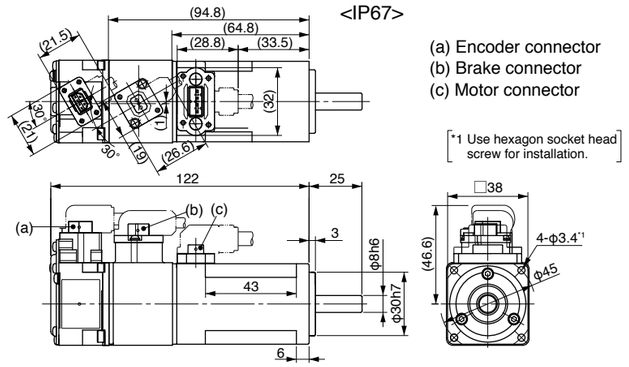


Dimensions <In Case of With Brake, Cable direction to output shaft.>

• Motor cables for opposite to output shaft cannot be used with 100 W motor.

Mass: 0.66 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.

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

Specifications

			AC100 V	
Motor model *1	IP65		–	–
	IP67		MSME021G1□	MSME021S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MBD◇T2110	
		A5ⅡE, A5E series	MBD◇T2110E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)
(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.183)

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

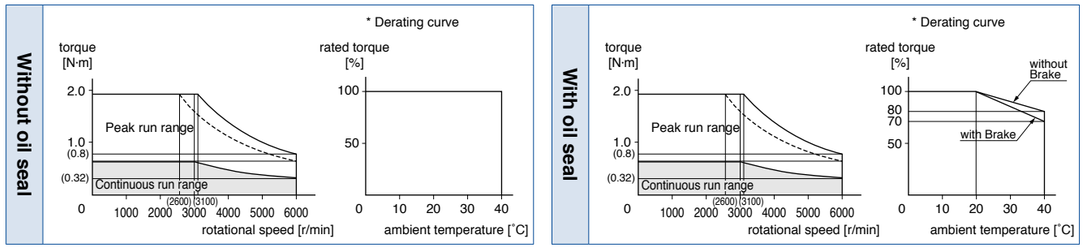
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.42.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

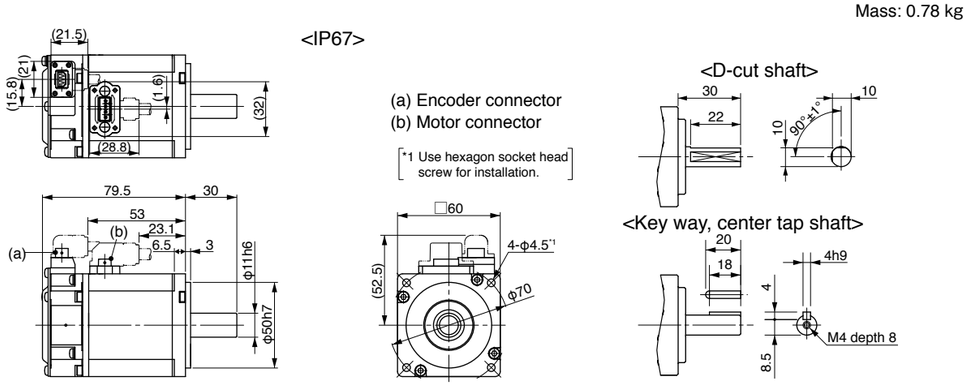
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions <In Case of 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MSME022G1□	MSME022S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MAD◇T1507	
		A5ⅡE, A5E series	MAD◇T1507E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)
(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.183)

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

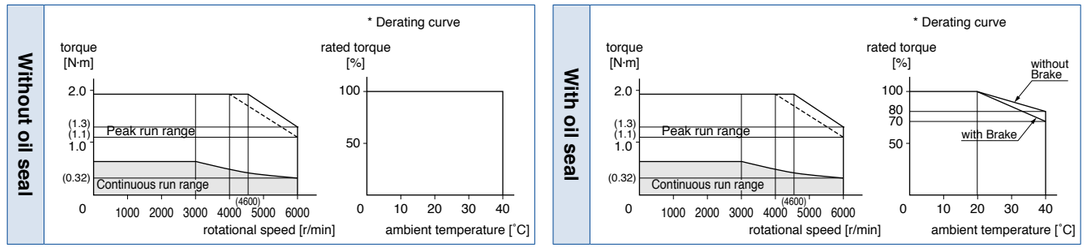
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.42.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

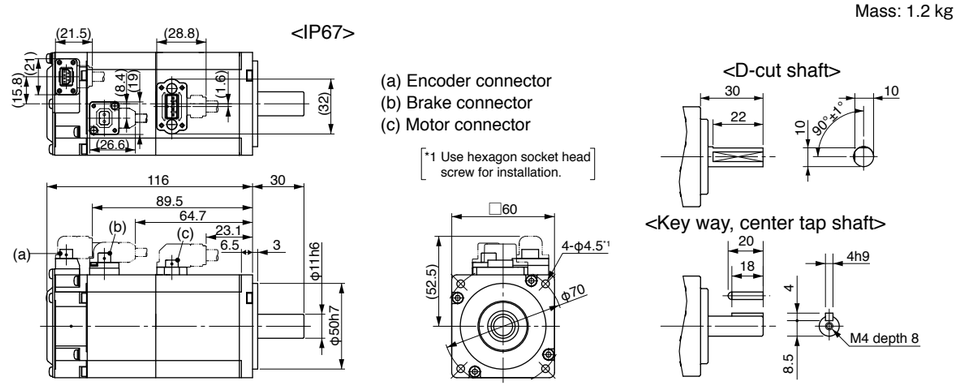
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions <In Case of 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.

100 V MSME 400 W [Low inertia, Small capacity]

Specifications

			AC100 V	
Motor model *1	IP65		–	–
	IP67		MSME041G1□	MSME041S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MCD◇T3120	
		A5ⅡE, A5E series	MCD◇T3120E	–
	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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)
(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.183)

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

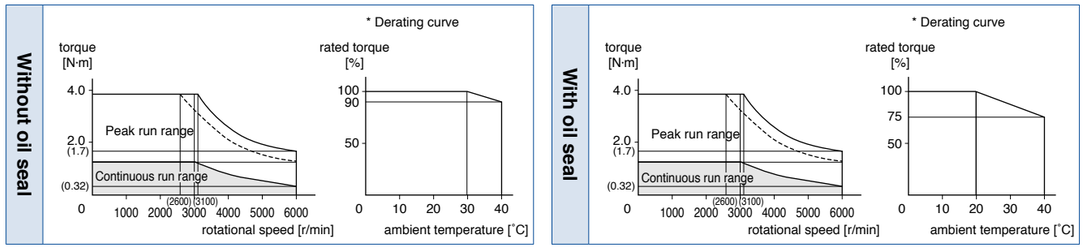
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.43.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

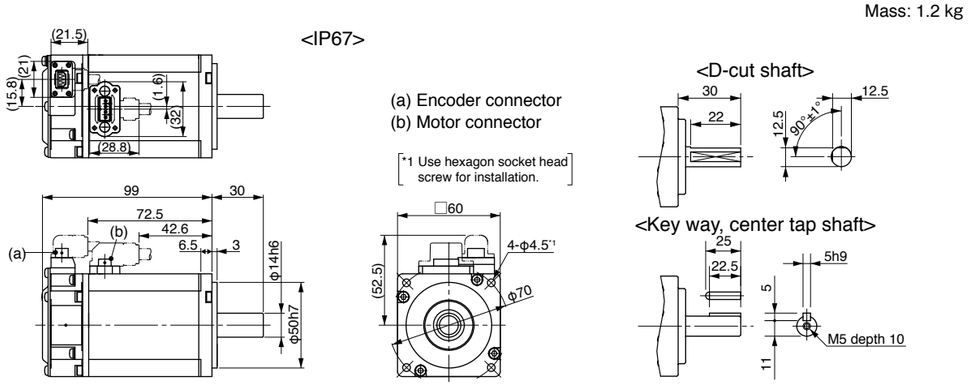
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC100 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions <In Case of Without Brake, Cable direction to output shaft.>

Mass: 1.2 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.

200 V MSME 400 W [Low inertia, Small capacity]

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MSME042G1□	MSME042S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MBD◇T2510	
		A5ⅡE, A5E series	MBD◇T2510E	–
	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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)
(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.183)

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

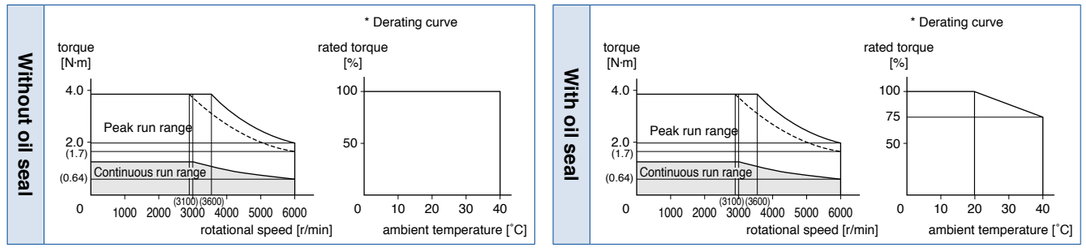
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.42.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

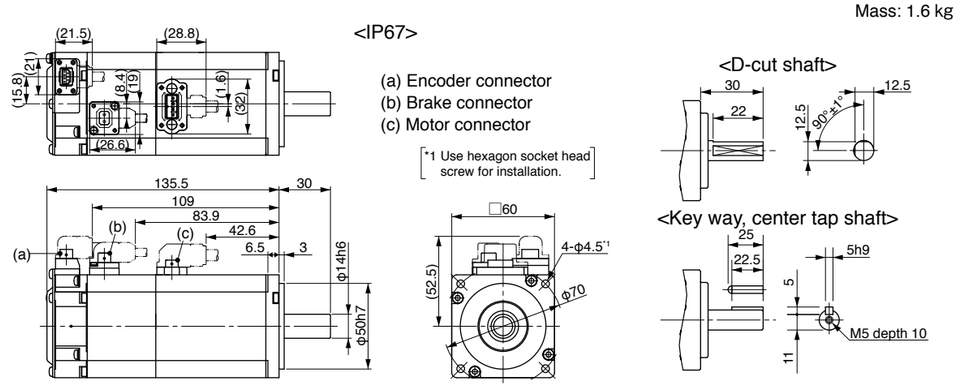
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions <In Case of With Brake, Cable direction to output shaft.>

Mass: 1.6 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MSME082G1□	MSME082S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MCD◇T3520	
		A5ⅡE, A5E series	MCD◇T3520E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

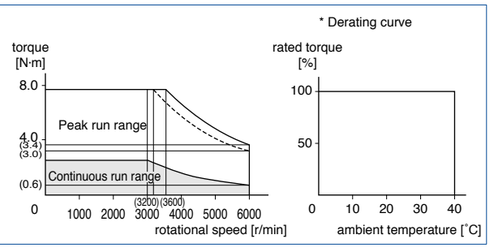
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

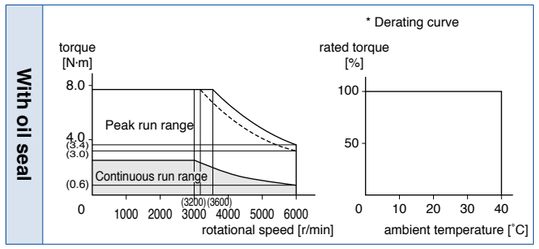
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal



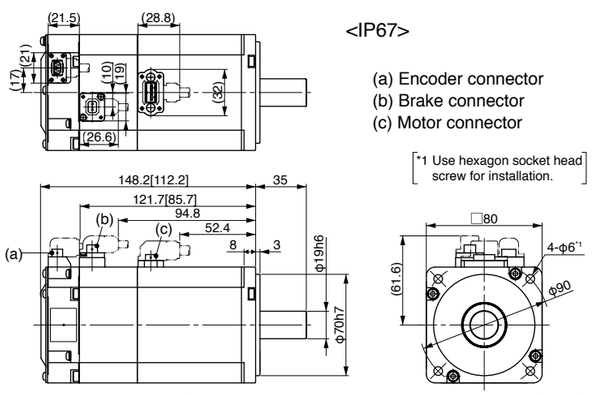
With oil seal



Dimensions <In Case of With Brake, Cable direction to output shaft.>

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

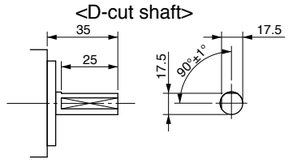
<IP67>



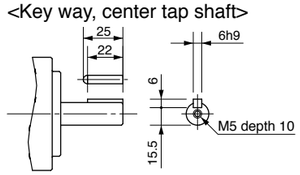
(a) Encoder connector
(b) Brake connector
(c) Motor connector

*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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MSME102GC□	MSME102SC□
	IP67		MSME102G1□	MSME102S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T5540	
		A5ⅡE, A5E series	MDD◇T5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

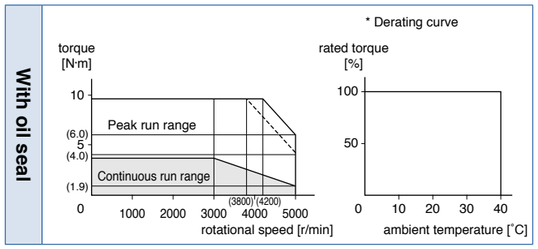
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal

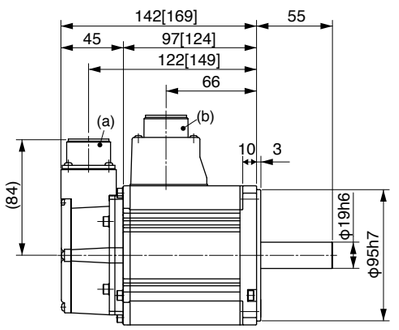


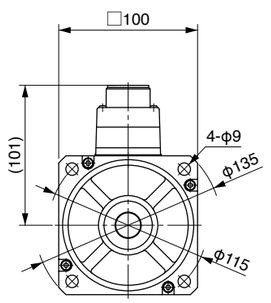
Dimensions

(For IP67 motor, refer to P.137.)

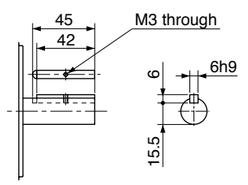
<IP65>

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

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

Specifications

			AC200 V	
Motor model *1	IP65		MSME152GC□	MSME152SC□
	IP67		MSME152G1□	MSME152S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T5540	
		A5ⅡE, A5E series	MDD◇T5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

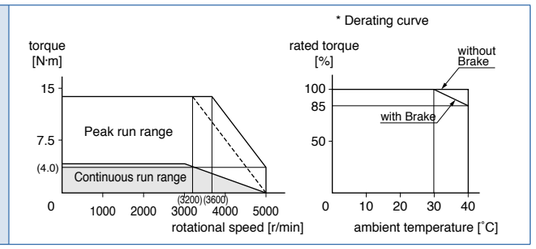
• Permissible load (For details, refer to P.183)

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

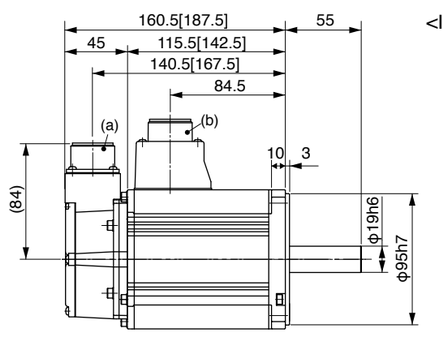
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

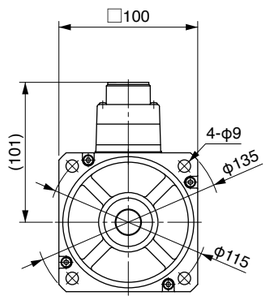
With oil seal



Dimensions (For IP67 motor, refer to P.137.)

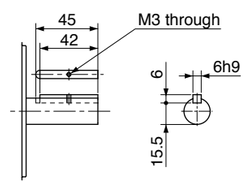


<IP65>



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

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

Specifications

			AC200 V	
Motor model *1	IP65		MSME202GC□	MSME202SC□
	IP67		MSME202G1□	MSME202S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MED◇T7364	
		A5ⅡE, A5E series	MED◇T7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

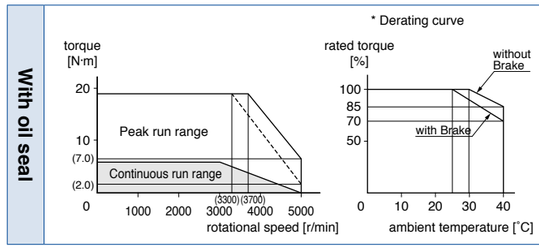
• Permissible load (For details, refer to P.183)

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

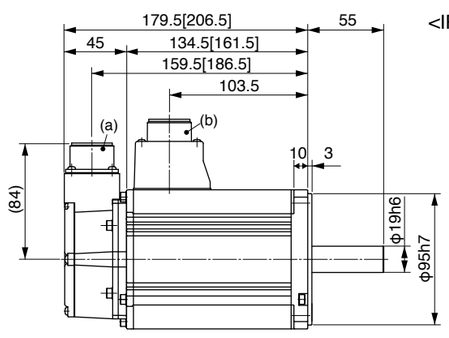
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

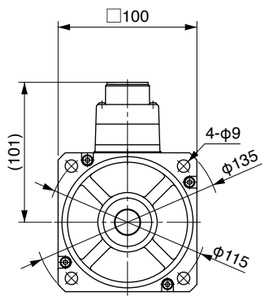
With oil seal



Dimensions (For IP67 motor, refer to P.137.)

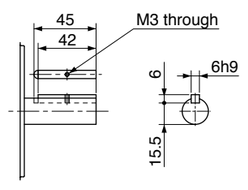


<IP65>



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

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

Specifications

			AC200 V	
Motor model *1	IP65		MSME302GC□	MSME302SC□
	IP67		MSME302G1□	MSME302S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA390	
		A5ⅡE, A5E series	MFD◇TA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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		6.85	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

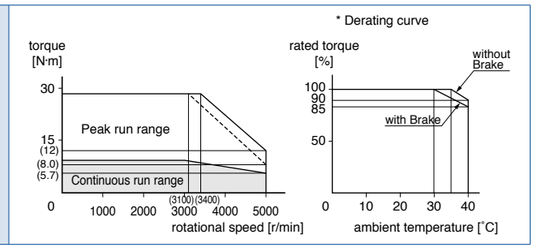
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

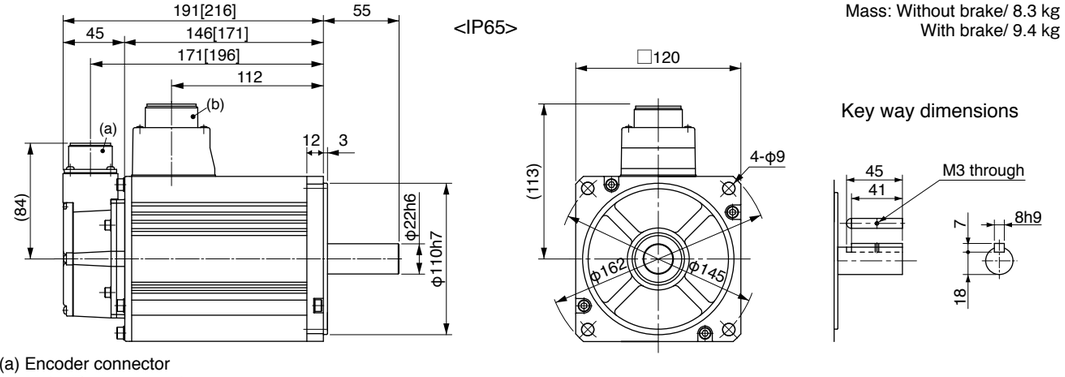
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions (For IP67 motor, refer to P.137.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MSME402GC□	MSME402SC□
	IP67		MSME402G1□	MSME402S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (W)			4000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

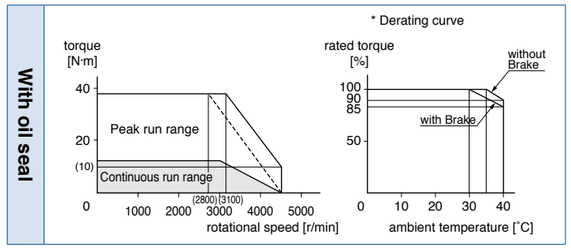
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

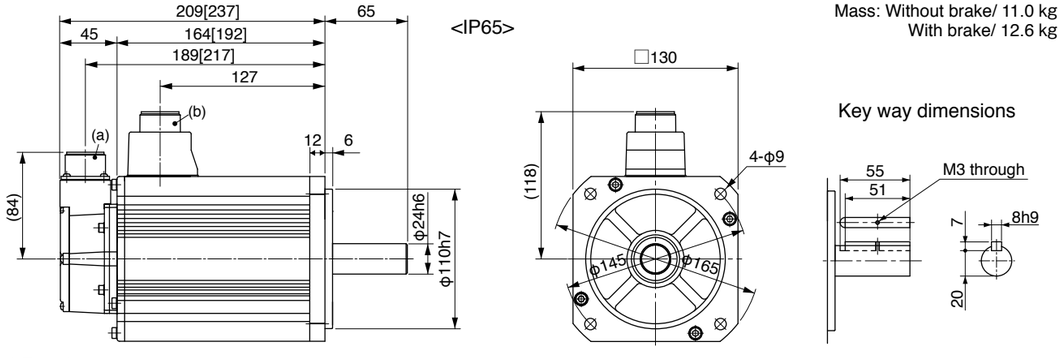
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions (For IP67 motor, refer to P.137.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MSME502GC□	MSME502SC□
	IP67		MSME502G1□	MSME502S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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^{-4} kg·m^2)	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

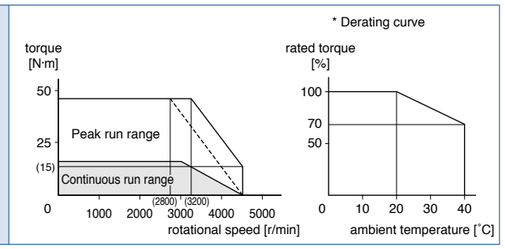
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

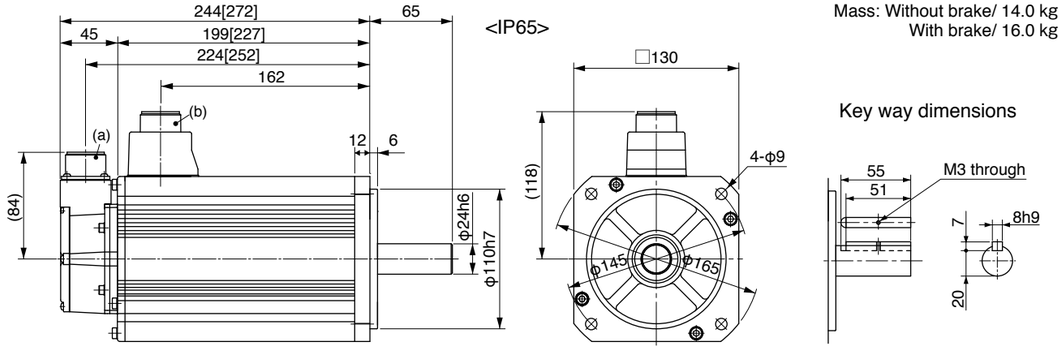
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.138.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MDME102GC□	MDME102SC□
	IP67		MDME102G1□	MDME102S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T3530	
		A5ⅡE, A5E series	MDD◇T3530E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

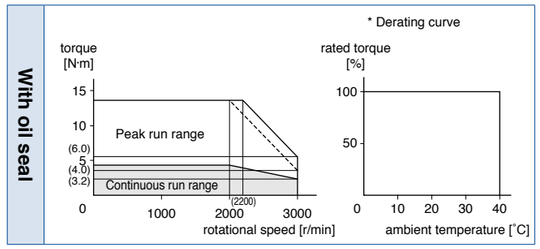
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

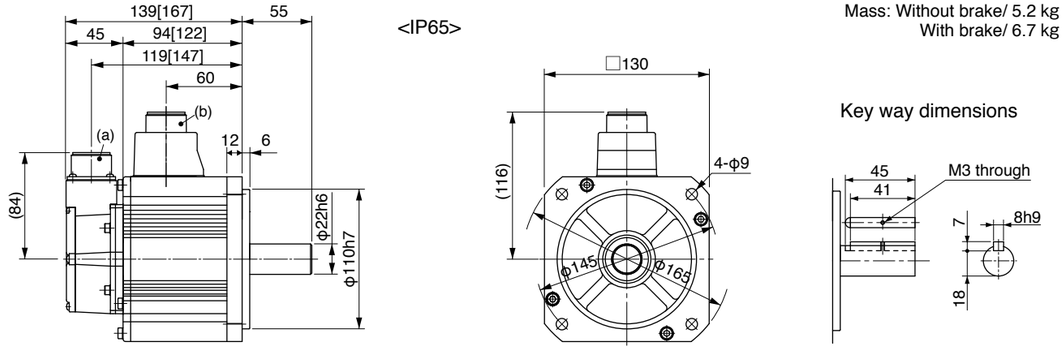
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.138.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MDME152GC□	MDME152SC□
	IP67		MDME152G1□	MDME152S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T5540	
		A5ⅡE, A5E series	MDD◇T5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

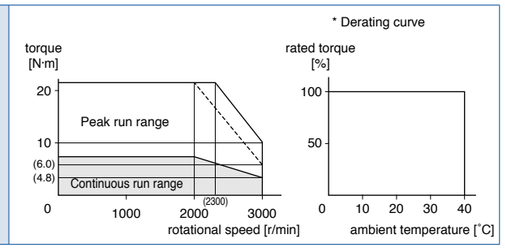
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

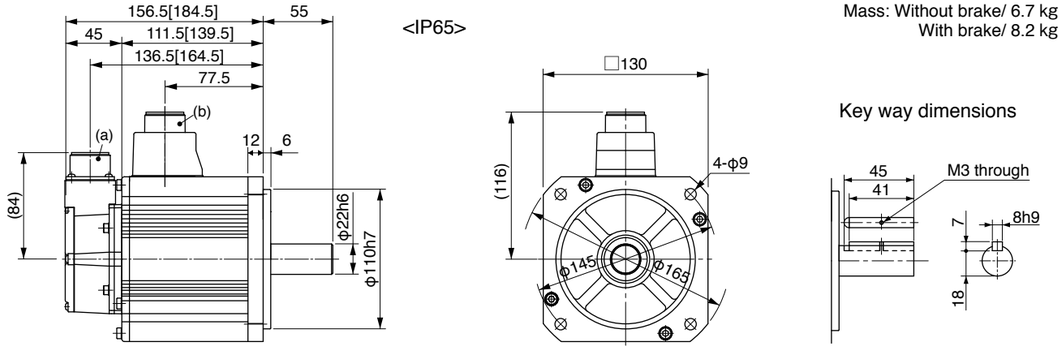
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.138.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MDME202GC□	MDME202SC□
	IP67		MDME202G1□	MDME202S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MED◇T7364	
		A5ⅡE, A5E series	MED◇T7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.44.

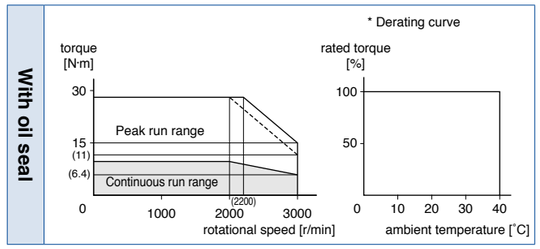
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

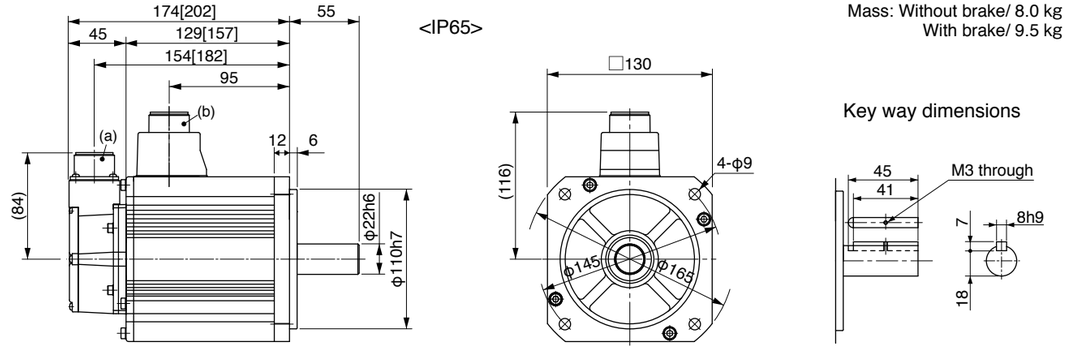
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.138.)



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

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

Specifications

			AC200 V	
Motor model *1	IP65		MDME302GC□	MDME302SC□
	IP67		MDME302G1□	MDME302S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA390	
		A5ⅡE, A5E series	MFD◇TA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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 ($\times10^{-4}$ kg·m^2)	Without brake		12.9	
	With brake		14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

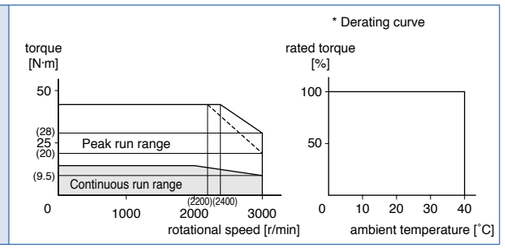
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

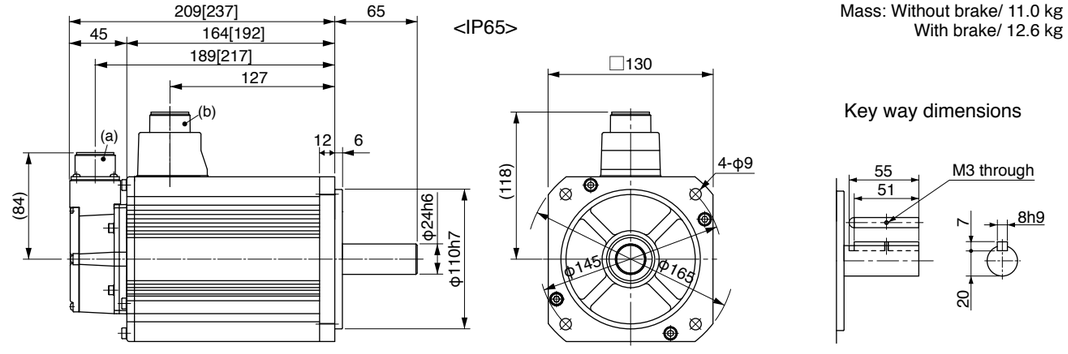
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.139.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MDME402GC□	MDME402SC□
	IP67		MDME402G1□	MDME402S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (W)			4000	
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 ($\times10^{-4}$ kg·m^2)	Without brake		37.6	
	With brake		42.9	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

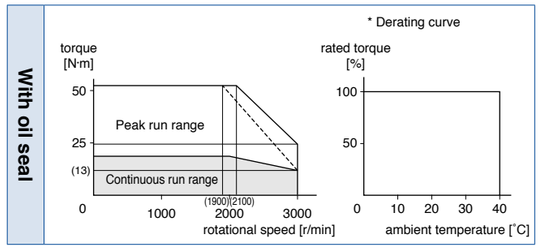
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

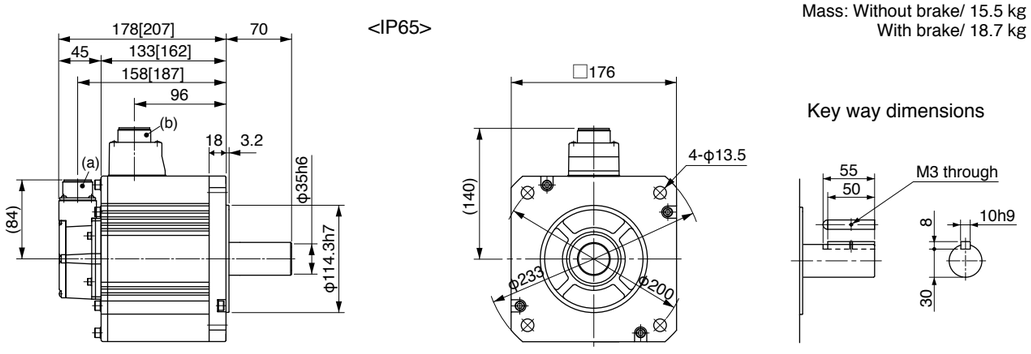
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.139.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MDME502GC□	MDME502SC□
	IP67		MDME502G1□	MDME502S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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 (×10⁻⁴ kg·m²)	Without brake		48.0	
	With brake		53.3	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

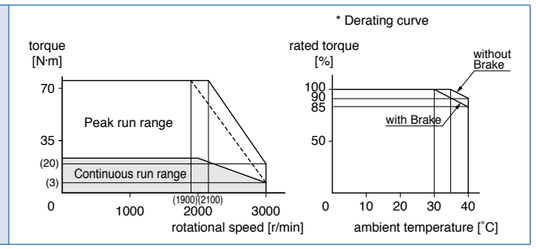
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

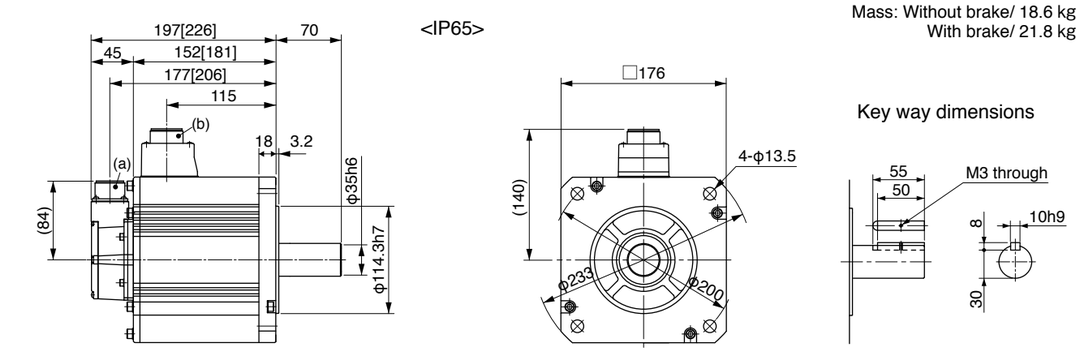
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.139.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MDME752G1□	MDME752S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MGD◇TC3B4	
		A5ⅡE, A5E series	–	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			11	
Rated output (W)			7500	
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 (×10⁻⁴ kg·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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.46.

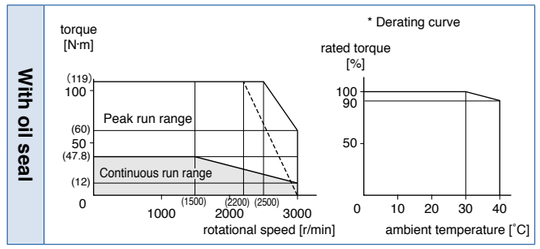
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

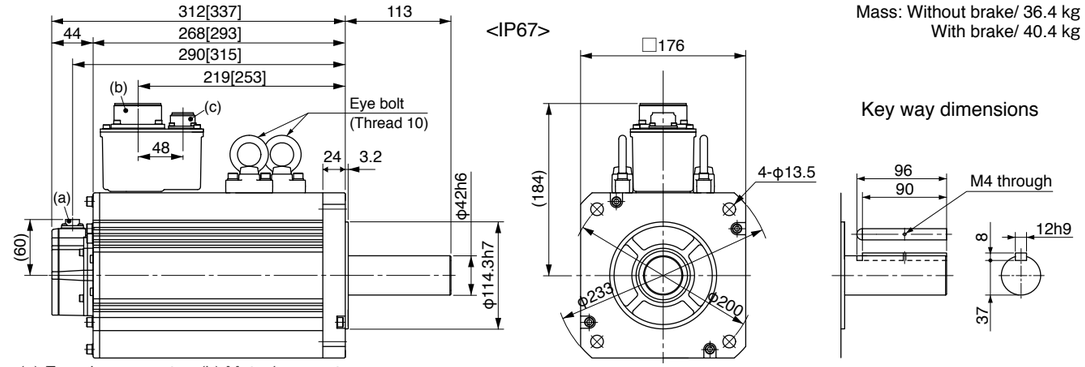
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

200 V MDME 11.0 kW [Middle inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MDMEC12G1□	MDMEC12S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MHD◇TC3B4	
		A5ⅡE, A5E series	–	–
	Frame symbol		H-frame	
Power supply capacity (kVA)			17	
Rated output (W)			11000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.47.

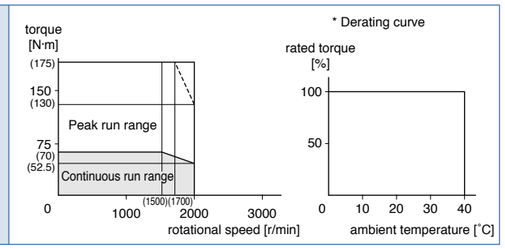
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

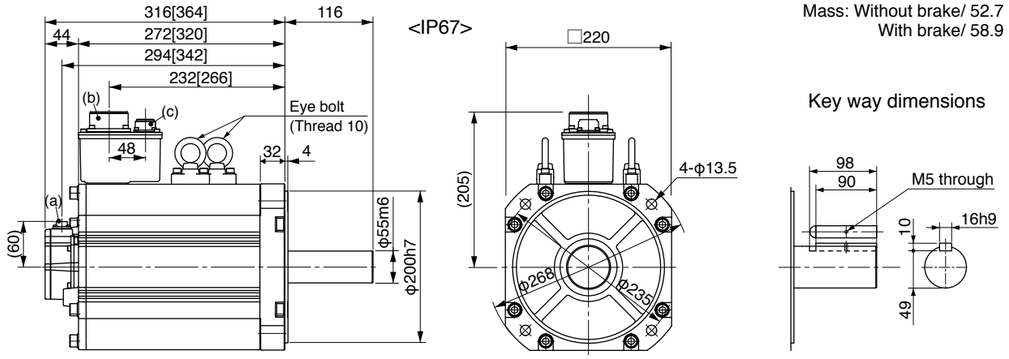
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

200 V MDME 15.0 kW [Middle inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MDMEC52G1□	MDMEC52S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MHD◇TC3B4	
		A5ⅡE, A5E series	–	–
	Frame symbol		H-frame	
Power supply capacity (kVA)			22	
Rated output (W)			15000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.47.

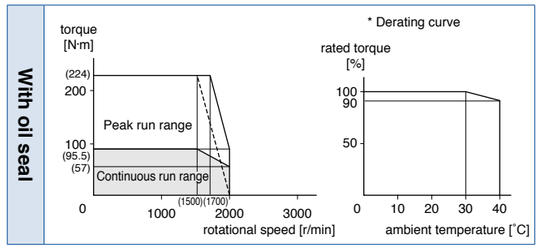
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

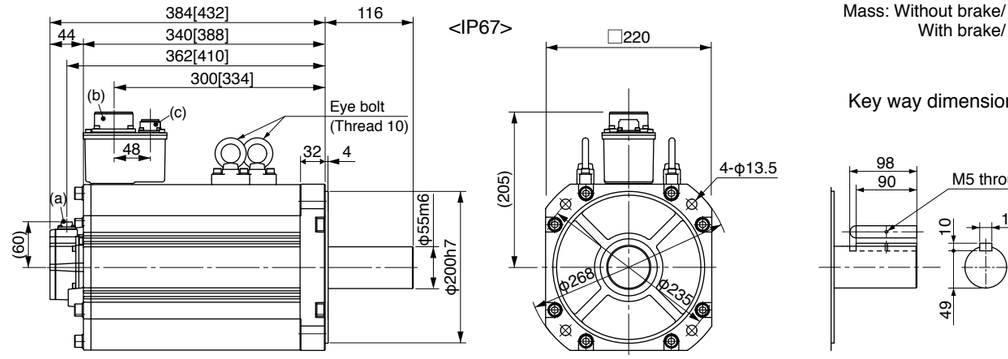
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MFME152G1□	MFME152S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T5540	
		A5ⅡE, A5E series	MDD◇T5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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 (×10⁻⁴ kg·m²)	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

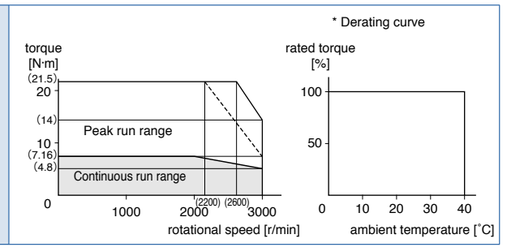
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

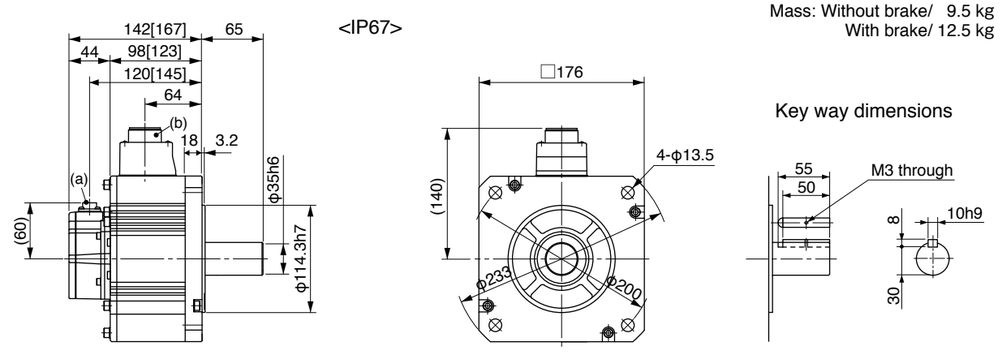
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MFME252G1□	MFME252S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MED◇T7364	
		A5ⅡE, A5E series	MED◇T7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.8	
Rated output (W)			2500	
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 (×10⁻⁴ kg·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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.44.

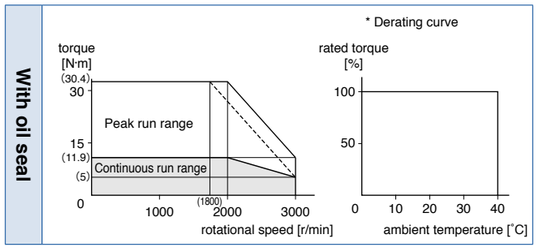
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

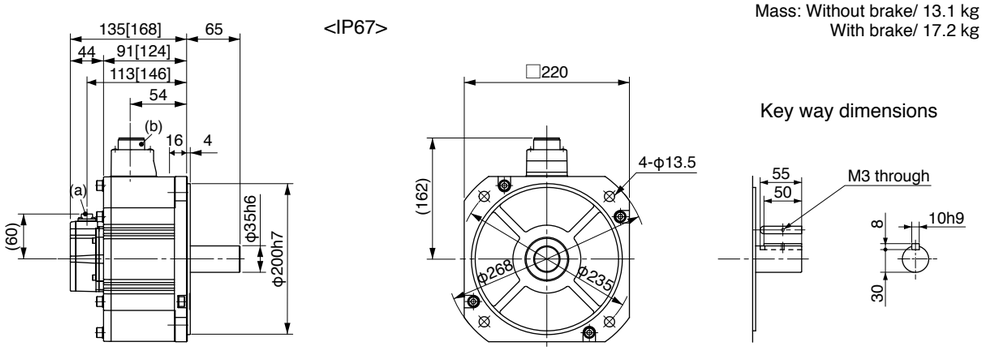
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MFME452G1□	MFME452S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.8	
Rated output (W)			4500	
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 ($\times10^{-4}$ kg·m^2)	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

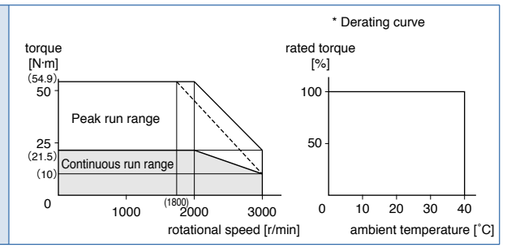
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

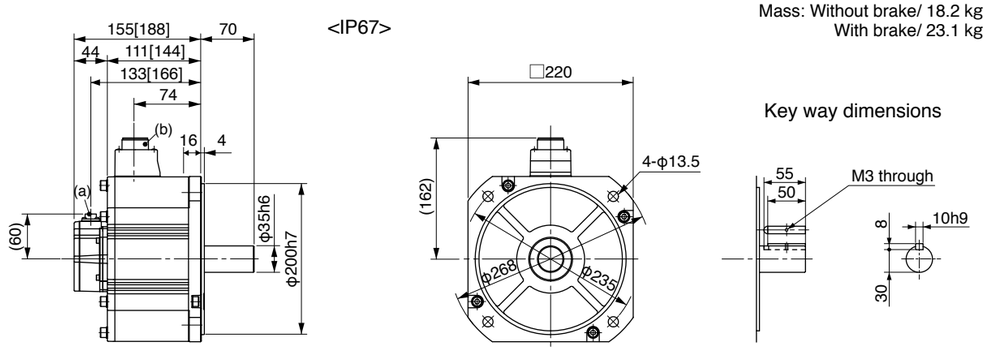
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MGME092GC□	MGME092SC□
	IP67		MGME092G1□	MGME092S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T5540	
		A5ⅡE, A5E series	MDD◇T5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			900	
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 ($\times10^{-4}$ 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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

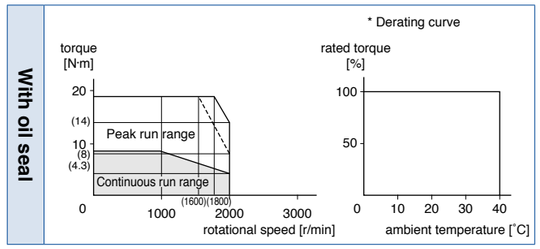
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

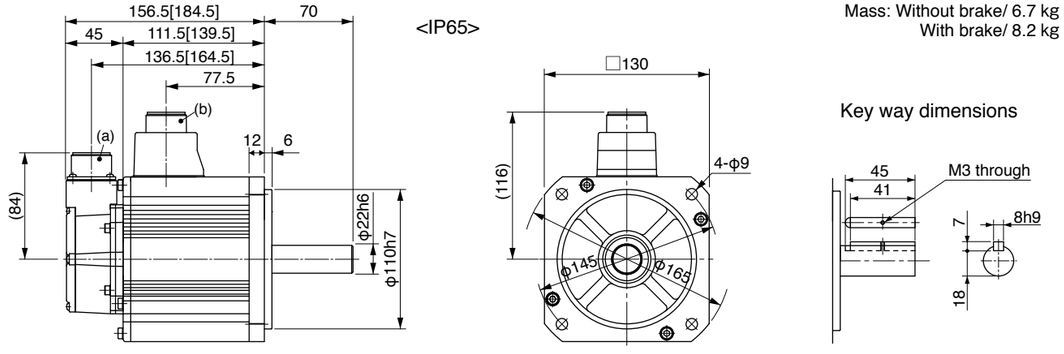
With oil seal



Dimensions

(For IP67 motor, refer to P.139.)

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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MGME202GC□	MGME202SC□
	IP67		MGME202G1□	MGME202S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA390	
		A5ⅡE, A5E series	MFD◇TA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			3.8	
Rated output (W)			2000	
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 ($\times10^{-4}$ kg·m^2)	Without brake		30.3	
	With brake		35.6	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

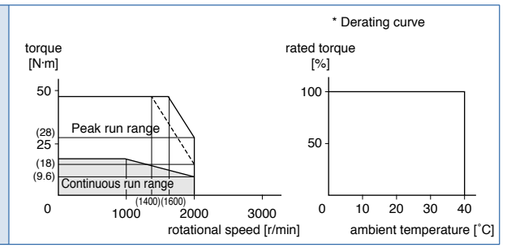
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal

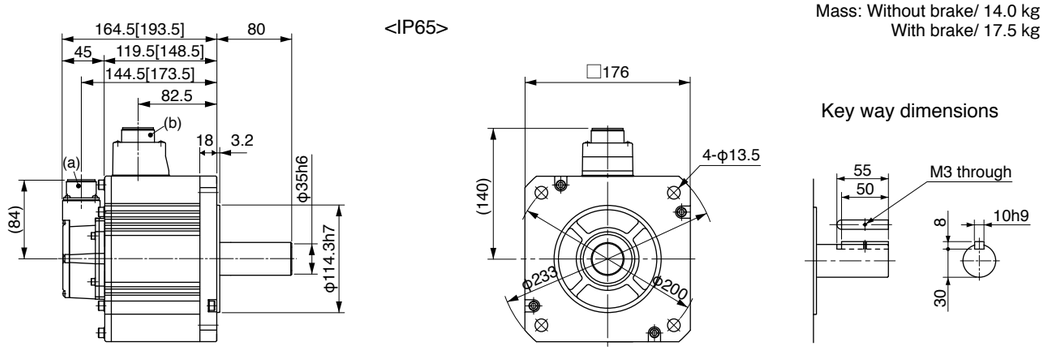


Dimensions

(For IP67 motor, refer to P.139.)

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

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

Specifications

			AC200 V	
Motor model *1	IP65		MGME302GC□	MGME302SC□
	IP67		MGME302G1□	MGME302S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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 ($\times10^{-4}$ kg·m^2)	Without brake		48.4	
	With brake		53.7	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

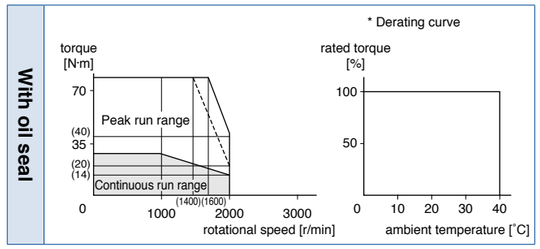
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal

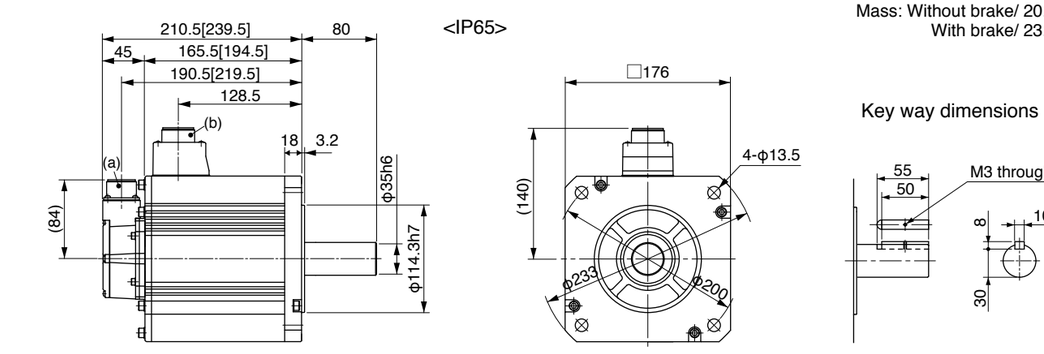


Dimensions

(For IP67 motor, refer to P.139.)

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

200 V MGME 4.5 kW [Middle inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MGME452G1□	MGME452S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			4500	
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^{-4} kg·m^2)	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

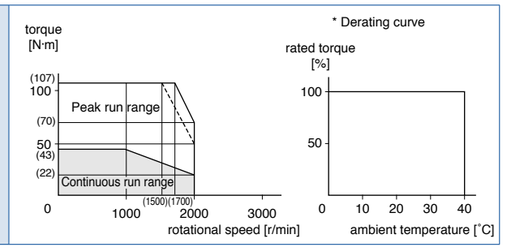
• Permissible load (For details, refer to P.183)

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

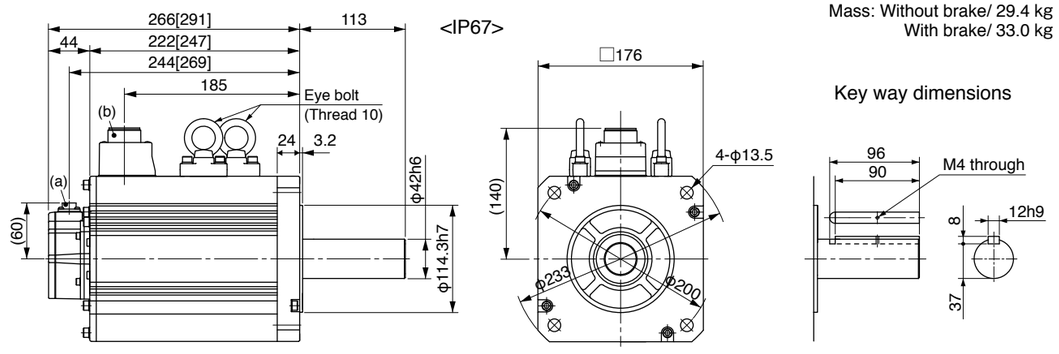
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

200 V MGME 6.0 kW [Middle inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MGME602G1□	MGME602S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MGD◇TC3B4	
		A5ⅡE, A5E series	—	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			9.0	
Rated output (W)			6000	
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^{-4} kg·m^2)	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

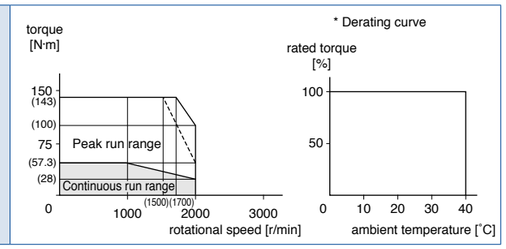
• Permissible load (For details, refer to P.183)

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

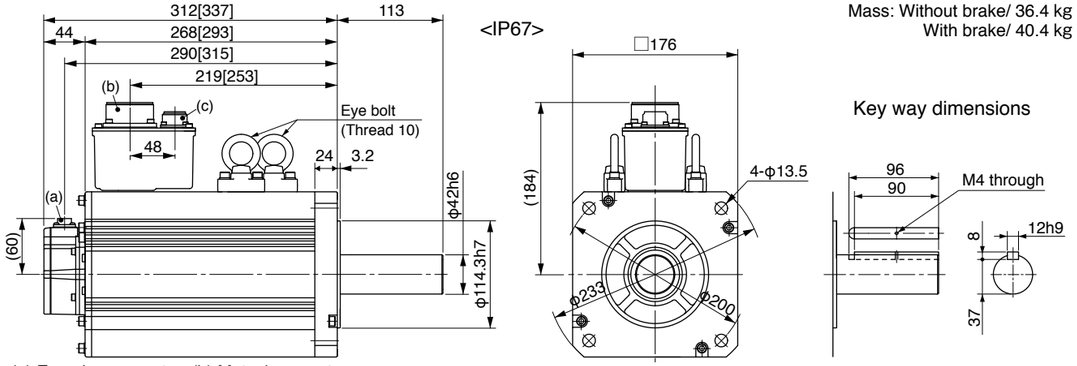
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.46.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V 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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MHME102GC□	MHME102SC□
	IP67		MHME102G1□	MHME102S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T3530	
		A5ⅡE, A5E series	MDD◇T3530E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

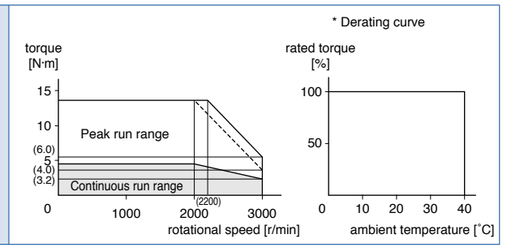
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

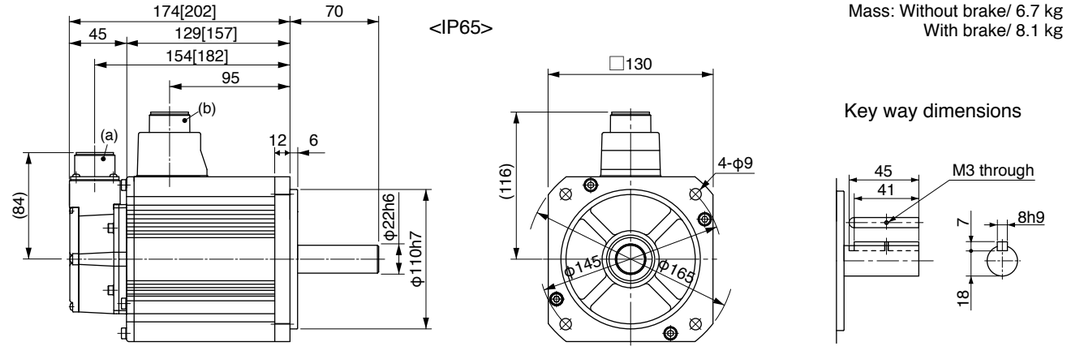
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.140.)



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.

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

Specifications

			AC200 V	
Motor model *1	IP65		MHME152GC□	MHME152SC□
	IP67		MHME152G1□	MHME152S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T5540	
		A5ⅡE, A5E series	MDD◇T5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.43.

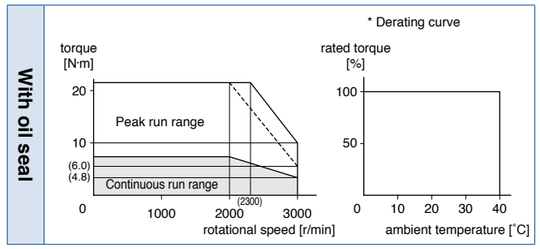
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

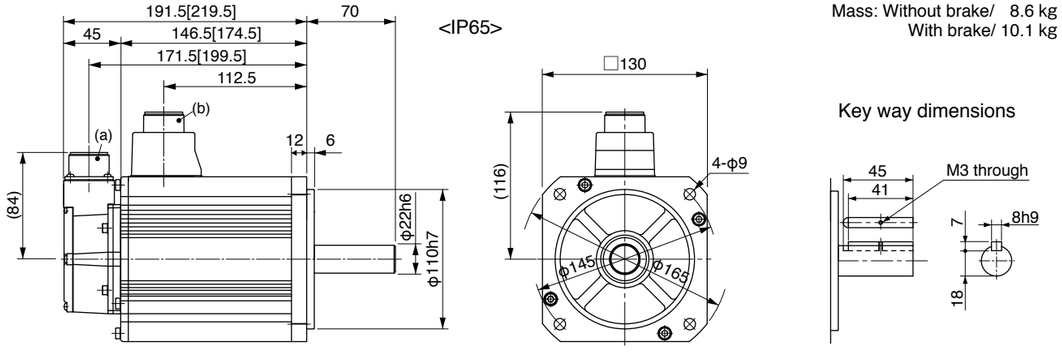
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.140.)



Mass: Without brake/ 8.6 kg
With brake/ 10.1 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.

200 V MHME 2.0 kW [High inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		MHME202GC□	MHME202SC□
	IP67		MHME202G1□	MHME202S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MED◇T7364	
		A5ⅡE, A5E series	MED◇T7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

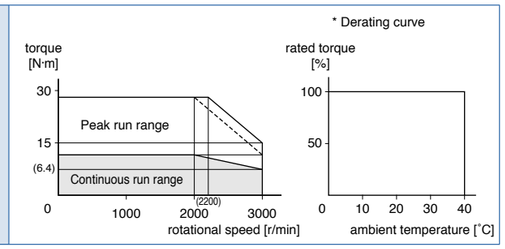
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

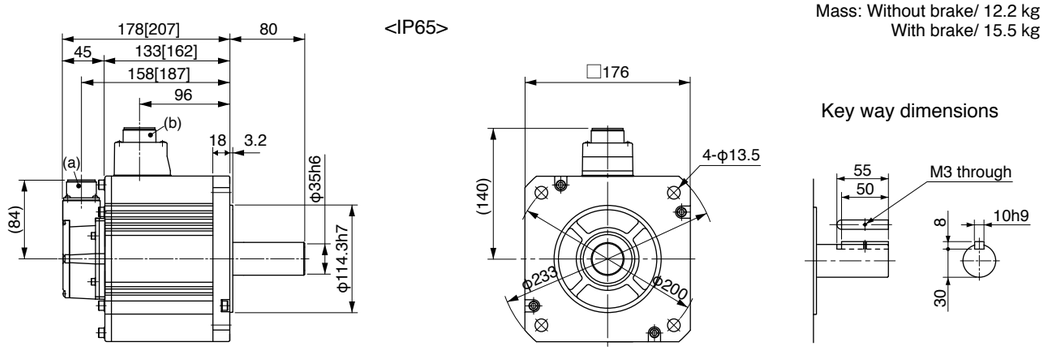
With oil seal



Dimensions

(For IP67 motor, refer to P.140.)

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.

200 V MHME 3.0 kW [High inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		MHME302GC□	MHME302SC□
	IP67		MHME302G1□	MHME302S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA390	
		A5ⅡE, A5E series	MFD◇TA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

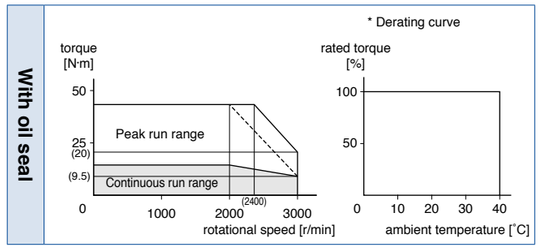
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

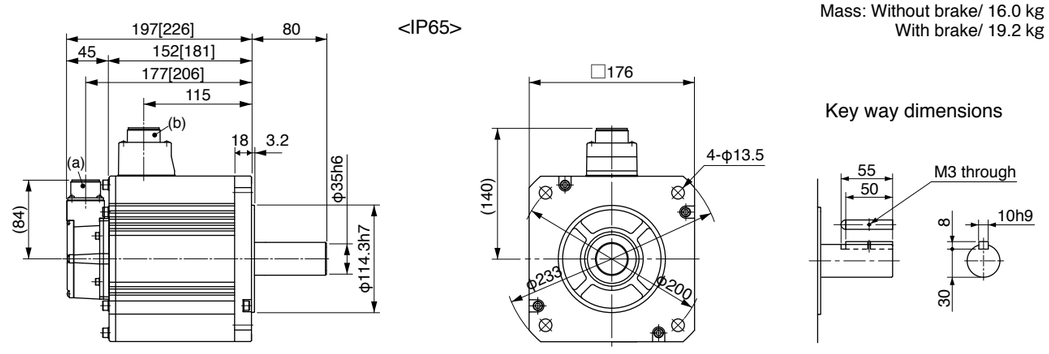
With oil seal



Dimensions

(For IP67 motor, refer to P.140.)

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.

200 V MHME 4.0 kW [High inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		MHME402GC□	MHME402SC□
	IP67		MHME402G1□	MHME402S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (W)			4000	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

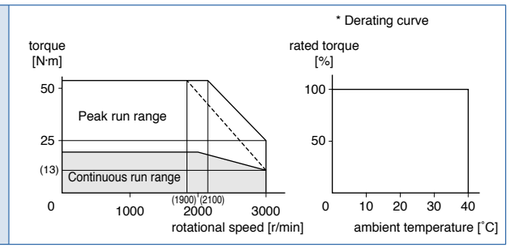
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

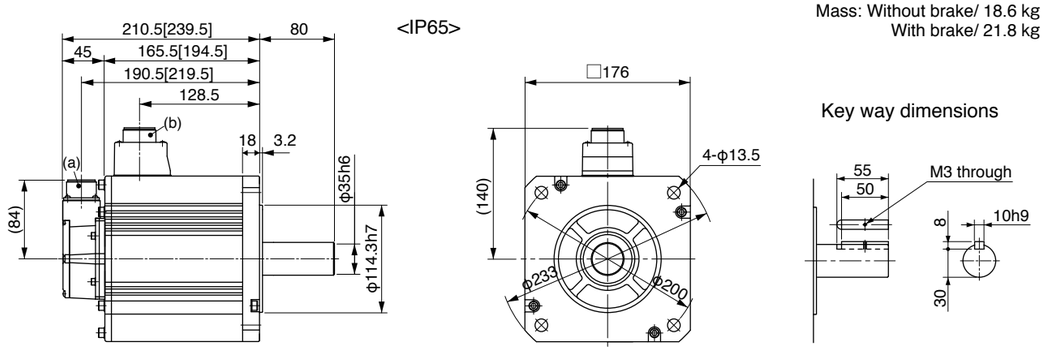
With oil seal



Dimensions

(For IP67 motor, refer to P.140.)

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.

200 V MHME 5.0 kW [High inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		MHME502GC□	MHME502SC□
	IP67		MHME502G1□	MHME502S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TB3A2	
		A5ⅡE, A5E series	MFD◇TB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

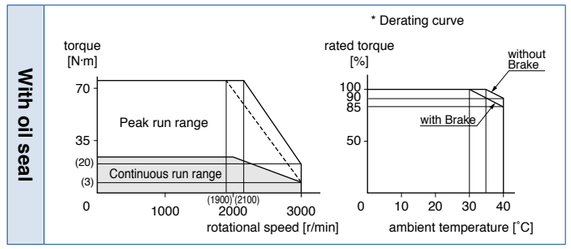
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

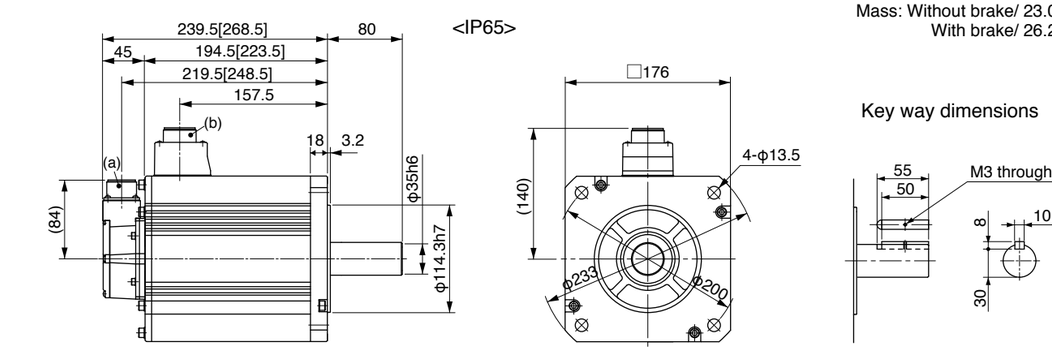
With oil seal



Dimensions

(For IP67 motor, refer to P.140.)

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.

200 V MHME 7.5 kW [High inertia, Middle capacity]

Specifications

			AC200 V	
Motor model *1	IP65		–	–
	IP67		MHME752G1□	MHME752S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MGD◇TC3B4	
		A5ⅡE, A5E series	—	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			11	
Rated output (W)			7500	
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 ($\times10^{-4}$ 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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.46.

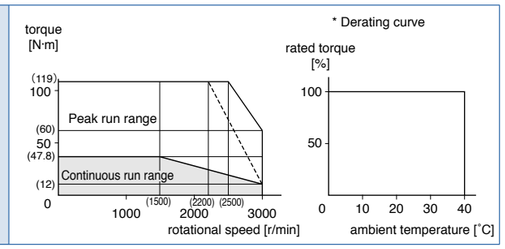
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

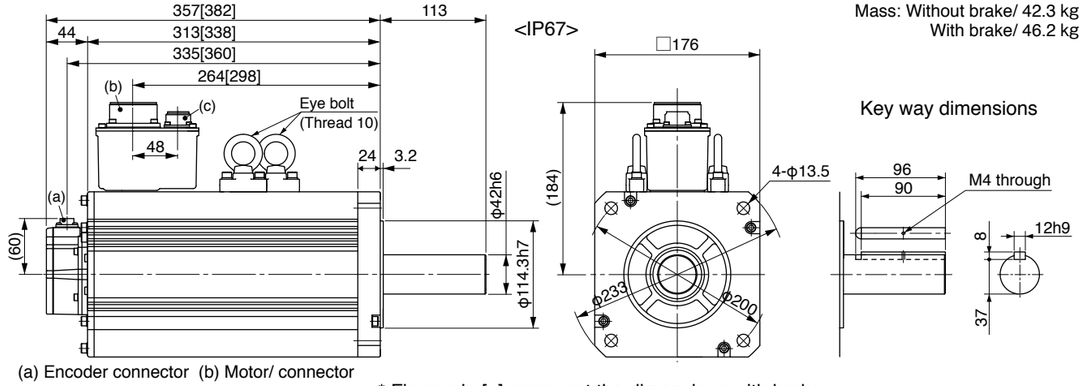
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

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.

400 V MSME 750 W [Low inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MSME084GC□	MSME084SC□
	IP67		MSME084G1□	MSME084S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T2412	
		A5ⅡE, A5E series	MDD◇T2412E	–
	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 ($\times10^{-4}$ 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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.44.

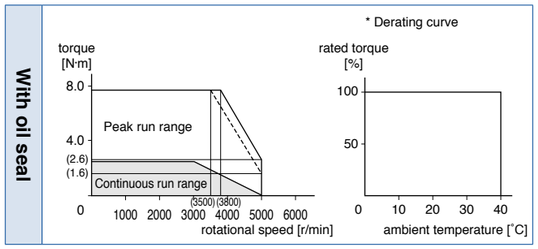
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

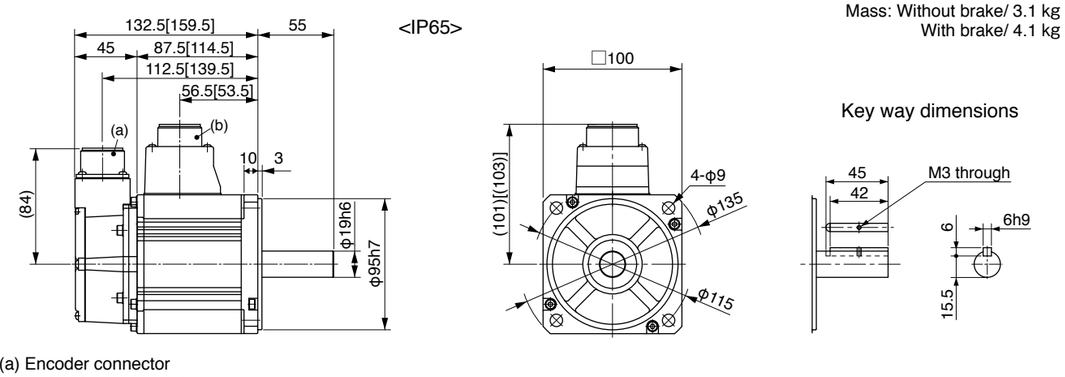
With oil seal



Dimensions

(For IP67 motor, refer to P.137.)

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.

400 V MSME 1.0 kW [Low inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MSME104GC□	MSME104SC□
	IP67		MSME104G1□	MSME104S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T3420	
		A5ⅡE, A5E series	MDD◇T3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

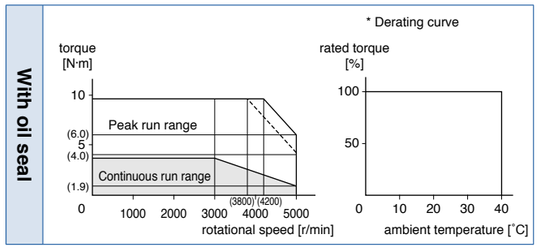
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

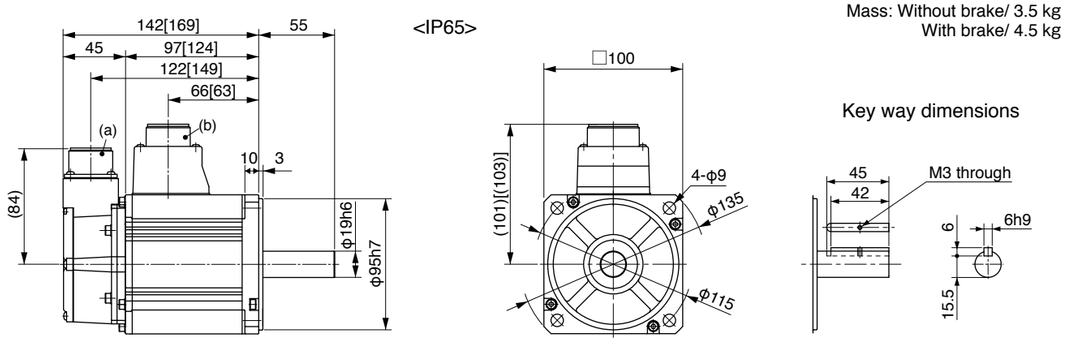
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

(For IP67 motor, refer to P.137.)

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.

400 V MSME 1.5 kW [Low inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MSME154GC□	MSME154SC□
	IP67		MSME154G1□	MSME154S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T3420	
		A5ⅡE, A5E series	MDD◇T3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

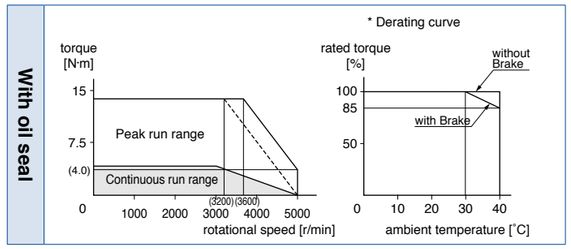
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

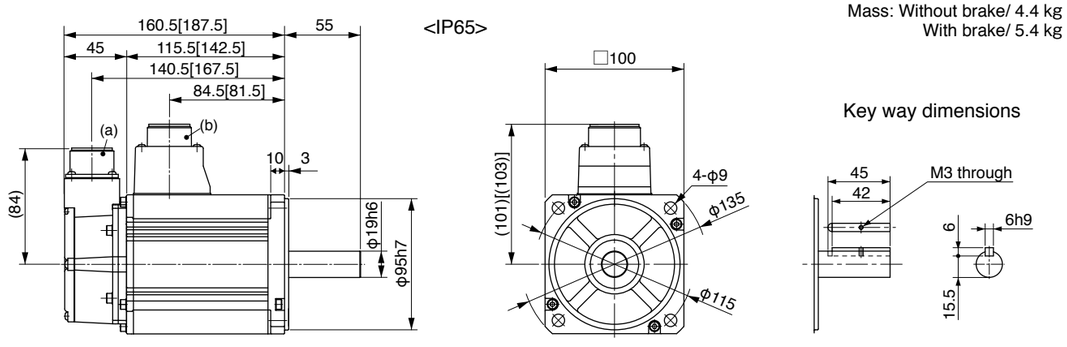
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

(For IP67 motor, refer to P.137.)

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.

400 V MSME 2.0 kW [Low inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MSME204GC□	MSME204SC□
	IP67		MSME204G1□	MSME204S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MED◇T4430	
		A5ⅡE, A5E series	MED◇T4430E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

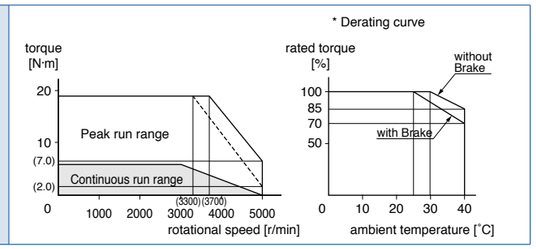
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

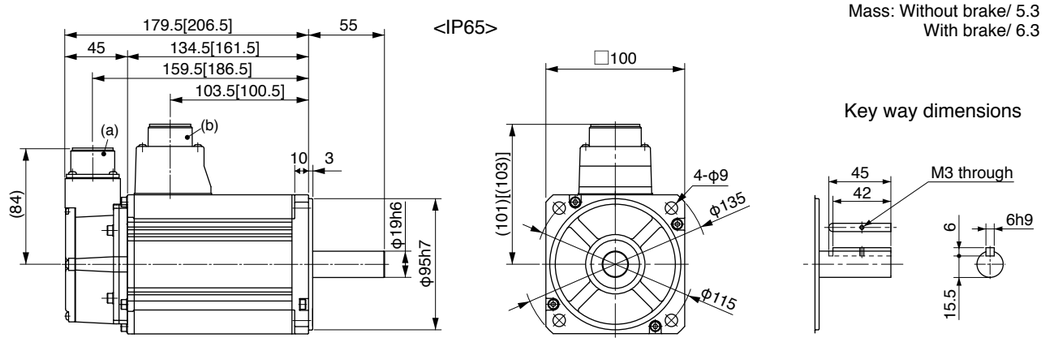
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.137.)



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.

400 V MSME 3.0 kW [Low inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MSME304GC□	MSME304SC□
	IP67		MSME304G1□	MSME304S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇T5440	
		A5ⅡE, A5E series	MFD◇T5440E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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		6.85	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

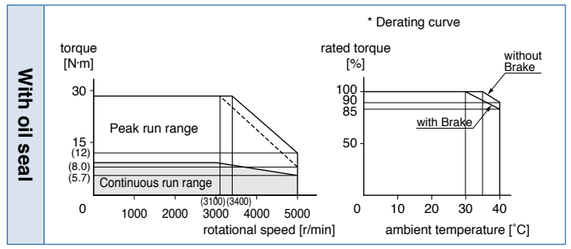
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

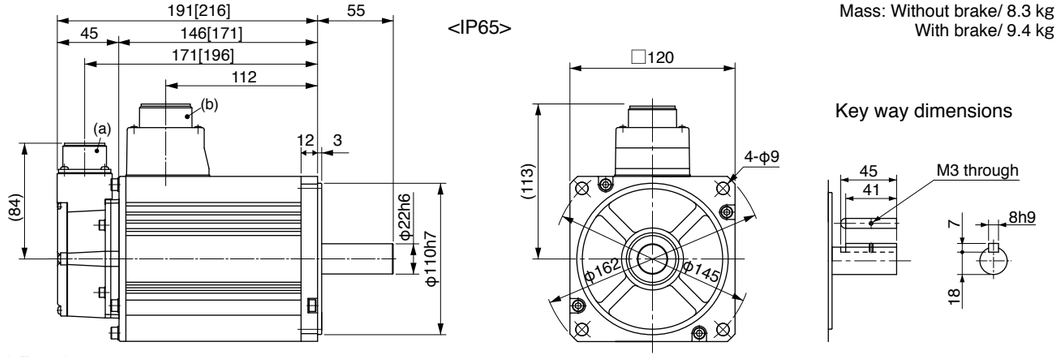
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.137.)



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.

400 V MSME 4.0 kW [Low inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MSME404GC□	MSME404SC□
	IP67		MSME404G1□	MSME404S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.8	
Rated output (W)			4000	
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 ($\times10^{-4}$ 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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

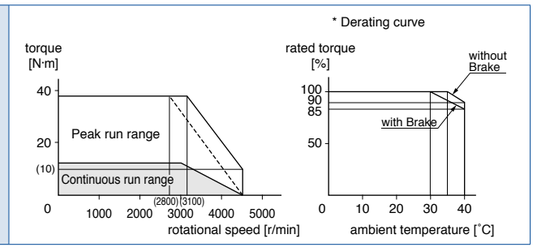
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

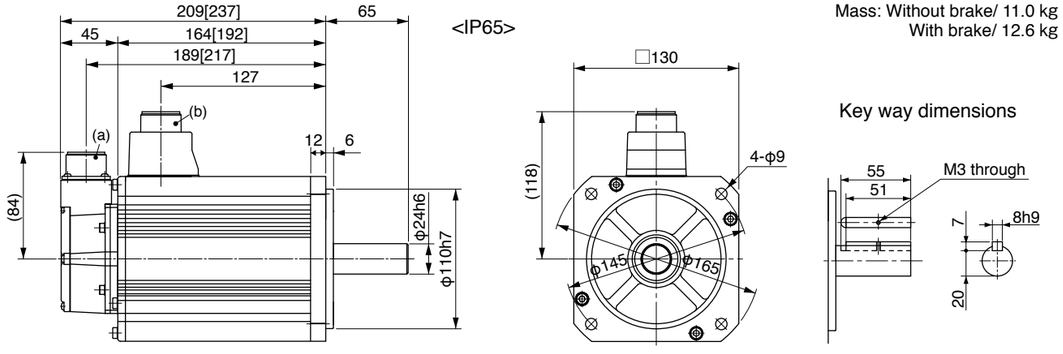
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.137.)



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.

400 V MSME 5.0 kW [Low inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MSME504GC□	MSME504SC□
	IP67		MSME504G1□	MSME504S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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 ($\times10^{-4}$ kg·m^2)	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

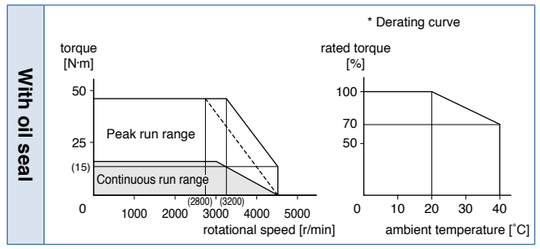
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

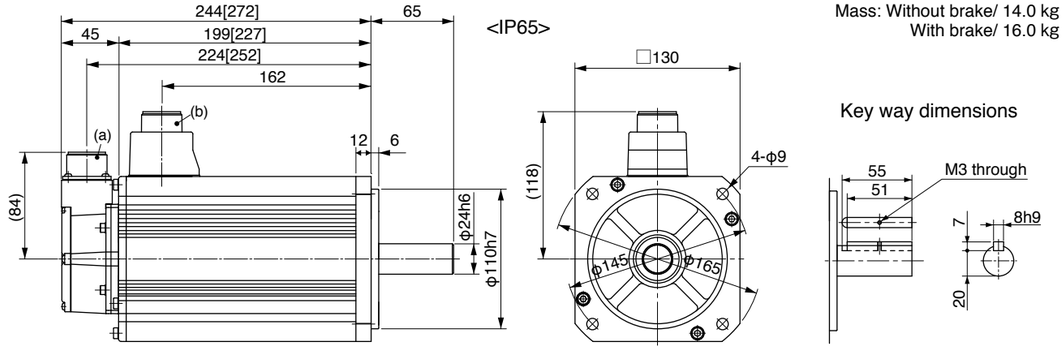
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.138.)



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.

400 V MDME 400 W [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MDME044GC□	MDME044SC□
	IP67		MDME044G1□	MDME044S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T2407	
		A5ⅡE, A5E series	MDD◇T2407E	–
	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		1.93	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

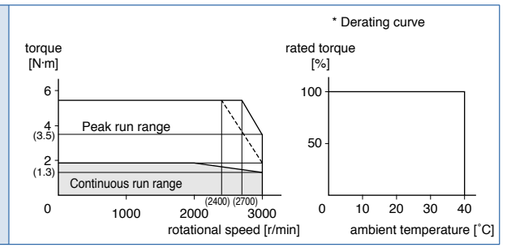
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

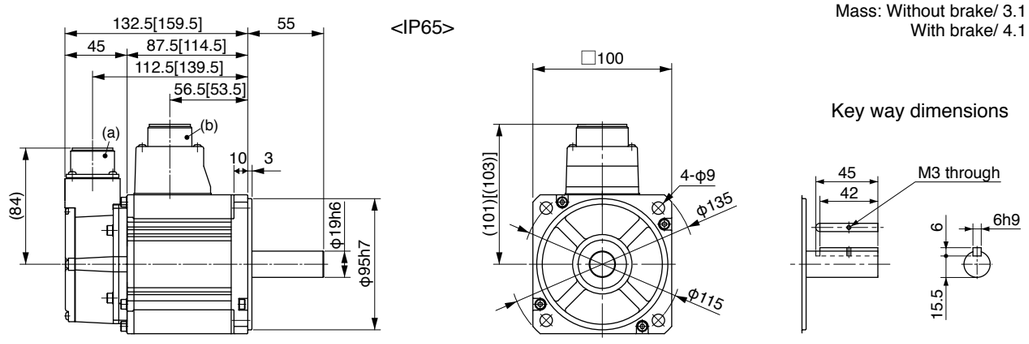
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.138.)



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.

400 V MDME 600 W [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MDME064GC□	MDME064SC□
	IP67		MDME064G1□	MDME064S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T2407	
		A5ⅡE, A5E series	MDD◇T2407E	–
	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

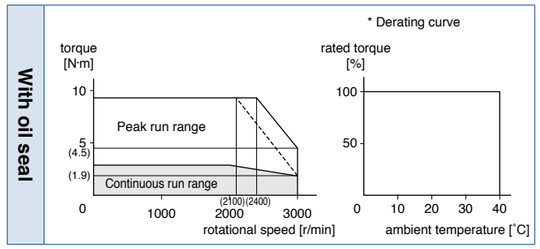
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

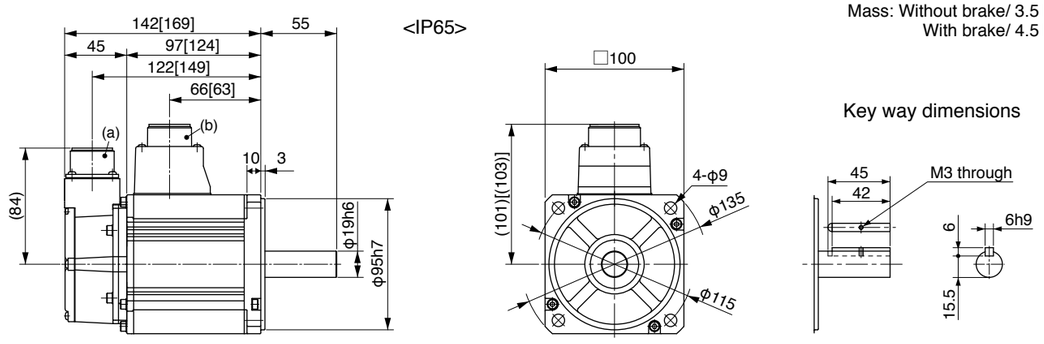
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.138.)



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.

400 V MDME 1.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MDME104GC□	MDME104SC□
	IP67		MDME104G1□	MDME104S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T2412	
		A5ⅡE, A5E series	MDD◇T2412E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.44.

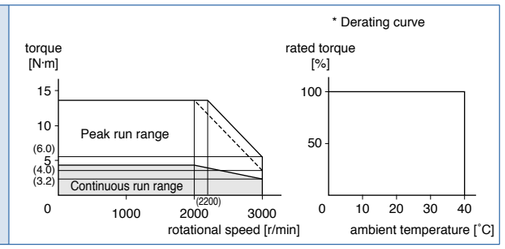
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

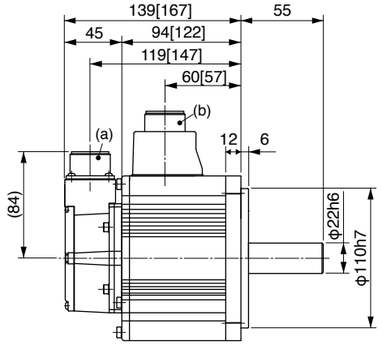
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

(For IP67 motor, refer to P.138.)



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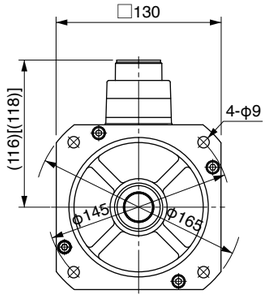
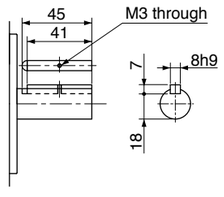


Mass: Without brake/ 5.2 kg
With brake/ 6.7 kg

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.

400 V MDME 1.5 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MDME154GC□	MDME154SC□
	IP67		MDME154G1□	MDME154S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T3420	
		A5ⅡE, A5E series	MDD◇T3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.44.

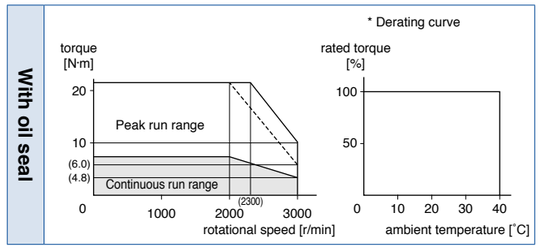
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

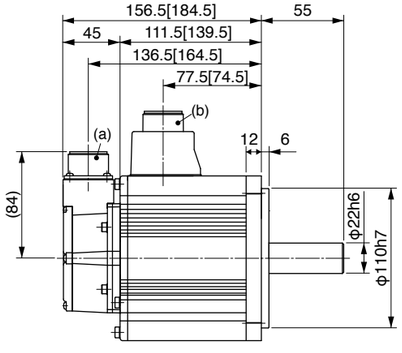
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal

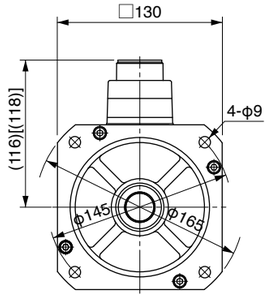


Dimensions

(For IP67 motor, refer to P.138.)

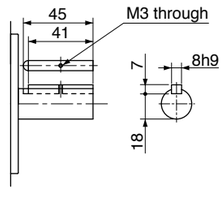


<IP65>



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.

400 V MDME 2.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MDME204GC□	MDME204SC□
	IP67		MDME204G1□	MDME204S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MED◇T4430	
		A5ⅡE, A5E series	MED◇T4430E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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

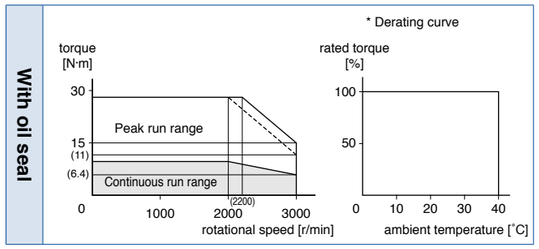
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.45.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

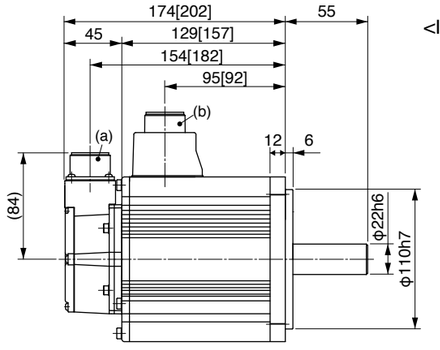
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

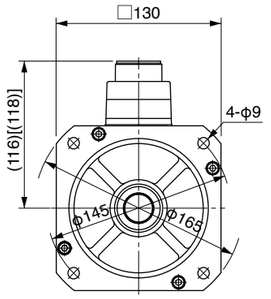


Dimensions

(For IP67 motor, refer to P.138.)

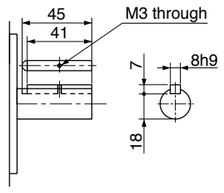


<IP65>



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.

400 V MDME 3.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MDME304GC□	MDME304SC□
	IP67		MDME304G1□	MDME304S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇T5440	
		A5ⅡE, A5E series	MFD◇T5440E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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^{-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			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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

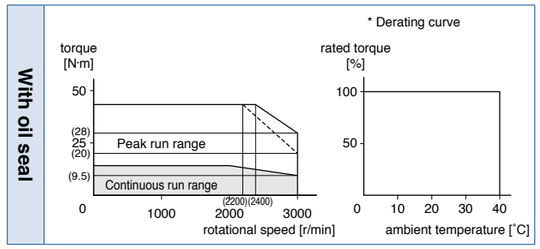
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.45.

*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

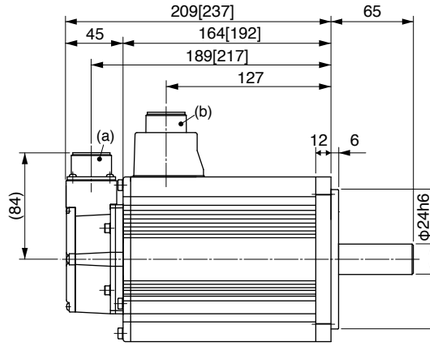
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

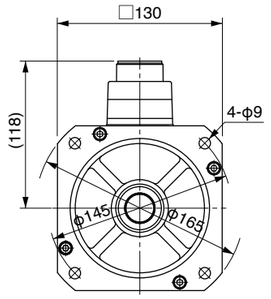


Dimensions

(For IP67 motor, refer to P.139.)

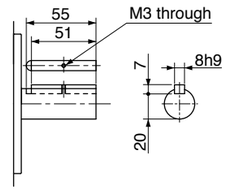


<IP65>



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.

400 V MDME 4.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MDME404GC□	MDME404SC□
	IP67		MDME404G1□	MDME404S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.8	
Rated output (W)			4000	
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^{-4} kg·m^2)	Without brake		37.6	
	With brake		42.9	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

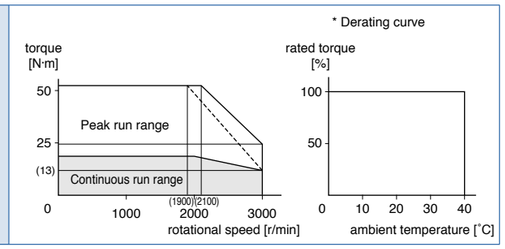
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal

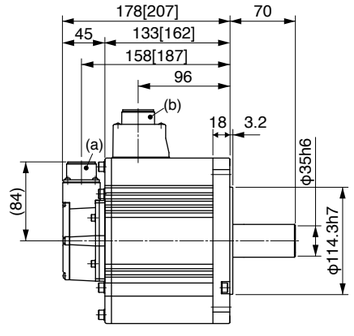


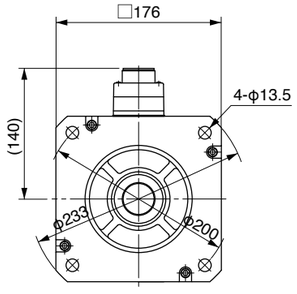
Dimensions

(For IP67 motor, refer to P.139.)

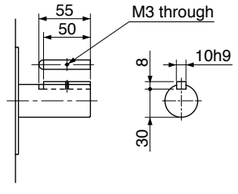
Mass: Without brake/ 15.5 kg
With brake/ 18.7 kg

<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.

400 V MDME 5.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MDME504GC□	MDME504SC□
	IP67		MDME504G1□	MDME504S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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^{-4} kg·m^2)	Without brake		48.0	
	With brake		53.3	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

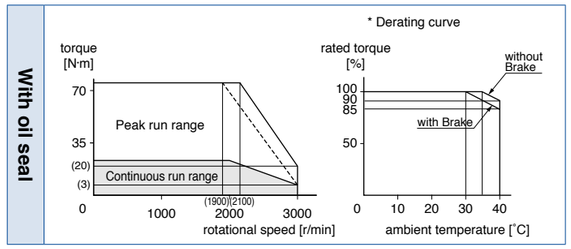
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal

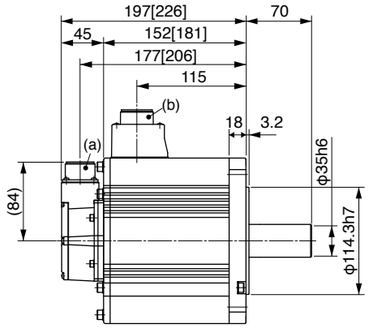


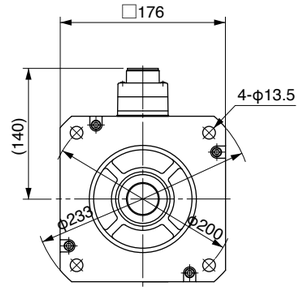
Dimensions

(For IP67 motor, refer to P.139.)

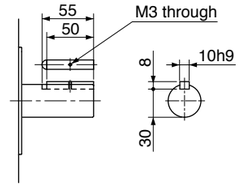
Mass: Without brake/ 18.6 kg
With brake/ 21.8 kg

<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.

400 V MDME 7.5 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MDME754G1□	MDME754S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MGD◇TB4A2	
		A5ⅡE, A5E series	–	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			11	
Rated output (W)			7500	
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 (×10⁻⁴ kg·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		1048576	131072

• Brake specifications (For details, refer to P.183)
(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.183)

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

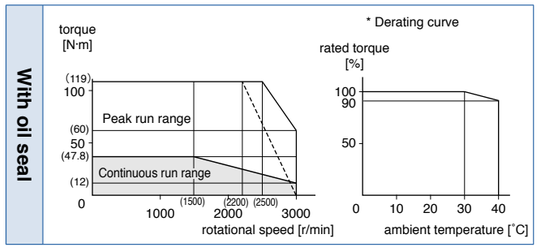
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.46.

*1 Motor specifications: □

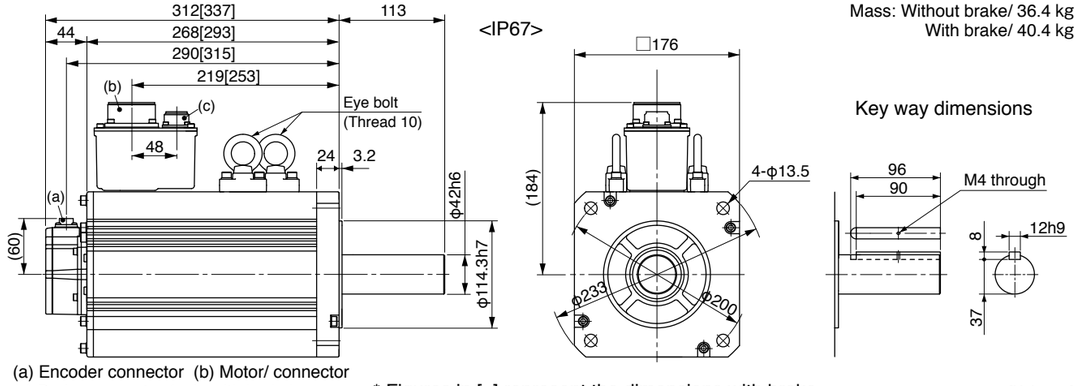
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



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.

400 V MDME 11.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MDMEC14G1□	MDMEC14S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MHD◇TB4A2	
		A5ⅡE, A5E series	–	–
	Frame symbol		H-frame	
Power supply capacity (kVA)			17	
Rated output (W)			11000	
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 (×10⁻⁴ kg·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		1048576	131072

• Brake specifications (For details, refer to P.183)
(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.183)

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

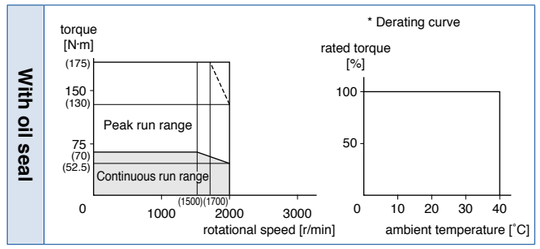
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.46.

*1 Motor specifications: □

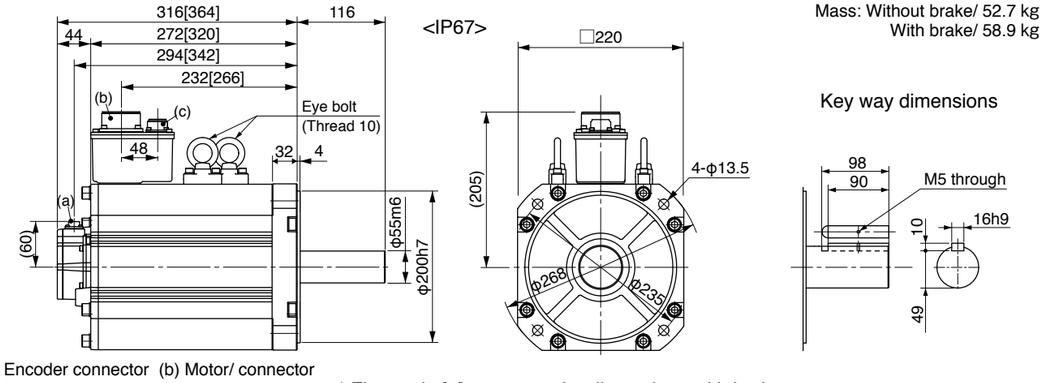
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



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.

400 V MDME 15.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MDMEC54G1□	MDMEC54S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MHD◇TB4A2	
		A5ⅡE, A5E series	–	–
	Frame symbol		H-frame	
Power supply capacity (kVA)			22	
Rated output (W)			15000	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

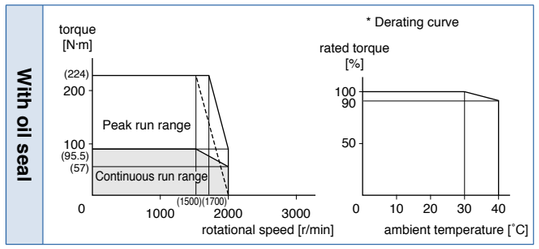
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

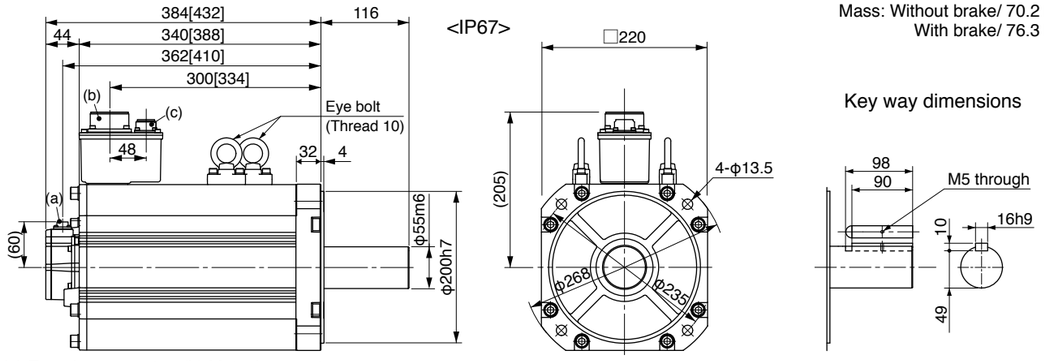
During assembly	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	1764
During operation	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.47.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



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.

400 V MFME 1.5 kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MFME154G1□	MFME154S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T3420	
		A5ⅡE, A5E series	MDD◇T3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.4	
Rated output (W)			1500	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

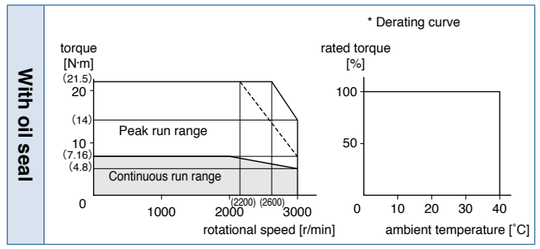
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	35 or less
Exciting current (DC) (A)	0.83±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

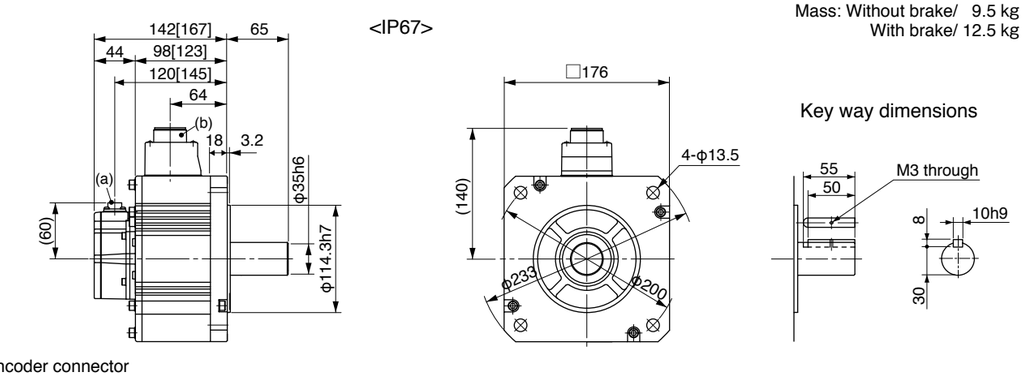
During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



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.

400 V MFME 2.5 kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MFME254G1□	MFME254S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MED◇T4430	
		A5ⅡE, A5E series	MED◇T4430E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.9	
Rated output (W)			2500	
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^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

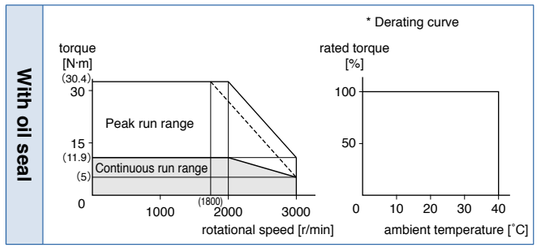
Static friction torque (N·m)	21.6 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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

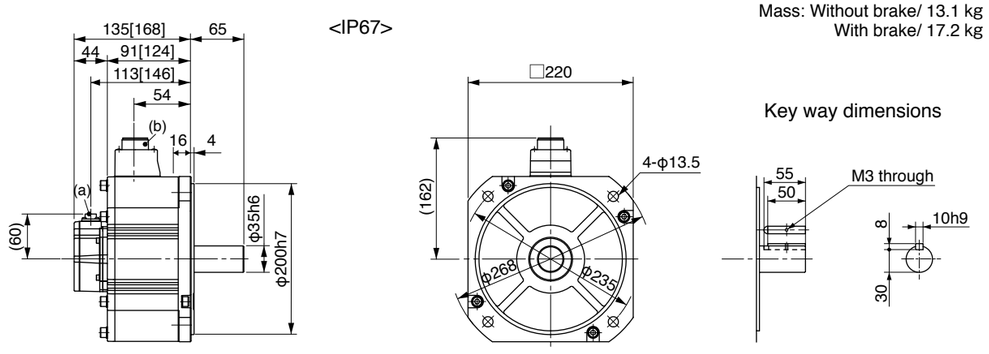
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



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.

400 V MFME 4.5 kW [Middle inertia, Middle capacity Flat type]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MFME454G1□	MFME454S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.9	
Rated output (W)			4500	
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^{-4} kg·m^2)	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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

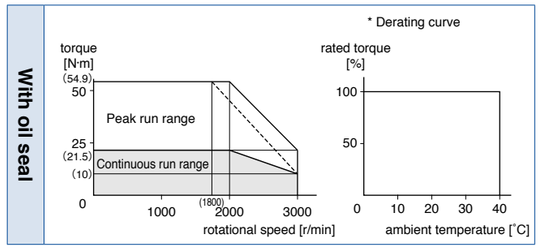
Static friction torque (N·m)	31.4 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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

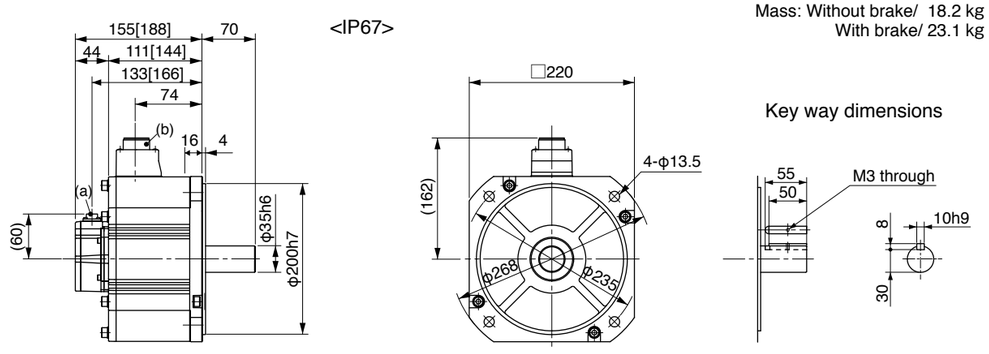
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



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.

400 V MGME 0.9 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MGME094GC□	MGME094SC□
	IP67		MGME094G1□	MGME094S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T3420	
		A5ⅡE, A5E series	MDD◇T3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			900	
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^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

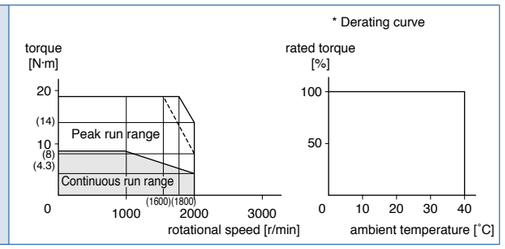
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

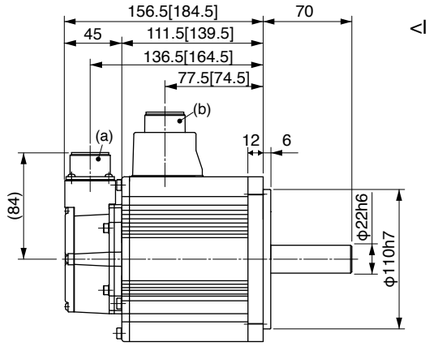
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal

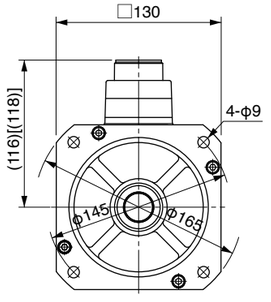


Dimensions

(For IP67 motor, refer to P.139.)

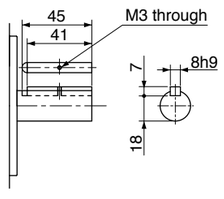


<IP65>



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.

400 V MGME 2.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MGME204GC□	MGME204SC□
	IP67		MGME204G1□	MGME204S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇T5440	
		A5ⅡE, A5E series	MFD◇T5440E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			3.8	
Rated output (W)			2000	
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^{-4} kg·m^2)	Without brake		30.3	
	With brake		35.6	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

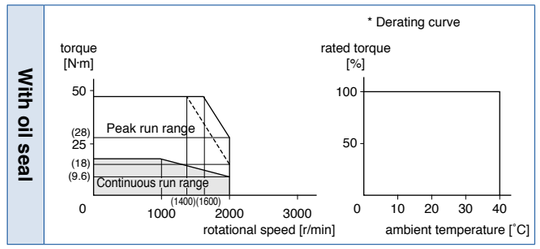
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

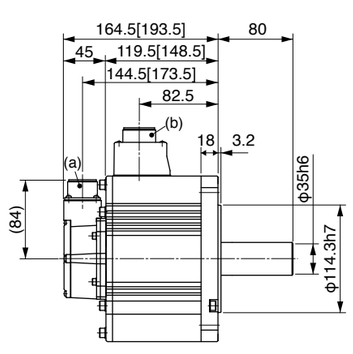
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal

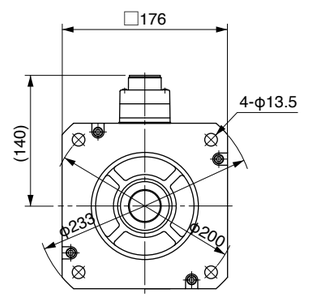


Dimensions

(For IP67 motor, refer to P.139.)

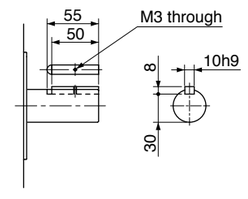


<IP65>



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.

400 V MGME 3.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MGME304GC□	MGME304SC□
	IP67		MGME304G1□	MGME304S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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^{-4} kg·m^2)	Without brake		48.4	
	With brake		53.7	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

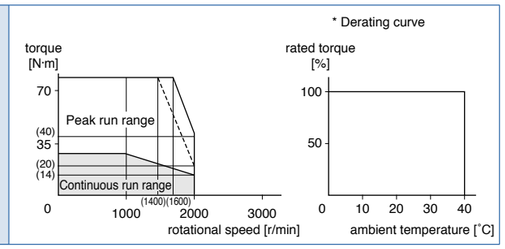
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

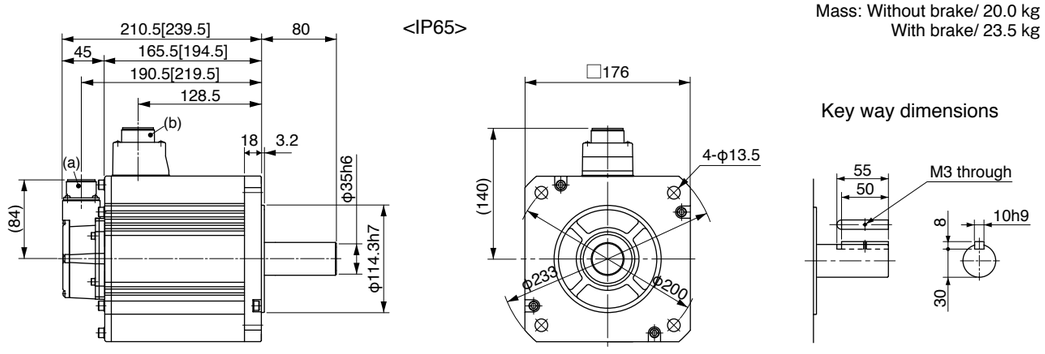
With oil seal



Dimensions

(For IP67 motor, refer to P.139.)

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.

400 V MGME 4.5 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MGME454G1□	MGME454S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			4500	
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^{-4} kg·m^2)	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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

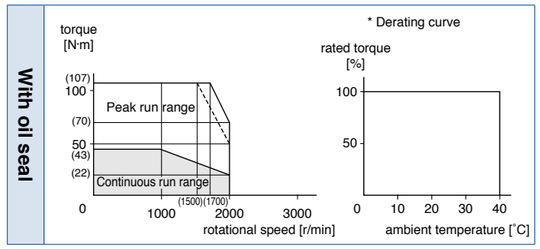
*1 Motor specifications: □

*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

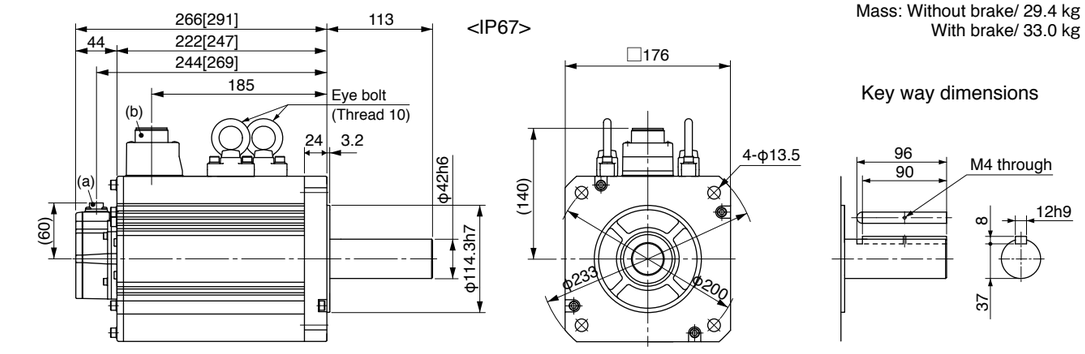
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

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.

400 V MGME 6.0 kW [Middle inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MGME604G1□	MGME604S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MGD◇TB4A2	
		A5ⅡE, A5E series	–	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			9.0	
Rated output (W)			6000	
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 (×10⁻⁴ kg·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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

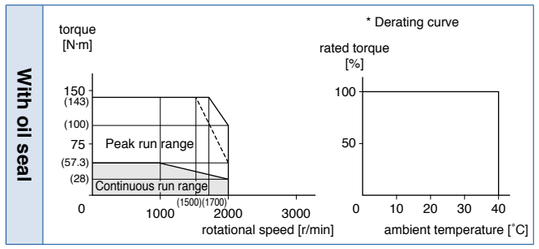
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

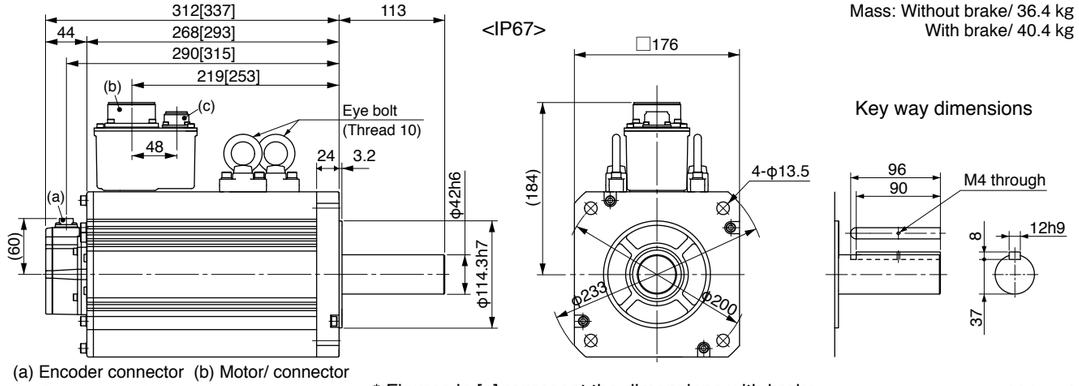
During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1764
	Thrust load A, B-direction (N)	588

• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.46.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



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.

400 V MHME 1.0 kW [High inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MHME104GC□	MHME104SC□
	IP67		MHME104G1□	MHME104S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T2412	
		A5ⅡE, A5E series	MDD◇T2412E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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 (×10⁻⁴ kg·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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

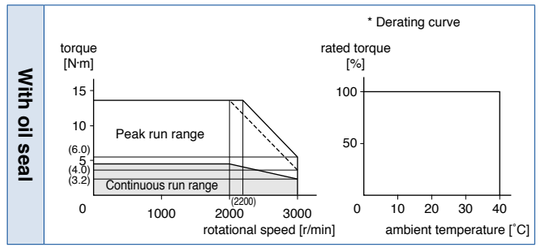
Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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

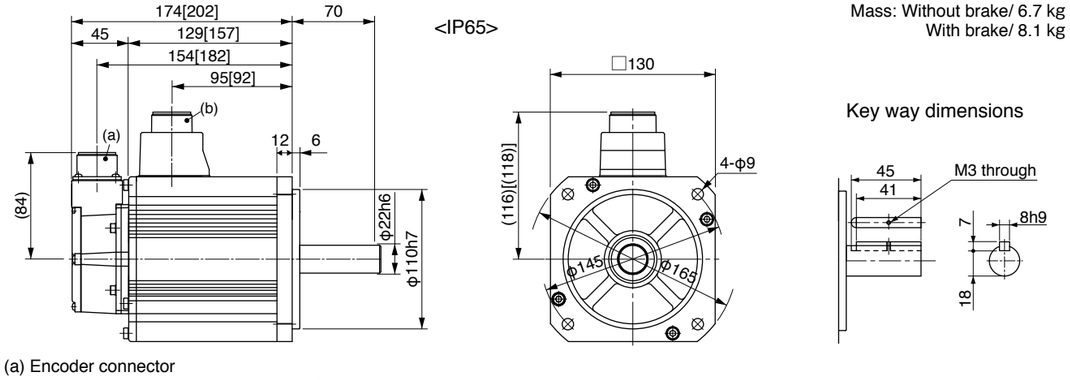
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

(For IP67 motor, refer to P.140.)



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.

400 V MHME 1.5 kW [High inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MHME154GC□	MHME154SC□
	IP67		MHME154G1□	MHME154S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MDD◇T3420	
		A5ⅡE, A5E series	MDD◇T3420E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

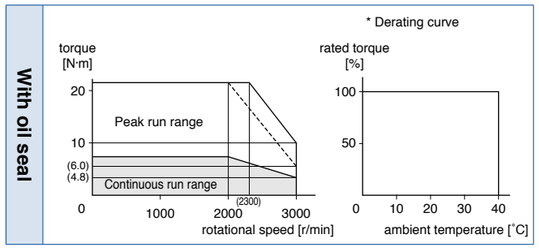
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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

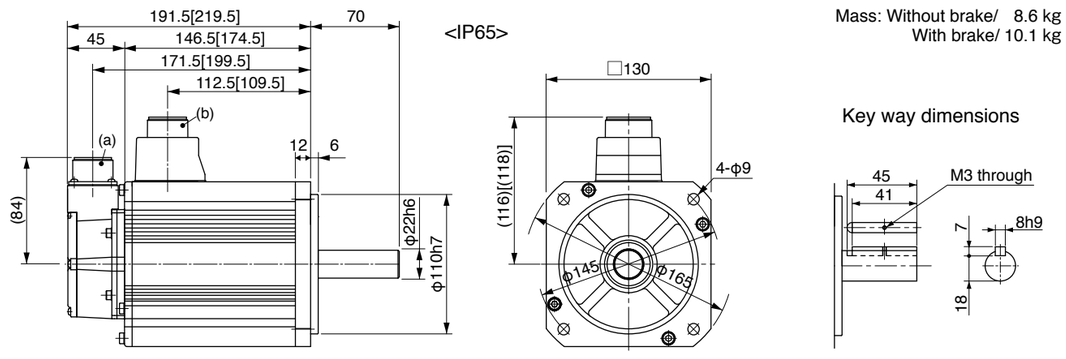
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

(For IP67 motor, refer to P.140.)



Mass: Without brake/ 8.6 kg
With brake/ 10.1 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.

400 V MHME 2.0 kW [High inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MHME204GC□	MHME204SC□
	IP67		MHME204G1□	MHME204S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MED◇T4430	
		A5ⅡE, A5E series	MED◇T4430E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

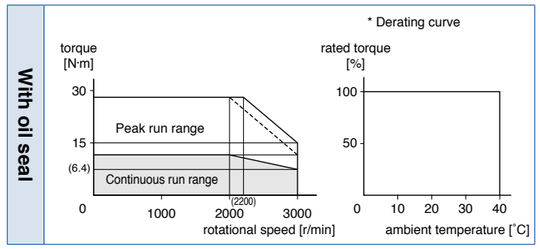
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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

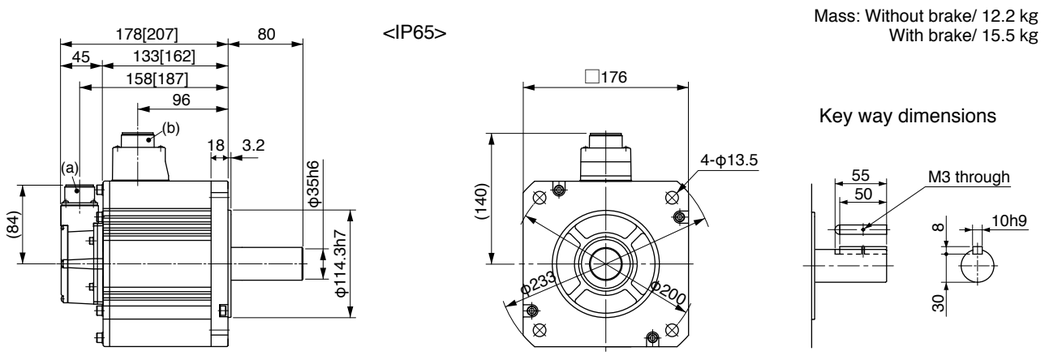
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

(For IP67 motor, refer to P.140.)



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.

400 V MHME 3.0 kW [High inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MHME304GC□	MHME304SC□
	IP67		MHME304G1□	MHME304S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇T5440	
		A5ⅡE, A5E series	MFD◇T5440E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

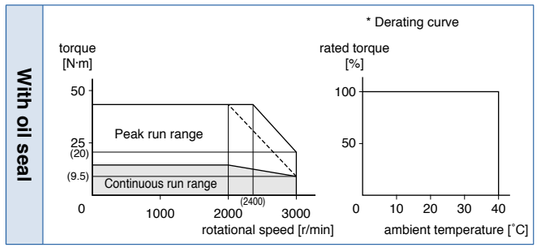
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

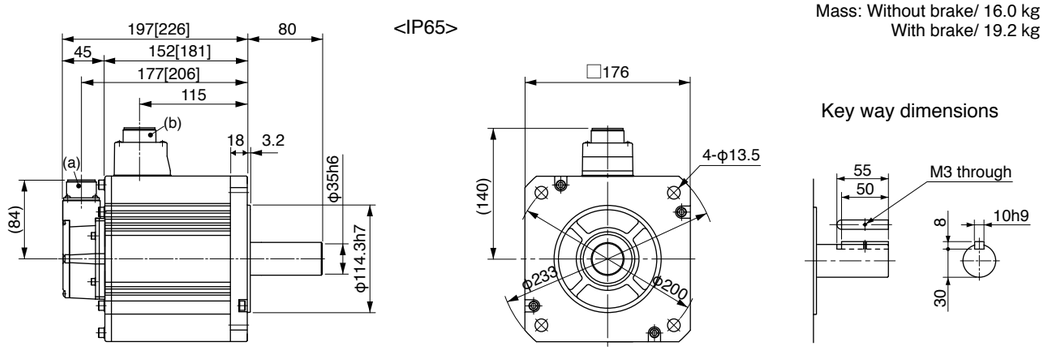
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

(For IP67 motor, refer to P.140.)

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.

400 V MHME 4.0 kW [High inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MHME404GC□	MHME404SC□
	IP67		MHME404G1□	MHME404S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.8	
Rated output (W)			4000	
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^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

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

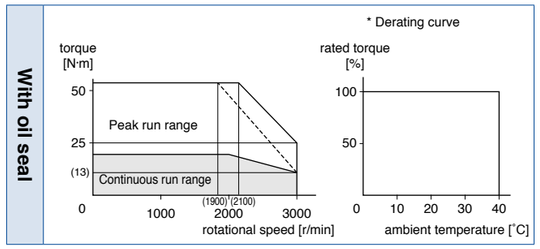
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.16.
*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

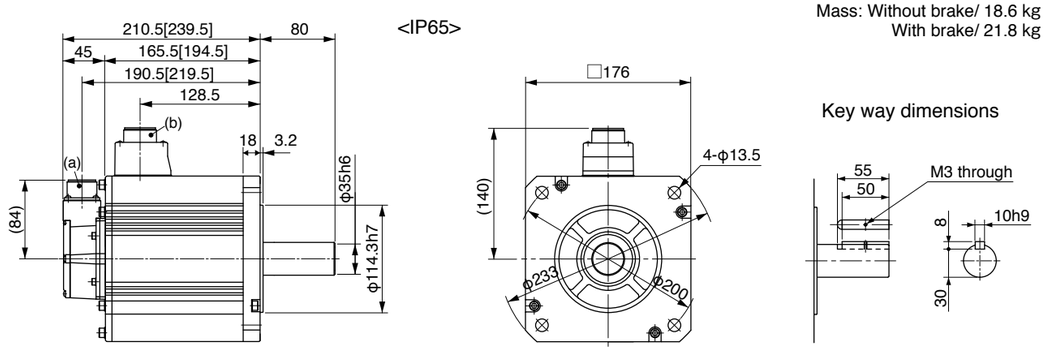
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

(For IP67 motor, refer to P.140.)

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.

400 V MHME 5.0 kW [High inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		MHME504GC□	MHME504SC□
	IP67		MHME504G1□	MHME504S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MFD◇TA464	
		A5ⅡE, A5E series	MFD◇TA464E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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 (×10⁻⁴ kg·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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.45.

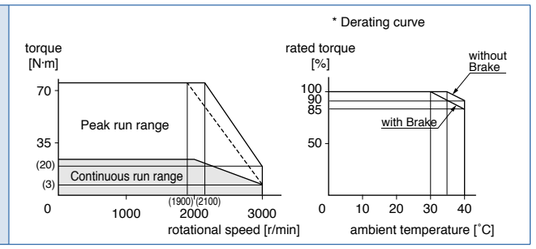
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

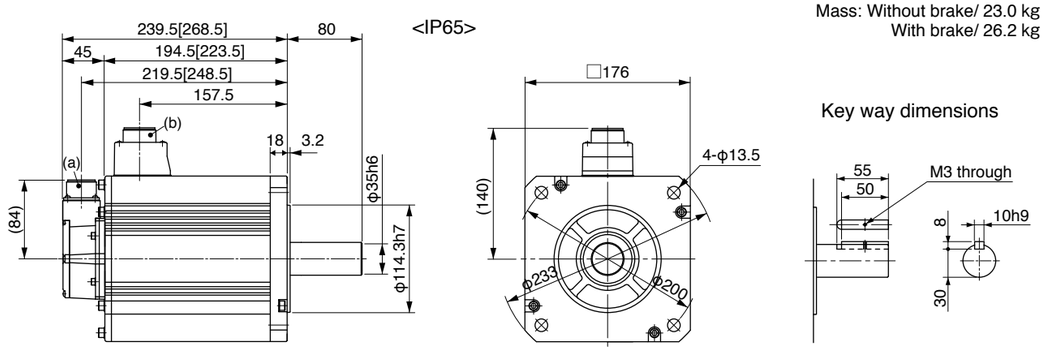
With oil seal



Dimensions

(For IP67 motor, refer to P.140.)

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.

400 V MHME 7.5 kW [High inertia, Middle capacity]

Specifications

			AC400 V	
Motor model *1	IP65		–	–
	IP67		MHME754G1□	MHME754S1□
Applicable driver *2	Model No.	A5Ⅱ, A5 series	MGD◇TB4A2	
		A5ⅡE, A5E series	–	–
	Frame symbol		G-frame	
Power supply capacity (kVA)			9.0	
Rated output (W)			7500	
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 (×10⁻⁴ kg·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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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.183)

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.182, P.183.
- Dimensions of Driver, refer to P.46.

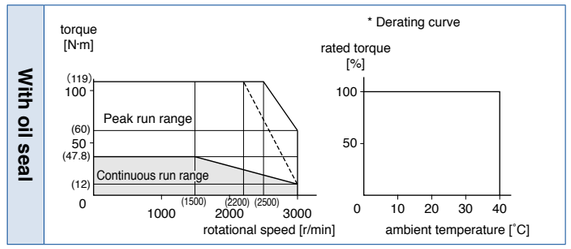
*1 Motor specifications: □

*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.

*3 ◇ in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

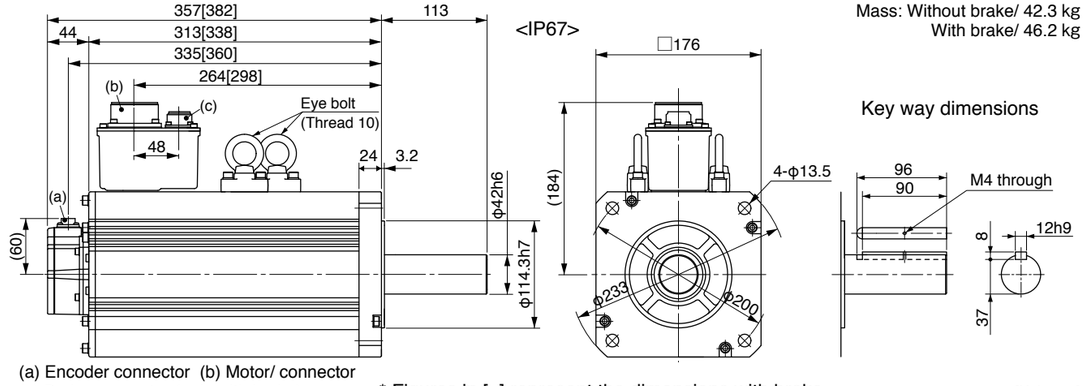
Torque characteristics (at AC400 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

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.

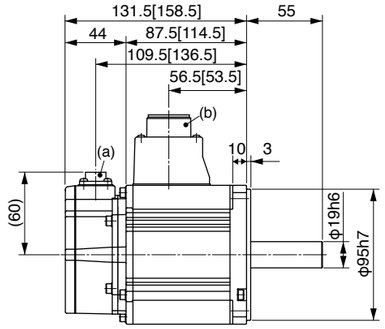
[Unit: mm]

<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.

IP67 motor (MSME 200 V/ 400 V type)

• MSME084□1 ✻

[Unit: mm]

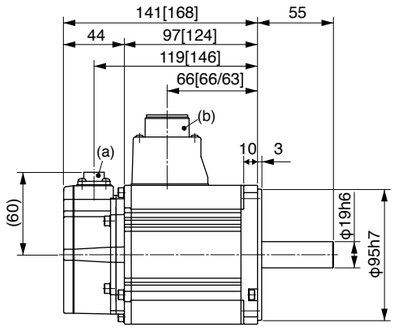


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MSME10□□1 ✻

[Unit: mm]

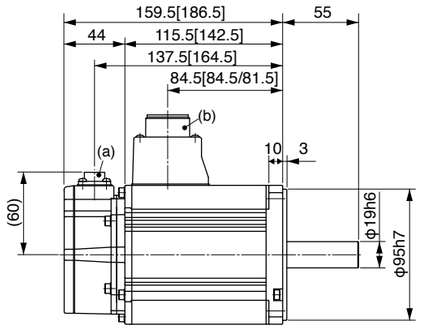


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

• MSME15□□1 ✻

[Unit: mm]

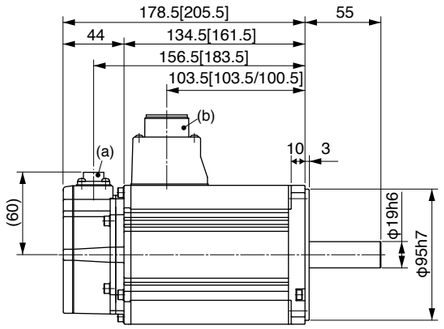


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

• MSME20□□1 ✻

[Unit: mm]

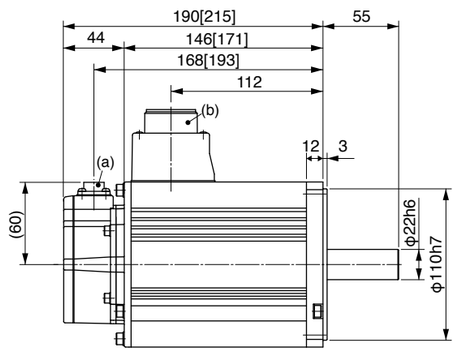


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

• MSME30□□1 ✻

[Unit: mm]

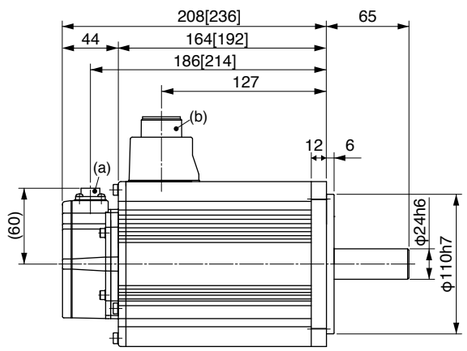


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MSME40□□1 ✻

[Unit: mm]



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

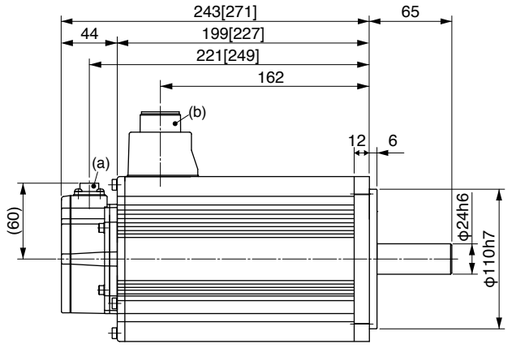
* Figures in [ ] represent the dimensions with brake.

* For motor specifications, refer to IP65 motor page.

IP67 motor (MSME 200 V/ 400 V type MDME 200 V/ 400 V type)

• MSME50□□1 ✻

[Unit: mm]

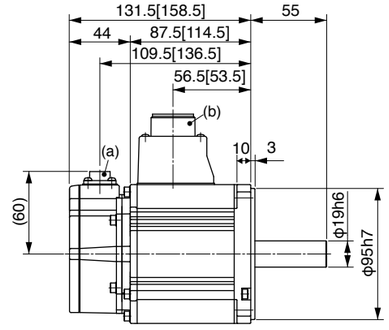


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME044□1 ✻

[Unit: mm]

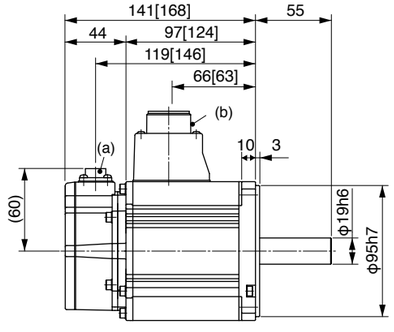


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME064□1 ✻

[Unit: mm]

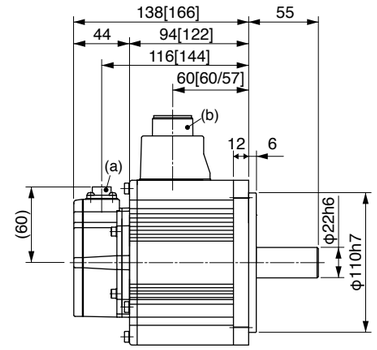


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME10□□1 ✻

[Unit: mm]

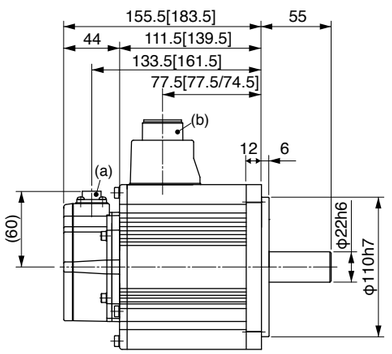


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

• MDME15□□1 ✻

[Unit: mm]

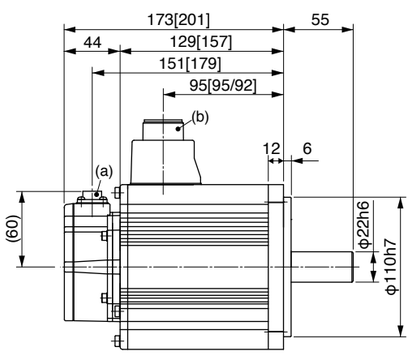


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

• MDME20□□1 ✻

[Unit: mm]



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

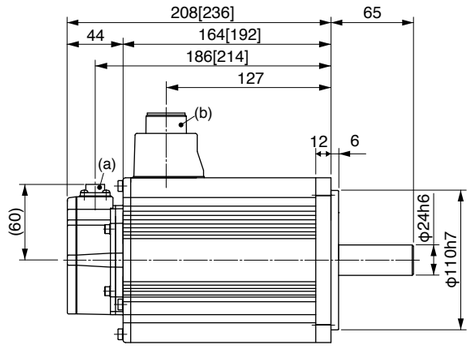
* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

* For motor specifications, refer to IP65 motor page.

IP67 motor (MDME 200 V/ 400 V type MGME 200 V/ 400 V type)

• MDME30□□1＊

[Unit: mm]

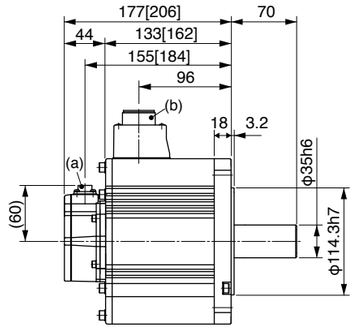


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME40□□1＊

[Unit: mm]

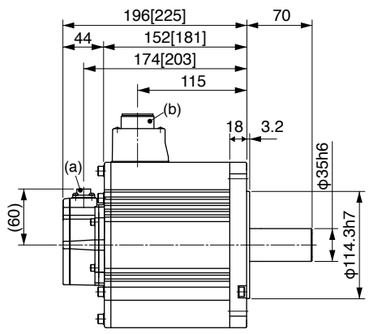


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MDME50□□1＊

[Unit: mm]

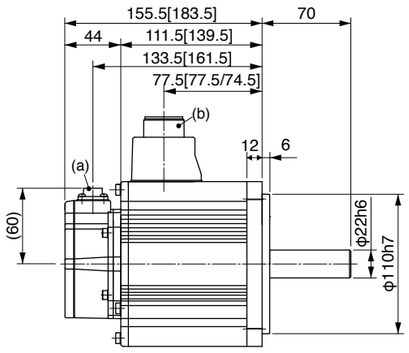


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MGME09□□1＊

[Unit: mm]

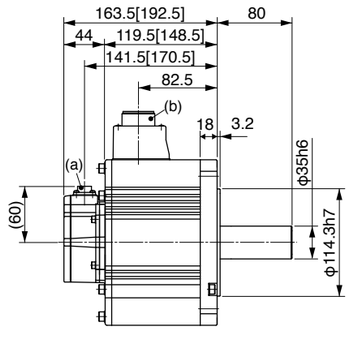


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.
If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

• MGME20□□1＊

[Unit: mm]

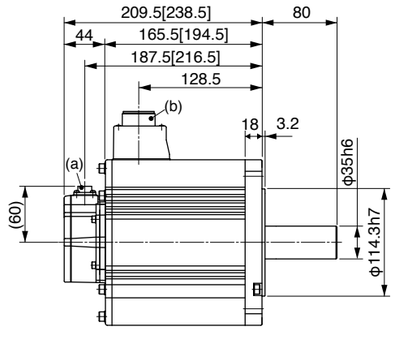


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MGME30□□1＊

[Unit: mm]



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

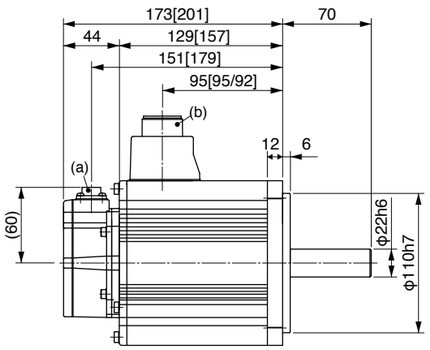
* Figures in [ ] represent the dimensions with brake.

* For motor specifications, refer to IP65 motor page.

IP67 motor (MHME 200 V/ 400 V type)

• MHME10□□1＊

[Unit: mm]

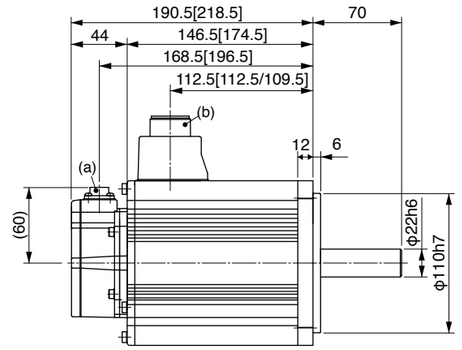


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.
If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

• MHME15□□1＊

[Unit: mm]

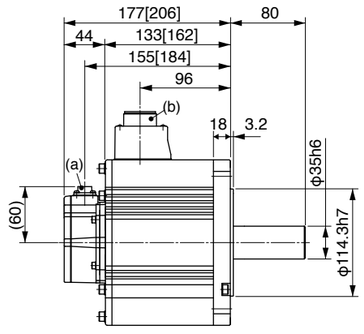


(a) Encoder connector (b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.
If you find two figures in [ ] ,left figure is for 200 V and right figure is for 400 V.

• MHME20□□1＊

[Unit: mm]

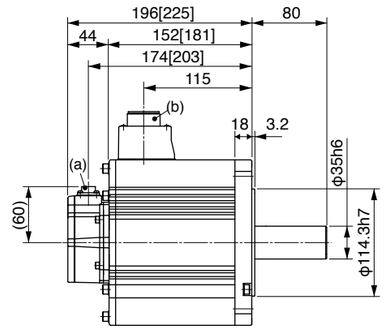


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MHME30□□1＊

[Unit: mm]

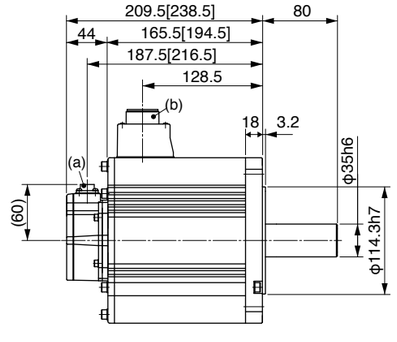


(a) Encoder connector
(b) Motor/Brake connector

* Figures in [ ] represent the dimensions with brake.

• MHME40□□1＊

[Unit: mm]

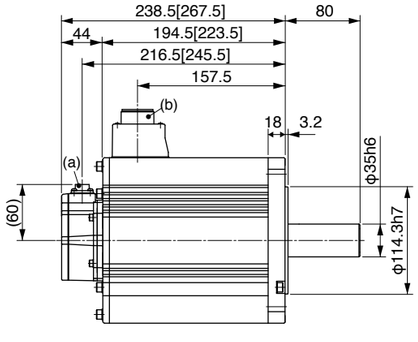


(a) Encoder connector
(b) Motor/Brake connector

* 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.

Type and Specifications

Motor Types with Gear Reducer

MSME
100 W to 750 W

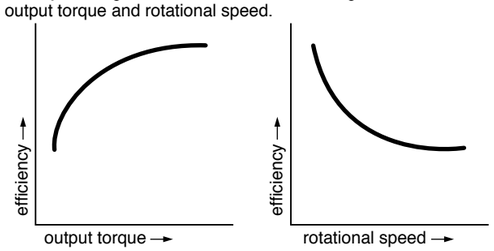
MSMD
100 W to 750 W

MHMD
200 W to 750 W

Reduction ratio	Motor output (W)				Type of reducer
	100	200	400	750	
1/5	●	●	●	●	For high precision
1/9	●	●	●	●	
1/15	●	●	●	●	
1/25	●	●	●	●	

* MHMD 100 W 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 °C to 40 °C (free from condensation)
	Ambient humidity	85 %RH (free from condensation) or less
	Vibration resistance	49 m/s^2 or less (at motor frame)
	Impact resistance	98 m/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 100 W to 750 W
MSME	Low inertia 100 W to 750 W
MHMD	High inertia 200 W to 750 W

Motor rated output

Symbol	Specifications
01	100 W
02	200 W
04	400 W
08	750 W

Voltage specifications

Symbol	Rated output
1	100 V
2	200 V

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wire
G	Incremental	20-bit	1048576	5
S	Absolute	17-bit	131072	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 100 W is not prepared.

Motor structure

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

The Combination of the Driver and the Motor with gear reducer

Motor output	100 V		200 V	
	Part No. of motor with gear reducer	Single phase, 100 V Part No. of driver	Part No. of motor with gear reducer	Single/3-phase, 200 V Part No. of driver
100 W	MSME011□□□N MSMD011□□□N	MADHT1107 MADKT1107	MSME012□□□N MSMD012□□□N	MADHT1505 MADKT1505
		MADHT1107E MADKT1107E		MADHT1505E MADKT1505E
200 W	MSME021□□□N MSMD021□□□N MHMD021□□□N	MBDHT2110 MBDKT2110	MSME022□□□N MSMD022□□□N MHMD022□□□N	MADHT1507 MADKT1507
		MBDHT2110E MBDKT2110E		MADHT1507E MADKT1507E
400 W	MSME041□□□N MSMD041□□□N MHMD041□□□N	MCDHT3120 MCDKT3120	MSME042□□□N MSMD042□□□N MHMD042□□□N	MBDHT2510 MBDKT2510
		MCDHT3120E MCDKT3120E		MBDHT2510E MBDKT2510E
750 W	—	—	MSME082□□□N MSMD082□□□N MHMD082□□□N	MCDHT3520 MCDKT3520
				MCDHT3520E MCDKT3520E

* Motor specifications enter to □□□ of the motor model number. Refer to “Model designation”.

Table of Motor Specifications

Table of Motor Specifications

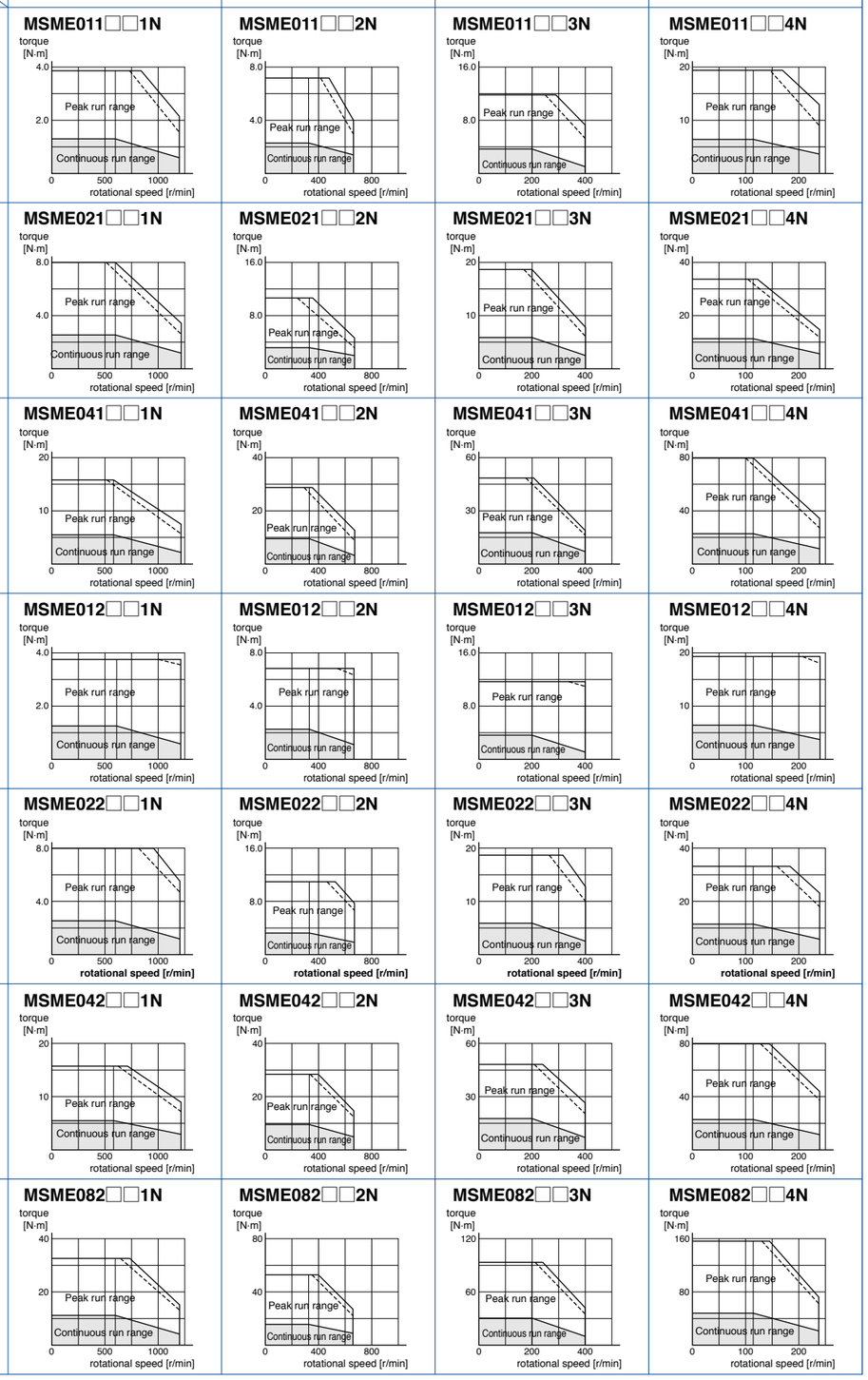
	Model	Motor Output	Reduction ratio	Output	Rated speed	Max. speed	Rated torque	Peak max. torque	Moment of inertia (motor + reducer/ converted to motor shaft)		Mass		Permissible radial load	Permissible thrust load
									w/o brake	w/ brake	w/o brake	w/ brake		
		(W)		(W)	(r/min)	(r/min)	(N·m)	(N·m)	J(×10^{-4}kg·m^2)		(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 (100 W to 750 W)

Supply voltage to driver	Motor output \ Reduction ratio	1/5	1/9	1/15	1/25
100 V	100 W	MSME011□□1N	MSME011□□2N	MSME011□□3N	MSME011□□4N
	200 W	MSME021□□1N	MSME021□□2N	MSME021□□3N	MSME021□□4N
	400 W	MSME041□□1N	MSME041□□2N	MSME041□□3N	MSME041□□4N
200 V	100 W	MSME012□□1N	MSME012□□2N	MSME012□□3N	MSME012□□4N
	200 W	MSME022□□1N	MSME022□□2N	MSME022□□3N	MSME022□□4N
	400 W	MSME042□□1N	MSME042□□2N	MSME042□□3N	MSME042□□4N
	750 W	MSME082□□1N	MSME082□□2N	MSME082□□3N	MSME082□□4N

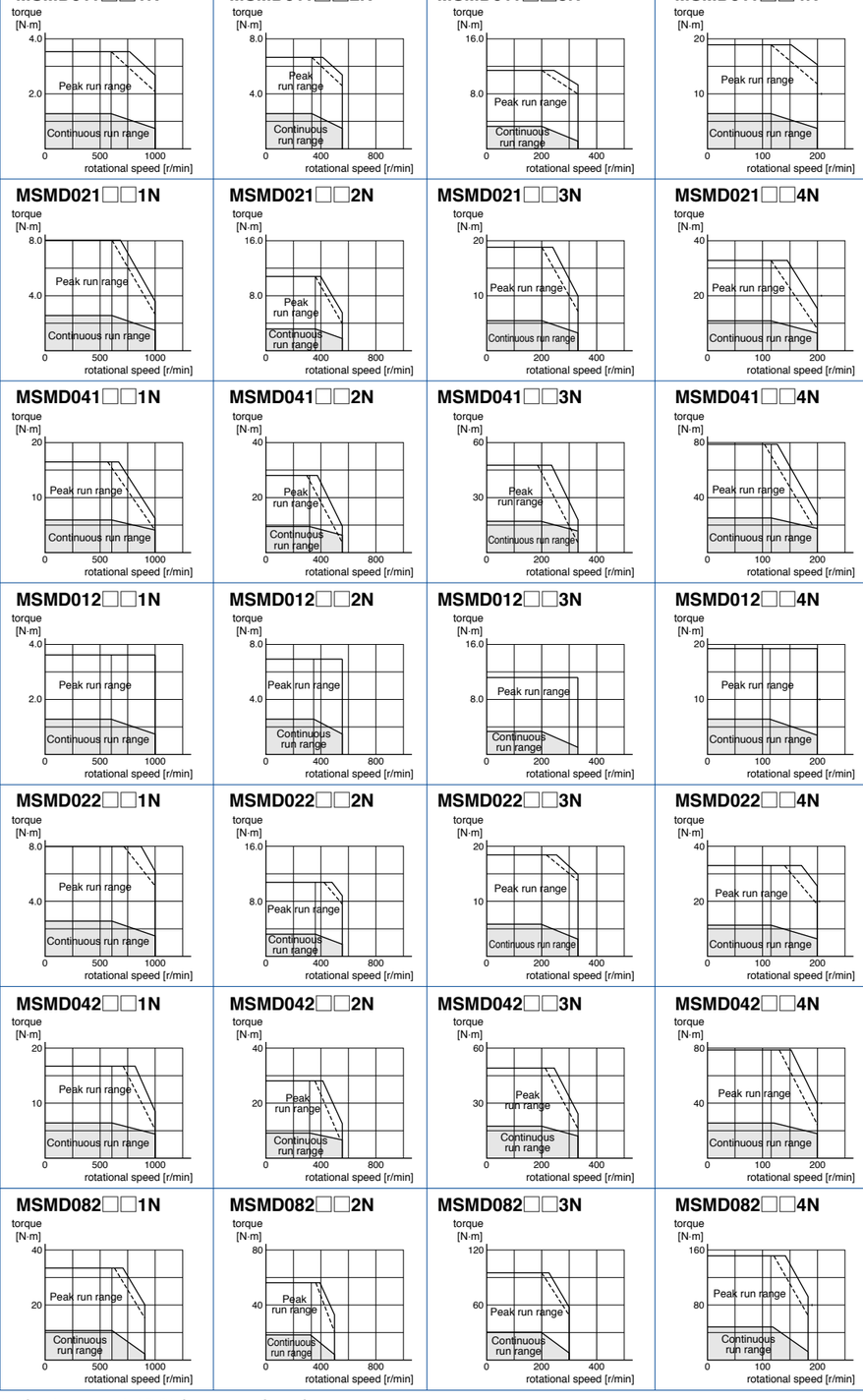


Dotted line represents the torque at 10 % less supply voltage.

Torque Characteristics of Motor

MSMD series (100 W to 750 W)

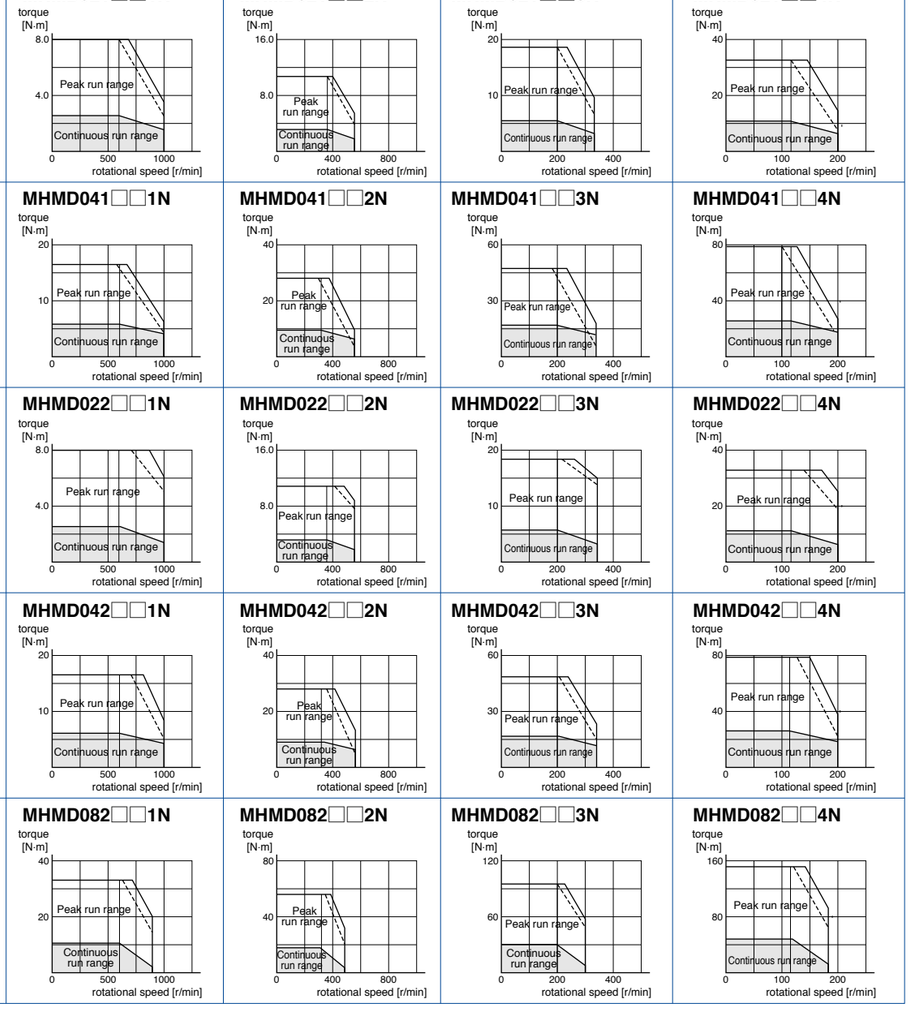
Supply voltage to driver	Motor output \ Reduction ratio	1/5	1/9	1/15	1/25
100 V	100 W	MSMD011□□1N	MSMD011□□2N	MSMD011□□3N	MSMD011□□4N
	200 W	MSMD021□□1N	MSMD021□□2N	MSMD021□□3N	MSMD021□□4N
	400 W	MSMD041□□1N	MSMD041□□2N	MSMD041□□3N	MSMD041□□4N
200 V	100 W	MSMD012□□1N	MSMD012□□2N	MSMD012□□3N	MSMD012□□4N
	200 W	MSMD022□□1N	MSMD022□□2N	MSMD022□□3N	MSMD022□□4N
	400 W	MSMD042□□1N	MSMD042□□2N	MSMD042□□3N	MSMD042□□4N
	750 W	MSMD082□□1N	MSMD082□□2N	MSMD082□□3N	MSMD082□□4N



Dotted line represents the torque at 10 % less supply voltage.

MHMD series (200 W to 750 W)

Supply voltage to driver	Motor output \ Reduction ratio	1/5	1/9	1/15	1/25
100 V	200 W	MHMD021□□1N	MHMD021□□2N	MHMD021□□3N	MHMD021□□4N
	400 W	MHMD041□□1N	MHMD041□□2N	MHMD041□□3N	MHMD041□□4N
200 V	200 W	MHMD022□□1N	MHMD022□□2N	MHMD022□□3N	MHMD022□□4N
	400 W	MHMD042□□1N	MHMD042□□2N	MHMD042□□3N	MHMD042□□4N
	750 W	MHMD082□□1N	MHMD082□□2N	MHMD082□□3N	MHMD082□□4N

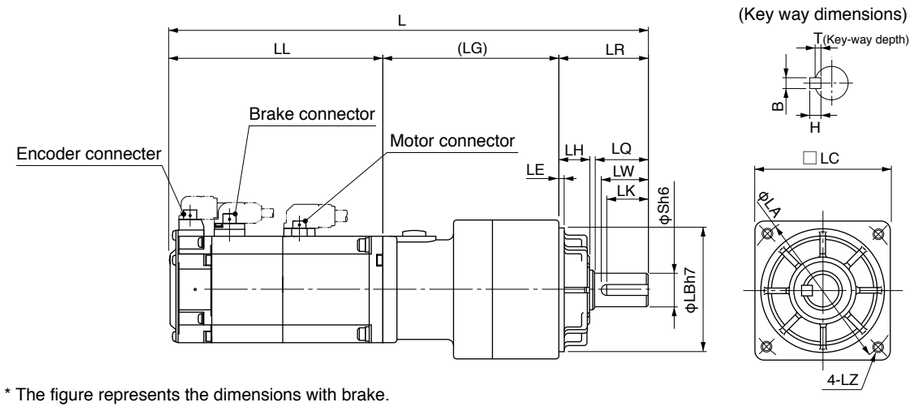


Dotted line represents the torque at 10 % less supply voltage.

Dimensions of Motor

MSME series

[Unit: mm]



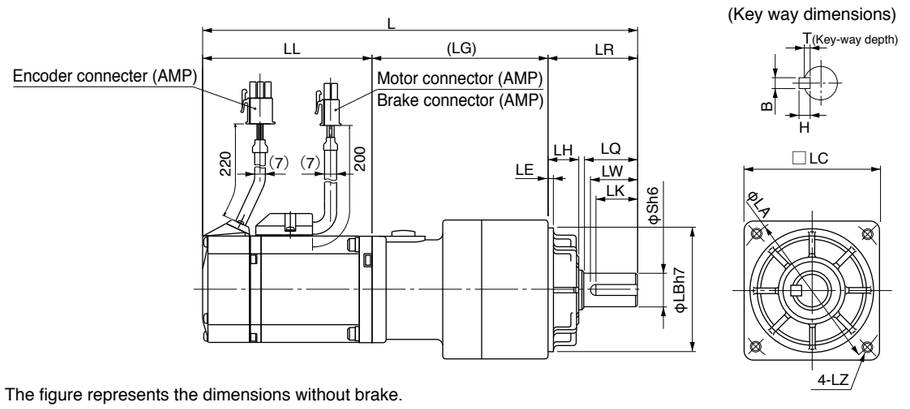
* The figure represents the dimensions with brake.

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		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

MSMD series

[Unit: mm]



* The figure represents the dimensions without brake.

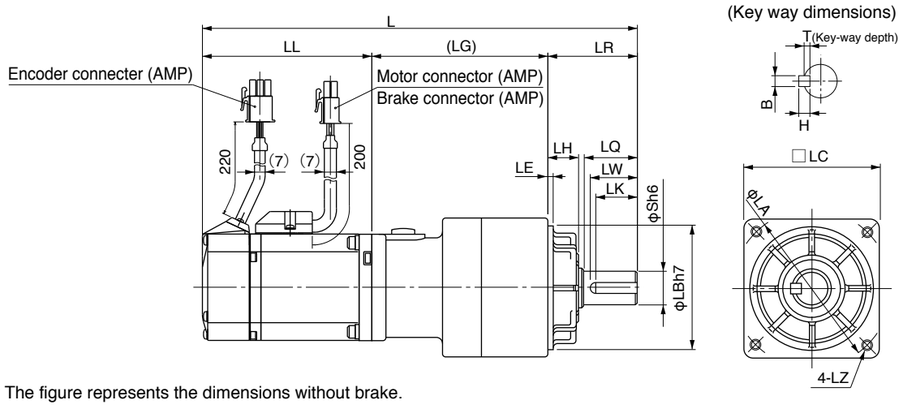
Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	S	LH	LZ	LW	(LG)	LE	Key way B×H×LK	T
MSMD01□□□1N	100	1/5	191.5	92	32	20	52	50	60	12	10	M5 Depth 12	18	67.5	3	4×4×16	2.5
			221.5	122													
MSMD01□□□2N		1/9	191.5	92													
			221.5	122													
MSMD01□□□3N		1/15	202	92										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

Dimensions of Motor

MHMD series

[Unit: mm]



* The figure represents the dimensions 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		4×4×16	2.5
			240	135.5													
MHMD02□□□2N		1/9	238.5	99										89.5			
			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	50	30	78	70	90	19	17	M6 Depth 20	26	89.5	3	6×6×22	3.5
			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

MEMO

Features/ Lineup

Features

- Line-up IP65 motor: 200 W to 5.0 kW
- Max speed: 5000 r/min (MSMJ, MHMJ)
- Low inertia (MSME) to High inertia (MHME).
- 20-bit incremental encoder (1048576 pulse)
- 17-bit absolute encoder (131072 pulse).

[Please note]

Motors displayed at P.151 to P.181 are Special Order Product. Please contact us for more information.

Motor Lineup

Small capacity

MSMJ
Low inertia

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

MHMJ
High inertia

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

Middle capacity

MSME
Low inertia

Max. speed : 5000 r/min
: 4500 r/min
(from 4.0 kW)
Rated speed : 3000 r/min
Rated output : 1.0 kW to 5.0 kW
Enclosure : IP65

MDME
Middle inertia

Max. speed : 3000 r/min
Rated speed : 2000 r/min
Rated output : IP65 1.0 kW to 5.0 kW
Enclosure : IP65

MGME
(Low speed/ High torque type)
High inertia

Max. speed : 2000 r/min
Rated speed : 1000 r/min
Rated output : IP65 0.9 kW to 3.0 kW
Enclosure : IP65

MHME
High inertia

Max. speed : 3000 r/min
Rated speed : 2000 r/min
Rated output : IP65 1.0 kW to 5.0 kW
Enclosure : IP65

Special Order Product Motor Contents

<Cautions> Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Model Designation

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

Servo Motor

M S M E 5 0 2 G C C M ✻

Special specifications

MSMJ, MHMJ
Special specifications

MSME, MDME, MGME, MHME
M: Special Order Product

Symbol	Type
MSMJ	Low inertia (200 W to 750 W)
MSME	Low inertia (1.0 kW to 5.0 kW)
MDME	Middle inertia (1.0 kW to 5.0 kW)
MGME	High inertia (0.9 kW to 3.0 kW)
MHMJ	High inertia (200 W to 750 W)
MHME	High inertia (1.0 kW to 5.0 kW)

Motor rated output

Symbol	Rated output
02	200 W
04	400 W
08	750 W
09	0.9 kW
10	1.0 kW
15	1.5 kW
20	2.0 kW
30	3.0 kW
40	4.0 kW
50	5.0 kW

Voltage specifications
2: 200 V

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
G	Incremental	20-bit	1048576	5
S	Absolute	17-bit	131072	7

* S: can be used in incremental.

<Cautions>
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Motor specifications
MSMJ, MHMJ

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

MSME, MDME, MGME, MHME

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

Design order

Symbol	Specifications
C	IP65 motor (MSME, MDME, MGME, MHME)
1	IP65 motor (MSMJ, MHMJ)

Servo Driver

Speed, Position, Torque, Full-closed type
M A D K T 1 5 0 5 ✻ ✻ ✻ — **Special specifications**

Position control type
M A D K T 1 5 0 5 E ✻ ✻ — **Special specifications**

Only position control

Frame symbol *

Symbol	Frame
MAD	Frame A
MBD	Frame B
MCD	Frame C
MDD	Frame D
MED	Frame E
MFD	Frame F

Series

Symbol	Velocity, Position, Torque, Full-Closed type	Position control type
K	A5Ⅱ series	A5ⅡE series

Supply voltage specifications

Symbol	Specifications
3	3-phase, 200 V
5	Single/3-phase, 200 V

Power device Max. current rating

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

Current detector current rating

Symbol	Specifications
07	7.5 A
10	10 A
20	20 A
30	30 A
40	40 A
64	64 A
90	90 A
A2	120 A

Table of Part Numbers and Options: 0.2 kW to 5.0 kW

Motor						Driver			Power capacity	Optional parts								
Motor series		Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5Ⅱ series Part No. (Speed, Position, Torque, Full-Closed type)	A5ⅡE series Part No. (Position control type) Note) 2	Frame	(at rated load) (kVA)	Encoder Cable			Motor Cable		Brake Cable	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter (Single phase / 3-phase)
										20-bit Incremental Note) 3	17-bit Absolute Note) 2,3,7		without Brake Note) 3	with Brake Note) 3	Note) 3			
Low inertia	**MSMJ** (Leadwire type) 3000 r/min	Single phase/ 3-phase 200 V	200	MSMJ022 □ 1 ＊	155	MADKT1507	MADKT1507E	A-frame	Approx. 0.5	MFECA 0**0EAM	MFECA 0**0EAE Note) 4		MFMCA 0**0EED		MFMCB 0**0GET	DV0P4283	DV0P227 / DV0P220	DV0P4170 / DV0PM20042
			400	MSMJ042 □ 1 ＊	156	MBDKT2510	MBDKT2510E	B-frame	Approx. 0.9								DV0P228 / DV0P220	DV0PM20042
			750	MSMJ082 □ 1 ＊	157	MCDKT3520	MCDKT3520E	C-frame	Approx. 1.3									
	MSME 3000 r/min	Single phase/ 3-phase 200 V	1000	MSME102 □ C ＊M	158	MDDKT5540	MDDKT5540E	D-frame	Approx. 1.8	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MSME152 □ C ＊M	159	MDDKT5540	MDDKT5540E		Approx. 2.3								DV0PM20047 / DV0P222	
		3-phase 200 V	2000	MSME202 □ C ＊M	160	MEDKT7364	MEDKT7364E	E-frame	Approx. 3.3							DV0P4285 Note) 5	DV0P223	DV0PM20043
			3000	MSME302 □ C ＊M	161	MFDKTA390	MFDKTA390E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MSME402 □ C ＊M	162	MFDKTB3A2	MFDKTB3A2E		Approx. 6								DV0P225	
			5000	MSME502 □ C ＊M	163	MFDKTB3A2	MFDKTB3A2E		Approx. 7.5								— Note) 6	
Middle inertia	**MDME** 2000 r/min	Single phase/ 3-phase 200 V	1000	MDME102 □ C ＊M	164	MDDKT3530	MDDKT3530E	D-frame	Approx. 1.8				MFMCD 0**2ECD	MFMCA 0**2FCD		DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MDME152 □ C ＊M	165	MDDKT5540	MDDKT5540E		Approx. 2.3								DV0PM20047 / DV0P222	
		3-phase 200 V	2000	MDME202 □ C ＊M	166	MEDKT7364	MEDKT7364E	E-frame	Approx. 3.3							DV0P4285 Note) 5	DV0P223	DV0PM20043
			3000	MDME302 □ C ＊M	167	MFDKTA390	MFDKTA390E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MDME402 □ C ＊M	168	MFDKTB3A2	MFDKTB3A2E		Approx. 6								DV0P225	
			5000	MDME502 □ C ＊M	169	MFDKTB3A2	MFDKTB3A2E		Approx. 7.5								— Note) 6	
High inertia	**MGME** (Low speed/ High torque type) 1000 r/min	Single phase/ 3-phase 200 V	900	MGME092 □ C ＊M	170	MDDKT5540	MDDKT5540E	D-frame	Approx. 1.8				MFMCD 0**2ECD	MFMCA **2FCD		DV0P4284	DV0P228 / DV0P221	DV0P4220
		3-phase 200 V	2000	MGME202 □ C ＊M	171	MFDKTA390	MFDKTA390E	F-frame	Approx. 3.8				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P223	DV0P3410
			3000	MGME302 □ C ＊M	172	MFDKTB3A2	MFDKTB3A2E		Approx. 4.5								DV0P224	
	MHMJ (Leadwire type) 3000 r/min	Single phase/ 3-phase 200 V	200	MHMJ022 □ 1 ＊	173	MADKT1507	MADKT1507E	A-frame	Approx. 0.5	MFECA 0**0EAM	MFECA 0**0EAE Note) 4		MFMCA 0**0EED		MFMCB 0**0GET	DV0P4283	DV0P227 / DV0P220	DV0P4170 / DV0PM20042
			400	MHMJ042 □ 1 ＊	174	MBDKT2510	MBDKT2510E	B-frame	Approx. 0.9								DV0P228 / DV0P220	DV0PM20042
			750	MHMJ082 □ 1 ＊	175	MCDKT3520	MCDKT3520E	C-frame	Approx. 1.3									
	MHME 2000 r/min	Single phase/ 3-phase 200 V	1000	MHME102 □ C ＊M	176	MDDKT3530	MDDKT3530E	D-frame	Approx. 1.8	MFECA 0**0ESD	MFECA 0**0ESE		MFMCD 0**2ECD	MFMCA 0**2FCD	—	DV0P4284	DV0P228 / DV0P222	DV0P4220
			1500	MHME152 □ C ＊M	177	MDDKT5540	MDDKT5540E		Approx. 2.3								DV0PM20047 / DV0P222	
		3-phase 200 V	2000	MHME202 □ C ＊ M	178	MEDKT7364	MEDKT7364E	E-frame	Approx. 3.3				MFMCE 0**2ECD	MFMCE 0**2FCD		DV0P4285 Note) 5	DV0P223	DV0PM20043
			3000	MHME302 □ C ＊ M	179	MFDKTA390	MFDKTA390E	F-frame	Approx. 4.5				MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224	DV0P3410
			4000	MHME402 □ C ＊ M	180	MFDKTB3A2	MFDKTB3A2E		Approx. 6								DV0P225	
			5000	MHME502 □ C ＊ M	181	MFDKTB3A2	MFDKTB3A2E		Approx. 7.5								— Note) 6	

Note) 1 Rotary encoder specifications: □ Motor specification: ＊ (refer to P.152)
Note) 2 Because A5ⅡE 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: 3 m, 05: 5 m, 10: 10 m, 20: 20 m), (Example. 3 m: MFECA0030EAM)
Note) 4 When you use a 17-bit absolute encoder as an incremental encoder, please use the encoder cable MFECA0**0EAD.
Note) 5 Other combinations exist, and refer to P.210 for details.
Note) 6 Reactor should be prepared by the user.

<Cautions> Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Note) 7 Please note that a battery is not supplied together with 17-bit absolute encoder cable (with battery box).
Please buy the battery part number “DV0P2990” separately.

<Cautions> Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

・Options

Title			Part No.	Page
Interface Cable			DV0P4360	197
Interface Conversion Cable			DV0P4120	
			DV0P4121	
			DV0P4130	
			DV0P4131	
			DV0P4132	
Connector Kit for Power Supply Input Connection	A-frame to D-frame	Single row type	DV0PM20032	200
		Double row type	DV0PM20033	
	E-frame		DV0PM20044	
Connector Kit for Motor Connection	A-frame to D-frame		DV0PM20034	201
	E-frame		DV0PM20046	
Connector Kit for Regenerative Resistor	E-frame		DV0PM20045	
Connector Kit for Motor/Encoder Connection			DV0P4290	202
			DV0P4310	204
			DV0P4320	
			DV0P4330	205
			DV0P4340	
			DV0P4380	202
Connector Kit	RS485, RS232		DV0PM20024	198
	Safety		DV0PM20025	
	Interface		DV0P4350	
	External Scale		DV0PM20026	199
	Encoder		DV0PM20010	
	Analog Monitor Signal		DV0PM20031	
Battery For Absolute Encoder			DV0P2990	207
Battery Box Note) 7			DV0P4430	
Mounting Bracket	A-frame		DV0PM20027	208
	B-frame		DV0PM20028	
	C-frame		DV0PM20029	
	D-frame		DV0PM20030	
Encoder Cable	without Battery Box		MFECA0**0EAD	188
			MFECA0**0EAM	
			MFECA0**0ESD	189
	with Battery Box Note) 7		MFECA0**0EAE	188
			MFECA0**0ESE	190
Motor Cable	without Brake		MFMCA0**0EED	191
			MFMCD0**2ECD	192
			MFMCE0**2ECD	
			MFMCA0**3ECT	193
	with Brake		MFMCA0**2FCD	194
			MFMCA0**3FCT	195
Brake Cable			MFMCB0**0GET	196
External Regenerative Resistor	A-frame		DV0P4283	210
	B-frame			
	C-frame			
	D-frame		DV0P4284	
	E-frame		DV0P4285	
	F-frame			
Reactor	DV0P220, DV0P221, DV0P222, DV0P223, DV0P224, DV0P225, DV0P227, DV0P228, DV0PM20047			209
Noise Filter	DV0P4170, DV0PM20042 DV0P4220, DV0PM20043			250
	DV0P3410			251
Surge Absorber	Single phase		DV0P4190	253
	3-phase		DV0P1450	
Noise Filter for Signal Lines			DV0P1460	254

Special Order Product

200 V MSMJ 200 W [Low inertia, Small capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSMJ022G1□	MSMJ022S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MADKT1507	
		A5ⅡE series	MADKT1507E	–
	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 (×10⁻⁴ kg·m²)	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

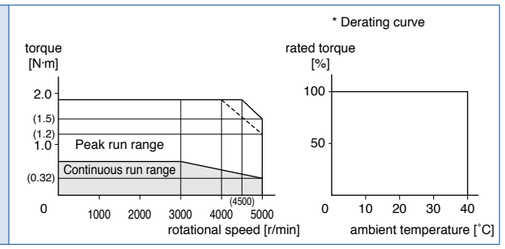
• Permissible load (For details, refer to P.183)

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

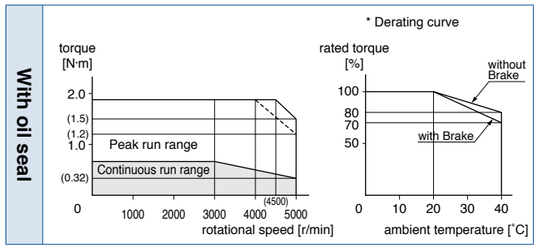
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal

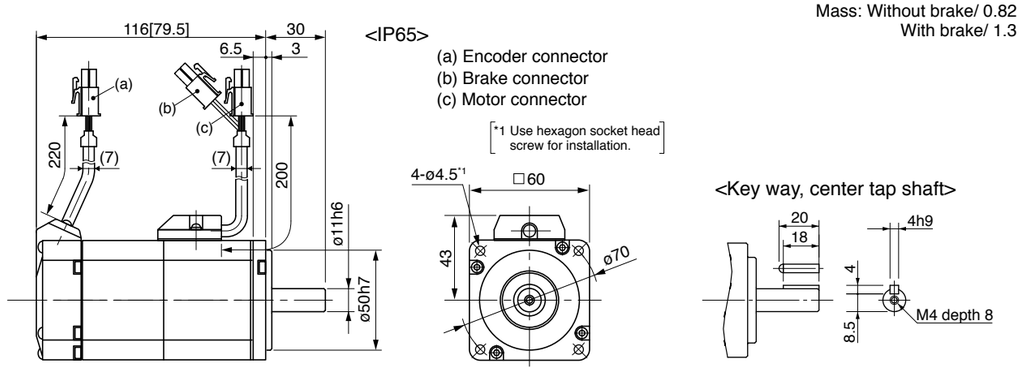


With oil seal



Dimensions

Mass: Without brake/ 0.82 kg
With brake/ 1.3 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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MSMJ 400 W [Low inertia, Small capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSMJ042G1□	MSMJ042S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MBDKT2510	
		A5ⅡE series	MBDKT2510E	–
	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 (×10⁻⁴ kg·m²)	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

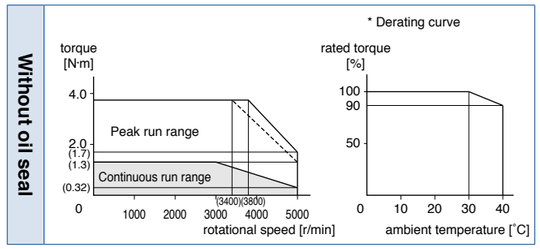
• Permissible load (For details, refer to P.183)

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

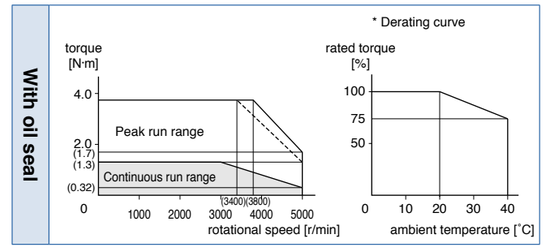
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal

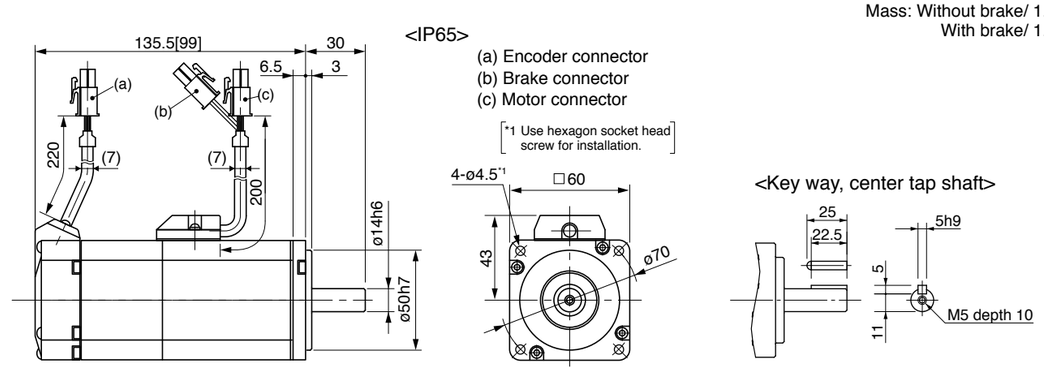


With oil seal



Dimensions

Mass: Without brake/ 1.2 kg
With brake/ 1.7 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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MSMJ 750 W [Low inertia, Small capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSMJ082G1□	MSMJ082S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MCDKT3520	
		A5ⅡE series	MCDKT3520E	–
	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

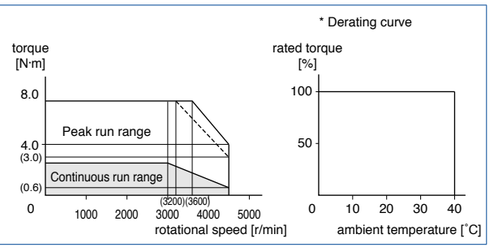
• Permissible load (For details, refer to P.183)

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

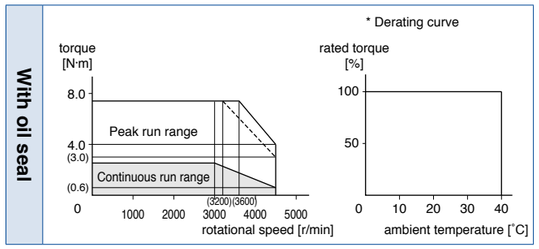
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

Without oil seal



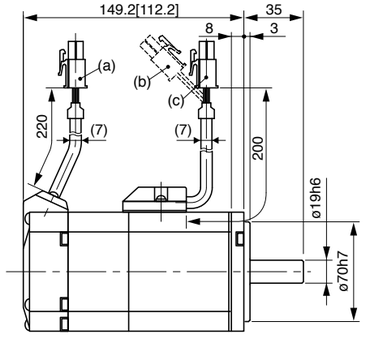
With oil seal



Dimensions

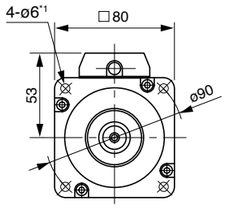
Mass: Without brake/ 2.3 kg
With brake/ 3.1 kg

<IP65>

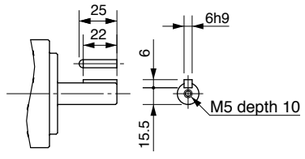


(a) Encoder connector
(b) Brake connector
(c) Motor connector

*1 Use hexagon socket head screw for installation.



<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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSME102GC□M	MSME102SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MDDKT5540	
		A5ⅡE series	MDDKT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

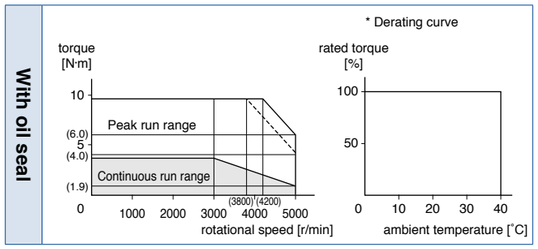
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

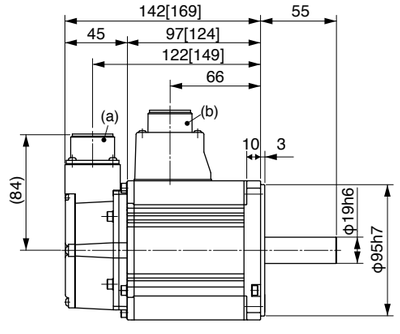
With oil seal

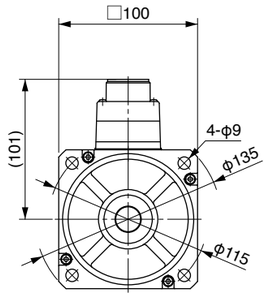


Dimensions

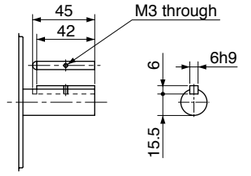
Mass: Without brake/ 3.5 kg
With brake/ 4.5 kg

<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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSME152GC□M	MSME152SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MDDKT5540	
		A5ⅡE series	MDDKT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

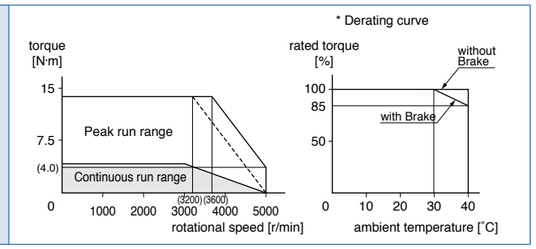
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

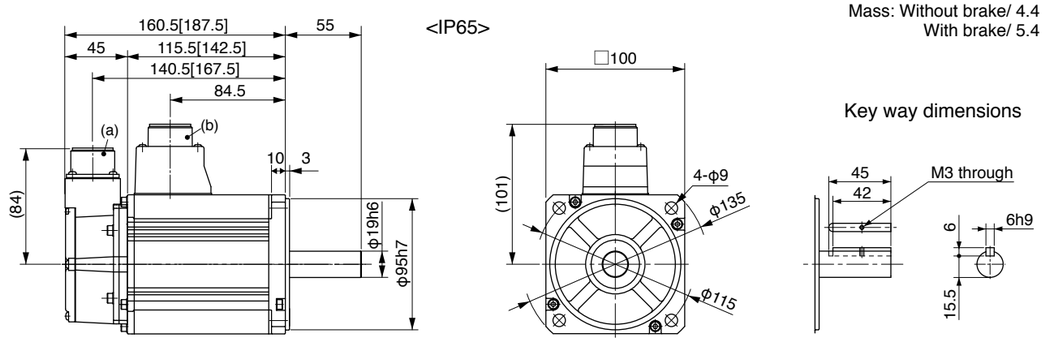
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSME202GC□M	MSME202SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MEDKT7364	
		A5ⅡE series	MEDKT7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

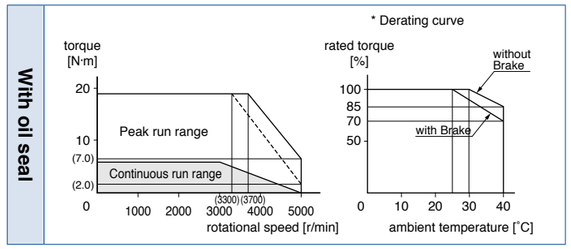
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.44.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

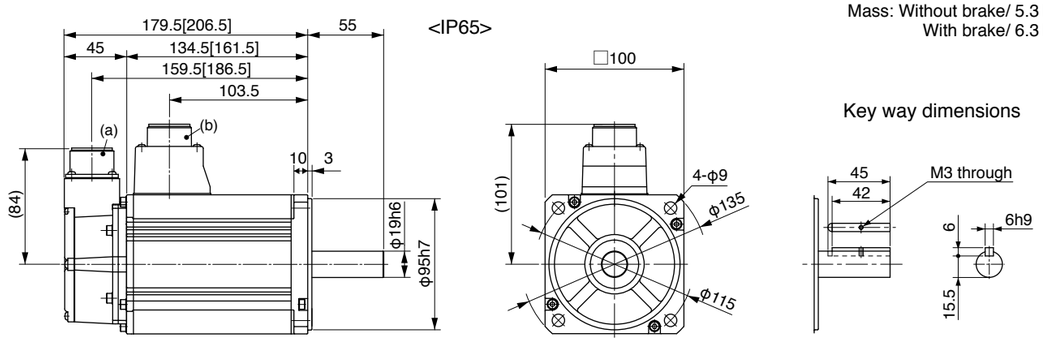
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSME302GC□M	MSME302SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTA390	
		A5ⅡE series	MFDKTA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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 (×10^{-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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

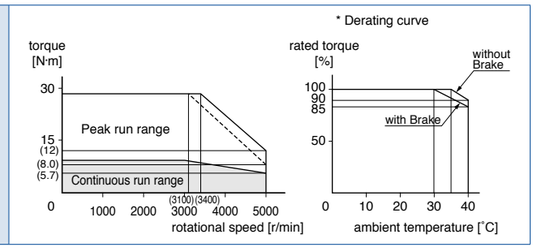
• Permissible load (For details, refer to P.183)

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

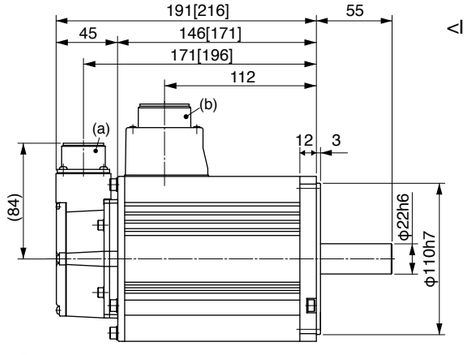
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

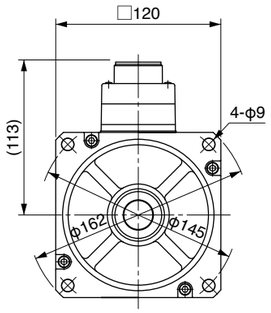
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

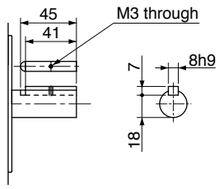
With oil seal



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSME402GC□M	MSME402SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTB3A2	
		A5ⅡE series	MFDKTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (W)			4000	
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 (×10^{-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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

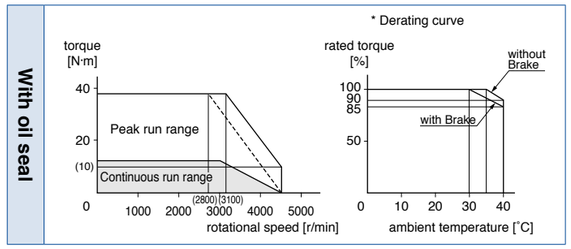
• Permissible load (For details, refer to P.183)

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

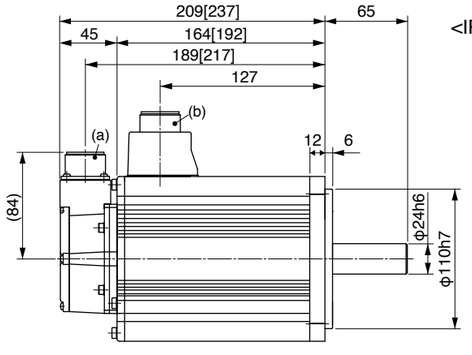
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

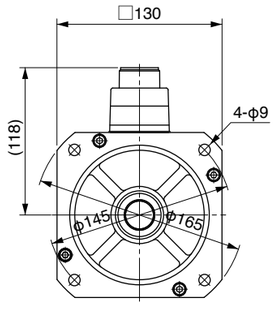
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

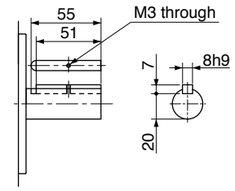
With oil seal



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MSME502GC□M	MSME502SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTB3A2	
		A5ⅡE series	MFDKTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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^{-4} kg·m^2)	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

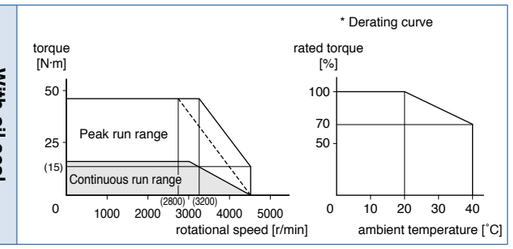
• Permissible load (For details, refer to P.183)

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

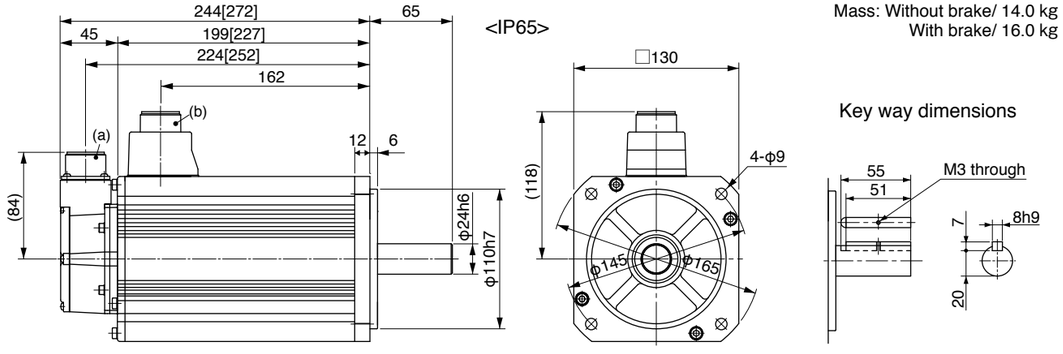
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MDME102GC□M	MDME102SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MDDKT3530	
		A5ⅡE series	MDDKT3530E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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^{-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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

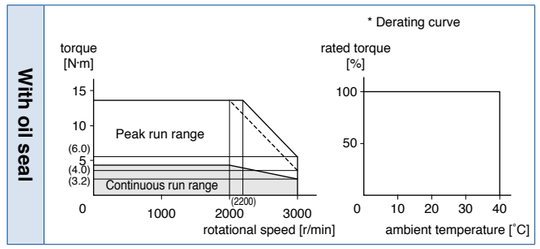
• Permissible load (For details, refer to P.183)

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

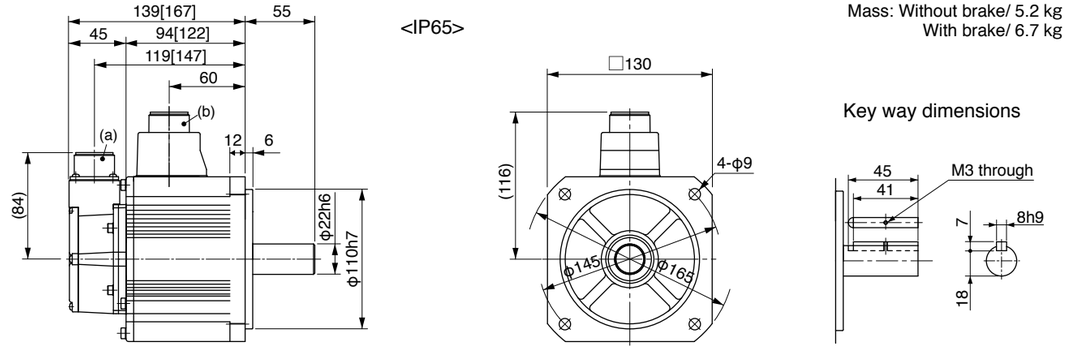
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MDME152GC□M	MDME152SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MDDKT5540	
		A5ⅡE series	MDDKT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

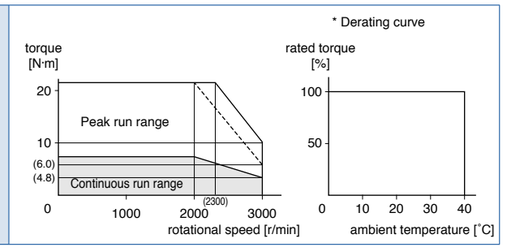
• Permissible load (For details, refer to P.183)

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

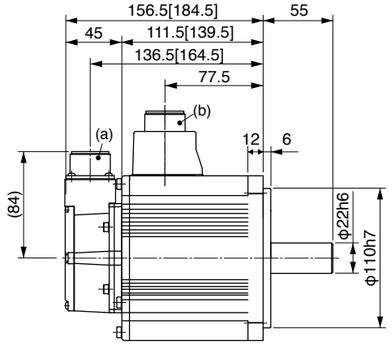
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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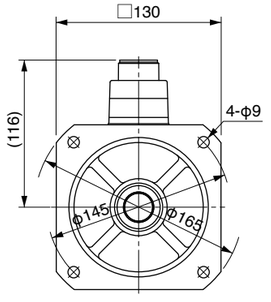
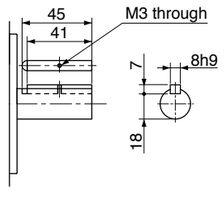


Mass: Without brake/ 6.7 kg
With brake/ 8.2 kg

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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MDME202GC□M	MDME202SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MEDKT7364	
		A5ⅡE series	MEDKT7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

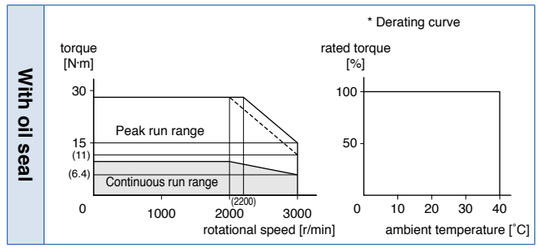
• Permissible load (For details, refer to P.183)

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

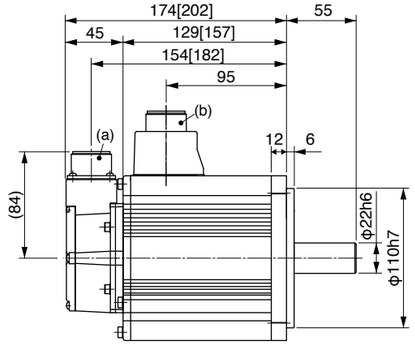
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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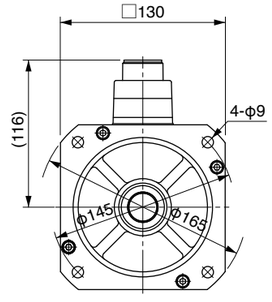
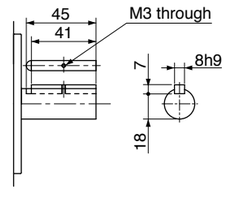


Mass: Without brake/ 8.0 kg
With brake/ 9.5 kg

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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MDME302GC□M	MDME302SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTA390	
		A5ⅡE series	MFDKTA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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 ($\times10^{-4}$ kg·m^2)	Without brake		12.9	
	With brake		14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution per single turn			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

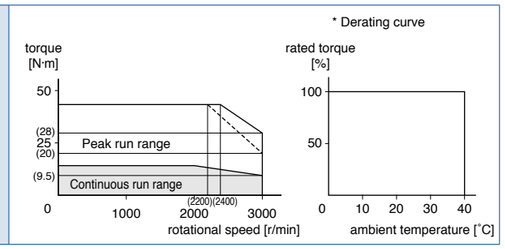
• Permissible load (For details, refer to P.183)

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

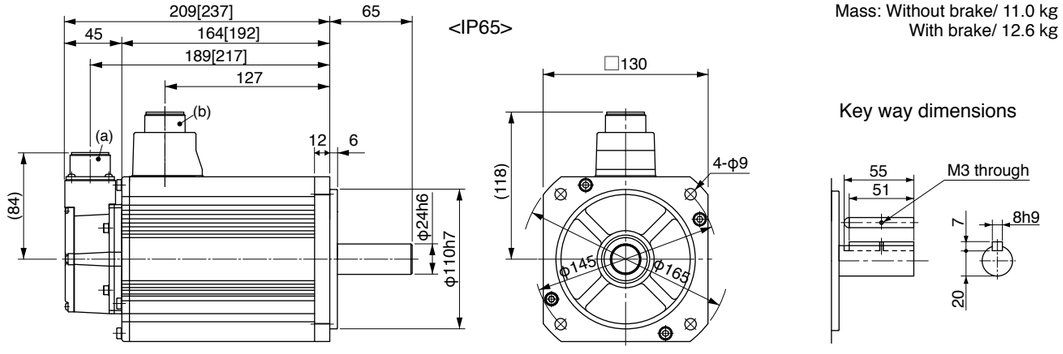
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MDME402GC□M	MDME402SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTB3A2	
		A5ⅡE series	MFDKTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (W)			4000	
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 ($\times10^{-4}$ kg·m^2)	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

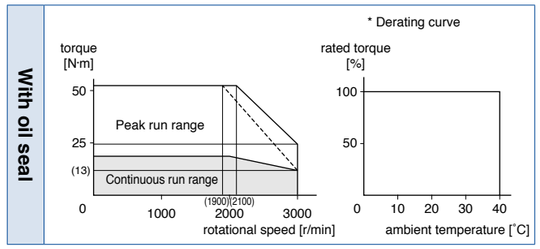
• Permissible load (For details, refer to P.183)

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

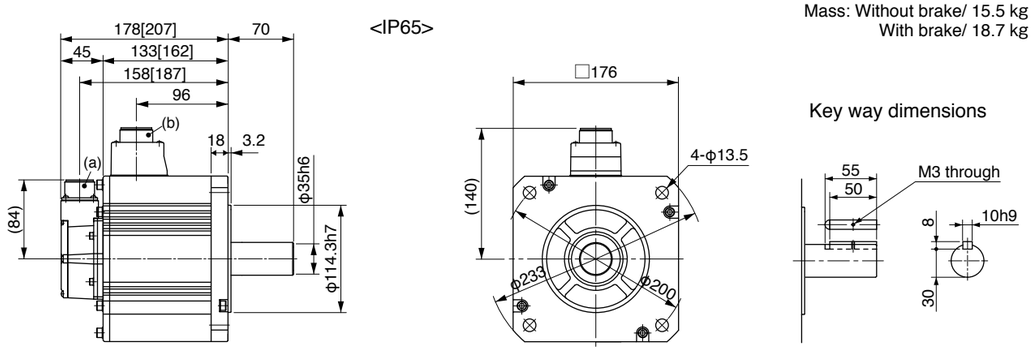
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MDME502GC□M	MDME502SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTB3A2	
		A5ⅡE series	MFDKTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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^{-4} kg·m^2)	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

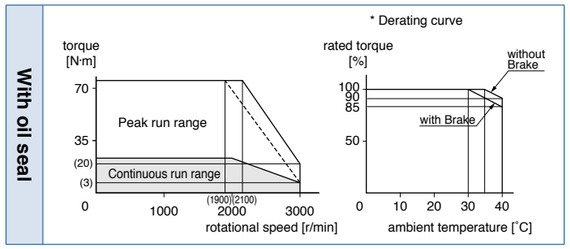
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



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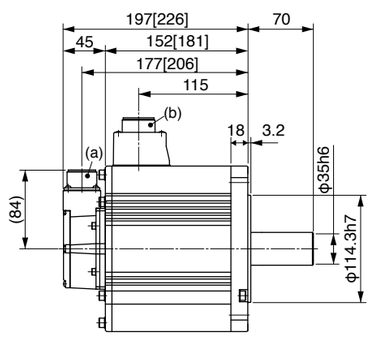

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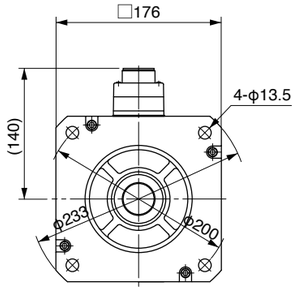
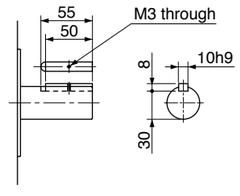


Mass: Without brake/ 18.6 kg
With brake/ 21.8 kg

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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MGME092GC□M	MGME092SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MDDKT5540	
		A5ⅡE series	MDDKT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			900	
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^{-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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

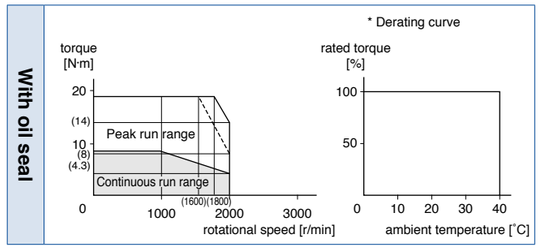
• Permissible load (For details, refer to P.183)

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

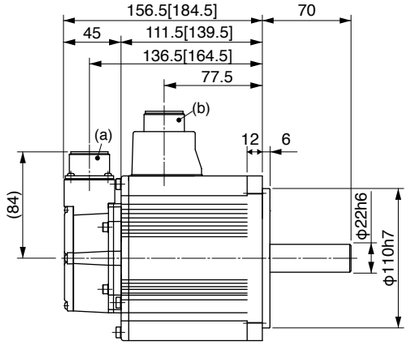
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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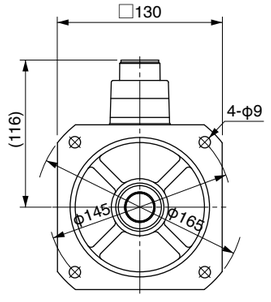
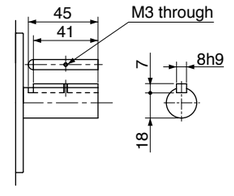


Mass: Without brake/ 6.7 kg
With brake/ 8.2 kg

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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MGME202GC□M	MGME202SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTA390	
		A5ⅡE series	MFDKTA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			3.8	
Rated output (W)			2000	
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^{-4} kg·m^2)	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

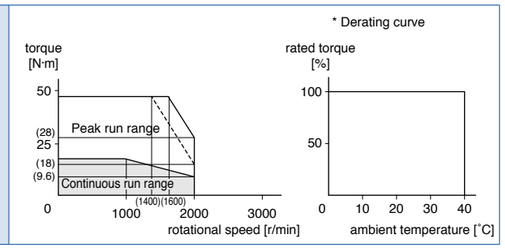
• Permissible load (For details, refer to P.183)

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

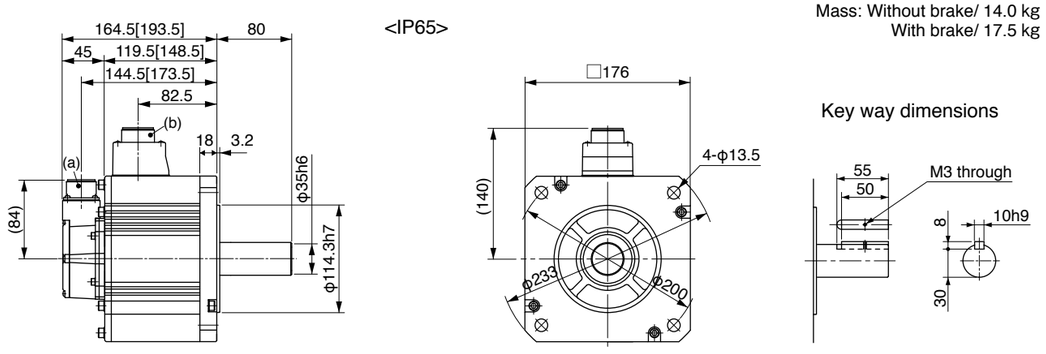
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MGME302GC□M	MGME302SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTB3A2	
		A5ⅡE series	MFDKTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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^{-4} kg·m^2)	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

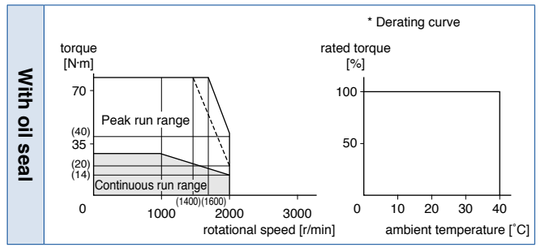
• Permissible load (For details, refer to P.183)

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

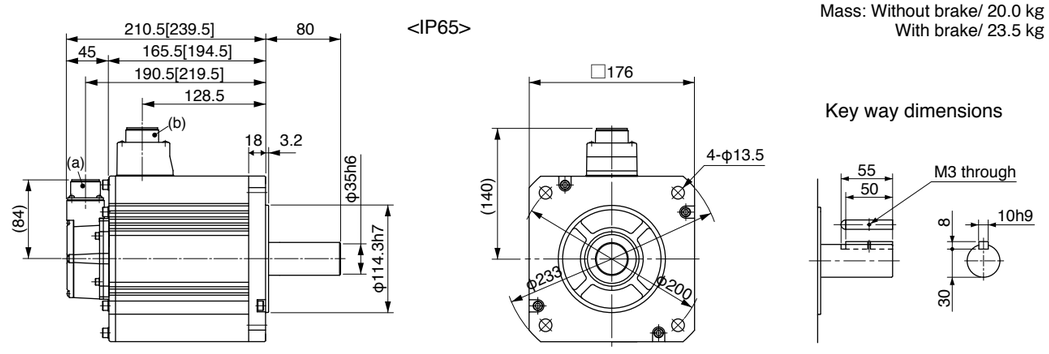
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MHMJ 200 W [High inertia, Small capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHMJ022G1□	MHMJ022S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MADKT1507	
		A5ⅡE series	MADKT1507E	–
	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

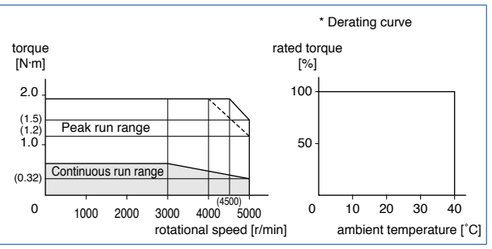
• Permissible load (For details, refer to P.183)

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

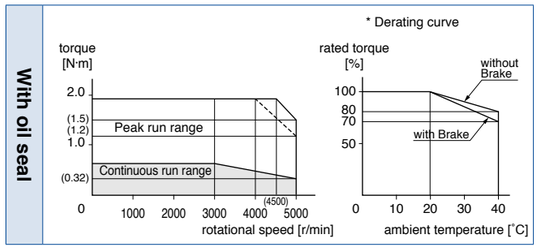
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

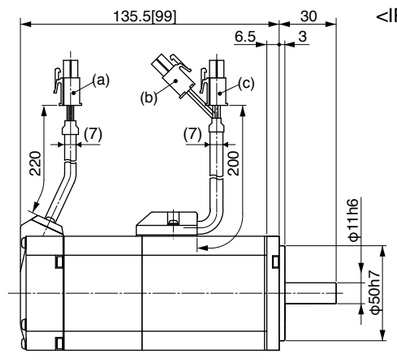
Without oil seal



With oil seal



Dimensions

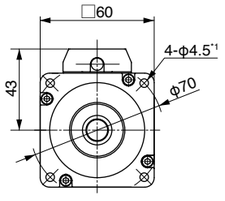


<IP65>

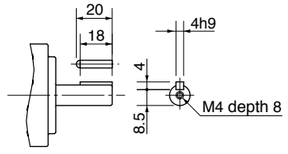
Mass: Without brake/ 0.96 kg
With brake/ 1.4 kg

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

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



<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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MHMJ 400 W [High inertia, Small capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHMJ042G1□	MHMJ042S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MBDKT2510	
		A5ⅡE series	MBDKT2510E	–
	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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

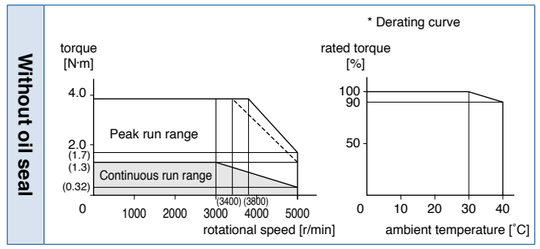
• Permissible load (For details, refer to P.183)

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

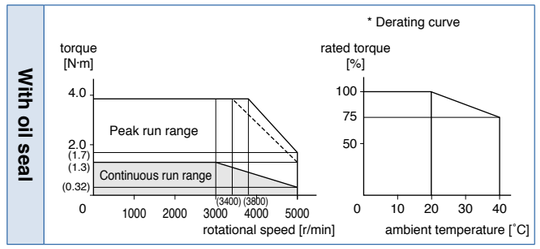
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.42.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

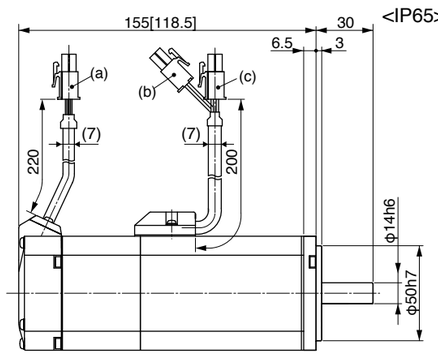
Without oil seal



With oil seal



Dimensions

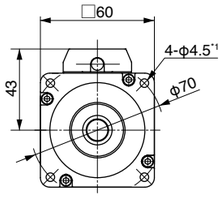


<IP65>

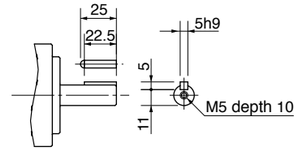
Mass: Without brake/ 1.4 kg
With brake/ 1.8 kg

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

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



<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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MHMJ 750 W [High inertia, Small capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHMJ082G1□	MHMJ082S1□
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MCDKT3520	
		A5ⅡE series	MCDKT3520E	–
	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			1048576	131072

• Brake specifications (For details, refer to P.183)

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

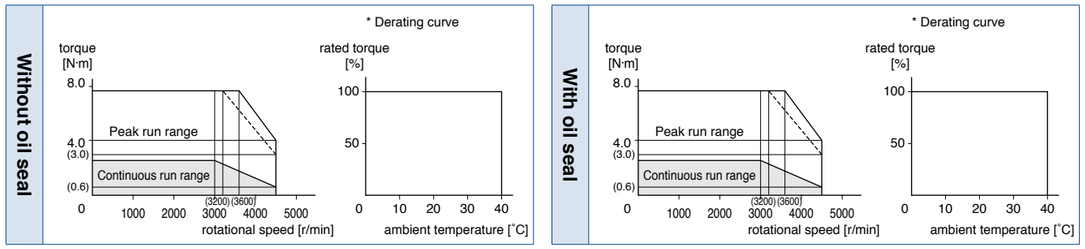
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.183)

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

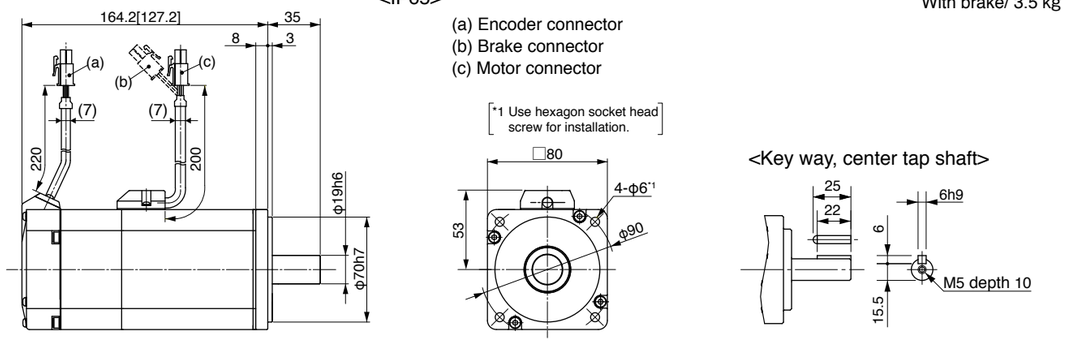
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V 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



* 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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHME102GC□M	MHME102SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MDDKT3530	
		A5ⅡE series	MDDKT3530E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			1.8	
Rated output (W)			1000	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

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

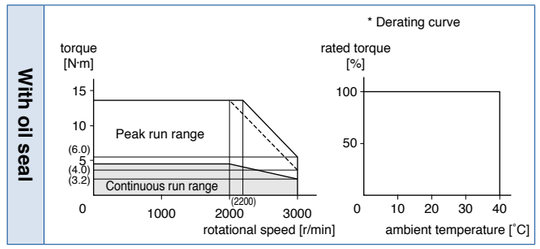
Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

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

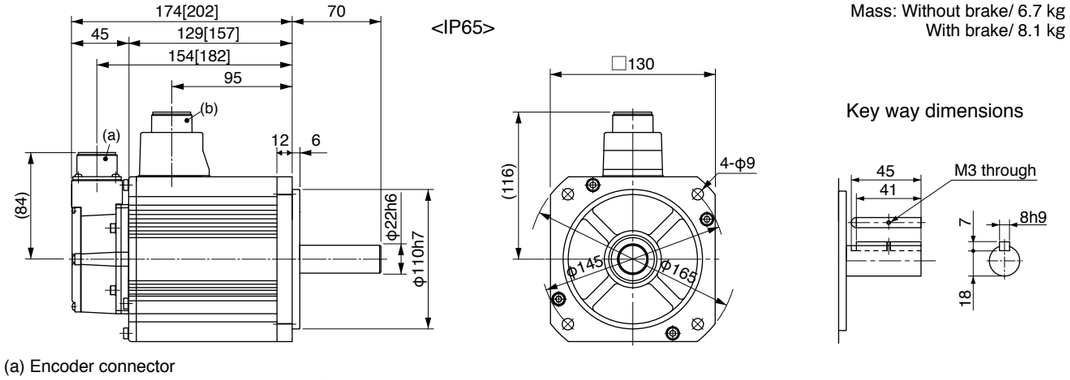
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

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



* 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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

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

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHME152GC□M	MHME152SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MDDKT5540	
		A5ⅡE series	MDDKT5540E	–
	Frame symbol		D-frame	
Power supply capacity (kVA)			2.3	
Rated output (W)			1500	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

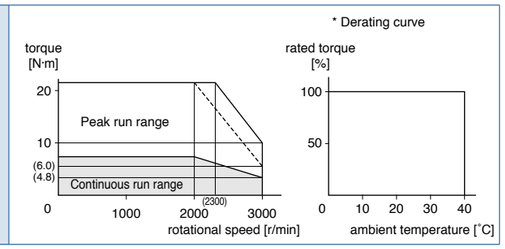
• Permissible load (For details, refer to P.183)

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

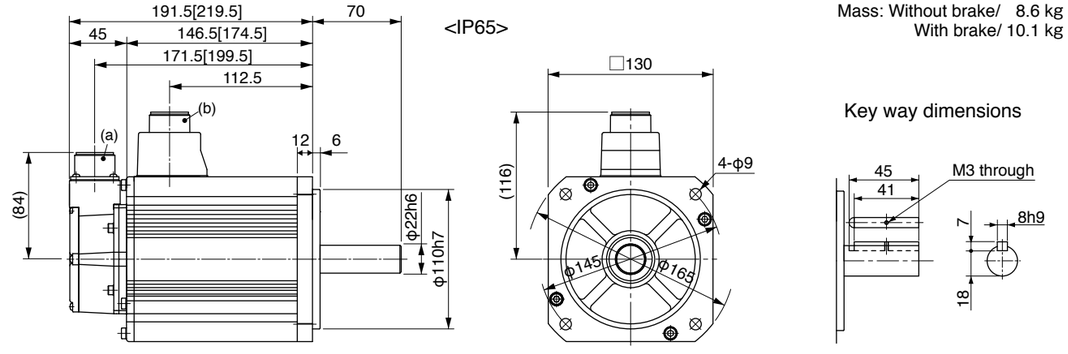
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



Mass: Without brake/ 8.6 kg
With brake/ 10.1 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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MHME 2.0 kW [High inertia, Middle capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHME202GC□M	MHME202SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MEDKT7364	
		A5ⅡE series	MEDKT7364E	–
	Frame symbol		E-frame	
Power supply capacity (kVA)			3.3	
Rated output (W)			2000	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

(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

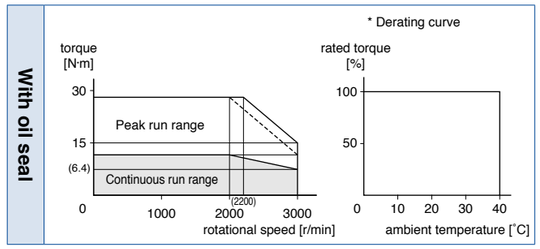
• Permissible load (For details, refer to P.183)

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

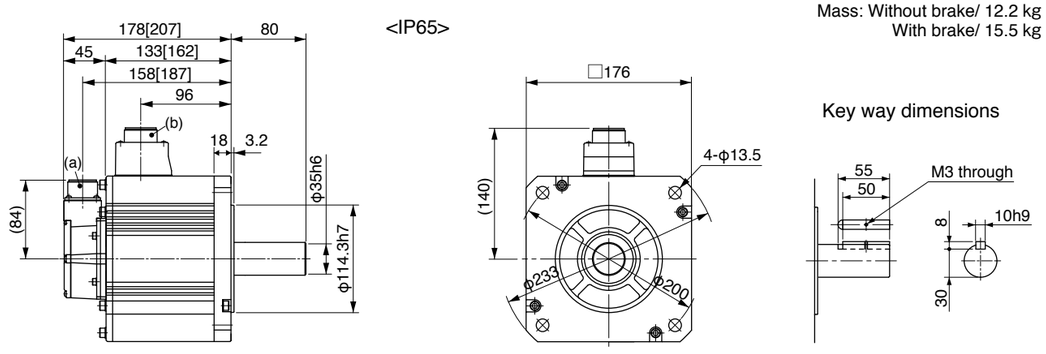
• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.43.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MHME 3.0 kW [High inertia, Middle capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHME302GC□M	MHME302SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTA390	
		A5ⅡE series	MFDKTA390E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			4.5	
Rated output (W)			3000	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

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

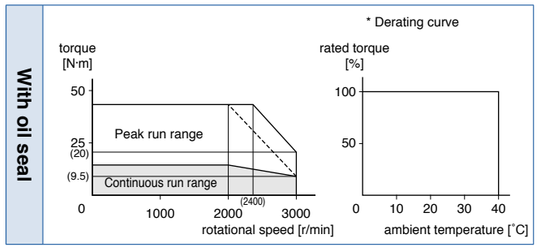
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

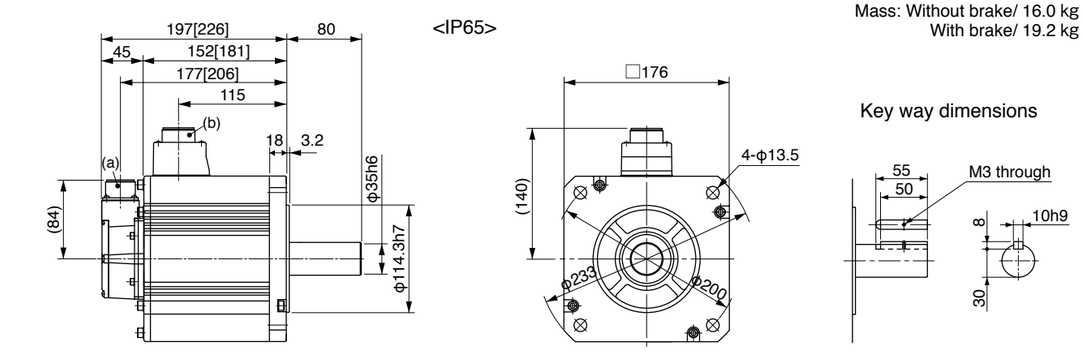
During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MHME 4.0 kW [High inertia, Middle capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHME402GC□M	MHME402SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTB3A2	
		A5ⅡE series	MFDKTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			6.0	
Rated output (W)			4000	
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			1048576	131072

• Brake specifications (For details, refer to P.183)

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

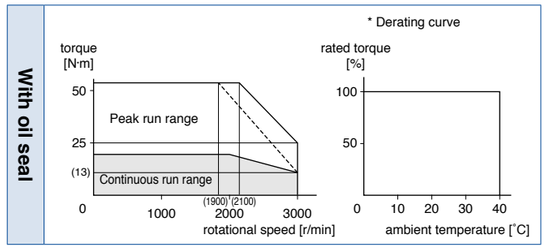
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

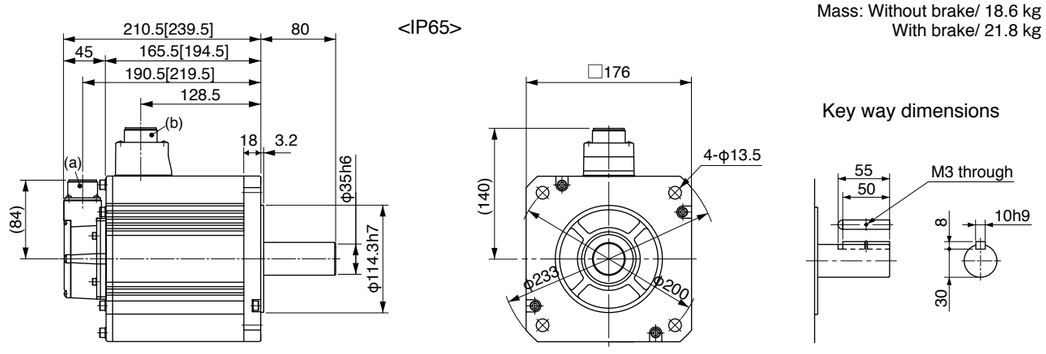
During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



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.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

200 V MHME 5.0 kW [High inertia, Middle capacity]

• Please contact us for more information.

Specifications

			AC200 V	
Motor model *1	IP65		MHME502GC□M	MHME502SC□M
	IP67		–	–
Applicable driver *2	Model No.	A5Ⅱ series	MFDKTB3A2	
		A5ⅡE series	MFDKTB3A2E	–
	Frame symbol		F-frame	
Power supply capacity (kVA)			7.5	
Rated output (W)			5000	
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 (×10^{-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		1048576	131072

• Brake specifications (For details, refer to P.183)

(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

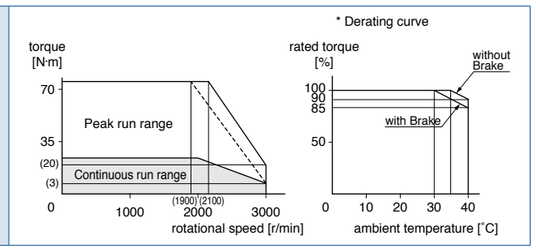
• Permissible load (For details, refer to P.183)

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.182, P.183.
• Dimensions of Driver, refer to P.45.
*1 Motor specifications: □
*2 The product that the end of driver model designation has “E” is “Position control type”. Detail of model designation, refer to P.152.

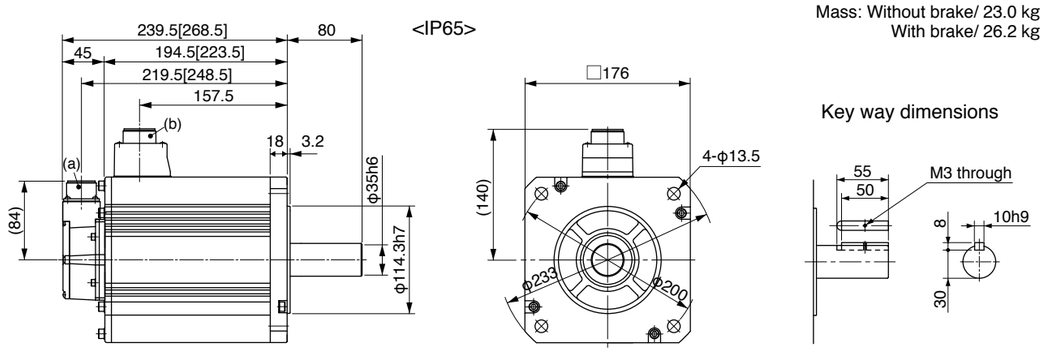
Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>)

With oil seal



Dimensions

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]

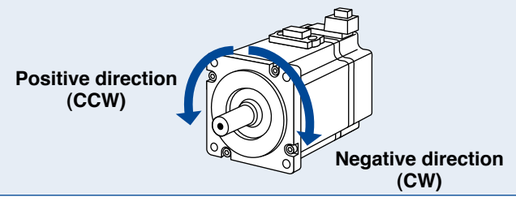
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

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	50 W to 5.0 kW : Lower than 49 m/s^2 (5 G) at running, 24.5 m/s^2 (2.5 G) at stall 6.0 kW to 15.0 kW : Lower than 24.5 m/s^2 (2.5 G) at running, 24.5 m/s^2 (2.5 G) at stall
Impact	Motor only	Lower than 98 m/s^2 (10 G)
Enclosure rating (Motor only)	IP65 *3	MSMD, MHMD, MSMJ, MHMJ (except rotating portion of output shaft and readwire end.)
		M * ME (IP65 motor: 0.9 kW 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 1000 m

*1 Ambient temperature to be measured at 5 cm 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 AC100 V 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 AC115 V (at 100 V 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 AC200 V 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 AC230 V (at 200 V 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 AC400 V 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 AC460 V (at 400 V 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.

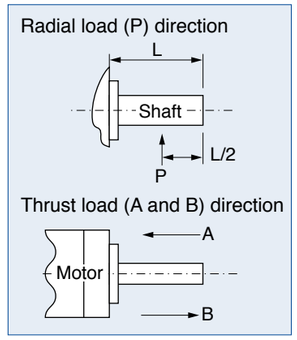
Note) 4. Releasing time values represent the ones with DC-cutoff using a varistor.

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 $\times 10^{-4}$ kg·m^2	Engaging time ms	Releasing time ms	Exciting current DC A (at cool-off)	Releasing voltage DC V / Exciting voltage DC V	Permissible work (J) per one braking	Permissible total work $\times 10^3$ J	Permissible angular acceleration rad/s^2
MSMD	50 W, 100 W	0.29 or more	0.002	35 or less	20 or less	0.3	1 V or more / 24 ±1.2	39.2	4.9	30000
	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36		137	44.1	
	750 W	2.45 or more	0.075	70 or less	20 or less	0.42		196	147	
MSME	50 W, 100 W	0.29 or more	0.002	35 or less	20 or less	0.3	1 V or more / 24 ±1.2	39.2	4.9	30000
	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36		137	44.1	
	750 W(200 V)	2.45 or more	0.075	70 or less	20 or less	0.42		196	147	
	750 W(400 V)	2.5 or more	0.33	50 or less	15 or less (100)	0.7	2 V or more / 24 ±2.4	392	490	10000
	1.0 kW, 1.5 kW, 2.0 kW	7.8 or more				0.81				
	3.0 kW	11.8 or more		80 or less						
	4.0 kW, 5.0 kW	16.2 or more	1.35	110 or less	50 or less (130)	0.9		1470	2200	
MDME	400 W(400 V), 600 W(400 V)	2.5 or more	1.35	50 or less	15 or less	0.7	2 V or more / 24 ±2.4	392	490	10000
	1.0 kW	4.9 or more		80 or less	70 or less (200)	0.59		588	780	
	1.5 kW, 2.0 kW	13.7 or more		100 or less	50 or less (130)	0.79		1176	1500	
	3.0 kW	16.2 or more		110 or less		0.9		1470	2200	
	4.0 kW, 5.0 kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3		1372	2900	5440
	7.5 kW	58.8 or more		150 or less	50 or less	1.4				5000
	11.0 kW, 15.0 kW	100 or more	7.1	300 or less	140 or less	1.08		2000	4000	3000
MFME	1.5 kW	7.8 or more	4.7	80 or less	35 or less	0.83	2 V or more / 24 ±2.4	1372	2900	10000
	2.5 kW	21.6 or more	8.75	150 or less	100 or less	0.75		1470	1500	
	4.5 kW	31.4 or more							2200	
MGME	0.9 kW	13.7 or more	1.35	100 or less	50 or less (130)	0.79	2 V or more / 24 ±2.4	1176	1500	10000
	2.0 kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3		1372	2900	5440
	3.0 kW	58.8 or more		150 or less	50 or less (130)	1.4				
	4.5 kW, 6.0 kW				50 or less					5000
MHMD MSMJ MHMJ	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36	1 V or more / 24 ±1.2	137	44.1	30000
	750 W	2.45 or more	0.075	70 or less	20 or less	0.42		196	147	
MHME	1.0 kW	4.9 or more	1.35	80 or less	70 or less (200)	0.59	2 V or more / 24 ±2.4	588	780	10000
	1.5 kW	13.7 or more		100 or less	50 or less (130)	0.79		1176	1500	
	2.0 kW～5.0 kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3		1372	2900	5440
	7.5 kW	58.8 or more		150 or less	50 or less	1.4				5000

- 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.)

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	3 m
0050	5 m
0100	10 m
0200	20 m

Cable type

E	PVC cable with shield by Oki Electric Cable Co., 0.20 mm² × 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	3 m
005	5 m
010	10 m
020	20 m

Sectional area of cable core

0	0.75 mm²
1	1.25 mm²
2	2.0 mm²
3	3.5 mm²

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	ROBO-TOP® 4-wire by DYDEN CORPORATION
F	ROBO-TOP® 6-wire by DYDEN CORPORATION
G	ROBO-TOP® 2-wire by DYDEN CORPORATION
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)

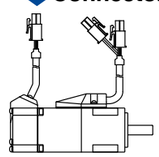
ROBO-TOP® is a trade mark of DYDEN CORPORATION

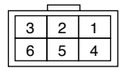
Specifications of Motor connector

- **When the motors of <MSMD, MHMD, MSMJ, MHMJ> are used, they are connected as shown below.**

Connector: Made by Tyco Electronics (The figures below show connectors for the motor.)

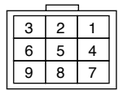
Connector for encoder





172168-1
20-bit Incremental

PIN No.	Application
1	NC
2	PS
3	$\overline{PS}$
4	E5V
5	E0V
6	FG(SHIELD)



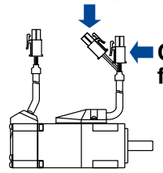
172169-1
17-bit Absolute

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

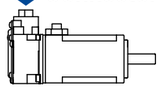
* Electromagnetic brake is a nonpolar device.

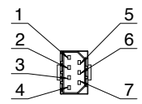
- **When the motors of <MSME (50 W to 750 W (200 V))> are used, they are connected as shown below.**

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
1	FG(SHIELD)
2	—
3	E0V
4	PS
5	—
6	E5V
7	PS

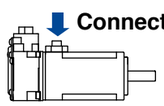
17-bit Absolute

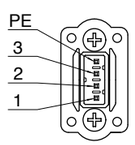
PIN No.	Application
1	FG(SHIELD)
2	BAT–
3	E0V
4	$\overline{PS}$
5	BAT+
6	E5V
7	PS

Tightening torque of the screw (M2) 0.19 N·m to 0.21 N·m

* Be sure to use only the screw supplied with the connector, to avoid damage.

Connector for motor





JN8AT04NJ1

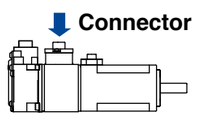
PIN No.	Application
1	U-phase
2	V-phase
3	W-phase
PE	Ground

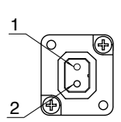
Tightening torque of the screw (M2) 0.085 N·m to 0.095 N·m (screwed to plastic)

* 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 N·m to 0.21 N·m

* Be sure to use only the screw supplied with the connector, to avoid damage.

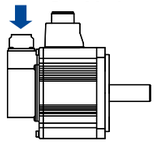
Specifications of Motor connector

- **When the motors of <MSME (750 W(400 V), 1.0 kW to 5.0 kW), MDME, MGME, MHME> are used, they are connected as shown below.**

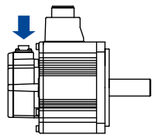
Connector: Made by Japan Aviation Electronics Industry, Ltd. (The figures below show connectors for the motor.)

• Connector for encoder

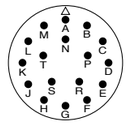
IP65 motor
Connector for encoder
(Large type)



IP67 motor
Connector for encoder
(Small type)



<Encoder connector for IP65 motor>



N/MS3102A20-29P

20-bit Incremental		17-bit Absolute	
PIN No.	Application	PIN No.	Application
A	NC	A	NC
B	NC	B	NC
C	NC	C	NC
D	NC	D	NC
E	NC	E	NC
F	NC	F	NC
G	E0V	G	E0V
H	E5V	H	E5V
J	FG(SHIELD)	J	FG(SHIELD)
K	PS	K	PS
L	$\overline{PS}$	L	$\overline{PS}$
M	NC	M	NC
N	NC	N	NC
P	NC	P	NC
R	NC	R	NC
S	NC	S	BAT–
T	NC	T	BAT+

<Encoder connector for IP67 motor>

JN2AS10ML3-R

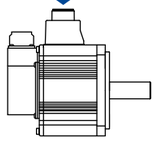
20-bit Incremental		17-bit Absolute	
PIN No.	Application	PIN No.	Application
1	E0V	1	E0V
2	NC	2	NC
3	PS	3	PS
4	E5V	4	E5V
5	NC	5	BAT–
6	NC	6	BAT+
7	$\overline{PS}$	7	$\overline{PS}$
8	NC	8	NC
9	FG(SHIELD)	9	FG(SHIELD)
10	NC	10	NC

<Remarks>
Do not connect anything to NC.

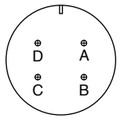
• Connector for motor/brake

[0.9 kW to 5.0 kW]

Connector for motor/brake



<without Brake>



JL04V-2E20-4PE-B-R

MSME 750 W(400 V), 1.0 kW to 2.0 kW
MDME 400 W (400 V), 600 W (400 V), 1.0 kW to 2.0 kW
MGME 0.9 kW
MHME 1.0 kW to 1.5 kW

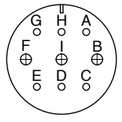
JL04HV-2E22-22PE-B-R

MSME 3.0 kW to 5.0 kW
MDME 3.0 kW to 5.0 kW
MGME 2.0 kW to 4.5 kW
MHME 2.0 kW to 5.0 kW

PIN No.	Application
A	U-phase
B	V-phase
C	W-phase
D	Ground

<with Brake>

* Electromagnetic brake is a nonpolar device.



JL04V-2E20-18PE-B-R

[200 V]

MSME 1.0 kW to 2.0 kW
MDME 1.0 kW to 2.0 kW
MFME* 1.5 kW
MGME 0.9 kW
MHME 1.0 kW to 1.5 kW

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

[200 V]

MSME 3.0 kW to 5.0 kW
MDME 3.0 kW to 5.0 kW
MFME* 2.5 kW, 4.5 kW
MGME 2.0 kW to 4.5 kW
MHME 2.0 kW to 5.0 kW

[400 V]

MSME 750 W, 1.0 kW to 5.0 kW
MDME 400 W, 600 W, 1.0 kW to 5.0 kW
MFME* 1.5 kW to 4.5 kW
MGME 0.9 kW to 4.5 kW
MHME 1.0 kW to 5.0 kW

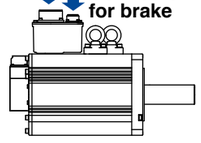
PIN No.	Application
A	Brake
B	Brake
C	NC
D	U-phase
E	V-phase
F	W-phase
G	Ground
H	Ground
I	NC

* MFME is common to with or without brake.

<Remarks>
Do not connect anything to NC.

[6.0 kW or more]

Connector for motor
Connector for brake



<Motor>

JL04V-2E32-17PE-B-R

MDME 7.5 kW to 15.0 kW
MGME 6.0 kW
MHME 7.5 kW

PIN No.	Application
A	U-phase
B	V-phase
C	W-phase
D	Ground

<Brake>

N/MS3102A 14S-2P

MDME 7.5 kW to 15.0 kW
MGME 6.0 kW
MHME 7.5 kW

PIN No.	Application
A	Brake
B	Brake
C	NC
D	NC

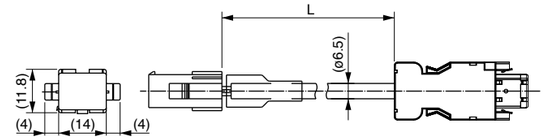
* Electromagnetic brake is a nonpolar device.

Encoder Cable

* It doesn't correspond to IP65 and IP67.

Part No.	MFECA0 * * 0EAM	Compatible motor output	MSMD 50 W to 750 W, MHMD 200 W to 750 W MSMJ 200 W to 750 W, MHMJ 200 W to 750 W
Specifications	For 20-bit incremental encoder (Without battery box)		

[Unit: mm]



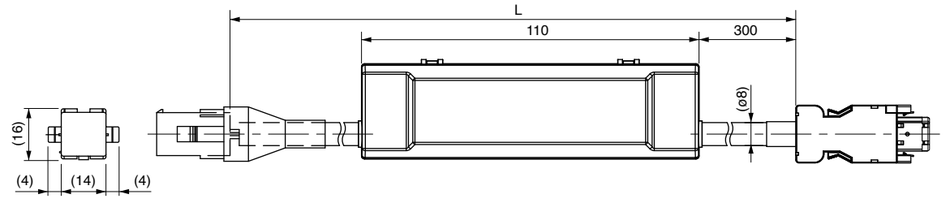
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	172160-1	Tyco Electronics
Connector pin	170365-1	
Cable	0.20 mm²×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030EAM
5	MFECA0050EAM
10	MFECA0100EAM
20	MFECA0200EAM

Part No.	MFECA0 * * 0EAE	Compatible motor output	MSMD 50 W to 750 W, MHMD 200 W to 750 W MSMJ 200 W to 750 W, MHMJ 200 W to 750 W
Specifications	For 17-bit absolute encoder (With battery box) *		

* Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.

[Unit: mm]

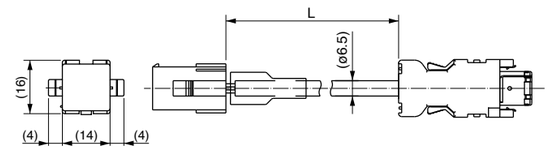


Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	172161-1	Tyco Electronics
Connector pin	170365-1	
Cable	0.20 mm²×4P (8-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030EAE
5	MFECA0050EAE
10	MFECA0100EAE
20	MFECA0200EAE

Part No.	MFECA0 * * 0EAD	Compatible motor output	MSMD 50 W to 750 W, MHMD 200 W to 750 W MSMJ 200 W to 750 W, MHMJ 200 W to 750 W
Specifications	For 17-bit incremental encoder (Without battery box)		

[Unit: mm]



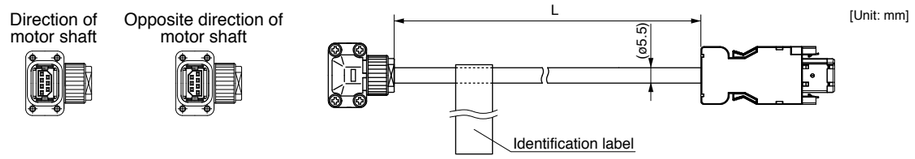
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	172161-1	Tyco Electronics
Connector pin	170365-1	
Cable	0.20 mm²×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030EAD
5	MFECA0050EAD
10	MFECA0100EAD
20	MFECA0200EAD

Encoder Cable

* It doesn't correspond to IP65 and IP67.

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 50 W to 750 W (200 V)
Specifications	For 20-bit incremental encoder (Without battery box) * 17bit-use is possible		



[Unit: mm]

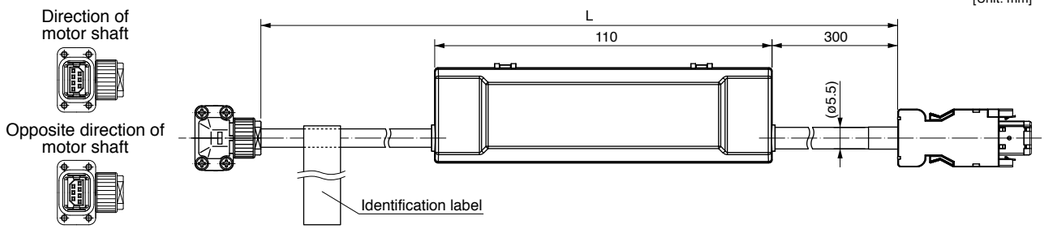
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	JN6FR07SM1	Japan Aviation Electronics Ind.
Connector pin	LY10-C1-A1-10000	
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.

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 50 W to 750 W (200 V)
Specifications	For 17-bit absolute encoder (With battery box) *		

* Battery is not included. Please buy the absolute encoder battery “DV0P2990” separately.

[Unit: mm]

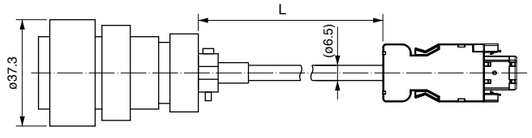


Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	JN6FR07SM1	Japan Aviation Electronics Ind.
Connector pin	LY10-C1-A1-10000	
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.

L (m)	Part No.(ex.)
3	MFECA0030MJE
5	MFECA0050MJE
10	MFECA0100MJE
20	MFECA0200MJE

Part No.	**MFECA0 * * 0ESD**	Compatible motor output	MDME 400 W(400 V), MDME 600 W(400 V) MSME 750 W(400 V) 0.9 kW to 15.0 kW (IP65 Motor)
Specifications	For 20-bit incremental encoder (Without battery box)		

[Unit: mm]

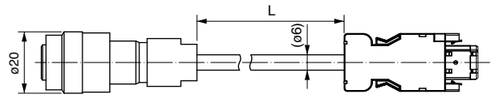


Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation Electronics Ind.
Cable clamp	N/MS3057-12A	
Cable	0.2 mm² ×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030ESD
5	MFECA0050ESD
10	MFECA0100ESD
20	MFECA0200ESD

Part No.	**MFECA0 * * 0ETD**	Compatible motor output	MDME 400 W(400 V), MDME 600 W(400 V), MSME 750 W(400 V) 0.9 kW to 15.0 kW (IP67 Motor)
Specifications	For 20-bit incremental encoder (Without battery box)		

[Unit: mm]



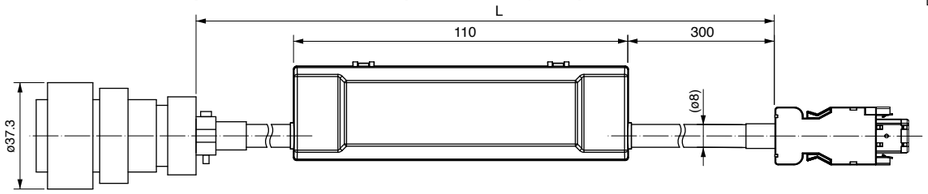
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation Electronics Ind.
Connector pin	JN1-22-22S-PKG100	
Cable	0.2 mm²×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030ETD
5	MFECA0050ETD
10	MFECA0100ETD
20	MFECA0200ETD

Part No.	**MFECA0 * * 0ESE**	Compatible motor output	0.9 kW to 5.0 kW (IP65 Motor)
Specifications	For 17-bit absolute encoder (With battery box) *		

* Battery is not included. Please buy the absolute encoder battery “DV0P2990” separately.

[Unit: mm]



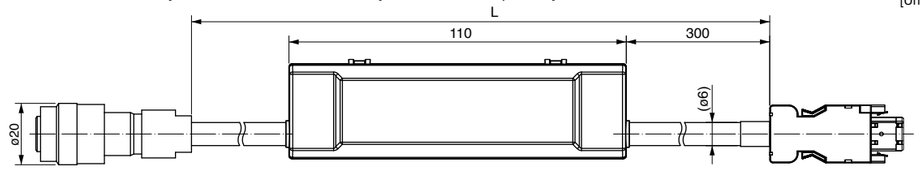
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M (or equivalent)
Shell kit	3E306-3200-008	
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation Electronics Ind.
Cable clamp	N/MS3057-12A	
Cable	0.2 mm² ×4P (8-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030ESE
5	MFECA0050ESE
10	MFECA0100ESE
20	MFECA0200ESE

Part No.	**MFECA0 * * 0ETE**	Compatible motor output	MDME 400 W(400 V), MDME 600 W(400 V) MSME 750 W(400 V) 0.9 kW to 15.0 kW (IP67 Motor)
Specifications	For 17-bit absolute encoder (With battery box) *		

* Battery is not included. Please buy the absolute encoder battery “DV0P2990” separately.

[Unit: mm]



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	0.2 mm² ×3P (6-wire)	Oki Electric Cable Co., Ltd.

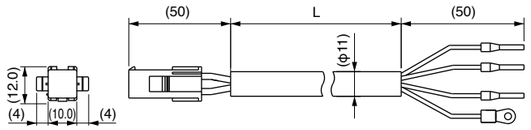
L (m)	Part No.
3	MFECA0030ETE
5	MFECA0050ETE
10	MFECA0100ETE
20	MFECA0200ETE

Motor Cable (without Brake)

* It doesn't correspond to IP65 and IP67.

Part No.	MFMCA0 * * 0EED	Applicable model	MSMD 50 W to 750 W, MHMD 200 W to 750 W MSMJ 200 W to 750 W, MHMJ 200 W to 750 W

[Unit: mm]

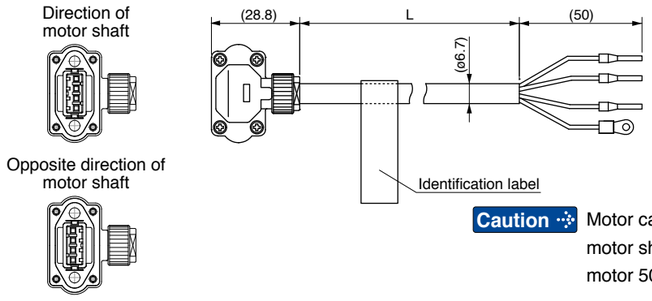


Title	Part No.	Manufacturer
Connector	172159-1	Tyco Electronics
Connector pin	170366-1	
Rod terminal	AI0.75-8GY	Phoenix Contact
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 0.75mm² 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0030EED
5	MFMCA0050EED
10	MFMCA0100EED
20	MFMCA0200EED

Part No.		Applicable model	
	MFMCA0 * * 0NJD (Highly bendable type, Direction of motor shaft)		MSME 50 W to 750 W(200V)
	MFMCA0 * * 0NKD (Highly bendable type, Opposite direction of motor shaft)		MSME 200 W to 750 W(200V)
	MFMCA0 * * 0RJD (Standard bendable type, Direction of motor shaft)		MSME 50 W to 750 W(200V)
	MFMCA0 * * 0RKD (Standard bendable type, Opposite direction of motor shaft)		MSME 200 W to 750 W(200V)

[Unit: mm]



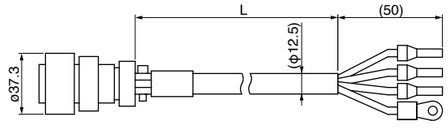
Caution Motor cable for opposite direction of motor shaft cannot be used with a motor 50W and 100W.

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 1.5 kW(200 V)

[Unit: mm]

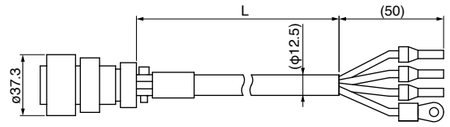


Title	Part No.	Manufacturer
Connector	JL04V-6A20-18SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	N2-M4	
Cable	ROBO-TOP 600V 2.0mm² 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0032ECD
5	MFMCA0052ECD
10	MFMCA0102ECD
20	MFMCA0202ECD

Part No.	MFMCD0 * * 2ECD	Applicable model	MSME 750 W(400 V), 1.0 kW to 2.0 kW, MDME 400 W(400 V), 600 W(400 V), 1.0 kW to 2.0 kW MHME 1.0 kW to 1.5 kW, MGME 0.9 kW (All model 200 V and 400 V commonness)

[Unit: mm]

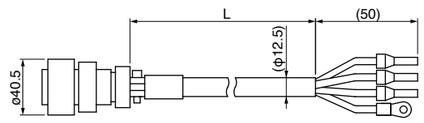


Title	Part No.	Manufacturer
Connector	JL04V-6A20-4SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	N2-M4	
Cable	ROBO-TOP 600 V 2.0 mm² 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCD0032ECD
5	MFMCD0052ECD
10	MFMCD0102ECD
20	MFMCD0202ECD

Part No.	MFMCE0 * * 2ECD	Applicable model	MHME 2.0 kW (200 V and 400 V commonness)

[Unit: mm]

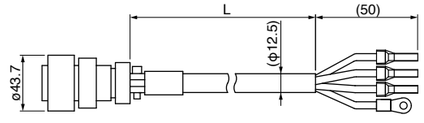


Title	Part No.	Manufacturer
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2022CK(14)-R	
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	N2-M4	
Cable	ROBO-TOP 600 V 2.0 mm² 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCE0032ECD
5	MFMCE0052ECD
10	MFMCE0102ECD
20	MFMCE0202ECD

Part No.	MFMCF0 * * 2ECD	Applicable model	MFME 1.5 kW(400 V), 2.5 kW(200 V and 400 V commonness)

[Unit: mm]



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 600 V 2.0 mm² 4-wire	DYDEN CORPORATION

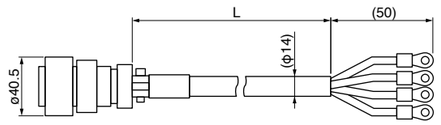
L (m)	Part No.
3	MFMCF0032ECD
5	MFMCF0052ECD
10	MFMCF0102ECD
20	MFMCF0202ECD

Motor Cable (without Brake)

* It doesn't correspond to IP65 and IP67.

Part No.	MFMCA0 * * 3ECT	Applicable model	MSME 3.0 kW to 5.0 kW, MDME 3.0kW to 5.0 kW MHME 3.0 kW to 5.0 kW, MGME 2.0kW to 4.5 kW (All model 200 V and 400 V commonness)

[Unit: mm]

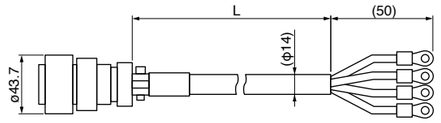


Title	Part No.	Manufacturer
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp	JL04-2022CK(14)-R	
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600 V 3.5 mm^2 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0033ECT
5	MFMCA0053ECT
10	MFMCA0103ECT
20	MFMCA0203ECT

Part No.	MFMCD0 * * 3ECT	Applicable model	MFME 4.5 kW (200 V and 400 V commonness)

[Unit: mm]



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 600 V 3.5 mm^2 4-wire	DYDEN CORPORATION

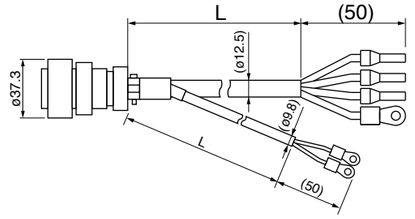
L (m)	Part No.
3	MFMCD0033ECT
5	MFMCD0053ECT
10	MFMCD0103ECT
20	MFMCD0203ECT

Motor Cable (with Brake)

* It doesn't correspond to IP65 and IP67.

Part No.	MFMCA0 * * 2FCD	Applicable model	MSME 1.0 kW to 2.0 kW(200 V), MDME 1.0 kW to 2.0 kW(200 V), MFME 1.5 kW(200 V), MHME 1.0 kW(200 V) to 1.5 kW(200 V) MGME 0.9 kW(200V)

[Unit: mm]

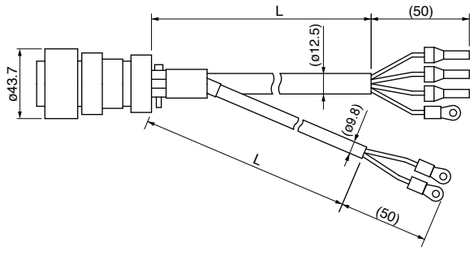


Title		Part No.	Manufacturer
Connector		JL04V-6A20-18SE-EB-R	Japan Aviation Electronics Ind.
Cable clamp		JL04-2022CK(14)-R	
Rod terminal		NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	Earth	N2-M4	J.S.T Mfg. Co., Ltd.
	Brake	N1.25-M4	
Cable		ROBO-TOP 600 V 0.75 mm^2 and ROBO-TOP 600 V 2.0 mm^2 6-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0032FCD
5	MFMCA0052FCD
10	MFMCA0102FCD
20	MFMCA0202FCD

Part No.	MFMCE0 * * 2FCD	Applicable model	MSME 750 W(400 V) to 2.0 kW(400 V), MDME 400 W(400 V) to 2.0 kW(400 V), MFME 1.5 kW(400 V), 2.5 kW(200 V/400 V), MGME 0.9 kW(400 V) MHME 1.0 kW(400 V), 1.5 kW(400 V), 2.0 kW(200 V/400 V)

[Unit: mm]



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 600 V 0.75 mm^2 and ROBO-TOP 600 V 2.0 mm^2 6-wire	DYDEN CORPORATION

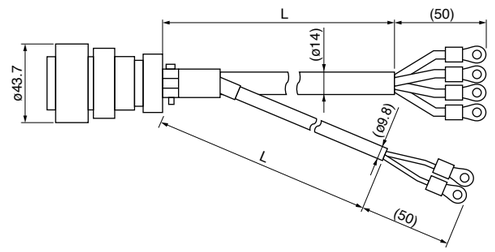
L (m)	Part No.
3	MFMCE0032FCD
5	MFMCE0052FCD
10	MFMCE0102FCD
20	MFMCE0202FCD

Motor Cable (with Brake)

* It doesn't correspond to IP65 and IP67.

Part No.	MFMCA0 * * 3FCT	Applicable model	MSME 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW MFME 4.5 kW, MHME 3.0 kW to 5.0 kW MGME 2.0 kW to 4.5 kW (All model 200 V and 400 V commonness)

[Unit: mm]



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 600 V 0.75 mm² and ROBO-TOP 600 V 3.5 mm² 6-wire	DYDEN CORPORATION

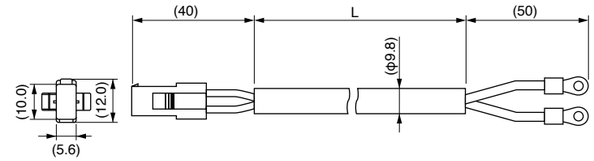
L (m)	Part No.
3	MFMCA0033FCT
5	MFMCA0053FCT
10	MFMCA0103FCT
20	MFMCA0203FCT

Brake Cable

* It doesn't correspond to IP65 and IP67.

Part No.	MFMCB0 * * 0GET	Applicable model	MSMD 50 W to 750 W, MHMD 200 W to 750 W MSMJ 200 W to 750 W, MHMJ 200 W to 750 W

[Unit: mm]

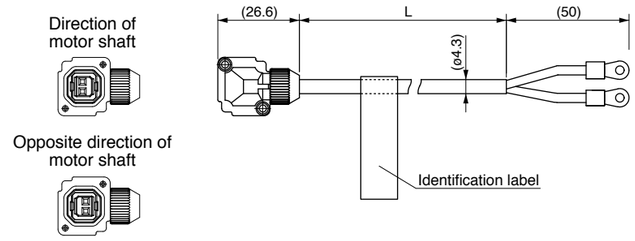


Title	Part No.	Manufacturer
Connector	172157-1	Tyco Electronics
Connector pin	170366-1, 170362-1	
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600 V 0.75 mm² 2-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCB0030GET
5	MFMCB0050GET
10	MFMCB0100GET
20	MFMCB0200GET

Part No.		Applicable model	
	MFMCB0 * * 0PJT (Highly bendable type, Direction of motor shaft)		MSME 50 W to 750 W (200 V)
	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)		

[Unit: mm]



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.

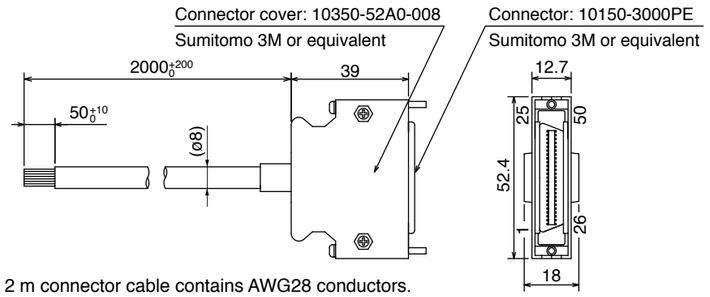
L (m)	Part No.
3	MFMCB0030PJT
5	MFMCB0050PJT
10	MFMCB0100PJT
20	MFMCB0200PJT

Interface Cable

Cable for Interface

Part No.	DV0P4360

[Unit: mm]



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

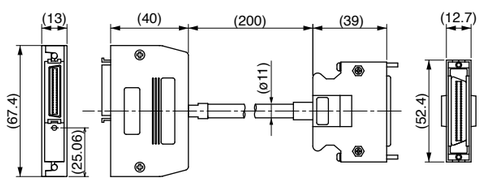
Interface cables for old product (XX series or V series) can be connected to the current product by using the connector conversion cable shown below.

DV0P4120	MINAS XX → A5Ⅱ, A5 series (A4, A series) for position control/ velocity control
DV0P4121	MINAS XX → A5Ⅱ, A5 series (A4, A series) for torque control
DV0P4130	MINAS V → A5Ⅱ, A5 series (A4, A series) for position control
DV0P4131	MINAS V → A5Ⅱ, A5 series (A4, A series) for velocity control
DV0P4132	MINAS V → A5Ⅱ, A5 series (A4, A series) for torque control

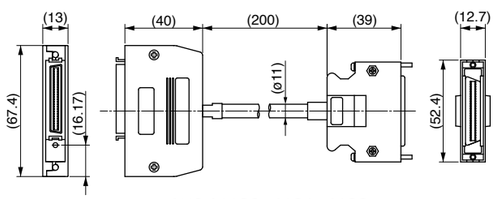
* For details of wiring, contact our sales department.

Converts 36-pin configuration to 50-pin.

[Unit: mm]



[DV0P4120, 4121]



[DV0P4130, 4131, 4132]

Connector Kit

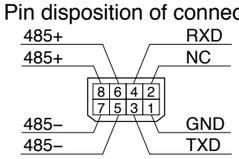
Connector Kit for Communication Cable (for RS485, RS232) (Excluding A5ⅡE, A5E Series)

Part No.	DV0PM20024

• **Components**

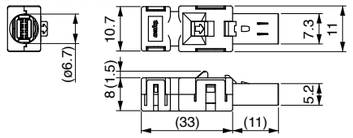
Title	Part No.	Manufacturer	Note
Connector	2040008-1	Tyco Electronics	For Connector X2 (8-pins)

• Pin disposition of connector, connector X2



• Dimensions

[Unit: mm]



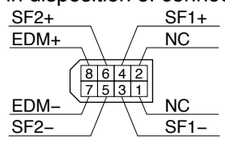
Connector Kit for Safety (Excluding A5ⅡE, A5E Series)

Part No.	DV0PM20025

• **Components**

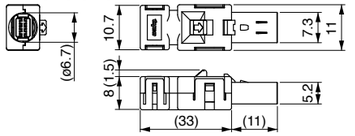
Title	Part No.	Manufacturer	Note
Connector	2013595-1	Tyco Electronics	For Connector X3 (8-pins)

• Pin disposition of connector, connector X3



• Dimensions

[Unit: mm]



Safety bypass plug (Excluding A5ⅡE, A5E Series)

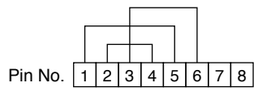
Part No.	DV0PM20094

• **Components**

Title	Part No.	Manufacturer	Note
Connector	CIF-PB08AK-GF1R	J.S.T Mfg. Co., Ltd.	For Connector X3

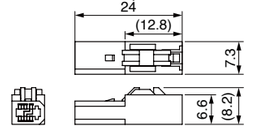
• Internal wiring

(Wiring of the following has been applied inside the plug.)



• Dimensions (Resin color : black)

[Unit: mm]



A design and color may vary from the plug provided together with driver. There is no difference in function.

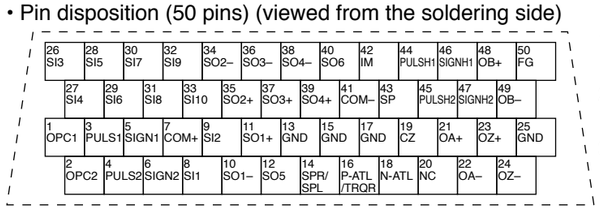
Connector Kit for Interface

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.213 "List of Peripheral Equipments".

Connector Kit

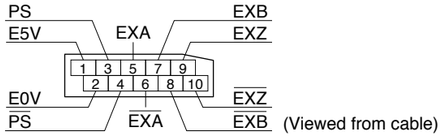
Connector Kit for External Scale (Excluding A5ⅡE, A5E Series)

Part No. DV0PM20026

• **Components**

Title	Part No.	Manufacturer	Note
Connector	MUF-PK10K-X	J.S.T Mfg. Co., Ltd.	For Connector X5 (10-pins)

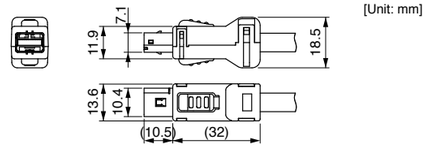
• Pin disposition of connector, connector X5



(Viewed from cable)

• Dimensions

[Unit: mm]



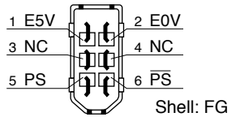
Connector Kit for Encoder

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		

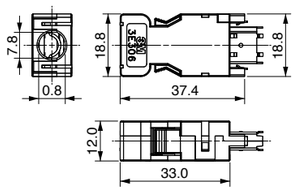
• Pin disposition of connector, connector X6



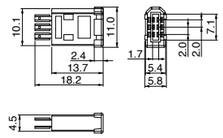
(Viewed from cable)

• Dimensions

<Shell kit>



<Connector>



[Unit: mm]

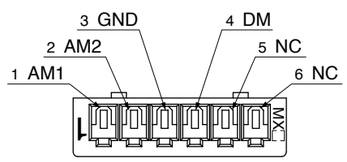
Connector Kit for Analog Monitor Signal

Part No. DV0PM20031

• **Components**

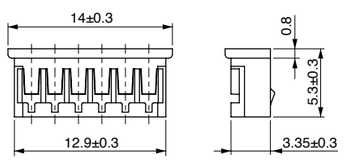
Title	Part No.	Number	Manufacturer	Note
Connector	510040600	1	Molex Inc	For Connector X7 (6-pins)
Connector pin	500118100	6		

• Pin disposition of connector, connector X7



• Dimensions

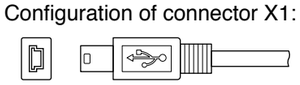
[Unit: mm]



<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-frame to C-frame 100 V, A-frame to D-frame 200 V: Single row type)

• **Components**

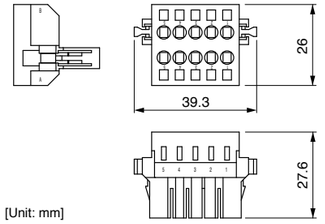
Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT	2		

Part No. DV0PM20033 (For A-frame to D-frame 200 V: 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



[Unit: mm]

* When connection multiple axes in series, make sure the sum of the current value does not exceed the rated current (11.25 A) of DV0PM20033.

Remarks

When using drivers MDDKT5540 *** or MDDHT5540 *** in single-phase power supply, do not use DV0PM20033.

Driver part No.	Power supply	Rated input current
MADHT1105 *** MADKT1105 ***	Single phase 100 V	1.7 A
MADHT1107 *** MADKT1107 ***	Single phase 100 V	2.6 A
MADHT1505 *** MADKT1505 ***	Single phase/3-phase 200 V	1.6 A/0.9 A
MADHT1507 *** MADKT1507 ***	Single phase/3-phase 200 V	2.4 A/1.3 A
MBDHT2110 *** MBDKT2110 ***	Single phase 100 V	4.3 A
MBDHT2510 *** MBDKT2510 ***	Single phase/3-phase 200 V	4.1 A/2.4 A
MCDHT3120 *** MCDKT3120 ***	Single phase 100 V	7.6 A
MCDHT3520 *** MCDKT3520 ***	Single phase/3-phase 200 V	6.6 A/3.6 A
MDDHT3530 *** MDDKT3530 ***	Single phase/3-phase 200 V	9.1 A/5.2 A
MDDHT5540 *** MDDKT5540 ***	Single phase/3-phase 200 V	14.2 A/8.1 A

Part No. DV0PM20044 (For E-frame 200 V)

• **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 400 V)

• **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 400 V)

• **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

Connector Kit for Control Power Supply Input

Part No.	**DV0PM20053** (For D, E-frame 400 V)

• **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 200 V/400 V)

• **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 400 V)

• **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-frame to C-frame 100 V, A-frame to D-frame 200 V)

• **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 200 V/400 V)

• **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 400 V)

• **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.

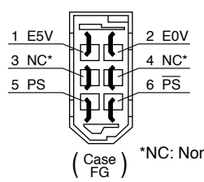
Connector Kit for Motor/Encoder Connection

Part No.	**DV0P4290**	Applicable model	MSMD 50 W to 750 W, MHMD 200 W to 750 W (absolute encoder type)

• **Components**

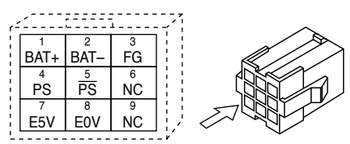
Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Connector	172161-1	1	Tyco Electronics	For Encoder cable (9-pins)
Connector pin	170365-1	9		
Connector	172159-1	1	Tyco Electronics	For Motor cable (4-pins)
Connector pin	170366-1	4		

• Pin disposition of connector, connector X6

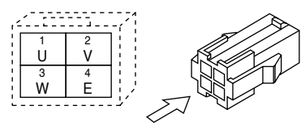


*NC: None Connect

• Pin disposition of connector for encoder cable



• Pin disposition of connector for motor cable



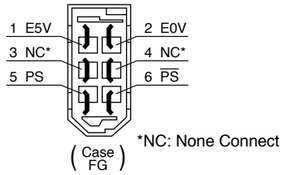
* When you connect the battery for absolute encoder, refer to P.207, "When you make your own cable for 17-bit absolute encoder"

Part No.	**DV0P4380**	Applicable model	MSMD 50 W to 750 W, MHMD 200 W to 750 W MSMJ 200 W to 750 W, MHMJ 200 W to 750 W (incremental encoder type)

• **Components**

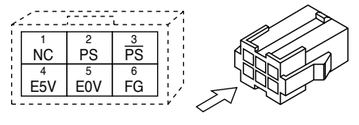
Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Connector	172160-1	1	Tyco Electronics	For Encoder cable (6-pins)
Connector pin	170365-1	6		
Connector	172159-1	1	Tyco Electronics	For Motor cable (4-pins)
Connector pin	170366-1	4		

• Pin disposition of connector, connector X6

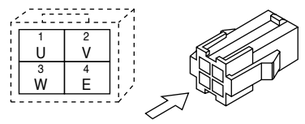


*NC: None Connect

• Pin disposition of connector for encoder cable



• Pin disposition of connector for motor cable



Connector Kit

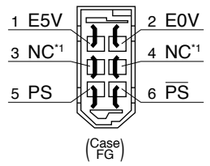
* When IP65 or IP67 are necessary, the customer must give appropriate processing.

Part No.	DV0PM20035	Applicable model	MSME 50 W to 400 W(100 V), 50 W to 750 W(200 V)

• Components

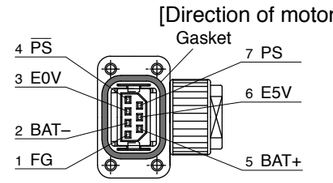
Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Encoder connector	JN6FR07SM1	1	Japan Aviation Electronics Ind.	For Encoder cable (7-pins)
Socket contact	LY10-C1-A1-10000	7		
Motor connector	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



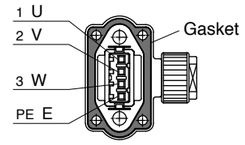
*1 NC: None Connect

• Pin disposition of connector for encoder cable



* Pins 2 and 5 are left unused (NC)

• Pin disposition of connector for motor cable



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 750 W (400 V), 1.0 kW to 2.0 kW, MDME 400 W (400 V), 600 W (400 V), 1.0 kW to 2.0 kW MHME 1.0 kW to 1.5 kW, MGME 0.9 kW (All model 200 V and 400 V 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.213 "List of Peripheral Equipments".

Part No.	DV0P4310	Applicable model	<IP65 motor> MSME 750 W (400 V), 1.0 kW to 2.0 kW MDME 400 W (400 V), 600 W (400 V), 1.0 kW to 2.0 kW MHME 1.0 kW to 1.5 kW, MGME 0.9 kW	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 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW MHME 2.0 kW to 5.0 kW, MGME 2.0 kW to 4.5 kW (All model 200 V and 400 V 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 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW MHME 2.0 kW to 5.0 kW, MGME 2.0 kW to 4.5 kW	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 1.0 kW to 2.0 kW, MDME 1.0 kW to 2.0 kW MFME 1.5 kW (Common to with/ without brake), MHME 1.0 kW to 1.5 kW, MGME 0.9 kW (All model 200 V)	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		

Connector Kit

* When IP65 or IP67 are necessary, the customer must give appropriate processing.

Part No.	DV0P4330	Applicable model	<IP65 motor> MSME 1.0 kW to 2.0 kW, MDME 1.0 kW to 2.0 kW MHME 1.0 kW to 1.5 kW, MGME 0.9 kW (All model 200 V)	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 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW MFME 2.5 kW to 4.5 kW (Common to with/ without brake), MHME 2.0 kW to 5.0 kW, MGME 2.0 kW to 4.5 kW (400V) MSME 750 W to 5.0 kW, MDME 400 W to 5.0 kW MFME 1.5 kW to 4.5 kW (Common to with/ without brake), MHME 1.0 kW to 5.0 kW, MGME 0.9 kW to 4.5 kW	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> (200V) MSME 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW MHME 2.0 kW to 5.0 kW, MGME 2.0 kW to 3.0 kW (400V) MSME 750 W to 5.0 kW, MDME 400 W to 5.0 kW MHME 1.0 kW to 5.0 kW, MGME 0.9 kW to 3.0 kW	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.213 "List of Peripheral Equipments".

Part No.	DV0PM20056	Applicable model	<IP67 motor> MDME 7.5 kW to 15.0 kW MGME 6.0 kW, MHME 7.5 kW	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 7.5 kW to 15.0 kW MGME 6.0 kW, MHME 7.5 kW	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

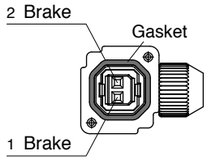
Part No.	DV0PM20040	Applicable model	MSME 50 W to 750 W

• **Components**

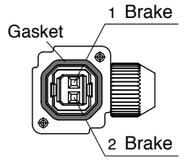
Title	Part No.	Number	Manufacturer	Note
Connector	JN4FT02SJM-R	1	Japan Aviation Electronics Ind.	For brake cable
Socket contact	ST-TMH-S-C1B-3500	2		

• 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.213 "List of Peripheral Equipments".

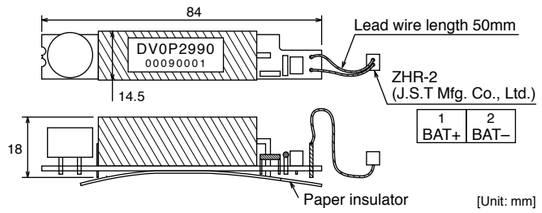
Battery for Absolute Encoder

*** A5ⅡE, A5E series does not support to absolute encoder.**

Battery for Absolute Encoder

Part No.	DV0P2990

• Lithium battery: 3.6 V 2000 mAh



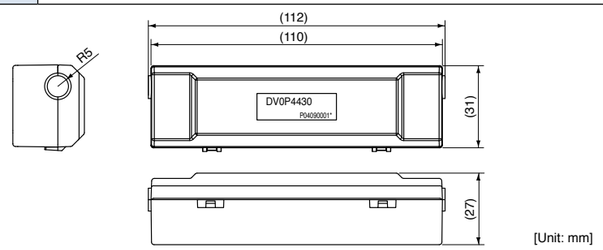
<Caution>

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 *

* Battery is not included. Please buy the absolute encoder battery “DV0P2990” separately.

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>

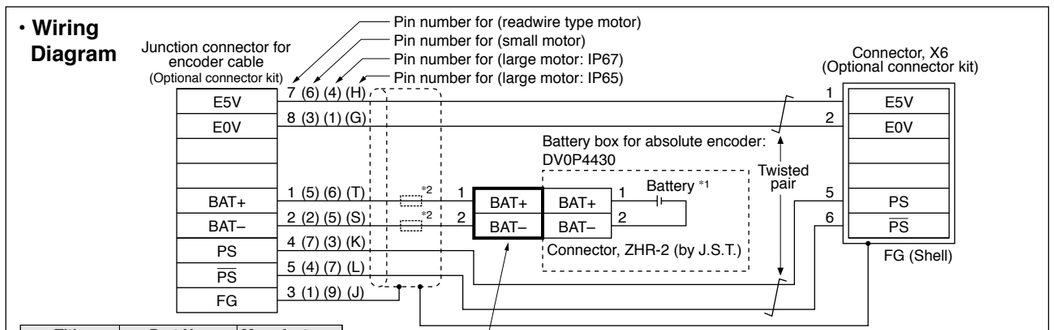
Install and fix the battery securely. If the installation and fixing of the battery is not appropriate, it may cause the wire breakdown or damage of the battery.

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**

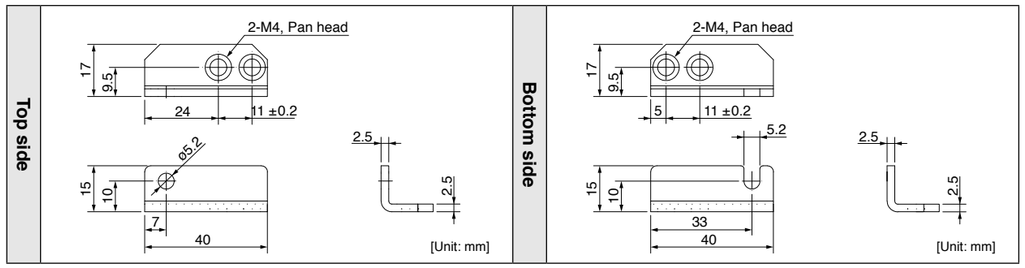


Title	Part No.	Manufacturer
Connector	ZMR-2	J.S.T.
Connector pin	SMM-003T-P0.5	J.S.T.
Clamping Jig	YRS-800	J.S.T.

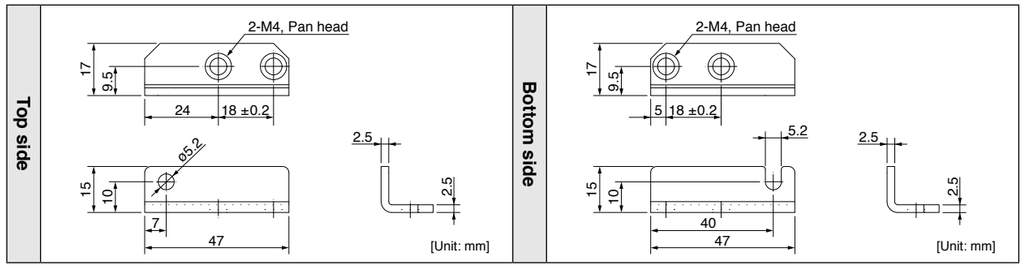
*1 Battery for absolute encoder (Option): DV0P2990
*2 Since applicable wire diameters of the battery connector and connector at encoder side are different, please connect wires by soldering.

Mounting Bracket

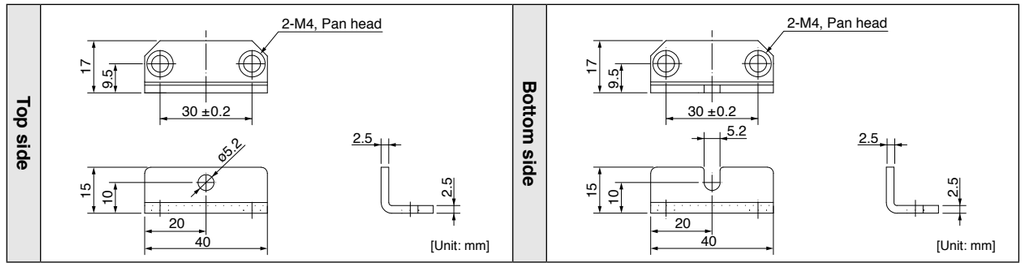
Part No.	DV0PM20027	Frame symbol of applicable driver	A-frame	Mounting screw	M4 × L6 Pan head 4pcs



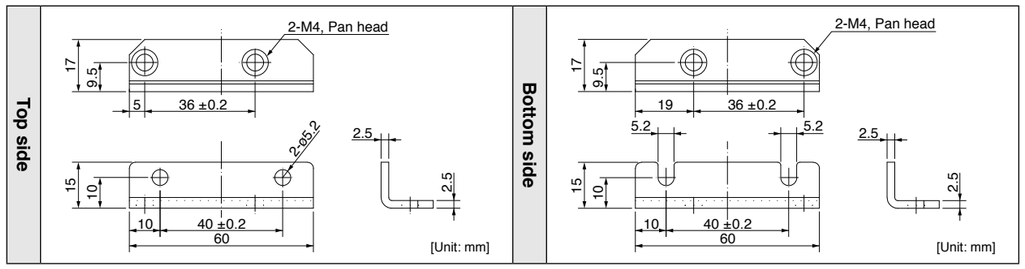
Part No.	DV0PM20028	Frame symbol of applicable driver	B-frame	Mounting screw	M4 × L6 Pan head 4pcs



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

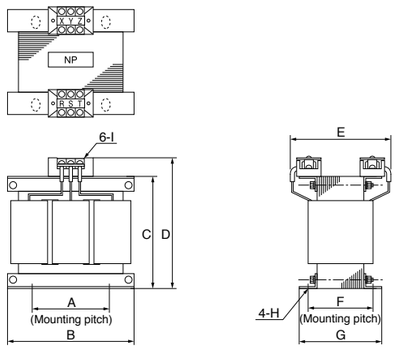
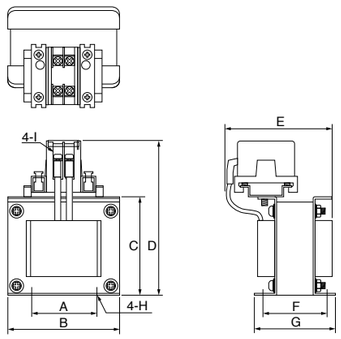
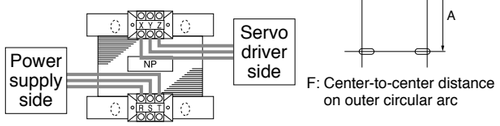
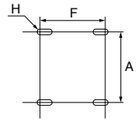


Fig.2



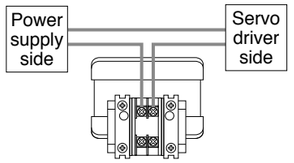
• Wiring of the reactor <3-Phase>

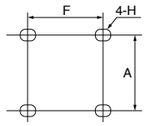




F: Center-to-center distance on outer circular arc

• Wiring of the reactor <Single phase>





F: Center-to-center distance on slotted hole

[Unit: mm]

	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)	136 Max	155	70+3/–0	85±2	4-7φ×12	M4	6.81	3
	DV0P221	60±1	150±1	(113)	155 Max	130	60+3/–0	75±2	4-7φ×12	M4	4.02	5
	DV0P222	60±1	150±1	(113)	155 Max	140	70+3/–0	85±2	4-7φ×12	M4	2	8
	DV0P223	60±1	150±1	(113)	155 Max	150	79+3/–0	95±2	4-7φ×12	M4	1.39	11
	DV0P224	60±1	150±1	(113)	160 Max	155	84+3/–0	100±2	4-7φ×12	M5	0.848	16
	DV0P225	60±1	150±1	(113)	160 Max	170	100+3/–0	115±2	4-7φ×12	M5	0.557	25
Fig.2	**DV0P227**	55±0.7	80±1	66.5±1	110 Max	90	41±2	55±2	4-5φ×10	M4	4.02	5
	DV0P228	55±0.7	80±1	66.5±1	110 Max	95	46±2	60±2	4-5φ×10	M4	2	8
	DV0PM20047	55±0.7	80±1	66.5±1	110 Max	105	56±2	70±2	4-5φ×10	M4	1.39	11

* For application, refer to P.21 to P.28 and P.153 to P.154 “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 thermal protector
		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) 1 A 125 VAC 6000 times 0.5 A 250 VAC 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

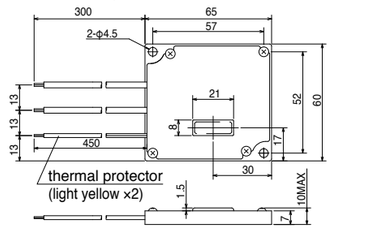
*1 Power with which the driver can be used without activating the built-in thermal protector.
A built-in thermal fuse and a thermal protector are provided for safety.
The circuit should be so designed that the power supply will be turned off as the thermal protector operates.
The built-in thermal fuse 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, 24 V, 0 V, E : M4 : 1.2 N·m to 1.4 N·m
R1, R2 : M5 : 2.0 N·m to 2.4 N·m
Use the cable with the same diameter as the main circuit cable. (Refer to P.19).

*3 With built-in fan which should always be operated with the power supply connected across 24 V and 0 V.

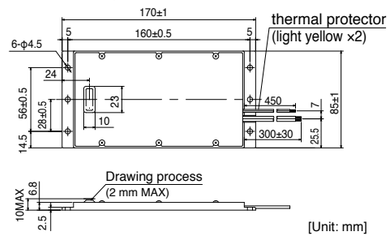
Frame	Power supply		
	Single phase, 100 V	Single phase, 200 V 3-phase, 200 V	3-phase, 400 V
A	DV0P4280	DV0P4281 (50 W, 100 W) DV0P4283 (200 W)	—
B	DV0P4283	DV0P4283	
C	DV0P4282		
D	—	DV0P4284	DV0PM20048
E		DV0P4284 × 2 in parallel or DV0P4285	DV0PM20049
F		DV0P4285 × 2 in parallel	DV0PM20049 × 2 in parallel
G		DV0P4285 × 3 in parallel	DV0PM20049 × 3 in parallel
H		DV0P4285 × 6 in parallel or DV0PM20058	DV0PM20049 × 6 in parallel or DV0PM20059

DV0P4280, DV0P4281



[Unit: mm]

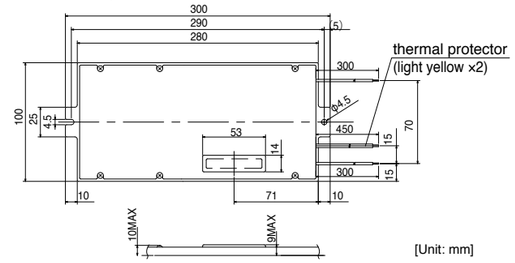
DV0P4282, DV0P4283



[Unit: mm]

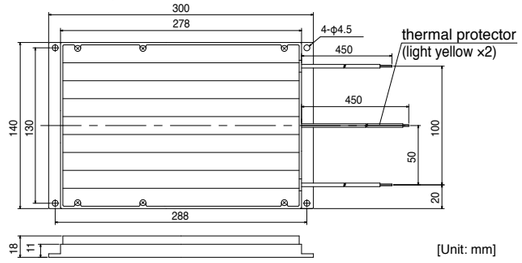
External Regenerative Resistor

DV0P4284, DV0PM20048



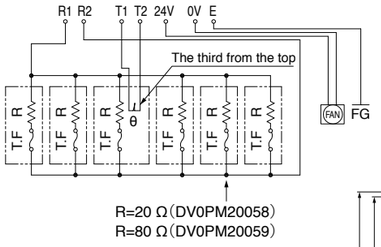
[Unit: mm]

DV0P4285, DV0PM20049



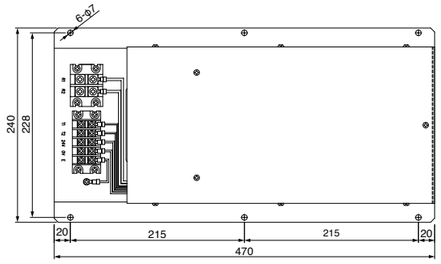
[Unit: mm]

DV0PM20058, DV0PM20059



Circuit diagram

[Unit: mm]



<Caution when using external regenerative resistor>

Regenerative resistor gets very hot.
Configure a circuit so that a power supply shuts down when built-in thermal protector of the regenerative resistor works. Because it is automatic reset thermal protector, please apply a self-holding circuit to the outside in order to maintain safety in case of sudden activation. During the failure of the driver, the surface temperature of the regenerative resistor may exceed the operating temperature before thermal protector starts to work. **Built-in thermal fuse of regenerative resistor is intended to prevent from ignition during the failure of the driver and not intended to suppress the surface temperature of the resistor.** **• Be attached the regenerative resistance to non-combustible material such as metal.** **• Built-in thermal fuse of regenerative resistor is intended to prevent from ignition during the failure of the driver and not intended to suppress the surface temperature of the resistor.** **• Do not install the regenerative resistor near flammable materials.**

Surge Absorber for Motor Brake

Motor		Part No.	Manufacturer
MSMD	50 W to 750 W	Z15D271 or TNR15G271K	SEMITEC Corporation or NIPPON CHEMI-CON CORPORATION
MSMJ	200 W to 750 W		
MSME	50 W to 750 W		
	750 W (400 V) 1.0 kW to 5.0 kW	Z15D151	SEMITEC Corporation
MDME	400 W (400 V), 600 W (400 V)		
	1.0 kW to 3.0 kW	NVD07SCD082	KOA Corporation
	4.0 kW to 7.5 kW	Z15D151	SEMITEC Corporation
	11 kW, 15 kW	NVD07SCD082	KOA Corporation
MFME	1.5 kW		
	2.5 kW, 4.5 kW		
MGME	0.9 kW to 6.0 kW	Z15D151	SEMITEC Corporation
MHMD MHMJ	200 W to 750 W	Z15D271 or TNR15G271K	SEMITEC Corporation or NIPPON CHEMI-CON CORPORATION
MHME	1.0 kW, 1.5 kW	NVD07SCD082	KOA Corporation
	2.0 kW to 7.5 kW	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 Automotive & Industrial Systems Company	http://panasonic.net/id/	Surge absorber Switch, Relay
Iwaki Musen Kenkyusho Co., Ltd.	+81-44-833-4311 http://www.iwakimusen.co.jp/	Regenerative resistor
KOA Corporation	+81-42-336-5300 http://www.koanet.co.jp/en/index.htm	Surge absorber for holding brake
NIPPON CHEMI-CON CORPORATION	+81-3-5436-7711 http://www.chemi-con.co.jp/e/index.html	
SEMITEC Corporation	+81-3-3621-2703 http://www.semitec.co.jp/english2/	
KK-CORP.CO.JP	+81-184-53-2307 http://www.kk-corp.co.jp/	Noise filter for signal lines
MICROMETALS (Nisshin Electric Co., Ltd.)	+81-4-2934-4151 http://www.nisshin-electric.com/	
TDK Corporation	+81-3-5201-7229 http://www.global.tdk.com/	
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
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	
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	
DYDEN CORPORATION	+81-3-5805-5880 http://www.dyden.co.jp/english/index.htm	Cable
DR. JOHANNES HEIDENHAIN GmbH	+81-3-3234-7781 http://www.heidenhain.de/de_EN/company/contact/	External scale
Fagor Automation S.Coop.	+34-943-719-200 http://www.fagorautomation.com	
Magnescale Co., Ltd.	+81-463-92-7971 http://www.mgscale.com/mgs/language/english/	
Mitutoyo Corporation	+81-44-813-8234 http://www.mitutoyo.co.jp/eng/	
Nidec Sankyo Corporation	+81-3-5740-3006 http://www.nidec-sankyo.co.jp/	
Renishaw plc	+44 1453 524524 www.renishaw.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/	

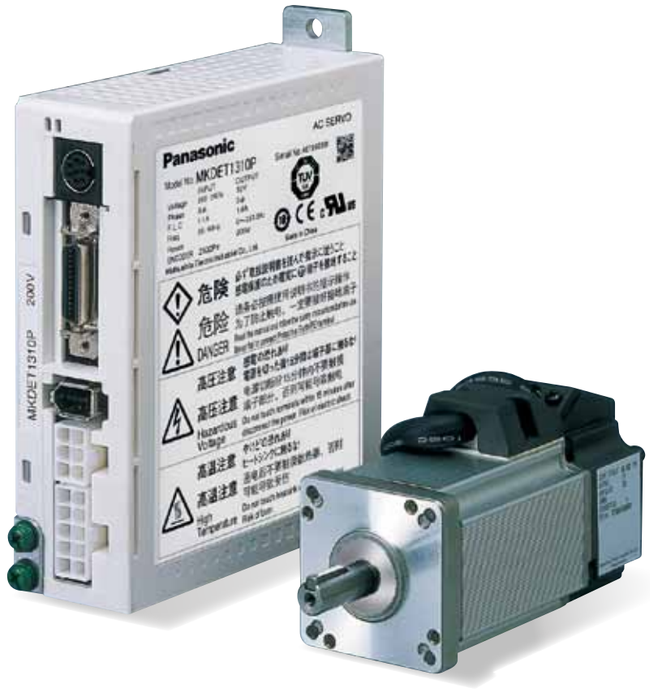
* The above list is for reference only. We may change the manufacturer without notice.

MEMO

Compact Servo Only for Position Control.

Ultra compact position control type

MINAS E Series



1 Best Fit to Small Drives

- Further evolution in down-sizing, by 47 % in size. (Note)
- Exclusively designed for position control.

(Note) Compared to MUDS043A1

2 Easy to Handle, Easy to Use

- DIN-rail mounting unit (option) improves handling/installation.
- User-friendly Console makes the setup easy.
- High functionality Real-Time Auto-Gain Tuning enables adjustment-free operation.

Console
Option

3 High-Speed Positioning with Resonance Suppression Filters

- Built-In notch filter suppresses resonance of the machine.
- Built-in adaptive filter detect resonance frequency and suppress vibration.

4 Smoother operation for Low Stiffness Machine

- Damping control function suppresses vibration during acceleration/deceleration

Contents

1. Easy to Handle, Easy to Use

High-functionality Real-Time Auto-Gain Tuning (Note 1)

- Offers real automatic gain tuning for low and high stiffness machines with a combination of an adaptive filter.
- Supports the vertical axis application where the load torque is different in rotational direction.

DIN-rail mounting unit (option)

- DIN-rail mounting unit allows parallel mounting with small control devices such as PLC.
- Easy to mount and easy to dismount.

2. Further Reduction of Vibration

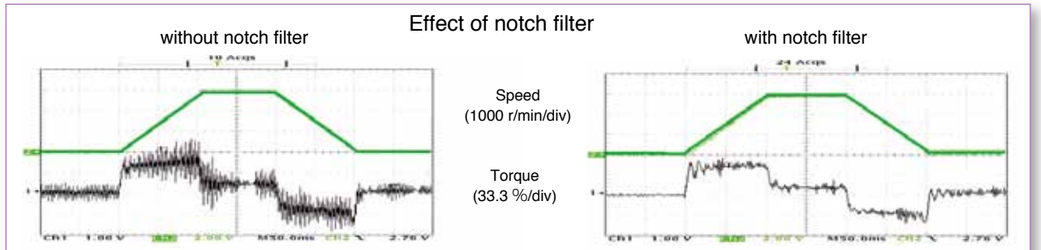
Adaptive filter (Note1)

- Makes the notch filter frequency automatically follow the machine resonance frequency in real-time auto-gain tuning.
- Suppression of “Judder” noise of the machine, which is caused by variation of the machines or resonance frequency due to aging, can be expected.

Notch filter (Note1)

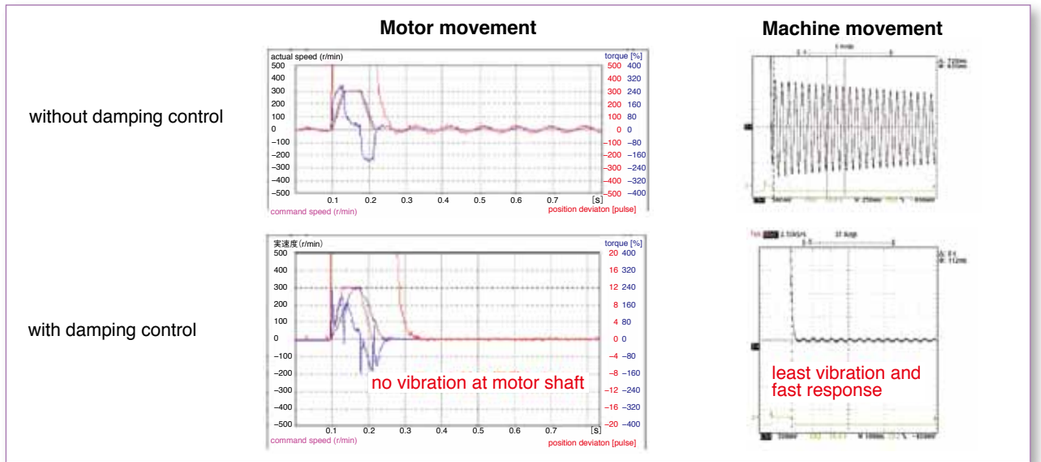
- 1-channel notch filter is equipped in the driver independent from adaptive filter.
- Each of 2 filters can set up frequency and notch width, and frequency in 1Hz unit. Suppression of "Judder" noise of the machine which has multiple resonance points can be expected.

Effect of notch filter



Damping control (Note1)

- You can suppress vibration occurring at both starting and stopping in low stiffness machine, by manually setting up vibration frequency in 0.1 Hz unit. Note) Only applies to manual adjustment



(Note1) Select at positioning action mode.
- At high speed positioning mode (Pr02=0) Select either one of notch filter, damping control or high-functionality real-time auto- gain tuning. Not possible to use them all at the same time. Adaptive filter cannot be used.
- At high-functionality positioning mode (Pr02=1) All of notch filter, damping control, high-functionality real-time auto-gain tuning and adaptive filter can be used at the same time.

3. Further Flexibility and Multiplicity

Console (Option)

- You can set up parameters, copy and make a JOG run.
- Convenient for maintenance at site.
- Refer to P.241, Options.

Command control modes

- Offers 2 command modes, “Position control” and “Internal velocity control”.
- You can make a 4-speed running at preset values with parameter at internal velocity control mode.

Inrush current suppressing function

- Inrush suppressing resistor, which prevent the circuit breaker shutdown of the power supply caused by inrush current at power-on, is equipped in this driver.
- Prevents unintentional shutdown of the power supply circuit breaker in multi axis application and does not give load to the power line.

Regeneration discharging function

- Discharges the regenerative energy with external resistor, where energy is generated while stopping the load with large moment of inertia, or use in up-down operation, and is returned to the driver from the motor.
- No regenerative resistor is installed in the driver.
- It is highly recommended to install an external regenerative resistor (option).

Built-in dynamic brake

- You can select the dynamic brake action which short the servo motor windings of U, V and W, at Servo-OFF, CW/CCW over- travel inhibition, power shutdown and trip.
- You can select the action sequence depending on the machine requirement.

Setup support software (Option)

- With the setup support software, “PANATERM” via RS232 / RS485 communication port, you can monitor the running status of the driver and set up parameters.

  Note) Refer to P.236 for setup support software.

Key-way shaft and tapped shaft end

- Easy pulley attachment and easy maintenance
- Attache screw to the tapped shaft to prevent key or pulley from being pulled out.

Wave-form graphic function

- With the setup support software, “PANATERM”, you can monitor the “Command speed”, “Actual speed”, “Torque”, “Position deviation” and “Positioning complete signal”.
- Helps you to analyze the machine and shorten the setup time.

  Note) Refer to P.236 for setup support software.

Frequency analyzing function

- You can confirm the response frequency characteristics of total machine mechanism including the servo motor with the setup support software, “PANATERM”.
- Helps you to analyze the machine and shorten the setup time.

  Note) Refer to P.236 for setup support software.

Torque limit switching function

- You can select 2 preset torque limit value from external input.
- Use this function for tension control or press-hold control.

Conformity to CE and UL Standards

Subject	Standard conformed		
Motor	IEC60034-1	IEC60034-5 UL1004 CSA22.2 No.100	Conforms to Low-Voltage Directives
Motor and driver	EN50178	UL508C CSA22.2 No.14	
	EN55011	Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	Conforms to references by EMC Directives
	EN61000-6-2	Immunity for Industrial Environments	
	EC61000-4-2	Electrostatic Discharge Immunity Test	
	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	
	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test	
	IEC61000-4-5	Lightening Surge Immunity Test	
	IEC61000-4-6	High Frequency Conduction Immunity Test	
	IEC61000-4-11	Instantaneous Outage Immunity Test	

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

Pursuant to at 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 exporting this product, follow statutory provisions of the destination country.

Motor Line-up

Motor series		Rated output (kW)	Rated rotational speed (Max. speed) (r/min)	Rotary encoder: 2500 P/r incremental	Rotary encoder: 17bit absolute/ incremental	Brake: Holding	Gear: High precision	UL/ CSA	Enclosure	Features	Applications
Ultra low inertia	MUMA 	0.05 to 0.4 0.05 0.1 0.2 0.4	3000 (5000)	○	–	○	○	○	IP65 Except shaft throughhole and connector	Small capacity Ultra low inertia	SMT machines Inserters High repetitive positioning application

Model Designation

Servo Motor

M U M A 5 A Z P 1 S * *

Symbol	Type
MUMA	Ultra low inertia (50 W to 400 W)

Motor rated output

Symbol	Rated output
5A	50 W
01	100 W
02	200 W
04	400 W

Voltage specifications

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

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500 P/r	10000	5

Design order

Symbol	Specifications
1	Standard

Motor structure

Symbol	Shaft	Holding brake		Oil seal	
	Key-way, center tap	without	with	without	with*
S	●	●		●	
T	●		●	●	

* Motor with oil seal is manufactured by order.

Special specifications

See P.227 for motor specifications

Motor with gear reducer

M U M A 0 1 1 P 3 1 N

Symbol	Type
MUMA	Ultra low inertia (100 W to 400 W)

Motor rated output

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

Voltage specifications

Symbol	Specifications
1	100 V
2	200 V

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500 P/r	10000	5

Gear reduction ration, gear type

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

Motor structure

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

See P.232 for motor with gear reducer specifications

Servo Driver

M K D E T 1 3 1 0 P * *

Frame symbol

Symbol	Frame
MKDE	E series, K-frame
MLDE	E series, L-frame

Power device Max. current rating

Symbol	Current rating
T1	10 A
T2	15 A

Supply voltage specifications

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

Control mode

Symbol	Specifications
P	Pulse train

Current detector current rating

Symbol	Current rating
05	5 A
10	10 A

Special specifications

See P.223 for driver specifications

Overall Wiring/ Driver and List of Applicable Peripheral Equipments

• Wiring of main circuit

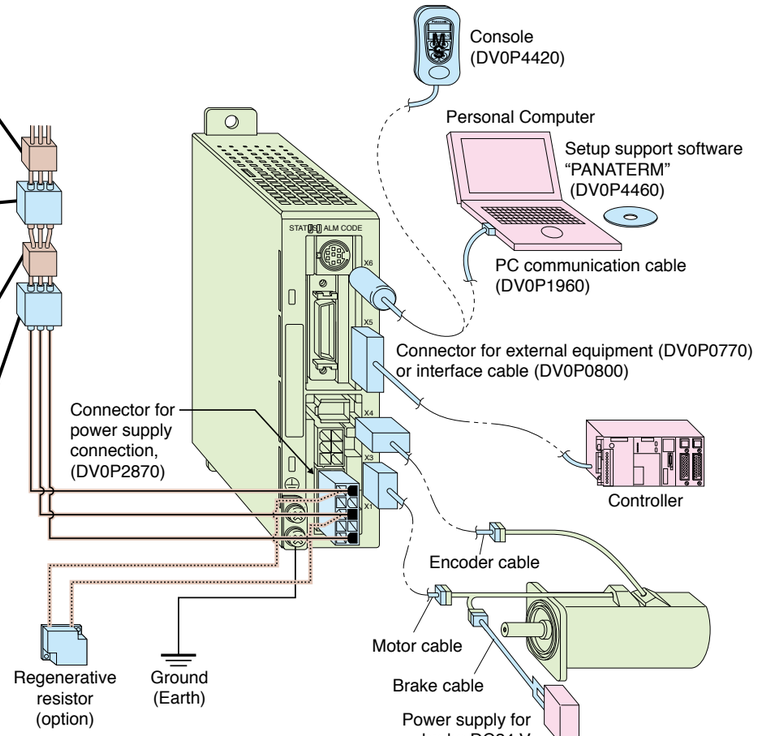
Circuit Breaker (MCCB)
Protects the power lines.
Shuts off the circuit when overcurrent passes.

Noise Filter (NF)
Prevents external noise from the power lines. And reduces an effect of the noise generated by the servo driver.

Magnetic Contactor (MC)
Turns on/off the main power of the servo driver.
Surge absorber to be used together with this.

Reactor (L)
Reduces harmonic current of the main power.

Pin-5 and Pin-3 of CN POWER
• Connect an external regenerative resistor (option) between P(pin-5) and B(pin-3) of connector, CN X1, when regenerative energy is large. (Refer to P.242 for regenerative resistor.)



Motor — to P.227
Driver — to P.223
Option — to P.236
Recommended equipments
Parts customer to prepare

List of recommended peripheral equipments

Power supply	Motor Series	Motor Output	Power capacity (at rated output)	Circuit Breaker (Rated current)	Noise Filter	Magnetic Contactor (Contact Composition)	Wire diameter (L1, L2, L3, U, V and W)
Single phase, 100 V	MUMA	50 W	0.3 kVA	(5 A)	DV0P4160	10 A (3P+1a)	0.75 mm² to 0.85 mm² AWG18
		100 W	0.4 kVA				
		200 W	0.5 kVA	(10 A)			
Single phase, 200 V		50 W	0.3 kVA	(5 A)		15 A (3P+1a)	
		100 W					
		200 W	0.5 kVA				
		400 W	0.9 kVA	(10 A)			
3-phase 200 V		50 W	0.3 kVA	(5 A)		10 A (3P+1a)	
		100 W					
		200 W	0.5 kVA				
		400 W	0.9 kVA	(10 A)			

∗ Select the single and 3-phase common specifications corresponding to the power supplies.
● To conform to EC Directives, install a circuit breaker which conforms to IEC and UL Standards (Listed, Ⓤ marked) between noise filter and power supply.
● For details of the noise filters, refer to P.256.

<Remarks>
• Use a copper conductor cables with temperature rating of 60 ˚C or higher for main power connector and ground terminal wiring.
Use a cable for ground with diameter of 2.0 mm² (AWG14) or larger.

Carrying page

Options		Part No.	Carrying page
Console		DV0P4420	241
Setup Support Software, PANATERM	Japanese	DV0P4460	236
	English		
RS232 Communication Cable (for Connection with PC)		DV0P1960	241
Interface Cable		DV0P0800	241
Connector Kit for External Equipment		DV0P0770	240
Connector Kit for Motor and Encoder		DV0P3670	239
Connector Kit for Driver Power Supply		DV0P2870	239
Encoder Cable	MFECA0 ∗ ∗ 0EAM		238
Motor Cable	MFMCA0 ∗ ∗ 0AEB		238
Brake Cable	MFMCB0 ∗ ∗ 0GET		238
Cable Set (3 m) (Note 3)	DV0P37300		238
Cable Set (5 m) (Note 3)	DV0P39200		238
DIN Rail Mount Unit	DV0P3811		242
External Regenerative Resistor	100 V	50 Ω 10 W	DV0P2890	242
	200 V	100 Ω 10 W	DV0P2891	
Reactor	100 V		DV0P227	243
			DV0P228	
	200 V		DV0P220	
Noise Filter			DV0P4160	256
Surge Absorber	Single phase 100 V, 200 V		DV0P4190	256
	3-phase 200 V		DV0P1450	
Noise Filter for Signal Wire			DV0P1460	256

(Note 3) Cable set (3 m) contains,
1) Interface cable: DV0P0800
2) Encoder cable (3 m) : MFECA0030EAM
3) Motor cable (3 m) : MFMCA0030AEB
4) Connector kit for driver power supply connection : DV0P2870
Cable set (5 m) contains,
1) Interface cable: DV0P0800
2) Encoder cable (5 m) : MFECA0050EAM
3) Motor cable (5 m) : MFMCA0050AEB
4) Connector kit for driver power supply connection : DV0P2870

Table of Part Numbers and Options

Power supply	Output (W)	2500P/r, Incremental Motor (Note) 1	Rating/Spec. (page)	Driver	Dimensions (Frame symbol)	Option Encoder Cable (Note) 2	Motor Cable (Note) 2		Brake Cable (Note) 2	External Regenerative Resistor	Reactor	Noise Filter
Single phase 100 V	50	MUMA5AZP1 □	227	MKDET1105P	226 (K)	MFECA0 ∗ ∗ 0EAM	MFMCA0 ∗ ∗ 0AEB		MFMCB0 ∗ ∗ 0GET	DV0P2890	DV0P227	DV0P4160
	100	MUMA011P1 □	227	MKDET1110P	226 (K)							
	200	MUMA021P1 □	227	MLDET2110P	226 (L)						DV0P228	
Single phase 200 V	50	MUMA5AZP1 □	229	MKDET1505P	226 (K)					DV0P2891	DV0P220	
	100	MUMA012P1 □	229	MKDET1505P	226 (K)							
	200	MUMA022P1 □	229	MLDET2210P	226 (L)							
	400	MUMA042P1 □	229	MLDET2510P	226 (L)							
3-phase 200 V	50	MUMA5AZP1 □	229	MKDET1505P	226 (K)							
	100	MUMA012P1 □	229	MKDET1505P	226 (K)							
	200	MUMA022P1 □	229	MKDET1310P	226 (K)							
	400	MUMA042P1 □	229	MLDET2510P	226 (L)							
				MLDET2310P								

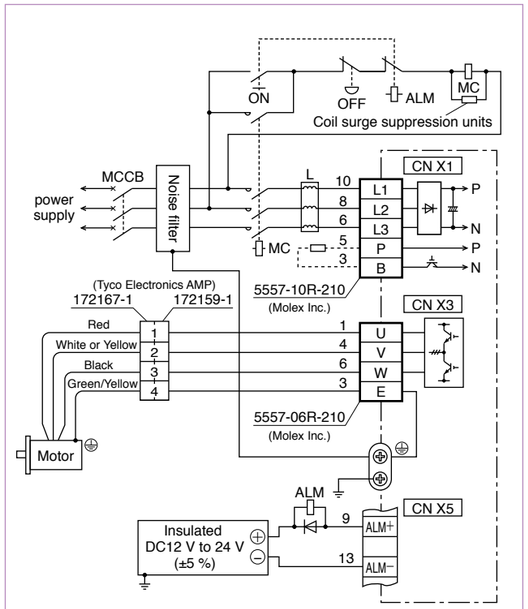
Note) 1 Motor model number suffix: □
S : Key way with center tap, without brake
T : Kew way with center tap, with brake
Note) 2 ∗ ∗ represents cable length. For details, refer to P.237.

Basic Specifications	Input power	Single phase, 100 V	Single phase, 100 V to 115 V +10 % –15 % 50 Hz/60 Hz
		Single phase, 200 V	Single phase, 200 V to 240 V +10 % –15 % 50 Hz/60 Hz
		3-phase, 200 V	3-phase, 200 V to 240 V +10 % –15 % 50 Hz/60 Hz
	Environment	Temperature	Operating : 0 ˚C to 55 ˚C, Storage : –20 ˚C to 65 ˚C (Max.temperature guarantee 80 ˚C for 72 hours <Nomal temperature>)
		Humidity	Both operating and storage : 90 %RH or less (free from condensation)
		Altitude	1000 m or lower
		Vibration	5.88 m/s² or less, 10 Hz to 60 Hz (No continuous use at resonance frequency)
	Withstand voltage		Should be 1500 VAC (Sensed current: 20 mA) for 1 minute between Primary and Ground.
	Control method		IGBT PWM Sinusoidal wave drive
	Encoder feedback		2500 P/r (10000 resolution) incremental encoder
	Control signal	Input	7 inputs (1) Servo-ON, (2) Alarm clear and other inputs vary depending on the control mode.
		Output	4 outputs (1) Servo alarm, (2) Alarm, (3) Release signal of external brake and other outputs vary depending on the control mode.
	Pulse signal	Input	2 inputs Supports both line driver I/F and open collector I/F.
		Output	4 outputs Feed out the encoder pulse (A, B and Z-phase) in line driver. Z-phase pulse is also feed out in open collector.
	Communication function	RS232	1 : 1 communication to a host with RS232 interface is enabled.
	Display LED		(1) Status LED (STATUS), (2) Alarm code LED (ALM-CODE)
	Regeneration		No built-in regenerative resistor (external resistor only)
	Dynamic brake		Built-in
	Control mode		3 modes of (1) High-speed position control, (2) Internal velocity control and (3) High-functionality positioning control are selectable with parameter.
Functions	Position control	Control input	(1) CW over-travel inhibition, (2) CCW over-travel inhibition, (3) Deviation counter clear, (4) Gain switching, (5) Electronic gear switching
		Control output	(1) Positioning complete (In-position)
		Pulse input — Max. command pulse frequency	Line driver : 500 kpps, Open collector : 200 kpps
		Pulse input — Type of input pulse train	Differential input. Selectable with parameter, ((1) CW/CCW, (2) A and B-phase, (3) Command and Direction)
		Pulse input — Electronic gear (Division/Multiplication of command pulse)	Setup of electronic gear ratio Setup range of (1-10000) × $2^{(0-17)}$/(1-10000)
		Pulse input — Smoothing filter	Primary delay filter or FIR type filter is selectable to the command input.
	Internal speed control	Control input	(1) CW over-travel inhibition, (2) CCW over-travel inhibition, (3) Selection 1 of internal command speed, (4) Selection 2 of internal command speed, (5) Speed zero clamp
		Control output	(1) Speed arrival (at-speed)
		Internal speed command	Internal 4-speed is selectable with control input.
		Soft-start/down function	Individual setup of acceleration and deceleration are enabled, with 0 s to 10 s/1000 r/min. Sigmoid acceleration/deceleration is also enabled.
		Zero-speed clamp	0-clamp of internal speed command with speed zero clamp input is enabled.
	Common	Auto-gain tuning — Real-time	Estimates the load inertia in real-time in actual operation and sets up the gain automatically corresponding to the machine stiffness. Useable at (1) High-response position control, (2) Internal speed control and (3) High-functionality position control.
		Auto-gain tuning — Normal mode	Estimates the load inertia with an action command inside of the driver, and sets up the gain automatically corresponding to setup of the machine stiffness. Useable at (1) High-response position control, (2) Internal speed control and (3) High-functionality position control.
		Masking of unnecessary input	Masking of the following input signal is enabled. (1) Over-travel inhibition, (2) Speed zero clamp, (3) Torque limit switching
		Division of encoder feedback pulse	1 P/r to 2500 P/r (encoder pulses count is the max.).
		Protective function — Hardware error	Over-voltage, under-voltage, over-speed over-load, over-heat, over-current and encoder error etc.
		Protective function — Software error	Excess position deviation, command pulse division error, EEPROM error etc.
		Traceability of alarm data	Traceable up to past 14 alarms including the present one.
		Damping control function	Manual setup with parameter
		Setup — Manual	Console
		Setup — Setup support software	PANATERM (Supporting OS : Windows98, Windows ME, Windows2000, and WindowsXP)

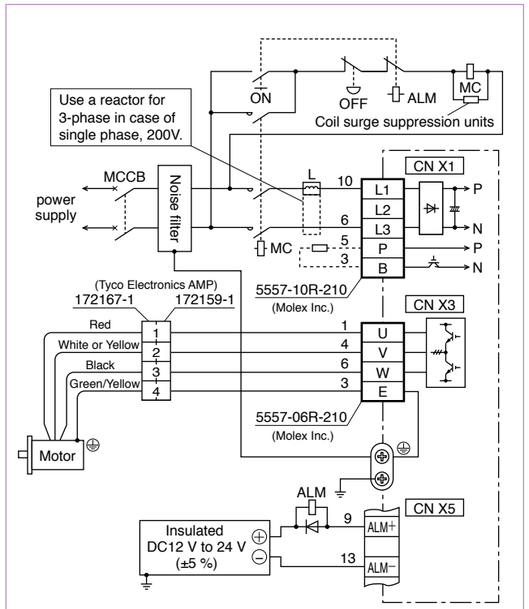
Standard Wiring Example of Main Circuit/ Encorder Wiring Diagram

Standard Wiring Example of Main Circuit

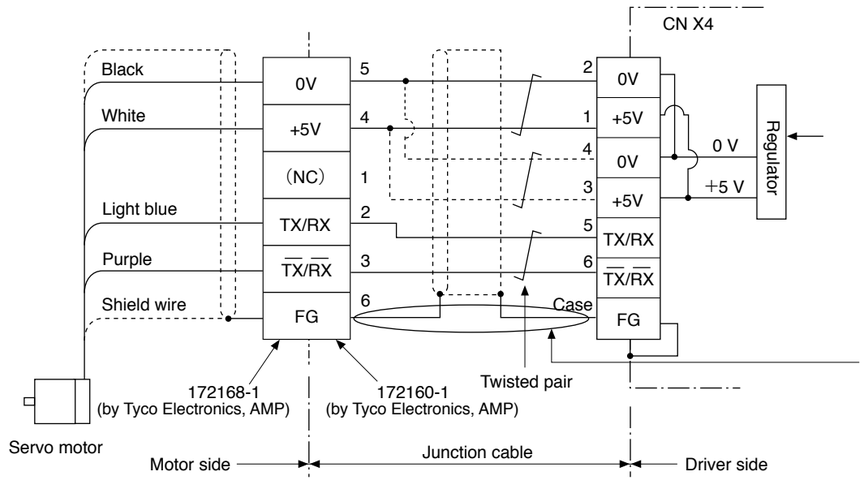
3-Phase, 200 V



Single Phase, 100 V / 200 V



Encorder Wiring Diagram



When you make your own junction cable for encoder (Refer to P.239, P.240 "Options" for connector.)

1) Refer the wiring diagram.
2) Use the twisted pair wire with shield, with core diameter of 0.18 mm² (AWG24) or larger, with higher bending resistance.
3) Use the twisted pair wire for the corresponding signal and power supply.
4) Shielding
   Connect the shield of the driver to the case of CN X4.
   Connect the shield of the motor to Pin-6.

Control Circuit Standard Wiring Example

CN X 5 Wiring Example at Position Control Mode

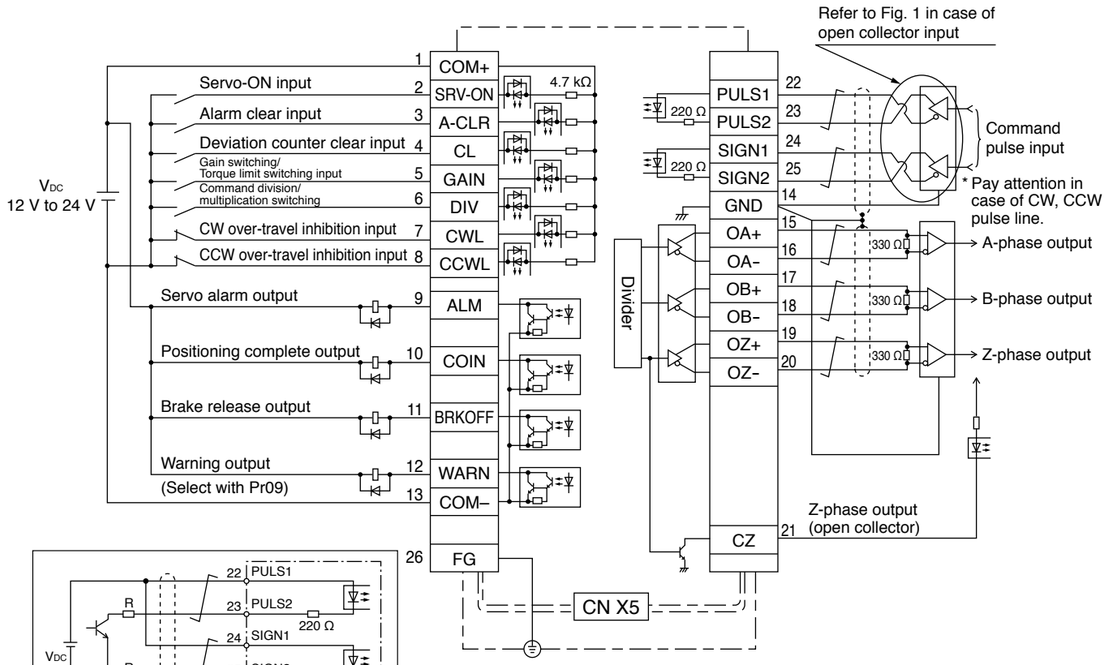
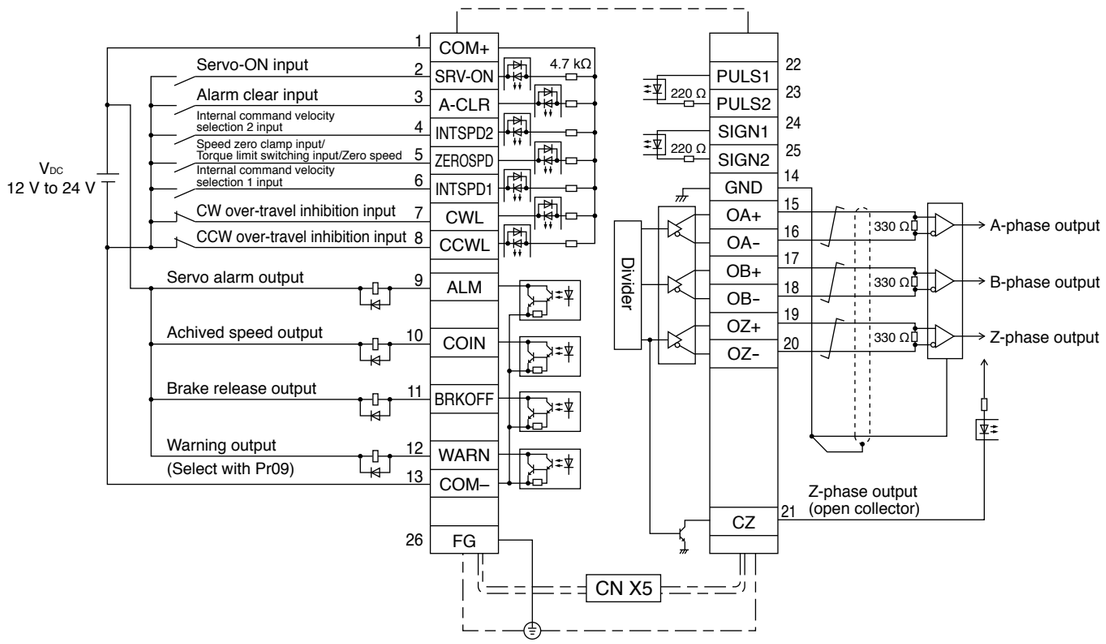
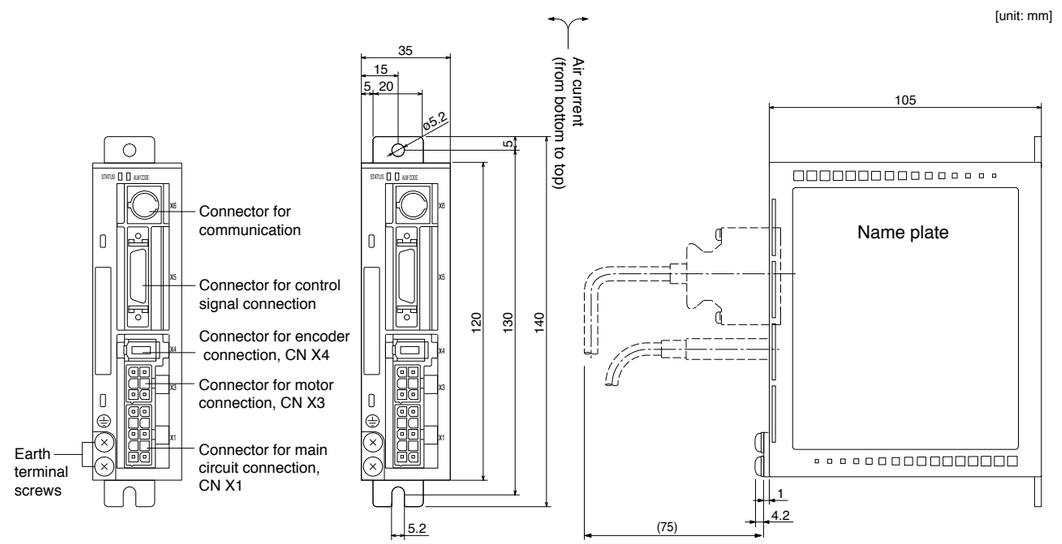


Fig. 1
This fig. shows the usage of an external control signal power supply.
You need to install an resistor R for current limit corresponding to VDC.

CN X 5 Wiring Example at Internal Velocity Control Mode



Frame K

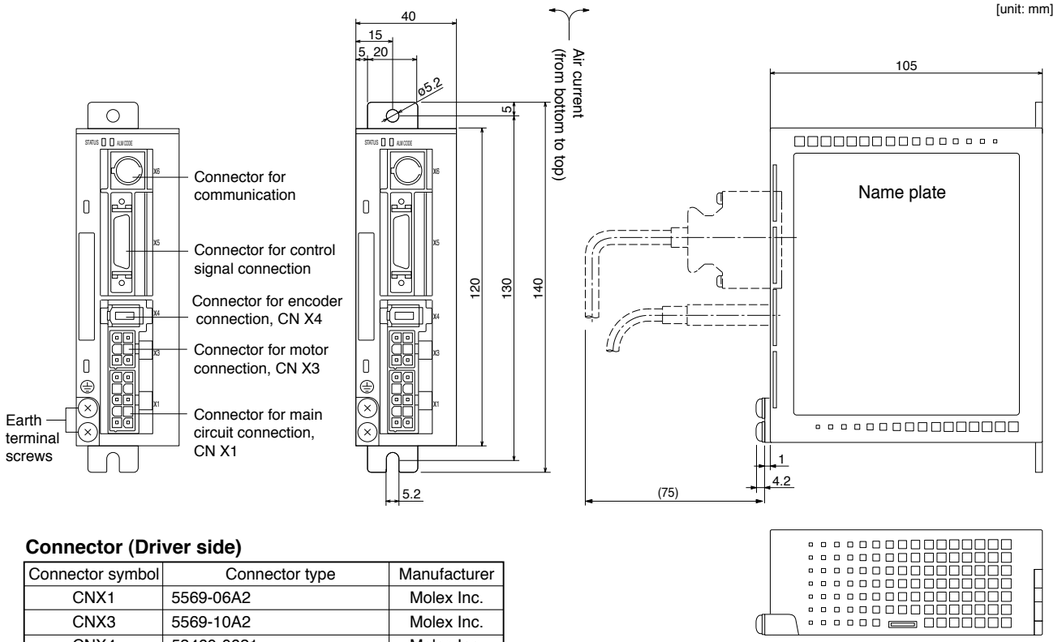


Connector (Driver side)

Connector symbol	Connector type	Manufacturer
CNX1	5569-06A2	Molex Inc.
CNX3	5569-10A2	Molex Inc.
CNX4	53460-0621	Molex Inc.
CNX5	10226-52A11L(or equivalent)	Sumitomo 3M

Mass: 0.35 kg

Frame L



Connector (Driver side)

Connector symbol	Connector type	Manufacturer
CNX1	5569-06A2	Molex Inc.
CNX3	5569-10A2	Molex Inc.
CNX4	53460-0621	Molex Inc.
CNX5	10226-52A11L(or equivalent)	Sumitomo 3M

Mass: 0.40 kg

100 V MUMA 50 W to 200 W [Low inertia Small drives]

		AC100 V		
Motor model	MUMA	5AZP1□	011P1□	021P1□
Applicable driver	Model No.	MKDET1105P	MKDET1110P	MLDET2110P
	Frame symbol	Frame K		Frame L
Power supply capacity (kVA)		0.3	0.4	0.5
Rated output (W)		50	100	200
Rated torque (N·m)		0.16	0.32	0.64
Momentary Max. peak torque (N·m)		0.48	0.95	1.91
Rated current (Arms)		1.0	1.6	2.5
Max. current (Ao-p)		4.3	6.9	11.7
Regenerative brake frequency (times/min) Note)1	Without option	No limit Note)2		
	DV0P2890	No limit Note)2		
Rated rotational speed (r/min)		3000		
Max. rotational speed (r/min)		5000		
Moment of inertia of rotor (×10⁻⁴ kg·m²)	Without brake	0.021	0.032	0.10
	With brake	0.026	0.036	0.13
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		
Rotary encoder specifications		2500 P/r Incremental		
	Resolution per single turn	10000		
Protective enclosure rating		IP65 (except rotating portion of output shaft and lead wire end)		
Environment	Ambient temperature	0 ˚C to 40 ˚C (free from freezing), Storage : –20 ˚C to 65 ˚C (Max.temperature guarantee 80 ˚C for 72 hours <nomal humidity>)		
	Ambient humidity	85 %RH or lower (free from condensing)		
	Installation location	Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust		
	Altitude	1000 m or lower		
	Vibration resistance	49 m/s² or less		
Mass (kg), ( ) represents holding brake type		0.4 (0.6)	0.5 (0.7)	0.96 (1.36)

Brake specifications (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	1.27
Engaging time (ms)		25	50
Releasing time (ms) Note)4		20 (30)	15 (100)
Exciting current (DC) (A)		0.26	0.36
Releasing voltage		DC 1 V or more	
Exciting voltage		DV 24 V ±10 %	

Permissible load			
During assembly	Radial load P-direction (N)	147	392
	Thrust load A-direction (N)	88	147
	Thrust load B-direction (N)	117	196
During operation	Radial load P-direction (N)	68	245
	Thrust load A-direction (N)	58	98
	Thrust load B-direction (N)	58	98

For motor dimensions, refer to P.231, and for the diver, refer to P.226.

Model Designation

e.g.) M U M A 5 A Z P 1 S

Symbol	Type
MUMA	Ultra low inertia (50 W to 200 W)

Motor rated output

Symbol	Rated output
5A	50 W
01	100 W
02	200 W

Voltage specifications

Symbol	Specifications
1	100 V
Z	100/200 V (50 W only)

Design order
1 : Standard

Motor structure

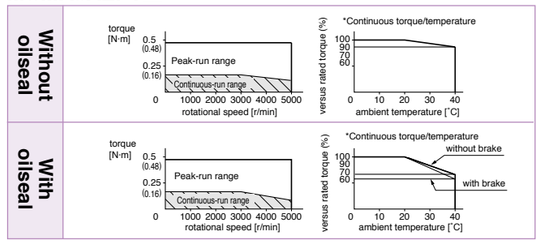
Symbol	Shaft	Holding brake		Oil seal	
	Key-way, center tap	without	with	without	with
S	●	●		●	
T	●		●	●	

Rotary encoder specifications

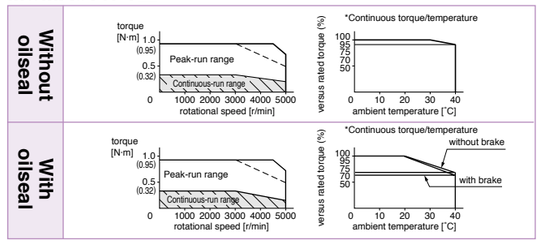
Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500 P/r	10000	5

Torque Characteristics [at AC100 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]

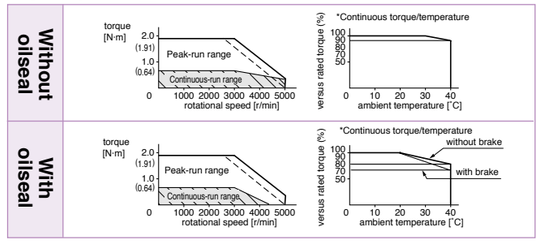
MUMA5AZP1□



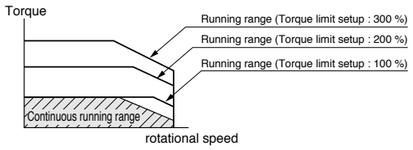
MUMA011P1□

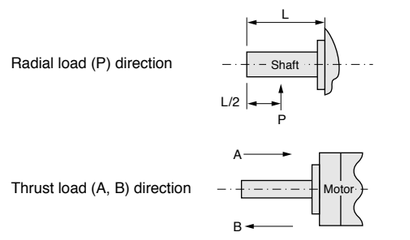


MUMA021P1□



*When you lower the torque limit setup (Pr5E and 5F), running range at high speed might be lowered as well.





Note) 1. 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 defined 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 AC115 V (at 100 V 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 continuosly such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

2. If the effective torque is within the rated torque, there is no limit in regenerative brake.
3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D151 by SEMITEC Corporation or equivalent). ( ) represents the actually measured value using a diode (200 V, 1 A or equivalent)

200 V MUMA 50 W to 400 W [Low inertia Small drives]

		AC200 V			
Motor model	MUMA	5AZP1□	012P1□	022P1□	042P1□
Applicable driver	Model No.	MKDET1505P		MKDET1310P	MLDET2310P
				MKDET2210P	MLDET2510P
	Frame symbol	Frame K		Frame K	Frame L
				Frame L	
Power supply capacity (kVA)		0.3	0.3	0.5	0.9
Rated output (W)		50	100	200	400
Rated torque (N · m)		0.16	0.32	0.64	1.3
Momentary Max. peak torque (N · m)		0.48	0.95	1.91	3.8
Rated current (Arms)		1.0	1.0	1.6	2.5
Max. current (Ao-p)		4.3	4.3	7.5	11.7
Regenerative brake frequency (times/min) Note)1	Without option	No limit Note)2			
	DV0P2891	No limit Note)2			
Rated rotational speed (r/min)		3000			
Max. rotational speed (r/min)		5000			
Moment of inertia of rotor ($\times 10^{-4}$ kg·m^2)	Without brake	0.021	0.032	0.10	0.17
	With brake	0.026	0.036	0.13	0.20
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			
Rotary encoder specifications		2500 P/r Incremental			
	Resolution per single turn	10000			
Protective enclosure rating		IP65 (except rotating portion of output shaft and lead wire end)			
Environment	Ambient temperature	0 ˚C to 40 ˚C (free from freezing), Storage : –20 ˚C to 65 ˚C (Max.temperature guarantee 80 ˚C for 72 hours <nomal humidity>)			
	Ambient humidity	85 %RH or lower (free from condensing)			
	Installation location	Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust			
	Altitude	1000 m or lower			
	Vibration resistance	49 m/s^2 or less			
Mass (kg), ( ) represents holding brake type		0.4 (0.6)	0.5 (0.7)	0.96 (1.36)	1.5 (1.9)

Brake specifications (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	1.27
Engaging time (ms)	25	50
Releasing time (ms) Note)4	20 (30)	15 (100)
Exciting current (DC) (A)	0.26	0.36
Releasing voltage	DC 1 V or more	
Exciting voltage	DV 24 V ±10 %	

Permissible load			
During assembly	Radial load P-direction (N)	147	392
	Thrust load A-direction (N)	88	147
	Thrust load B-direction (N)	117	196
During operation	Radial load P-direction (N)	68	245
	Thrust load A-direction (N)	58	98
	Thrust load B-direction (N)	58	98

For motor dimensions, refer to P.231, and for the driver, refer to P.226.

Note) Driver for 50 W and 100 W has a common power supply of single phase and 3-phase 200 V.
Driver for 200 W, the upper row is the power supply of 3-phase 200 V, and lower is the power supply of single-phase 200 V.
Driver for 400 W, the upper row is the power supply of 3-phase 200 V, and lower is the common power supply of single-phase and 3-phase 200 V.

Model Designation

e.g.) M U M A 5 A Z P 1 S

Symbol	Type
MUMA	Ultra low inertia (50 W to 400 W)

Motor rated output

Symbol	Rated output
5A	50 W
01	100 W
02	200 W
04	400 W

Voltage specifications

Symbol	Specifications
2	200 V
Z	100/200 V (50 W only)

Design order
1 : Standard

Motor structure

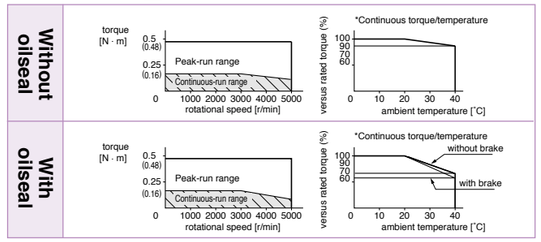
Symbol	Shaft	Holding brake		Oil seal	
	Key-way, center tap	without	with	without	with
S	●	●		●	
T	●		●	●	

Rotary encoder specifications

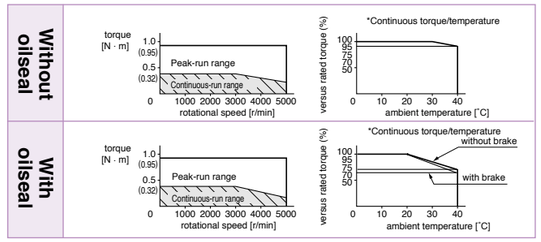
Symbol	Format	Pulse counts	Resolution	Wires
P	Incremental	2500 P/r	10000	5

Torque Characteristics [at AC200 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]

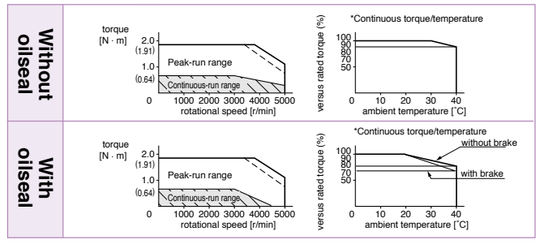
MUMA5AZP1□



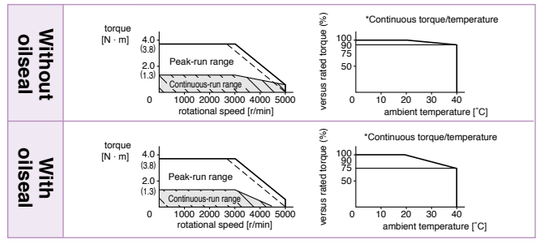
MUMA012P1□



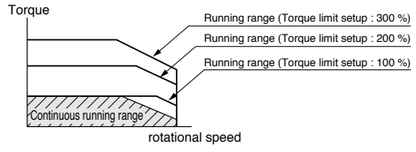
MUMA022P1□

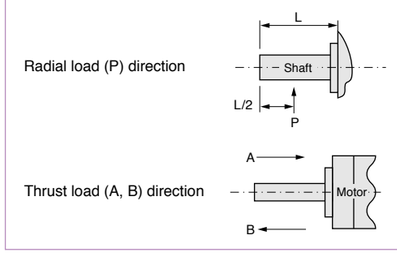


MUMA042P1□



*When you lower the torque limit setup (Pr5E and 5F), running range at high speed might be lowered as well.



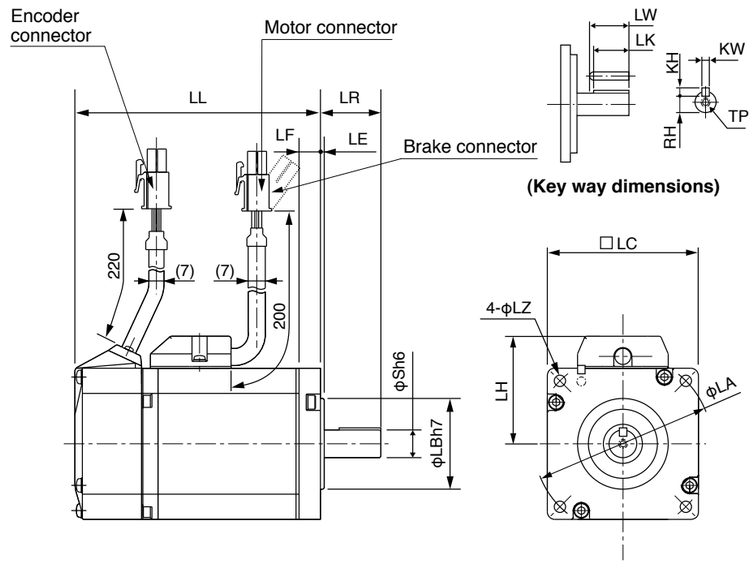


Note) 1. Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.
- If the load is connected, frequency will be defined as 1/(m+1), where m = (load moment of inertia) / (rotor moment of inertia).
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC240 V (at 200 V of the main voltage). If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/240) relative to the value in the table.
- When regeneration occurs continuosly such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

2. If the effective torque is within the rated torque, there is no limit in regenerative brake.
3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D151 by SEMITEC Corporation or equivalent). ( ) represents the actually measured value using a diode (200 V, 1 A or equivalent)

MUMA 50 W to 400 W

[Unit: mm]



* Dimensions are subject to change without notice. Contact us or a dealer for the latest information

[Unit: mm]

MUMA series (Ultra low inertia)

Motor output		50 W	100 W	200 W	400 W
Motor model	MUMA	5A□P1□	01□P1□	02□P1□	04□P1□
Rotary encoder specifications		2500 P/r Incremental	2500 P/r Incremental	2500 P/r Incremental	2500 P/r Incremental
LL	Without brake	75.5	92.5	96	123.5
	With brake	107	124	129	156.5
LR		24	24	30	30
S		8	8	11	14
LA		48	48	70	70
LB		22	22	50	50
LC		42	42	60	60
LE		2	2	3	3
LF		7	7	7	7
LH		34	34	43	43
LZ		3.4	3.4	4.5	4.5
Key way	LW	14	14	20	25
	LK	12.5	12.5	18	22.5
	KW	3h9	3h9	4h9	5h9
	KH	3	3	4	5
	RH	6.2	6.2	8.5	11
	TP	M3 × 6 (depth)	M3 × 6 (depth)	M4 × 8 (depth)	M5 × 10 (depth)
Mass (kg)	Without brake	0.40	0.50	0.96	1.5
	With brake	0.60	0.70	1.36	1.9
Connector/Plug specifications		refer to Options, P.239, P.240.			

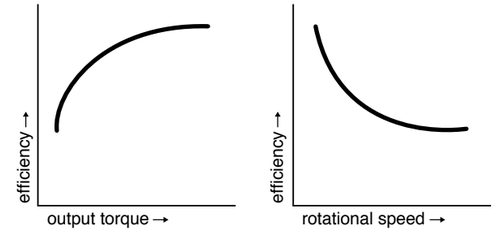
<Cautions>
Reduce the moment of inertia ratio if high speed response operation is required.
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

MINAS E Series Motors with Gear Reducer

Motor Types with Gear Reducer

Reduction ratio	Motor output (W)			Type of reducer
	100	200	400	
1/ 5	●	●	●	For high precision
1/ 9	●	●	●	
1/25	●	●	●	

Efficiency of the gear reducer shows the following inclination in relation to output torque and rotational speed.



Model No. Designation

e.g.) M U M A 0 1 1 P 3 1 N

Symbol	Type
MUMA	Low inertia (100 to 400 W)

Motor rated output

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

Voltage specifications

Symbol	Specifications
1	100 V
2	200 V

Rotary encoder specifications

Symbol	Format	Pulse counts	Pulse counts	Wire
P	Incremental	2500 P/r	10000	5

Motor types with gear reducer

Symbol	Reduction ratio	Motor output			Type of reducer
		100	200	400	
1N	1/ 5	●	●	●	For High precision
2N	1/ 9	●	●	●	
4N	1/25	●	●	●	

Motor structure

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

Specifications of Motor with Gear Reducer

Motor type		MUMA
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 %
	Rotational direction at output shaft (of reducer)	Same direction as the motor output shaft
	Composition of gear	Planetary gear
	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 ˚C to 40 ˚C
	Ambient humidity	85 %RH (free from condensation) or less
	Vibration resistance	49 m/s² or less (at motor frame)
	Impact resistance	98 m/s² or less

Table of Motor Specifications/ The Combination of the Driver and the Motor

Table of Motor with Gear Reducer Specifications

Model	Motor	MUMA with gear reducer											
	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^{-4}kg·m^2)		(kg)		(N)	(N)
MUMA01□P□1N	100	1/5	75	600	1000	1.18	3.72	0.072	0.076	1.05	1.25	490	245
MUMA01□P□2N		1/9	80	333	555	2.25	6.86	0.0663	0.0703	1.05	1.25	588	294
MUMA01□P□4N		1/25	80	120	200	6.27	19.0	0.0645	0.0685	2.20	2.40	1670	833
MUMA02□P□1N	200	1/5	170	600	1000	2.65	8.04	0.218	0.248	1.68	2.08	490	245
MUMA02□P□2N		1/9	132	333	555	3.72	11.3	0.368	0.398	2.66	3.06	1180	588
MUMA02□P□4N		1/25	140	120	200	11.1	33.3	0.388	0.418	2.66	3.06	1670	833
MUMA042P□1N	400	1/5	340	600	1000	5.39	16.2	0.533	0.563	3.2	3.6	980	490
MUMA042P□2N		1/9	332	333	555	9.51	28.5	0.438	0.468	3.2	3.6	1180	588
MUMA042P□4N		1/25	332	120	200	26.4	79.2	0.470	0.500	4.7	5.1	2060	1030

For dimensions, refer to P.235.

The Combination of the Driver and the Motor with Gear Reducer

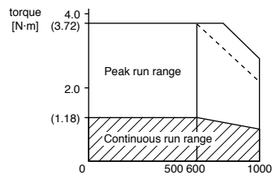
Combination with driver		100 V		200 V		
Encoder	Motor output	Part No. of motor with gear reducer	Single phase, 100 V Part No. of driver	Part No. of motor with gear reducer	3-phase, 200 V Part No. of driver	Single phase, 200 V Part No. of driver
2500 P/r Incremental	100 W	MUMA011P□□N	MKDET1110P	MUMA012P□□N	MKDET1505P	MKDET1505P
	200 W	MUMA021P□□N	MLDET2110P	MUMA022P□□N	MKDET1310P	MLDET2210P
	400 W	–	–	MUMA042P□□N	MLDET2510P	MLDET2510P
					MLDET2310P	

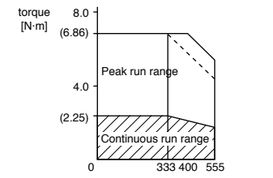
For dimensions, refer to P.235.

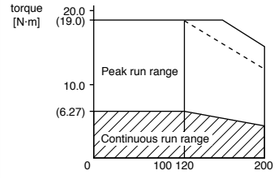
Torque Characteristics

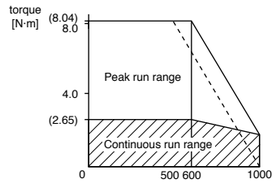
For High Precision (MUMA Series 100 W to 400 W)

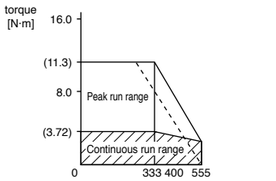
Supply voltage to driver	Motor output \ Reduction ratio	1/5	1/9	1/25
100 V	100 W	MUMA011P□1N	MUMA011P□2N	MUMA011P□4N
	200 W	MUMA021P□1N	MUMA021P□2N	MUMA021P□4N
	400 W	MUMA042P□1N	MUMA042P□2N	MUMA042P□4N
200 V	100 W	MUMA012P□1N	MUMA012P□2N	MUMA012P□4N
	200 W	MUMA022P□1N	MUMA022P□2N	MUMA022P□4N
	400 W	MUMA042P□1N	MUMA042P□2N	MUMA042P□4N

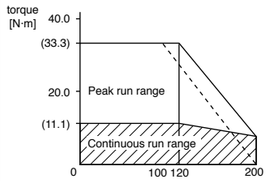


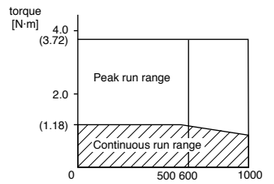


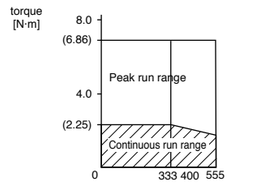


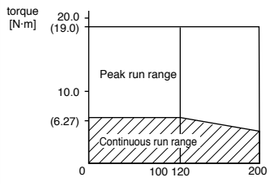


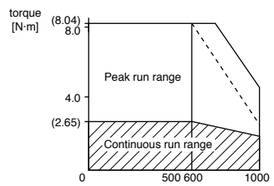


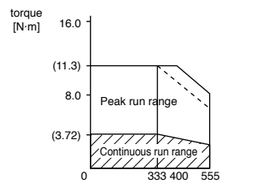


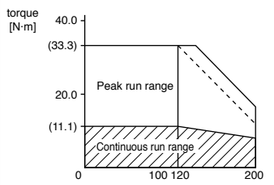


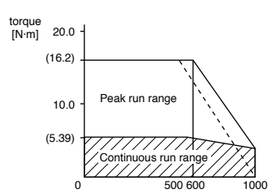


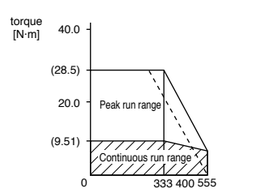


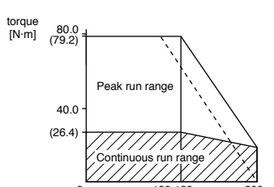










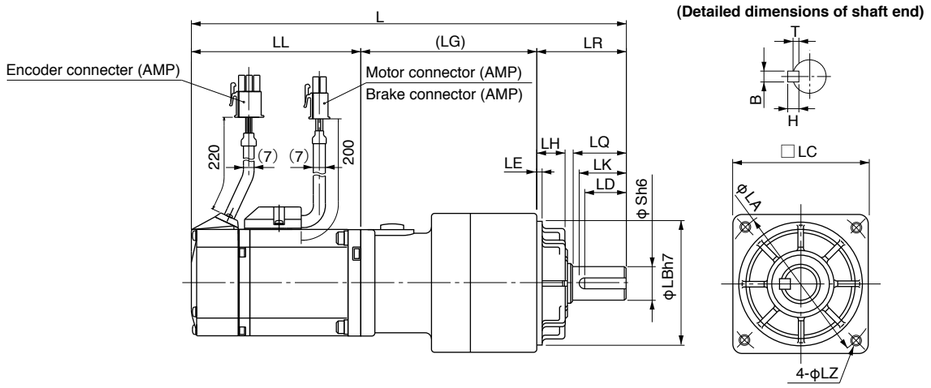


Dotted line represents the torque at 10 % less supply voltage.

Motor Dimensions

MUMA series with Gear Reducer

[Unit: mm]



2500 P/r Encoder

[Unit: mm]

Model	Motor output	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	S	LH	LZ	LK	(LG)	LE	Key way B×H×LD	T
MUMA01□P□1N	100 W	1 / 5	192	92.5	32	20	52	50	60	12	10	M5 (Depth: 12)	18	67.5	3	4×4×16	2.5
			223.5	124													
MUMA01□P□2N		1 / 9	192	92.5													
			223.5	124													
MUMA01□P□4N		1/25	234.5	92.5	50	30	78	70	90	19	17	M6 (Depth: 20)	26	92		6×6×22	3.5
			266	124													
MUMA02□P□1N	200 W	1 / 5	200.5	96	32	20	52	50	60	12	10	M5 (Depth: 12)	18	72.5		4×4×16	2.5
			233.5	129													
MUMA02□P□2N		1 / 9	235.5	96	50	30	78	70	90	19	17	M6 (Depth: 20)	26	89.5		6×6×22	3.5
			268.5	129													
MUMA02□P□4N		1/25	246	96										100			
			279	129													
MUMA042P□1N	400 W	1 / 5	263	123.5										89.5			
			296	156.5													
MUMA042P□2N		1 / 9	263	123.5													
			296	156.5													
MUMA042P□4N		1/25	288.5	123.5	61	40	98	90	115	24	18	M8 (Depth: 20)	35	104	5	8×7×30	4
			321.5	156.5													

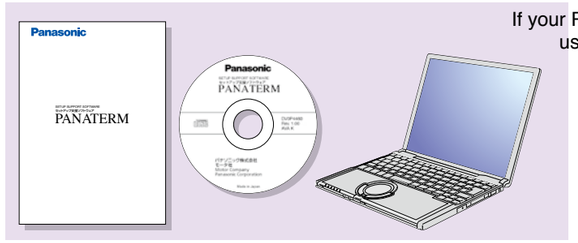
Upper column : without brake
Lower column : with brake

Setup Support Software

Setup Support Software “PANATERM” for MINAS series AC Servo Motor & Driver

Part No.	DV0P4460 (Japanese/English version)

The PANATERM assists users in setting parameters, monitoring control conditions, setup support, and analyzing mechanical operation data on the PC screen, when installed in a commercially available personal computer, and connected to the MINAS A4 series, E series through the RS232 serial interface.



If your PC does not have RS232 port, use RS232-USB converter.

Basic Function

● Parameter setup
- After a parameter is defined on the screen, it will be sent to the driver immediately.
- Once you register parameters you frequently use, they can be easily set up on the screen.

Monitoring Control Conditions

● Monitor
- Control conditions: Control mode, velocity, torque, error and warning
- Driver input signal
- Load conditions: Total count of command/feedback pulses, Load ratio, Regenerative resistor load ratio

● Alarm
- Displays the numbers and contents of the current alarm and up to 14 error events in the past.
- Clears the numbers and contents of the current alarm and up to 14 error events in the past.

Setup

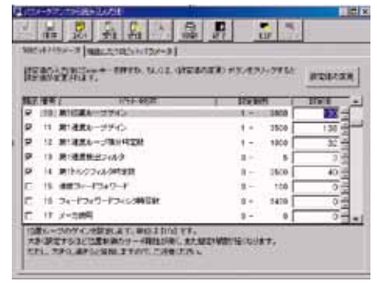
● Auto tuning
- Gain adjustment and inertia ratio measurement

● Graphic waveform display
- The graphic display shows command velocity, actual velocity, torque, and error waveforms.

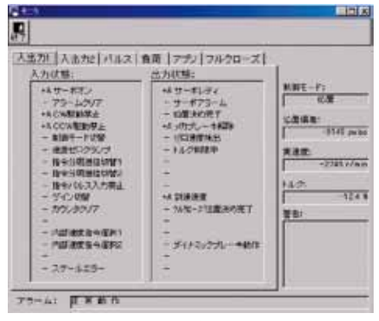
● Absolute encoder setup
- Clears absolute encoder at the origin.
- Displays single revolution/multi-revolution data.
- Displays absolute encoder status.

Analysis of Mechanical Operation Data

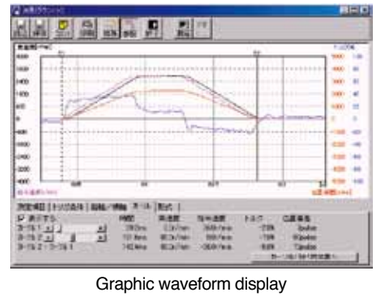
● Frequency analysis
- Measures frequency characteristics of the machine, and displays Bode diagram.



Parameter



Monitor



Graphic waveform display

■ Can not use with A5 family.

Hardware configuration
[Personal computer] • CPU : Pentium 100MHz or more • Memory : 16 MB or more (32 MB recommended)
• Hard disk capacity (vacancy of 25 MB or more recommended) • OS : Windows® 98, Windows® Me, Windows® 2000, Windows® XP (US version)
• Communication speed of serial communication port : 2400 bps or more (The software may not operate normally using USB-to-Serial adapter.)
[Display] • Resolution : 640*480 (VGA) or more (desirably 1024*768) • Number of colors : 256 colors or more
[CD-ROM drive] • CD-ROM drive operable on the above-mentioned personal computer

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	E	A	M

Cable end (Driver side)

M	Connector (MUMA)

Cable end (Encoder side)

A	Tyco Electronics, AMP connector

Cable type

E	PVC cable with shield by Oki Electric Cable Co., 0.20 mm² × 3P

Cable length

0030	3 m
0050	5 m
0100	10 m
0200	20 m

Type classification: MFECA: Encoder cable

Motor Cable, Brake Cable

1	2	3	4	5	6	7	8	9	10	11	12
M	F	M	C	A	0	0	5	0	A	E	B

Cable end at driver side

B	Molex Inc.
T	Clamp terminal

Cable end at motor side

E	Tyco Electronics, AMP connector

Cable type

A	ROBO-TOP® 4-wire (DYDEN CORPORATION)
G	ROBO-TOP® 2-wire (DYDEN CORPORATION)

Cross section of cable core

0	0.75 mm²
1	1.25 mm²
2	2.0 mm²
3	3.5 mm²

Type classification

A	Standard
B	Special
⋮	Design Oder

Cable length

003	3 m
005	5 m
010	10 m
020	20 m

AC servo motor cable

ROBO-TOP® is a trade mark of DYDEN CORPORATION

Cable

Cable Set (3 m)

Part No.	DV0P37300

1) Interface cable : DV0P0800
2) Encoder cable (3 m) : MFECA0030EAM
3) Motor cable (3 m) : MFMCA0030AEB
4) Connector kit for driver power supply connection : DV0P2870

Cable Set (5 m)

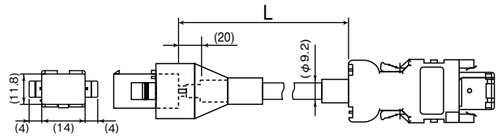
Part No.	DV0P39200

1) Interface cable : DV0P0800
2) Encoder cable (5 m) : MFECA0050EAM
3) Motor cable (5 m) : MFMCA0050AEB
4) Connector kit for driver power supply connection : DV0P2870

Encoder Cable

Part No.	MFECA0 ＊＊ 0EAM

[Unit: mm]



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100KV	Sumitomo 3M or equivalent
Shell kit	3E306-3200-008	
Connector	172160-1	Tyco Electronics
Connector Pin	170365-1	
Cable	0.20 mm² × 3P	Oki Electric Cable Co., Ltd.

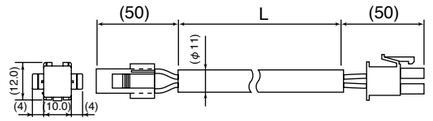
L (m)	Part No.
3	MFECA0030EAM
5	MFECA0050EAM
10	MFECA0100EAM
20	MFECA0200EAM

Motor Cable (ROBO-TOP® 105 °C 600 V . DP)

ROBO-TOP® is a trade mark of DYDEN CORPORATION

Part No.	MFMCA0 ＊＊ 0AEB

[Unit: mm]



Title	Part No.	Manufacturer
Connector	172159-1	Tyco Electronics
Connector Pin	170362-1, 170366-1	
Connector	5557-06R-210	Molex Inc
Connector Pin	5556T	
Cable	ROBO-TOP 600 V 0.75 mm²	Daiden Co.,Ltd.

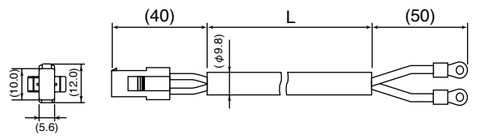
L (m)	Part No.
3	MFMCA0030AEB
5	MFMCA0050AEB
10	MFMCA0100AEB
20	MFMCA0200AEB

Brake Cable (ROBO-TOP® 105 °C 600V . DP)

ROBO-TOP® is a trade mark of DYDEN CORPORATION

Part No.	MFMCB0 ＊＊ 0GET

[Unit: mm]



Title	Part No.	Manufacturer
Connector	172157-1	Tyco Electronics
Connector Pin	170362-1, 170366-1	
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600 V 0.75 mm²	Daiden Co.,Ltd.

L (m)	Part No.
3	MFMCB0030GET
5	MFMCB0050GET
10	MFMCB0100GET
20	MFMCB0200GET

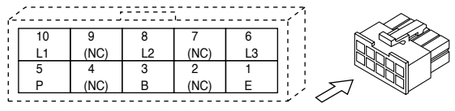
Connector Kit for Power Supply Connection

Part No.	DV0P2870

● Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector (10 pins)	5557-10R-210	1	Molex Inc.	For connector, CN X1 (10 pins)
Connector pin	5556PBTL	6		

● Pin configuration of connector CN X1



● Recommended manual crimping tool (to be prepared by customer)

Part No.	Cable material
57026-5000	UL1007
57027-5000	UL1015

<Cautions>

1. The above pin disposition is shown when viewed from the terminal inserting direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
2. Refer to P.224 for wiring and connection.
3. Do not connect anything to pins marked "NC".

Connector Kit for Motor/Encoder Connection

Part No.	DV0P3670 (Incremental 2500 pulse, 5-wire)

This option is required when you make your own encoder cable and motor cable. (Brake cable is required for brake.)

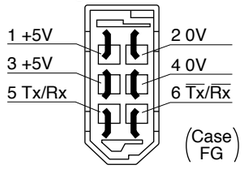
● Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M or equivalent	For connector, CN X4 (6 pins)
Shell kit	3E306-3200-008	1		
Connector (6 pins)	172160-1	1	Tyco Electronics	For junction to encoder cable (6 pins)
Connector pin	170365-1	6		
Connector (4 pins)	172159-1	1	Tyco Electronics	For junction to motor power cable (4 pins)
Connector pin	170366-1	4		
Connector (6 pins)	5557-06R-210	1	Molex Inc.	For connector, CN X3 (6 pins)
Connector pin	5556PBTL	4		

<Remarks>

We may use parts equivalent to the above for shell and connector cover.

● Pin configuration of connector CN X4 plug



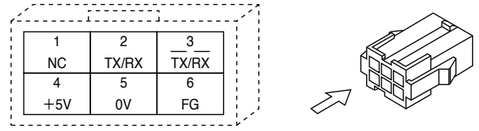
● Recommended manual crimping tool (to be prepared by customer)

Title	Part No.	Manufacturer	Cable material
For encoder cable junction	755330-1	Tyco Electronics	—
For motor power cable junction	755331-1		
For Connector CN X3	57026-5000	Molex Inc.	UL1007
	57027-5000		UL1015

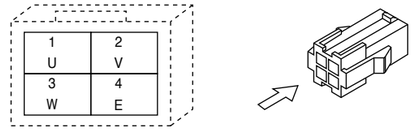
<Remarks>

1. The above pin configuration is shown when viewed from the pin-soldering direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
2. Connect the shield of the wire to the case (FG) without fail.
3. For wiring and connection, refer to P.224.

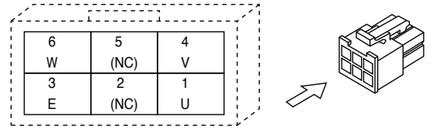
● Pin configuration of encoder cable junction



● Pin configuration of motor power cable junction



● Pin configuration of mating connector to CN X3 connector



<Cautions>

1. The above pin configuration is shown when viewed from the terminal inserting direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
2. Refer to P.224 for wiring and connection.

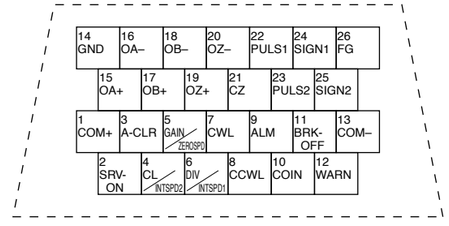
Connector Kit for External Peripheral Equipment

Part No.	DV0P0770

● Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector	10126-3000PE	1	Sumitomo 3M or equivalent	For connector, CN X5 (26 pins)
Connector cover	10326-52A0-008	1		

● Pin configuration of connector CN X5 (26 pins) (viewed from the soldering side)



<Cautions>

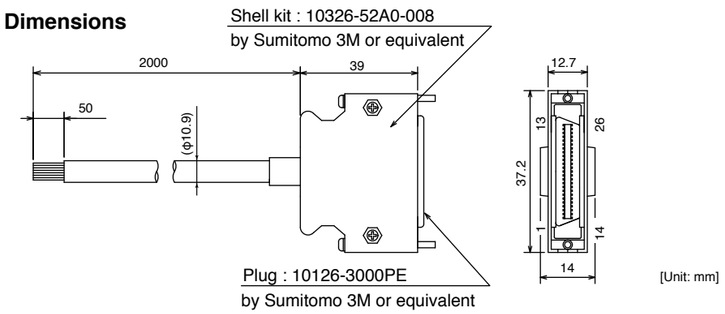
1. Make a correct wiring by checking the stamped pin numbers on the connector itself.
2. Refer to P.225 for symbols and functions of the above signals.

Interface Cable/ Communication Cable/ Console

Interface Cable

Part No.	DV0P0800	Cable of 2 m is connected.

● **Dimensions**



[Unit: mm]

● **Wiring table**

Pin No.	Title of signal	Color or cable	Pin No.	Title of signal	Color or cable	Pin No.	Title of signal	Color or cable
1	COM+	Orange (Red 1)	10	COIN	Pink (Black 1)	19	OZ+	Pink (Red 2)
2	SRV-ON	Orange (Black 1)	11	BRK-OFF	Orange (Red 2)	20	OZ-	Pink (Black 2)
3	A-CLR	Gray (Red 1)	12	WARN	Orange (Black 2)	21	CZ	Orange (Red 3)
4	CL/INTSPD2	Gray (Black 1)	13	COM-	Gray (Red 2)	22	PULS1	Gray (Red 3)
5	GAIN/ZEROSPD	White (Red 1)	14	GND	Gray (Black 2)	23	PULS2	Gray (Black 3)
6	DIV/INTSPD1	White (Black 1)	15	OA+	White (Red 2)	24	SIGN1	White (Red 3)
7	CWL	Yellow (Red 1)	16	OA-	White (Black 2)	25	SIGN2	White (Black 3)
8	CCWL	Yellow (Black 1)	17	OB+	Yellow (Red 2)	26	FG	Orange (Black 3)
9	ALM	Pink (Red 1)	18	OB-	Yellow (Black 2)			

<Notes>

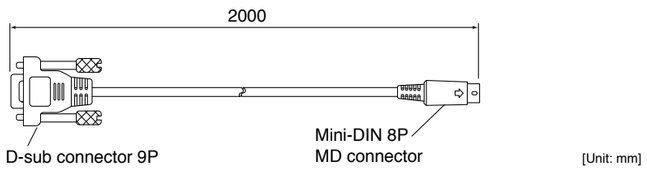
e. g. of Pin No. designation : Pin No. 1 ..... Wire color is orange, and one red dot.
Pin No. 12 ... Wire color is orange, and two black dot.

<Remarks>

The shield of this cable is not connected to a connector pin. To connect the shield to FG or GND at the driver side, use a connector kit for external device connection.

Communication Cable (For Connection with PC)

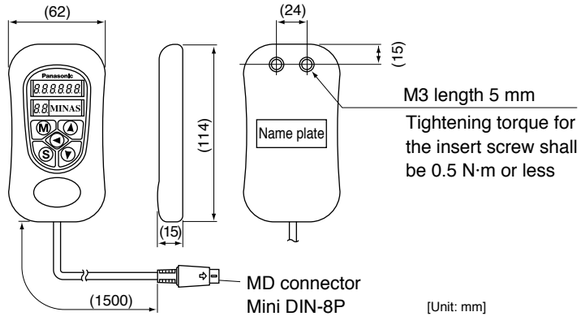
Part No.	DV0P1960



[Unit: mm]

Console

Part No.	DV0P4420



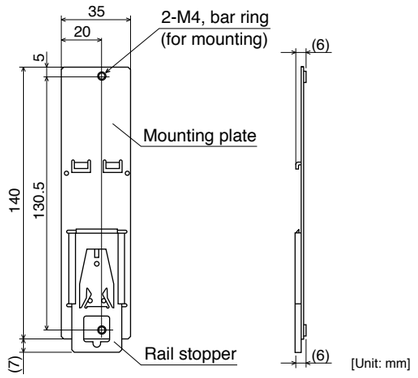
[Unit: mm]

DIN Rail Mounting Unit/ External Regenerative Resistor

DIN Rail Mounting Unit

Part No.	DV0P3811

● **Dimensions**



[Unit: mm]

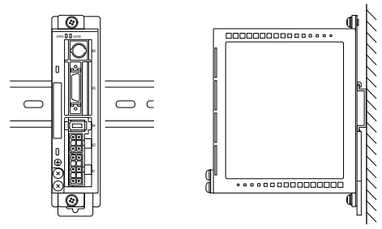
<Notes>

2 mounting screws (M4 X L8, Pan head) are attached.
Rail stopper can be extended to max. 10 mm.

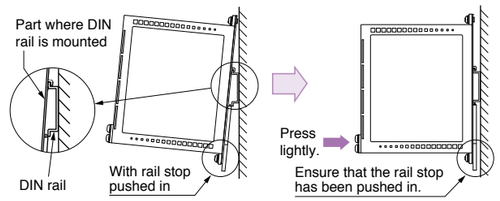
<Cautions>

Please read carefully operation manual before using this product.
In addition, please do not apply excessive stress to the product.

・Driver mounted to DIN rail



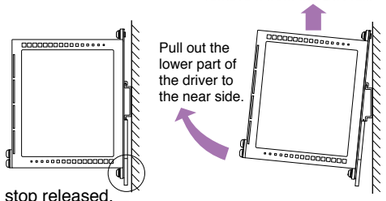
・**How to Install**



Hook the upper side of DIN rail mounting part on the DIN rail.

Press lightly the lower part of the main body of driver.

・**Removing from DIN Rail**



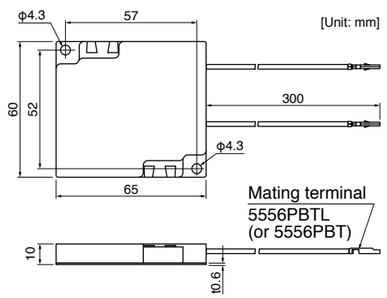
With the rail stop released, pull out the lower part of the driver to the near side.

External Regenerative Resistor

Part No.	Manufacturer's Part No.	Specifications			Note (Input Power of drive)
		Resistance	Rated power	Activation temperature of built-in fuse	
		Ω	W	°C	
DV0P2890	45M03	50	10	137^{+3}_{-2}	Single phase, 100 V
DV0P2891	45M03	100	10	137^{+3}_{-2}	Single/3-phase, 200 V

Manufactured by Iwaki Musen Kenkyusho Co., Ltd.

● **Dimensions**



<Caution of when using external regeneration resistor>

Since it becomes high temperature, external regeneration resistor must be installed according to the contents shown below.

- **Attach to incombustibles, such as metal.**
- **Install in the place which cannot touch directly by covering with incombustibles etc.**
- **Do not install near the combustibles.**

Although the thermal cutoff is built in external regeneration resistor, the skin temperature of regeneration resistor may become high exceeding the operating temperature of thermal cutoff by the time the thermal cutoff operates in amplifier failure.
The thermal cutoff is for preventing ignition of the regeneration resistor in amplifier failure, and is not for controlling the skin temperature of resistor.

<Remarks>

Thermal fuse is installed for safety.
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) Please carry out air cooling if needed.

Reactor/ Surge Absorber for Motor Brake

Reactor

Frame symbol of driver	Power supply specifications	Rated output	Part No.	Fig.
MKDE	Single phase, 100 V	50 W to 100 W	DV0P227	1
	Single phase, 200 V	50 W to 100 W	DV0P220	2
	3-phase, 200 V	50 W to 200 W		
MLDE	Single phase, 100 V	200 W	DV0P228	1
	Single phase, 200 V	200 W to 400 W	DV0P220	2
	3-phase, 200 V	400 W		

Fig.1

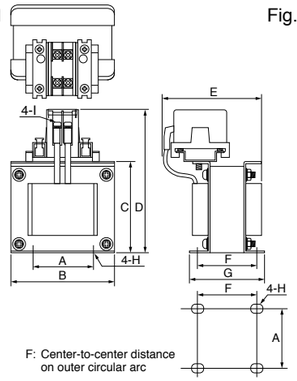
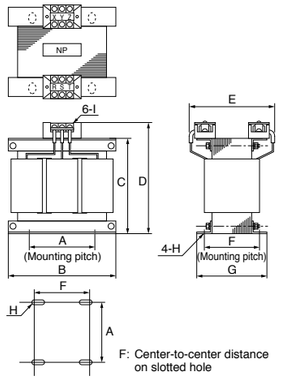


Fig.2



[Unit: mm]

	Part No.	A	B	C	D	E (Max)	F	G	H	I	Inductance (mH)	Rated current (A)
Fig.1	**DV0P227**	55±0.7	80±1	66.5±1	110 Max	90	41±2	55±2	4-5φ×10	M4	4.02	5
	DV0P228	55±0.7	80±1	66.5±1	110 Max	95	46±2	60±2	4-5φ×10	M4	2	8
Fig.2	**DV0P220**	65±1	125±1	(93)	136 Max	155	70+3/–0	85±2	4-7φ×12	M4	6.81	3

Harmonic restraint on general-purpose inverter and servo driver

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 inform you that the procedure to execute the harmonic restraint on general-purpose inverter and servo driver will be 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.

■ Recommended components

Surge Absorber for Motor Brake

Motor	Surge absorber for motor brake	
	Part No. (Manufacturer's)	Manufacturer
MUMA 50 W to 400 W	Z15D151	SEMITEC Corporation

List of Peripheral Components

List of Peripheral Components

Manufacturer	Tel No. / Home Page	Peripheral components
Panasonic Corporation Eco Solutions Company	http://panasonic.net/es/	Circuit breaker
Panasonic Corporation Automotive & Industrial Systems Company	http://panasonic.net/id/	Surge absorber Switch, Relay
Iwaki Musen Kenkyusho Co., Ltd.	+81-44-833-4311 http://www.iwakimusen.co.jp/	Regenerative resistor
SEMITEC Corporation	+81-3-3621-2703 http://www.semitec.co.jp/english2/	Surge absorber for motor brake
TDK Corporation	+81-3-5201-7229 http://www.global.tdk.com/	Noise filter for signal lines
Okaya Electric Industries Co. Ltd.	+81-3-4544-7040 http://www.okayaelec.co.jp/english/index.html	Surge absorber Noise filter
Sumitomo 3M	+81-3-5716-7290 http:/solutions.3m.com/wps/portal/3M/ja_JP/WW2/Country/	Connector
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	
DYDEN CORPORATION	+81-3-5805-5880 http://www.dyden.co.jp/english/index.htm	Cable

* The above list is for reference only. We may change the manufacturer without notice.

MEMO

Contents

EC Directives/Conformity to UL Standards/KC

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).

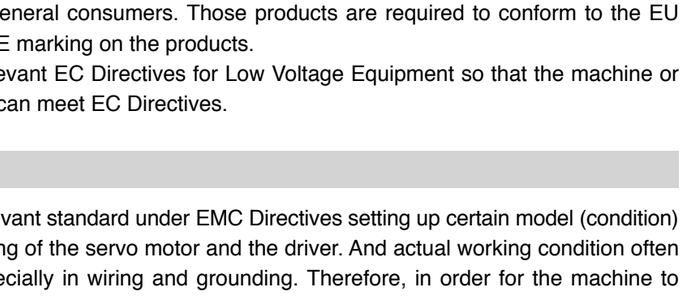
(1) Use the driver in an environment of Pollution Degree 2 or 1 prescribed in IEC60664-1.
(e.g. Install in the control box with IP54 enclosure.)

(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.19 “Driver and List of Applicable Peripheral Equipments”.
Use a copper cable with temperature rating of 75 ˚C or higher.

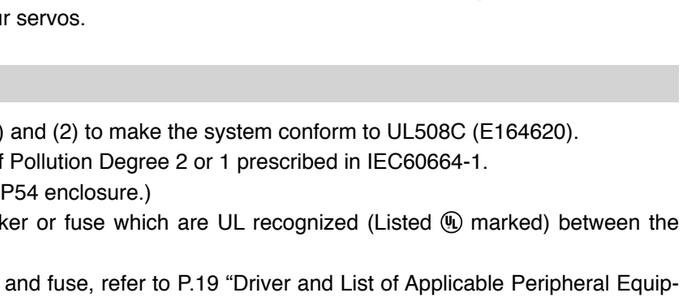
(3) Over-load protection level
Over-load protective function will be activated when the effective current exceeds 115 % or more than the rated current based on the time characteristics (see the graph). Confirm that the effective current of the driver does not exceed the rated current.
Set up the peak 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



• Motor type: M□MD



Conformed Standards

		Driver	Motor
EC Directives	**EMC Directives**	EN55011 EN61000-6-2 EN61800-3	–
	Low-Voltage Directives	EN61800-5-1	EN60034-1 EN60034-5
	Machinery Directives **Functional safety** *1	ISO13849-1(PL d)(Cat.3) EN61508(SIL2) EN62061(SILCL 2) EN61800-5-2(STO) IEC61326-3-1	–
UL Standards		UL508C (E164620)	UL1004-1, UL1004-6 (E327868)
CSA Standards		C22.2 No.14	C22.2 No.100
Radio Waves Act (South Korea) (KC) *2		KN11 KN61000-4-2, 3, 4, 5, 6, 8, 11	–

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.

*1 A5IIE and A5E series doesn't correspond to the functional safety standard.

*2 Information related to the Korea Radio Law
This servo driver is a Class A commercial broadcasting radio wave generator not designed for home use. The user and dealer should be aware of this fact.

A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용(A 급) 전자파적합기기로서 판매자
또는 사용자는 이 점을 주의하시기 바라며, 가정외의
지역에서 사용하는 것을 목적으로 합니다.

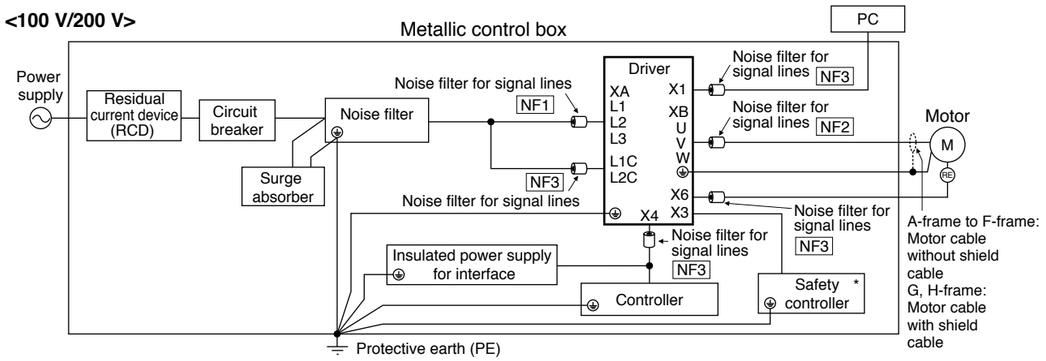
(대상기종 : Servo Driver **)**

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.)

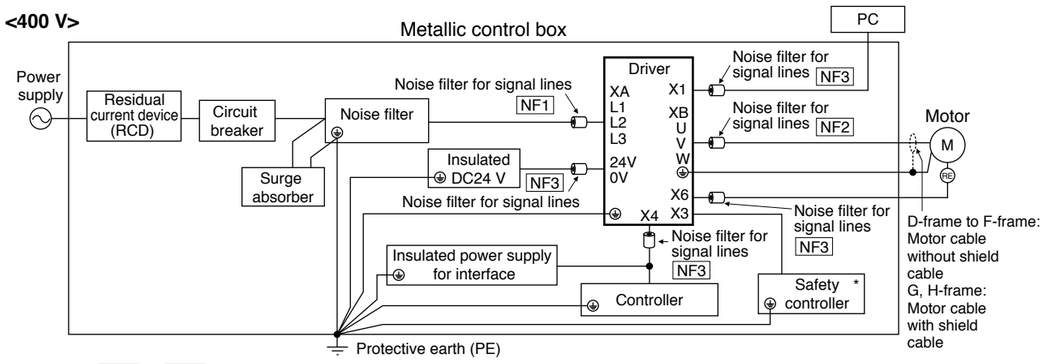
<100 V/200 V>



For NF1 to NF3, refer to the Table “Noise Filter for Signal Line” (P.254).

* A5ⅡE, A5E is not provided with X3 terminal.

<400 V>



For NF1 to NF3, refer to the Table “Noise Filter for Signal Line” (P.254).

* A5ⅡE, 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

100 V type (A-frame to C-frame)	Single phase, 100 V +10 % –15 % to 120 V +10 % –15 %	50 Hz/60 Hz
200 V type (A-frame to D-frame)	Single/3-phase, 200 V +10 % –15 % to 240 V +10 % –15 %	50 Hz/60 Hz
200 V type (E-frame to H-frame)	3-phase, 200 V +10 % –15 % to 230 V +10 % –15 %	50 Hz/60 Hz
400 V type [Main power supply] (D-frame to H-frame)	3-phase, 380 V +10 % –15 % to 480 V +10 % –15 %	50 Hz/60 Hz
400 V type [Control power supply] (D-frame to H-frame)	DC 24 V ±15 %	

(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 V to 24 V which has CE marking or complies with EN60950.

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.

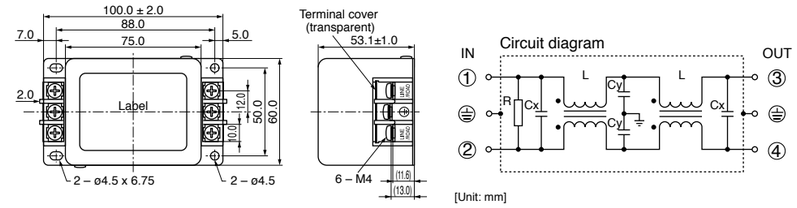
The branch circuit should be protected in accordance with NEC and the applicable local regulations in your area.

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.

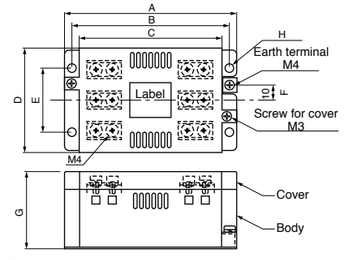
• Options

Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0P4170	Single phase 100 V, 200 V	SUP-EK5-ER-6	A-frame and B-frame	Okaya Electric Ind.



Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0PM20042	3-phase 200 V	3SUP-HU10-ER-6	A-frame and B-frame	Okaya Electric Ind.
	Single phase 100 V, 200 V 3-phase 200 V		C-frame	
DV0P4220	Single/3-phase 200 V	3SUP-HU30-ER-6	D-frame	
DV0PM20043	3-phase 200 V	3SUP-HU50-ER-6	E-frame	

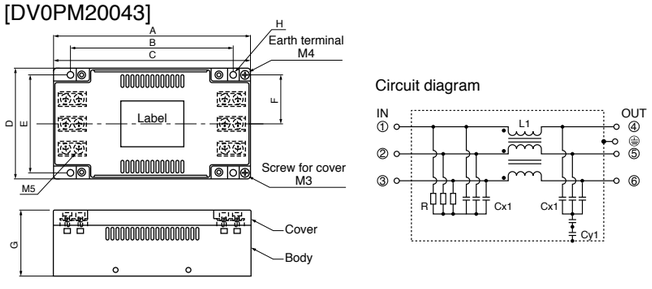
[DV0PM20042, DV0P4220]



[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

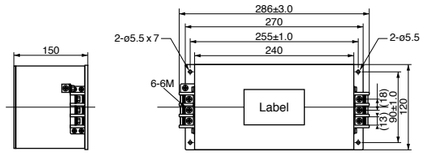
[DV0PM20043]



For single phase application, use 2 terminals among 3 terminals, leaving the remaining terminal unconnected.

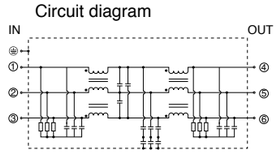
Composition of Peripheral Equipments

Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0P3410	3-phase 200 V	3SUP-HL50-ER-6B	F-frame	Okaya Electric Ind.



[Unit: mm]

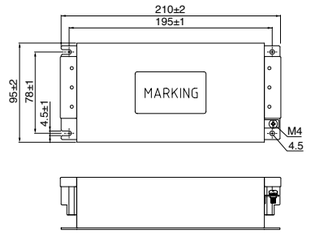
Circuit diagram

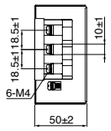


• Recommended components

Part No.	Voltage specifications for driver	Current rating (A)	Applicable driver (frame)	Manufacturer
RTHN-5010	3-phase 200 V	10	A-frame to C-frame	TDK-Lambda Corp.
RTHN-5030		30	D-frame	
RTHN-5050		50	E-frame and F-frame	

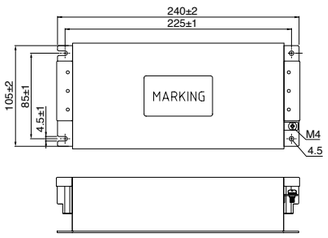
[RTHN-5010]

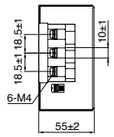




[Unit: mm]

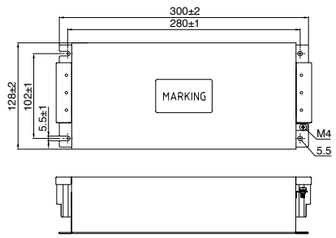
[RTHN-5030]

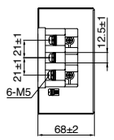




[Unit: mm]

[RTHN-5050]





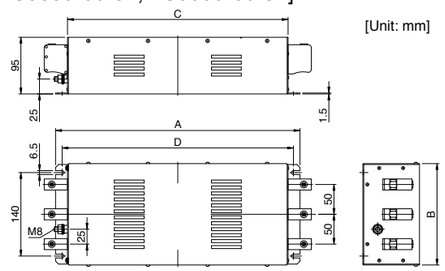
[Unit: mm]

<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.

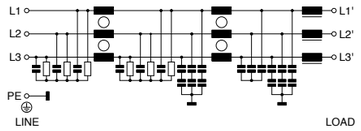
Part No.	Voltage specifications for driver	Current rating (A)	Applicable driver (frame)	Manufacturer
FS5559-60-34	3-phase 200 V	60	G-frame	Schaffner EMC, Inc.
FS5559-80-34		80	H-frame	
FN258L-16-07	3-phase 400 V	16	D-frame and E-frame	
FN258L-30-07		30	F-frame	
FN258-42-07		42	G-frame and H-frame	
FN258-42-33		42		

[FS5559-60-34, FS5559-80-34]



[Unit: mm]

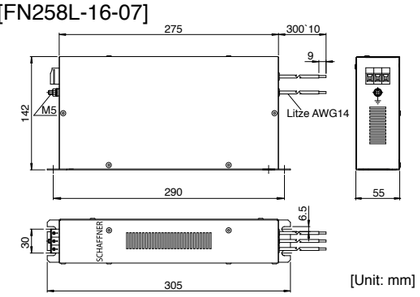
Circuit diagram



[Size]

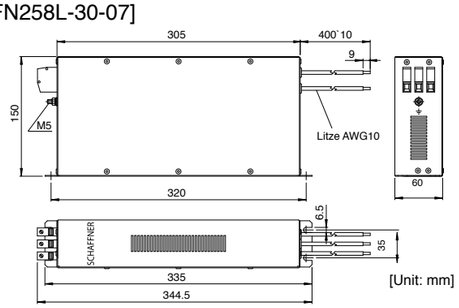
	A	B	C	D
FS5559-60-34	410	170	370	388
FS5559-80-34	460	180	420	438

[FN258L-16-07]



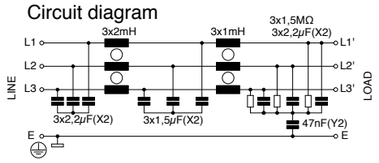
[Unit: mm]

[FN258L-30-07]

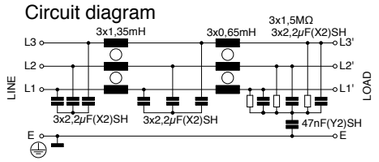


[Unit: mm]

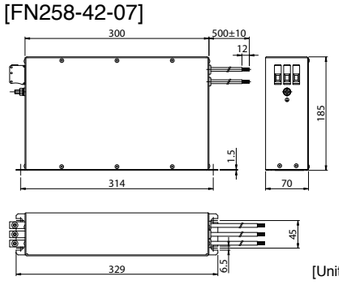
Circuit diagram



Circuit diagram

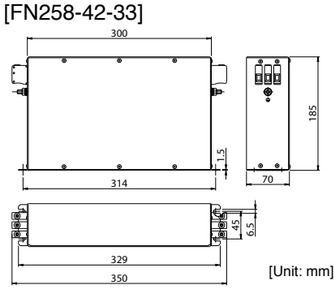


[FN258-42-07]



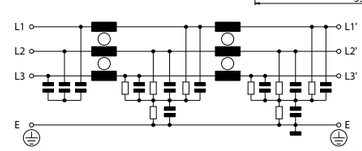
[Unit: mm]

[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.

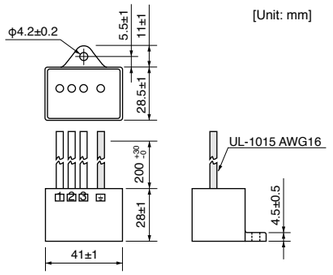
Composition of Peripheral Equipments

Surge Absorber

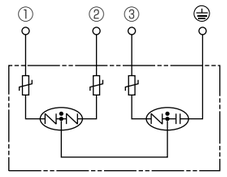
Provide a surge absorber for the primary side of noise filter.

Option part No.	Voltage specifications for driver	Manufacturer's part No.	Manufacturer
DV0P1450	3-phase 200 V	R·A·V-781BXZ-4	Okaya Electric Ind.
DV0PM20050	3-phase 400 V	R·A·V-801BXZ-4	

[Unit: mm]

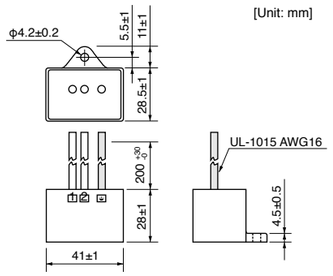


Circuit diagram

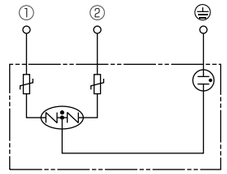


Option part No.	Voltage specifications for driver	Manufacturer's part No.	Manufacturer
DV0P4190	Single phase 100 V, 200 V	R·A·V-781BWZ-4	Okaya Electric Ind.

[Unit: mm]



Circuit diagram



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	100 V/200 V Amp. frame symbol	400 V 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	• 24 V 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” (P.249).

<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	100 kHz (μH)	Size [Unit: mm]							
			A	B	C	D1	D2	Core thickness	E	F
RJ8035	35 A	9.9±3	170	150	23	80	53	24	R3.5	7
RJ8095	95 A	7.9±3	200	180	34	130	107	35	R3.5	7

Fig.1: DV0P1460(Option)

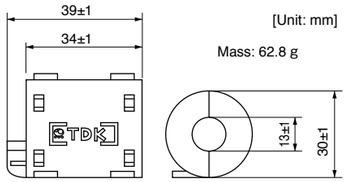


Fig.2: RJ8035, RJ8095
(Recommended components)

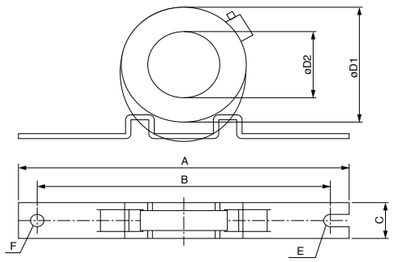
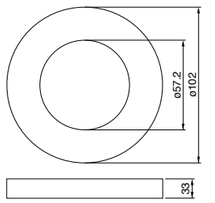


Fig.3: T400-61D
(Recommended components)



[Unit: mm]

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.19 "Driver and List of Applicable Peripheral Equipments".

Compliance to EC and EMC Directives
Composition of Peripheral Components

Compliance to EC and EMC Directives

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. MINAS AC Servos conforms to the EC Directives for Low Voltage Equipment so that the machine incorporating our servos has an easy access to the conformity to relevant EC Directives for the machine.

EMC Directives

MINAS Servo System conform 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.

Conformed Standards

Subject	Conformed Standard		
Motor	IEC60034-1	IEC60034-5 UL1004 CSA22.2 No.100	Conforms to Low- Voltage Directives
	EN50178	UL508C CSA22.2 No.14	
Motor and driver	EN55011	Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	Conforms to references by EMC Directives
	EN61000-6-2	Immunity for Industrial Environments	
	IEC61000-4-2	Electrostatic Discharge Immunity Test	
	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	
	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test	
	IEC61000-4-5	Lightening Surge Immunity Test	
	IEC61000-4-6	High Frequency Conduction Immunity Test	
	IEC61000-4-11	Instantaneous Outage Immunity Test	

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

Pursuant to at the directive 2004/108/EC,article 9(2)

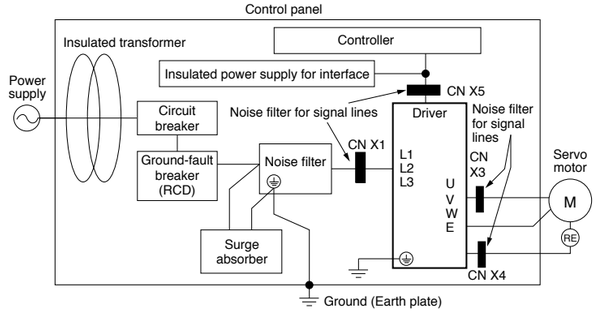
Panasonic Testing Centre
Panasonic Service Europe,
a division of Panasonic Marketing Europe GmbH
Winsbergring 15,22525 Hamburg,F.R.Germany

Composition of Peripheral Components

<Precautions in using options>
Use options correctly after reading operation manuals of the options to better understand the precautions. Take care not to apply excessive stress to each optional part.

Installation Environment

Use Minas driver in environment of Pollution Degree 1 or 2 prescribed in IEC-60664-1 (e.g. Install the driver in control panel with IP54 protection structure.)



Power Supply

100 V system	Single phase, 100 V	+10 % –15 %	to	115 V	+10 % –15 %	50 Hz/60 Hz
200 V system	Single phase, 200 V	+10 % –15 %	to	240 V	+10 % –15 %	50 Hz/60 Hz
200 V system	3-phase, 200 V	+10 % –15 %	to	240 V	+10 % –15 %	50 Hz/60 Hz

(1) Use the power supply under an environment of Overvoltage Category II specified in IEC60664-1.
(2) For a interface power supply, use the insulated one with 12 VDC to 24 VDC which conforms to CE Marking or EN Standards (EN60950).

Circuit Breaker

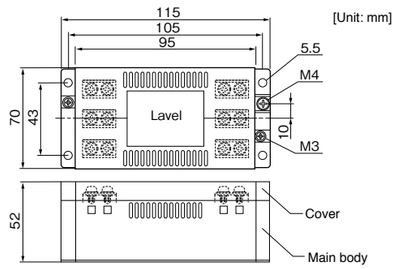
Connect a circuit breaker which conforms to IEC standards and is UL recognized (UL Listed, UL marked), between the power supply and the noise filter.

Composition of Peripheral Components
Conformity to UL Standards

Noise Filter

When you install one noise filter in the power supply for multi axis application, consult with the manufacture of the filter.

Option part No.	Part No.	Manufacturer
DV0P4160	3SUP-HU10-ER-6	Okaya Electric Industries Co.



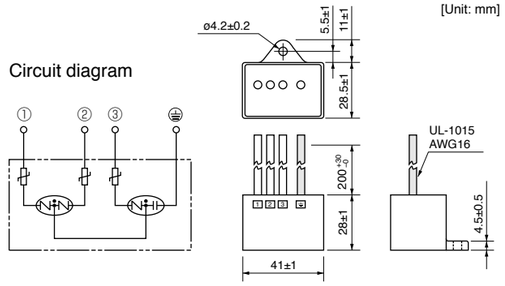
Surge Absorber

Install a surge absorber at primary side of the noise filter.

Option part No.	Driver voltage spec	Part No.	Manufacturer
DV0P1450	3-phase, 200 V	R·A·V-781BXZ-4	Okaya Electric

[Unit: mm]

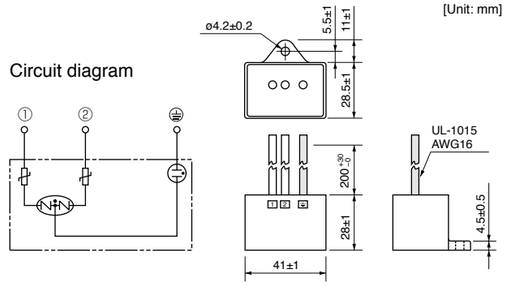
Circuit diagram



Option part No.	Driver voltage spec	Part No.	Manufacturer
DV0P4190	Single phase, 100 V, 200 V	R·A·V-781BWZ-4	Okaya Electric

[Unit: mm]

Circuit diagram



<Remarks>
Remove this surge absorber when you perform dielectric test on the machine, or surge absorber might be damaged.

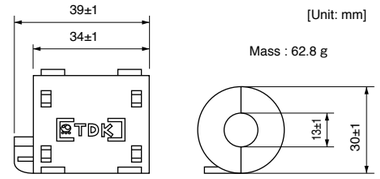
Noise Filter for Signal Lines

Install noise filters for signal lines to all cables (Power line, motor cable, encoder cable, interface cable)

<Caution>
- Please fix a line noise filter to avoid excessive stress to the cable.
- When using multiple axes, noise generated from each driver might influence driver and peripheral equipment and result to malfunction.
  Please insert line noise filters between driver and motor wires (U, V, W but grounding).
  (Please refer to P.255 "peripheral equipment configuration".)

Option part No.	Part No.	Qty.	Manufacturer
DV0P1460	ZCAT3035-1330	4	TDK Corp.

[Unit: mm]



Grounding

(1) Connect the protective earth terminal of the driver (⏚) and protective earth terminal of the control panel (PE) without fail to prevent electrical shocks.
(2) Do not co-clamp to the ground terminals (⏚). Two ground terminals are provided.

Ground-Fault Breaker

Install a ground fault curcuit braker (RCD) to the primary side of the power supply.
Please use B-type (DC sensitive) ground fault circuit breakers defined in IEC60947-2, JISC8201-2-2.

Conformity to UL Standards

Observe the following conditions of (1) and (2) to make the system conform to UL508C (File No. 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) Install a circuit breaker or fuse which are UL recognized (LISTED UL marked) between the power supply and the noise filter without fail.

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

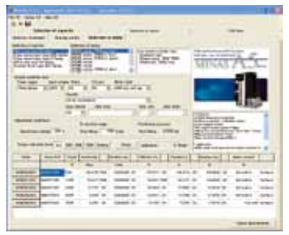
Select appropriate mechanical parameter items and fill them with parameter values derived from the real machine. To simulate the target machine as practical as possible, use maximum number of parameters available.

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.

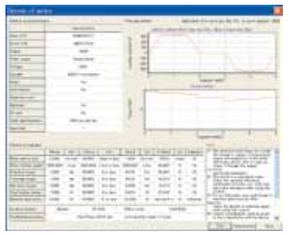
3. Select the motor

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.



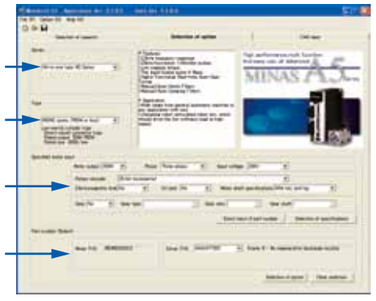
Option Selection Software for AC Servo Motor

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/products/motors-compressors/fa-motors

Organization of the System of Units

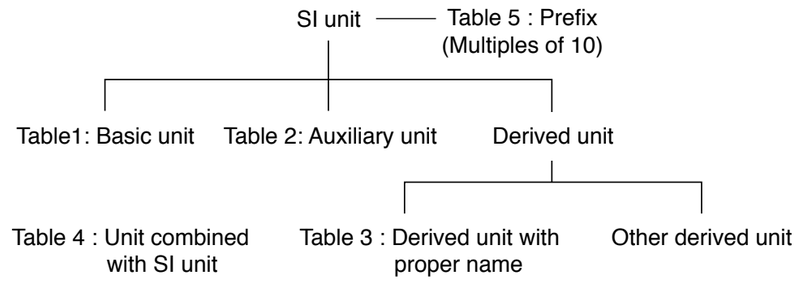


Table1: Basic unit

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

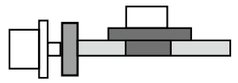
Note
(1) Applicable to liquid pressure. Also applicable to atmospheric pressure of meteorological data, when “bar” is used in international standard.
(2) Applicable to scale or indication of blood pressure manometers.
(3) “˚C” can be substituted for “K”.

Flow of Motor Selection

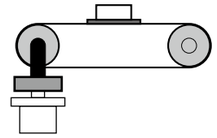
1. Definition of mechanism to be driven by motor.
Define details of individual mechanical components (ball screw length, lead and pulley diameters, etc.)

<Typical mechanism>

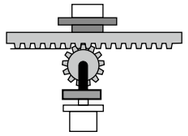
Ball screw mechanism



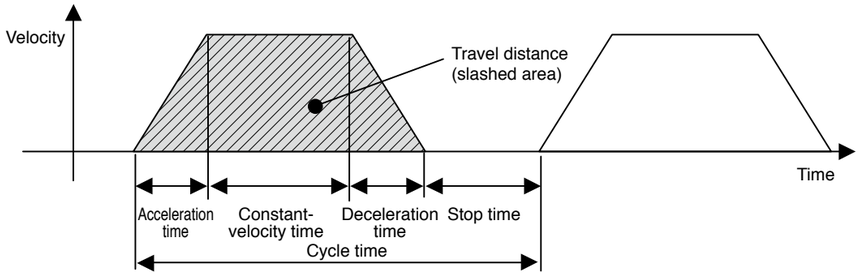
Belt mechanism



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

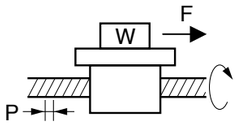
Indicate the maximum torque that the motor requires during operation (mainly in acceleration and deceleration steps). The reference value is 80% or less of the maximum motor torque. If the torque is a negative value, a regenerative discharge resistor may be required.

(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

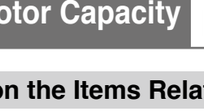
Ball screw mechanism



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

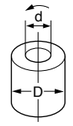
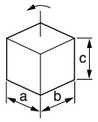
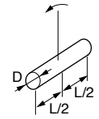
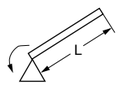
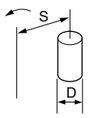
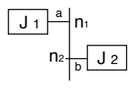
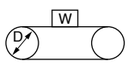
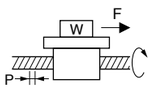
Maximum velocity

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.

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 	$J = \frac{1}{8} W D^2$ [kg·m^2] W : Weight [kg] D : Outer diameter [m]	**Hollow cylinder** 	$J = \frac{1}{8} W (D^2 + d^2)$ [kg·m^2] W : Weight [kg] D : Outer diameter [m] d : Inner diameter [m]
Prism 	$J = \frac{1}{12} W (a^2 + b^2)$ [kg·m^2] W : Weight [kg] a, b, c : Side length [m]	**Uniform rod** 	$J = \frac{1}{48} W (3D^2 + 4L^2)$ [kg·m^2] W : Weight [kg] D : Outer diameter [m] L : Length [m]
Straight rod 	$J = \frac{1}{3} W L^2$ [kg·m^2] W : Weight [kg] L : Length [m]	**Separated rod** 	$J = \frac{1}{8} W D^2 + W S^2$ [kg·m^2] 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·m^2] n_1 : A rotational speed of a shaft [r/min] n_2 : A rotational speed of b shaft [r/min]		
Conveyor 	$J = \frac{1}{4} W D^2$ [kg·m^2] 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·m^2] 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/m^3] x Volume V[m^3]

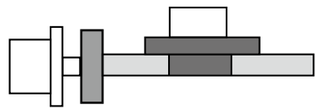
Density of each material

Iron ρ =7.9 x 10^3 [kg/m^3]
Aluminum ρ =2.8 x 10^3 [kg/m^3]
Brass ρ =8.5 x 10^3 [kg/m^3]

To Drive Ball Screw Mechanism

To Drive Ball Screw Mechanism

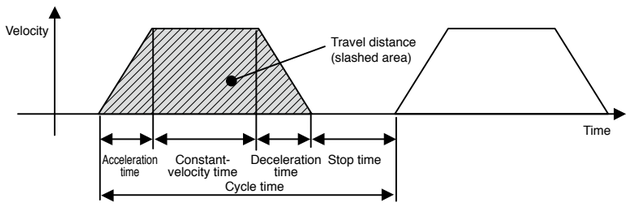
1. Example of motor selection for driving ball screw mechanism



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 $J_C = 10 \times 10^{-6}\ [kg \cdot m^2]$ (Use manufacturer-specified catalog value, or calculation value.)

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 0.3[m]



3. Ball screw weight

$$B_W = \rho \times \pi \times \left(\frac{B_D}{2}\right)^2 \times B_L = 7.9 \times 10^3 \times \pi \times \left(\frac{0.02}{2}\right)^2 \times 0.5$$
$$= 1.24\ [kg]$$

4. Load inertia

$$J_L = J_C + J_B = J_C + \frac{1}{8} B_W \times B_D^2 + \frac{W_A \cdot B_P^2}{4\pi^2}$$
$$= 0.00001 + (1.24 \times 0.02^2) / 8 + 10 \times 0.02^2 / 4\pi^2$$
$$= 1.73 \times 10^{-4}\ [kg \cdot m^2]$$

5. Provisional motor selection

In case of MSME 200 W motor : $J_M = 0.14 \times 10^{-4}\ [kg \cdot m^2]$

6. Calculation of inertia ratio

$J_L / J_M = 1.73 \times 10^{-4} / 0.14 \times 10^{-4}$ Therefore, the inertia ratio is "12.3" (less than "30")
(In case of MSME 100 W motor: $J_M = 0.051 \times 10^{-4}$ Therefore, the inertia ratio is "33.9".)

7. Calculation of maximum velocity (Vmax)

$$\frac{1}{2} \times \text{Acceleration time} \times \text{Vmax} + \text{Constant-velocity time} \times \text{Vmax} + \frac{1}{2} \times \text{Deceleration time} \times \text{Vmax} = \text{Travel distance}$$
$$\frac{1}{2} \times 0.1 \times \text{Vmax} + 0.8 \times \text{Vmax} + \frac{1}{2} \times 0.1 \times \text{Vmax} = 0.3$$
$$0.9 \times \text{Vmax} = 0.3$$
$$\text{Vmax} = 0.3 / 0.9 = 0.334\ [m/s]$$

8. Calculation of motor velocity (N [r/min]) Ball screw lead per resolution: $B_P = 0.02$ [m]

$N = 0.334 / 0.02 = 16.7\ [r/s]$
$= 16.7 \times 60 = 1002\ [r/min] < 3000\ [r/min]$ (Rated velocity of MSME 200W motor)

9. Calculation of torque

Traveling torque
$$T_f = \frac{B_P}{2\pi B\eta} (\mu g W_A + F) = \frac{0.02}{2\pi \times 0.9} (0.1 \times 9.8 \times 10 + 0)$$
$$= 0.035\ [N \cdot m]$$

Acceleration torque
$$T_a = \frac{(J_L + J_M) \times 2\pi N[r/s]}{\text{Acceleration time}\ [s]} + \text{Traveling torque}$$
$$= \frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} + 0.035$$
$$= 0.196 + 0.035 = 0.231\ [N \cdot m]$$

To Drive Ball Screw Mechanism
Example of Motor Selection

Deceleration torque
$$T_d = \frac{(J_L + J_M) \times 2\pi N[r/s]}{\text{Deceleration time}\ [s]} - \text{Traveling torque}$$
$$= \frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} - 0.035$$
$$= 0.196 - 0.035 = 0.161\ [N \cdot m]$$

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)

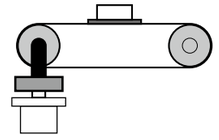
12. Judging from the inertia ratio calculated above, selection of 200 W motor is preferable, although the torque margin is significantly large.

Example of Motor Selection

Example of motor selection for timing belt mechanism

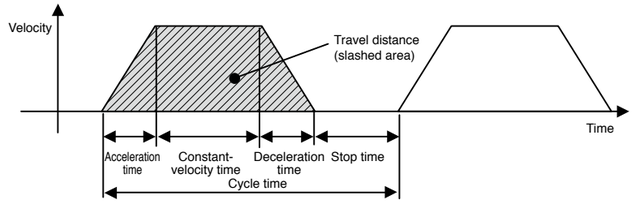
1.Mechanism

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 $J_L = J_C + J_B + J_P$

$$= J_C + \frac{1}{4} W_A \times P_D^2 + \frac{1}{8} W_P \times P_D^2 \times 2$$
$$= 0 + \frac{1}{4} \times 2 \times 0.05^2 + \frac{1}{8} \times 0.5 \times 0.05^2 \times 2$$
$$= 0.00156 = 15.6 \times 10^{-4}\ [kg \cdot m^2]$$

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)

$$\frac{1}{2}\times\text{Acceleration time}\times\text{Vmax}+\text{Constant-velocity time}\times\text{Vmax}+\frac{1}{2}\times\text{Deceleration time}\times\text{Vmax}=\text{Travel distance}$$

$$\frac{1}{2}\times 0.1\times \text{Vmax}+0.8\times\text{Vmax}+\frac{1}{2}\times 0.1\times\text{Vmax}=1$$

$$0.9\times\text{Vmax}=1$$

$$\text{Vmax}=1/0.9=1.111[\text{m/s}]$$

7. Calculation of motor velocity (N [r/min])

A single rotation of pulley : $\pi\times P_D=0.157[\text{m}]$

$$N=1.111/0.157=7.08[\text{r/s}]$$

$$=7.08\times 60=424.8[\text{r/min}]<3000[\text{r/min}]\ \text{(Rated velocity of MSME 750 W motor)}$$

8. Calculation of torque

Traveling torque

$$T_f=\frac{P_D}{2\eta}(\mu g W_A+F)=\frac{0.05}{2\times 0.8}(0.1\times 9.8\times 3+0)$$

$$=0.061[\text{N·m}]$$

Acceleration torque

$$T_a=\frac{(J_L+J_M)\times 2\pi N[\text{r/s}]}{\text{Acceleration time}[\text{s}]}+\text{Traveling torque}$$

$$=\frac{(15.6\times 10^{-4}+0.87\times 10^{-4})\times 2\pi\times 7.08}{0.1}+0.061$$

$$=0.751+0.061=0.812[\text{N·m}]$$

Deceleration torque

$$T_d=\frac{(J_L+J_M)\times 2\pi N[\text{r/s}]}{\text{Deceleration time}[\text{s}]}-\text{Traveling torque}$$

$$=\frac{(15.6\times 10^{-4}+0.87\times 10^{-4})\times 2\pi\times 7.08}{0.1}-0.061$$

$$=0.751-0.061=0.69[\text{N·m}]$$

9. Verification of maximum torque

Acceleration torque $T_a=0.812[\text{N·m}]<7.1[\text{N·m}]$ (Maximum torque of MSME 750 W motor)

10. Verification of effective torque

$$T_{rms}=\sqrt{\frac{T_a^2\times t_a+T_f^2\times t_b+T_d^2\times t_d}{t_c}}$$

$$=\sqrt{\frac{0.812^2\times 0.1+0.061^2\times 0.8+0.69^2\times 0.1}{2}}$$

$$=0.241[\text{N·m}]<2.4[\text{N·m}]\ \text{(Rated torque of MSME 750 W motor)}$$

11. Judging from the above calculation result, selection of MSME 750W motor is acceptable.

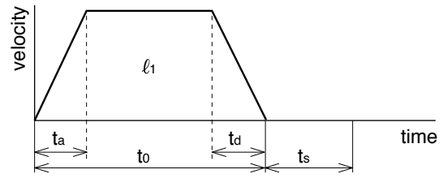
Request Sheet for Motor Selection

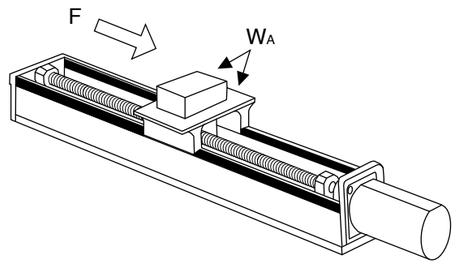
Request for motor selection Ⅰ : Ball screw drive

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:

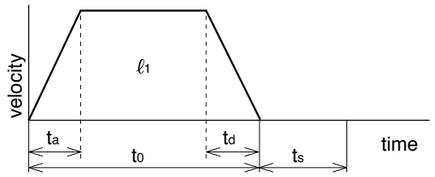
Request Sheet for Motor Selection

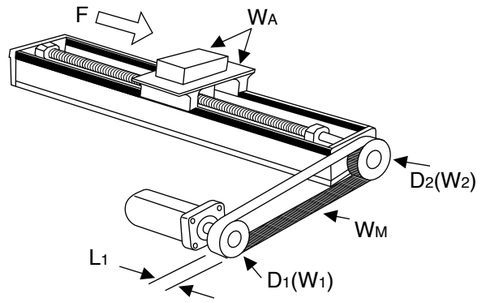
Request for motor selection Ⅱ : Timing pulley + Ball screw drive

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:

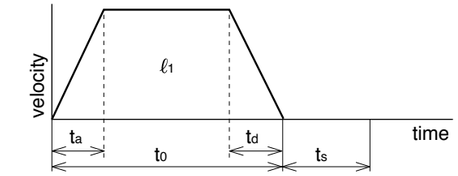
Request Sheet for Motor Selection

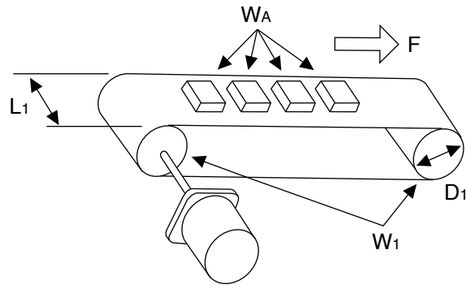
Request for motor selection Ⅲ : Belt drive

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	14) Width of the pulley	L_1: mm
12)	Diameter of the driving pulley	D_1: mm	15) Material of the pulley	
13)	Total weight of the pulley	W_1: kg	16) Traveling direction (horizontal, vertical etc.)	

Running pattern





(or item 14) and 15))

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:

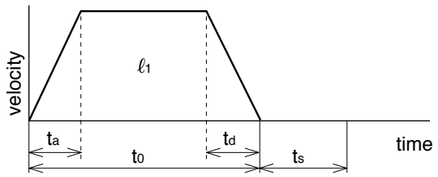
Request Sheet for Motor Selection

Request for motor selection Ⅳ : Timing pulley + Belt drive

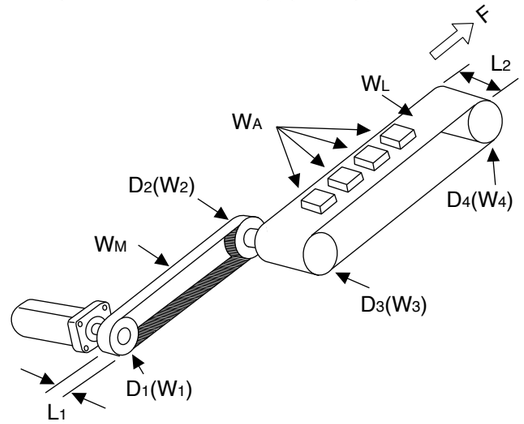
1. Driven mechanism and running data

1)	Travel distance of the work load per one cycle	ℓ_1: mm	16)	Diameter of the pulley	Motor side: D_3: mm / Belt side: D_4: mm
2)	Cycle time	t_0: s	17)	Weight of the pulley	Motor side: W_3: kg / Belt side: W_4: kg
	(Fill in items 3) and 4) if required.)			(or item 18) and 19))	
3)	Acceleration time	t_a: s	18)	Width of the pulley	L_2: mm
4)	Deceleration time	t_d: s	19)	Material of the pulley	
5)	Stopping time	t_s: s	20)	Weight of the belt	W_L: kg
6)	Max. velocity	V: mm/s	21)	Traveling direction (horizontal, vertical etc.)	
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 motor side belt	W_M: kg			

Running pattern



		Motor side	Belt side
12)	Diameter of the pulley	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		



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:

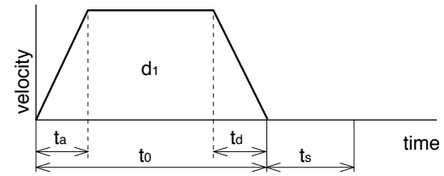
Request Sheet for Motor Selection

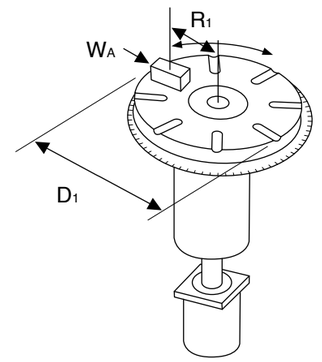
Request for motor selection Ⅴ : Turntable drive

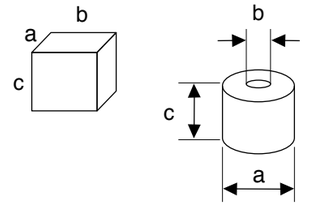
1. Driven mechanism and running data

1)	Travel distance of the work load per one cycle	d_1: deg	14)	Dimensions of the work load	Prism: a: mm / b: mm / c: mm; Cylinder: a: mm / b: mm / c: mm
2)	Cycle time	t_0: s			
	(Fill in items 3) and 4) if required.)				
3)	Acceleration time	t_a: s	15)	Number of work loads	pcs
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			

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

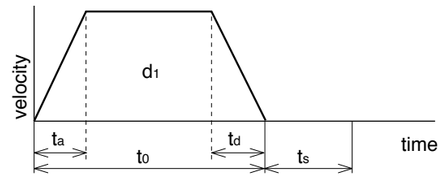
Request for motor selection Ⅵ : Timing pulley + Turntable drive

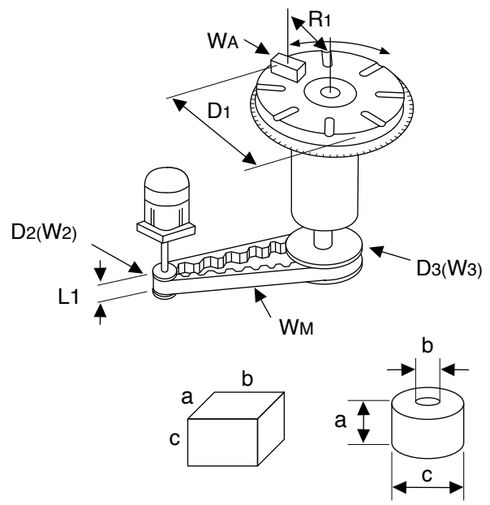
1. Driven mechanism and running data

			Motor side	Turntable side
1)	Travel distance of the work load per one cycle	d_1: deg	16) Diameter of the pulley	D_2: mm	D_3: mm
2)	Cycle time	t_0: s	17) Weight of the pulley	W_2: kg	W_3: kg
	(Fill in items 3) and 4) if required.)		(or item 18) and 19))		
3)	Acceleration time	t_a: s	18) Width of the pulley	L_1: mm	
4)	Deceleration time	t_d: s	19) Material of the pulley		
5)	Stopping time	t_s: s	20) Weight of the belt	W_M: kg	
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)	Dimension 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:

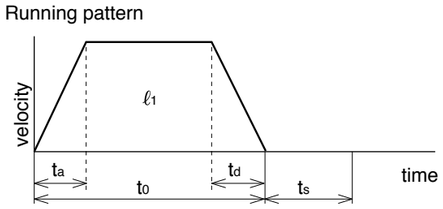
Request Sheet for Motor Selection

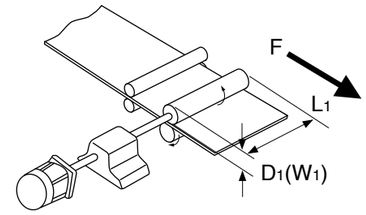
Request for motor selection Ⅶ : Roller feed drive

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	13) Width of the roller	L_1: mm
12)	Mass of the roller	W_1: kg	14) Material of the roller	

Running pattern





(or item 13) and 14))

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:

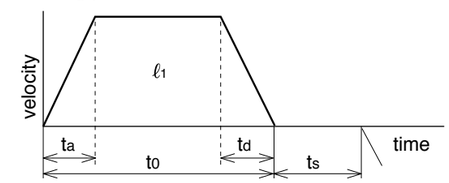
Request Sheet for Motor Selection

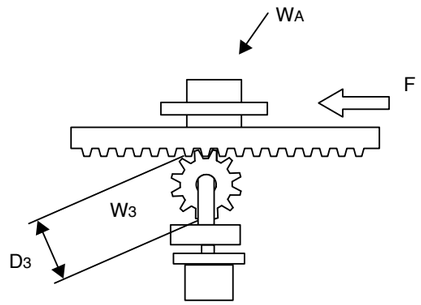
Request for motor selection Ⅷ : Driving with Rack & Pinion

1. Driven mechanism and running data

1)	Travel distance of the work load per one cycle	ℓ_1:	mm
2)	Cycle time	to:	s
	(Fill in items 3) and 4) if required.)		
3)	Acceleration time	ta:	s
4)	Deceleration time	td:	s
5)	Stopping time	ts:	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



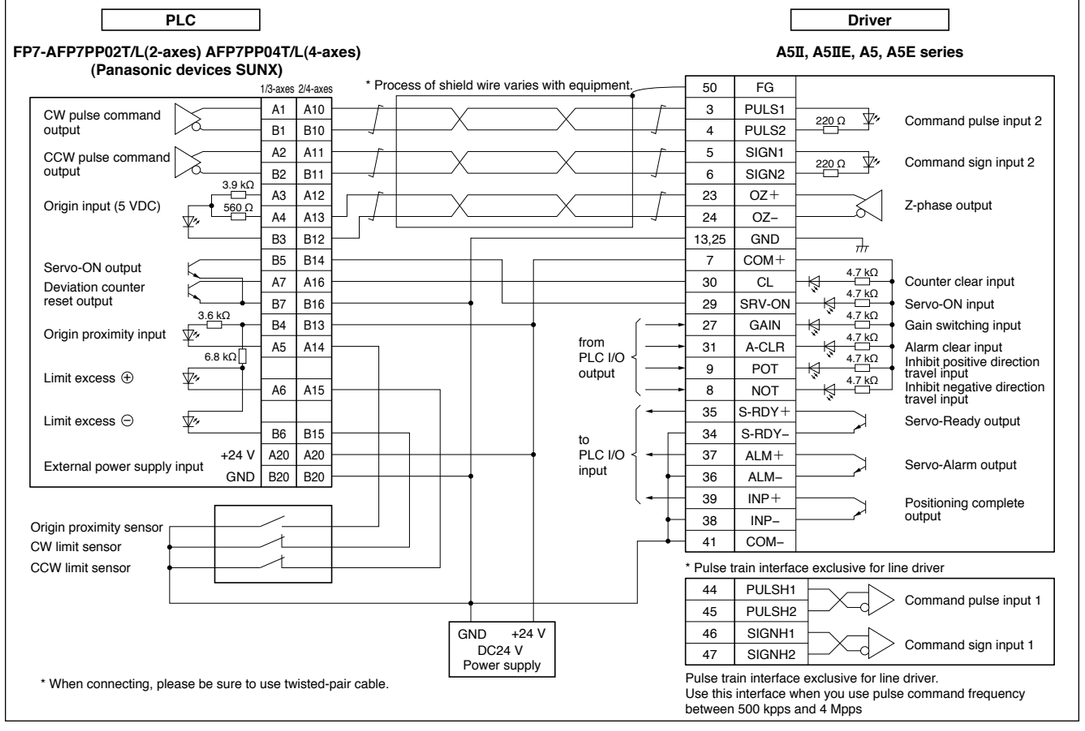


2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

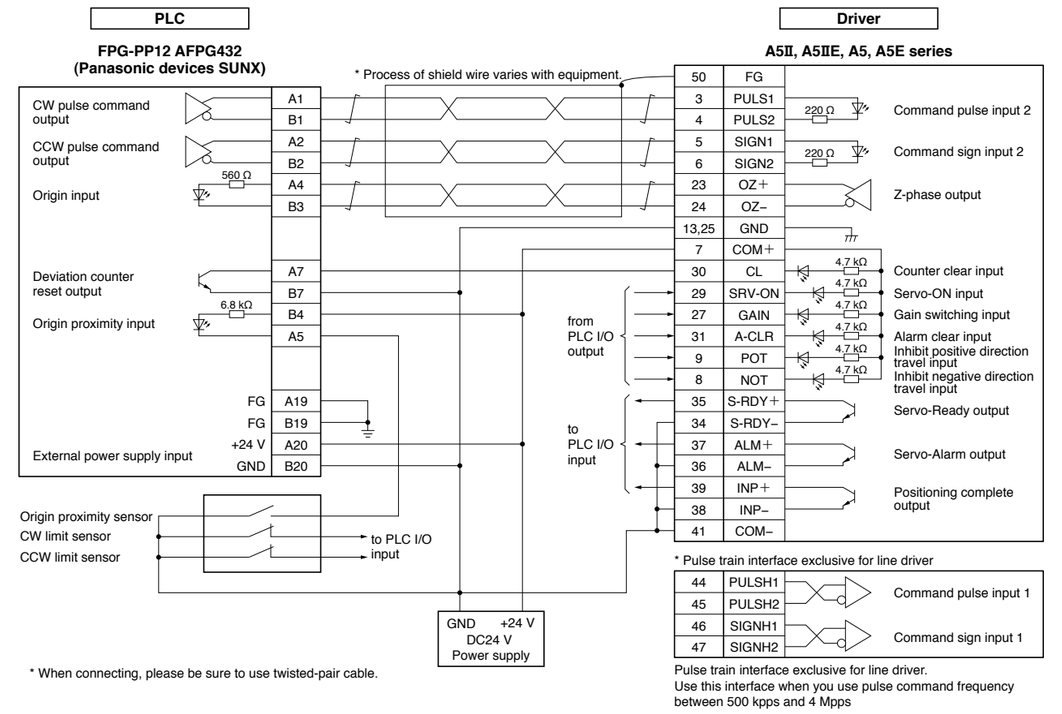
Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

Connection Between Driver and Controller

FP7-AFP7PP02T/L(2-axes) AFP7PP04T/L(4-axes) Connection with the Panasonic devices SUNX.

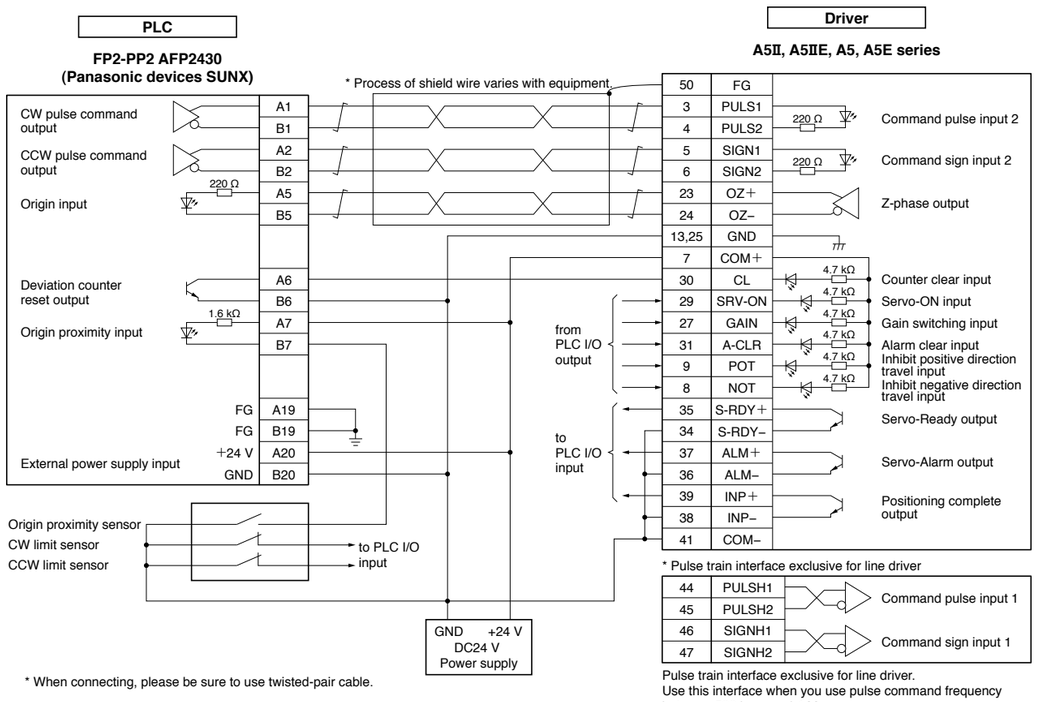


FPG-PP12 AFPG432 Connection with the Panasonic devices SUNX.

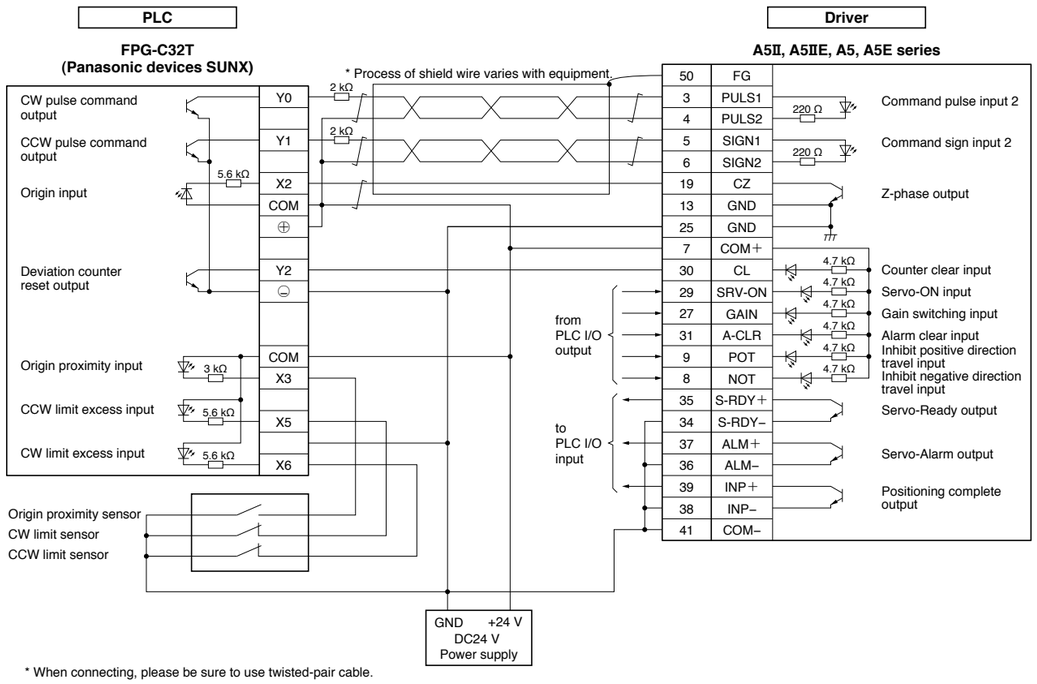


Connection Between Driver and Controller

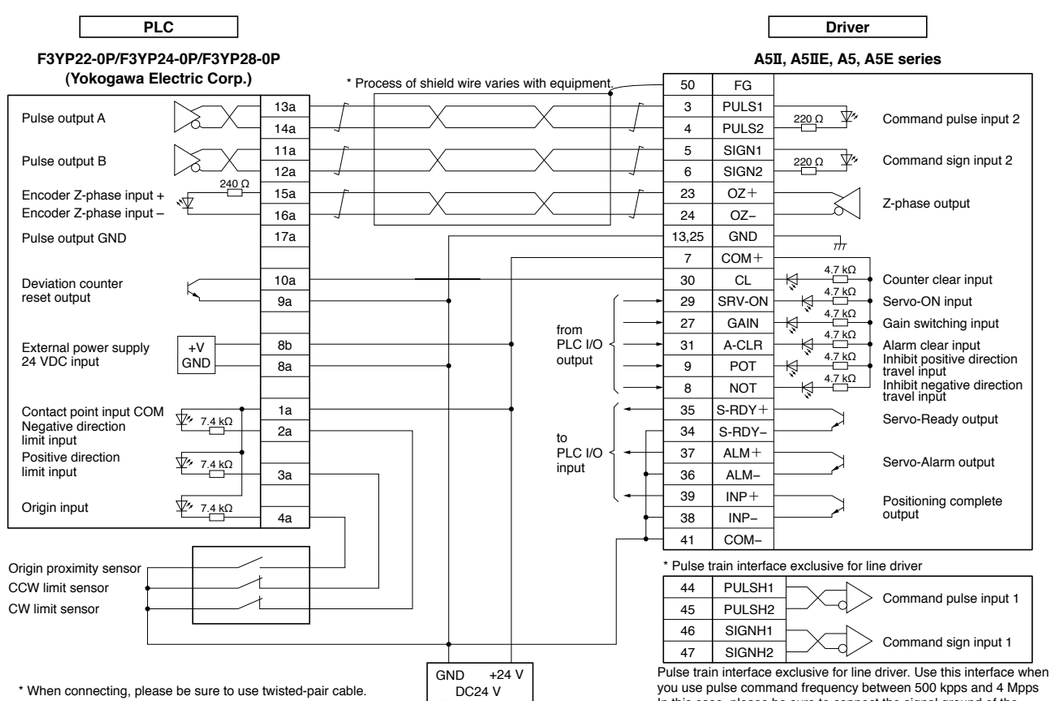
FP2-PP2 AFP2430 Connection with the Panasonic devices SUNX.



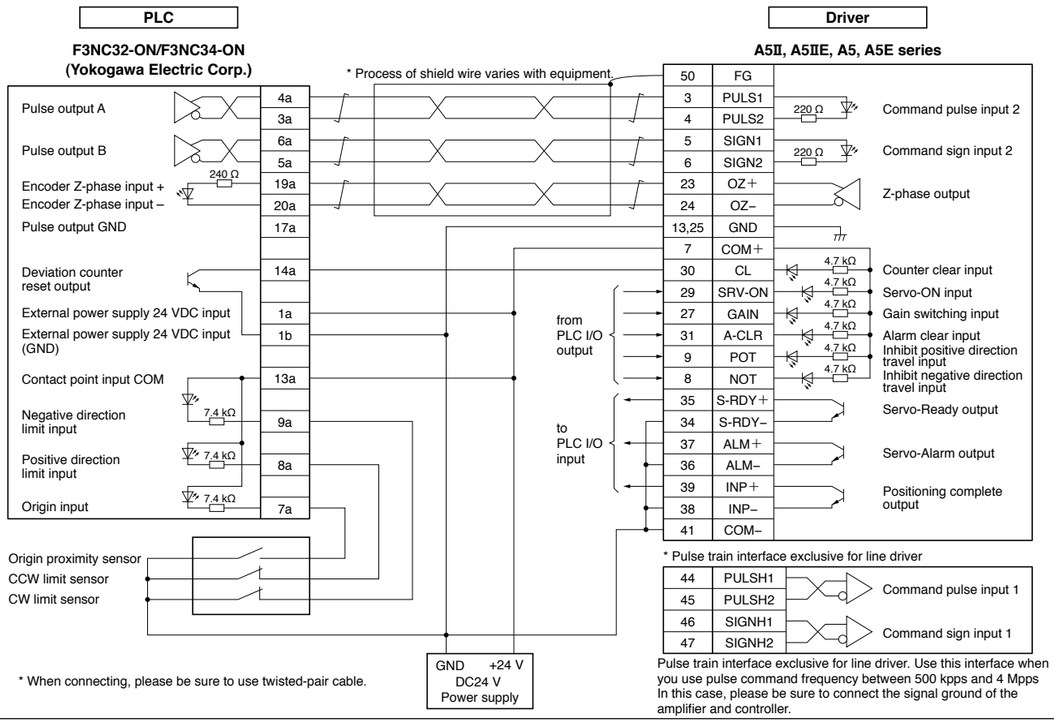
FPG-C32T Connection with the Panasonic devices SUNX.



F3YP22-0P/F3YP24-0P/F3YP28-0P Connection with the Yokogawa Electric Corp.

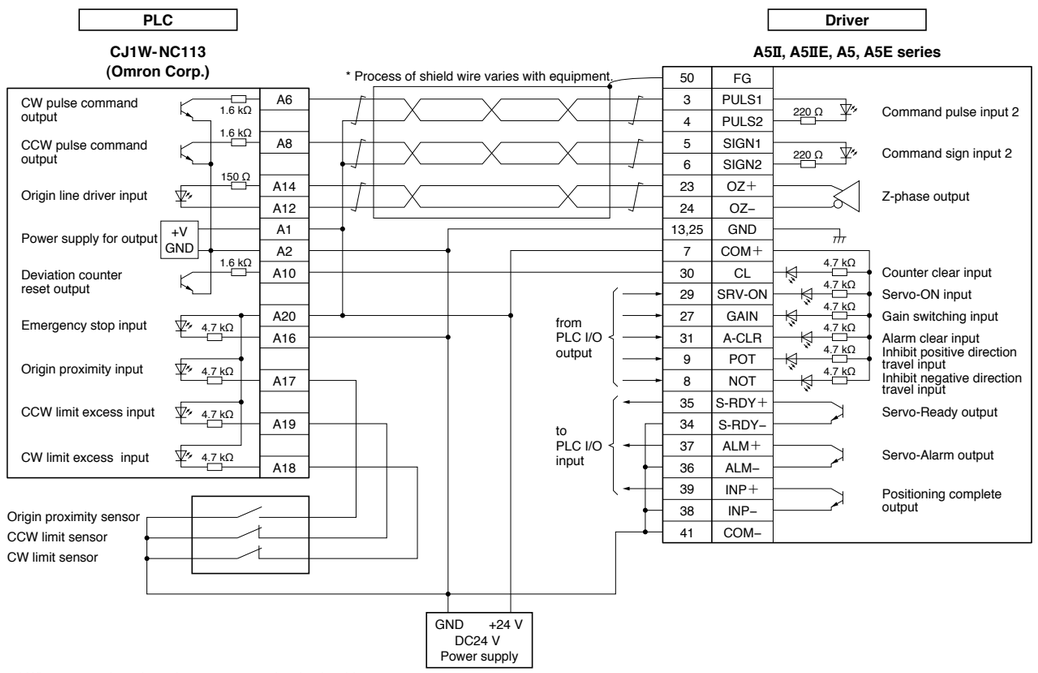


F3NC32-ON/F3NC34-ON Connection with the Yokogawa Electric Corp.



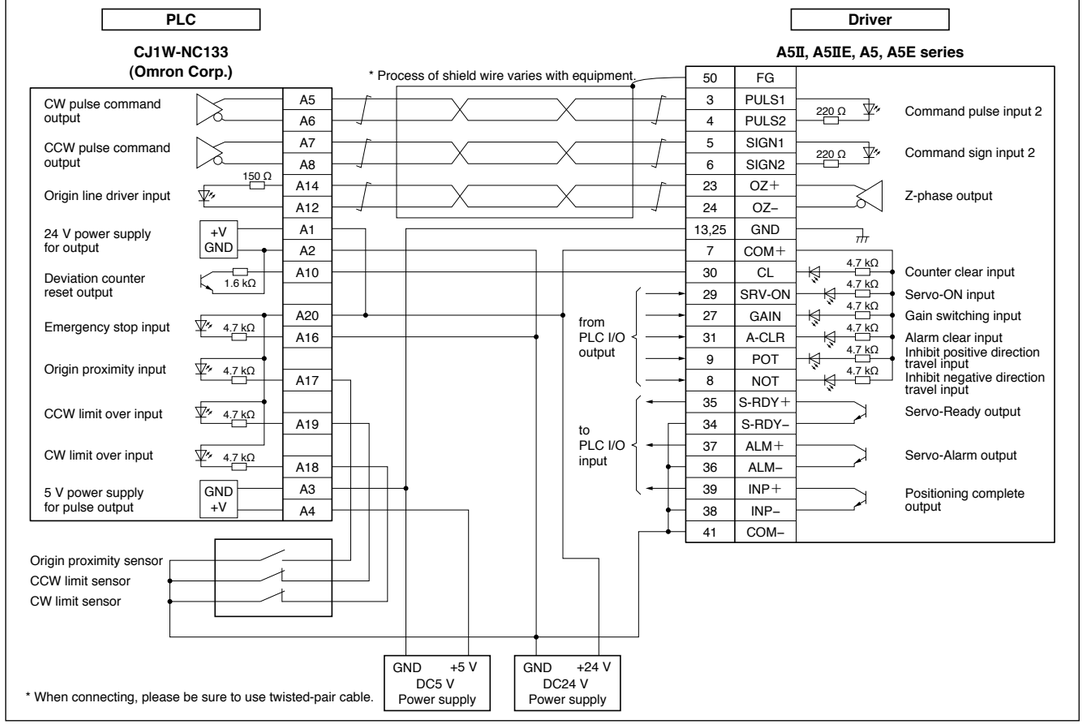
Connection Between Driver and Controller

CJ1W-NC113 Connection with the Omron Corp.



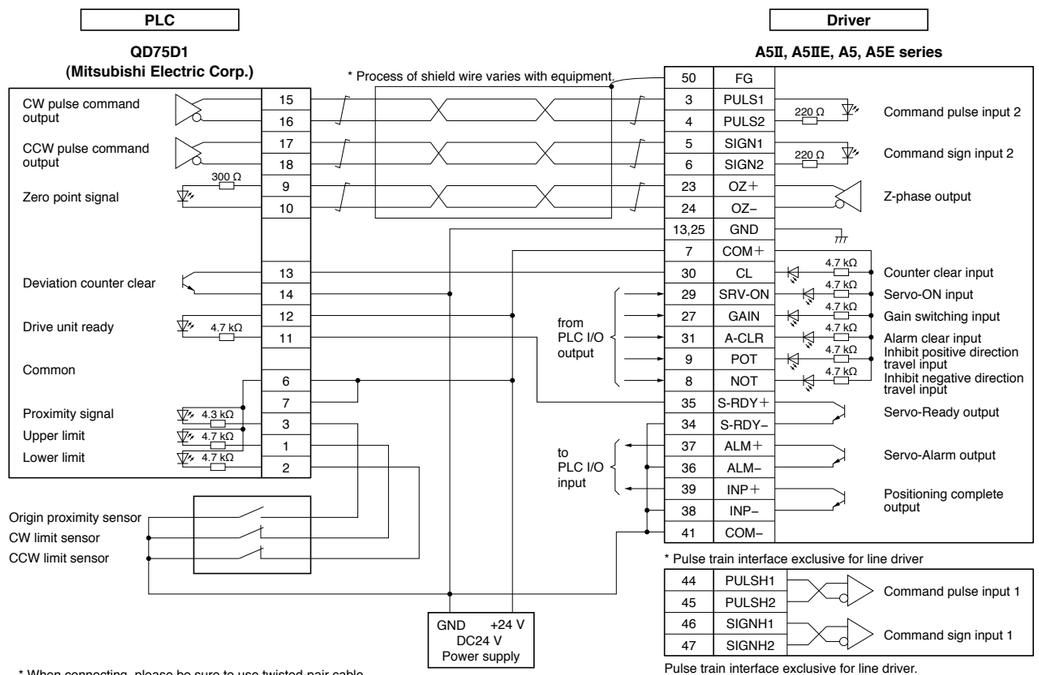
* When connecting, please be sure to use twisted-pair cable.

CJ1W-NC133 Connection with the Omron Corp.



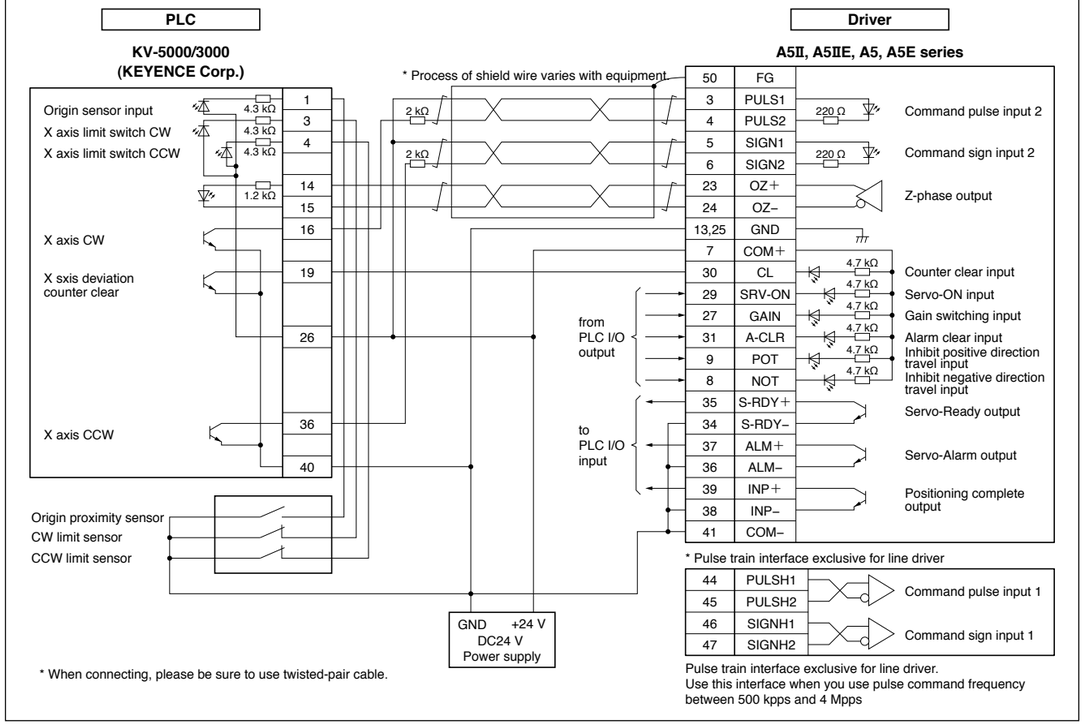
* When connecting, please be sure to use twisted-pair cable.

QD75D1 Connection with the Mitsubishi Electric Corp.



* When connecting, please be sure to use twisted-pair cable.

KV-5000/3000 Connection with the KEYENCE Corp.

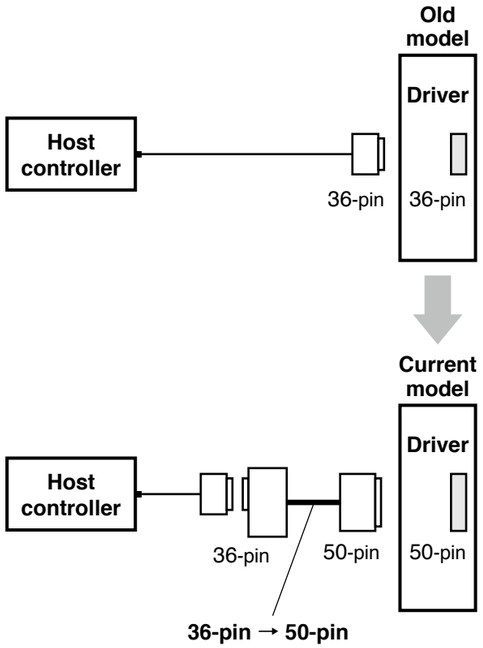


* When connecting, please be sure to use twisted-pair cable.

Replacing Old Model Servo Driver with MINAS A5Ⅱ, A5 series

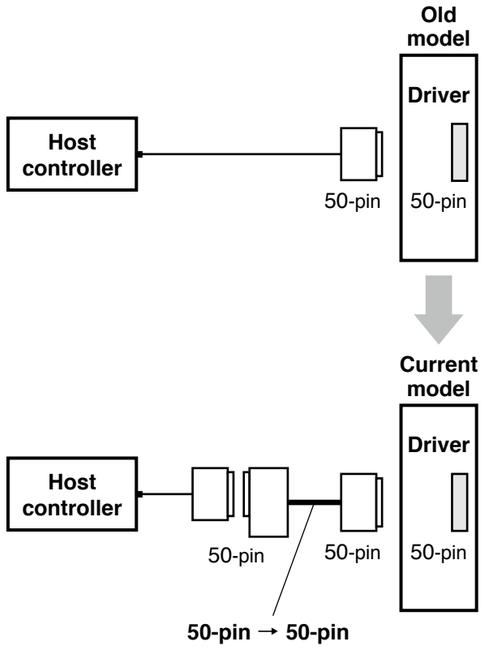
For easier replacement of old driver (MINAS X/XX/V series) with A5Ⅱ, A5 series, use the interface conversion connector.

〈36-pin → 50-pin〉



36-pin → 50-pin
Conversion cable
DV0P4120
DV0P4121

〈50-pin → 50-pin〉



50-pin → 50-pin
Conversion cable
DV0P4130
DV0P4131
DV0P4132

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	P.280
	Torque control	DV0P4121	
V series (50-pin)	Position control	DV0P4130	P.281
	Velocity control	DV0P4131	
	Torque control	DV0P4132	P.282

* For external dimensions, refer to P.197.

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	Positioning complete output Speed arrival output	COIN+ AT-SPEED+	39	Positioning 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	Positioning complete output (–) Speed arrival output (–)	COIN– AT-SPEED–	34	Positioning 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.

Replacing Old Model Servo Driver with MINAS A5Ⅱ, A5 series

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	Positioning 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	Positioning 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

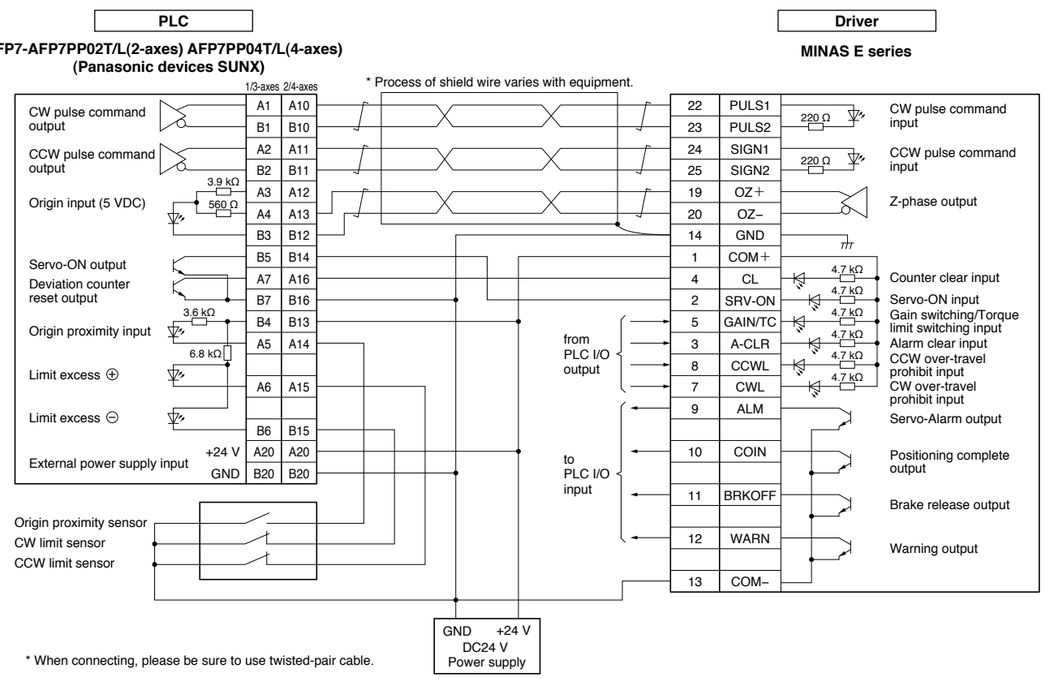
* “NC” is no connect.

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.

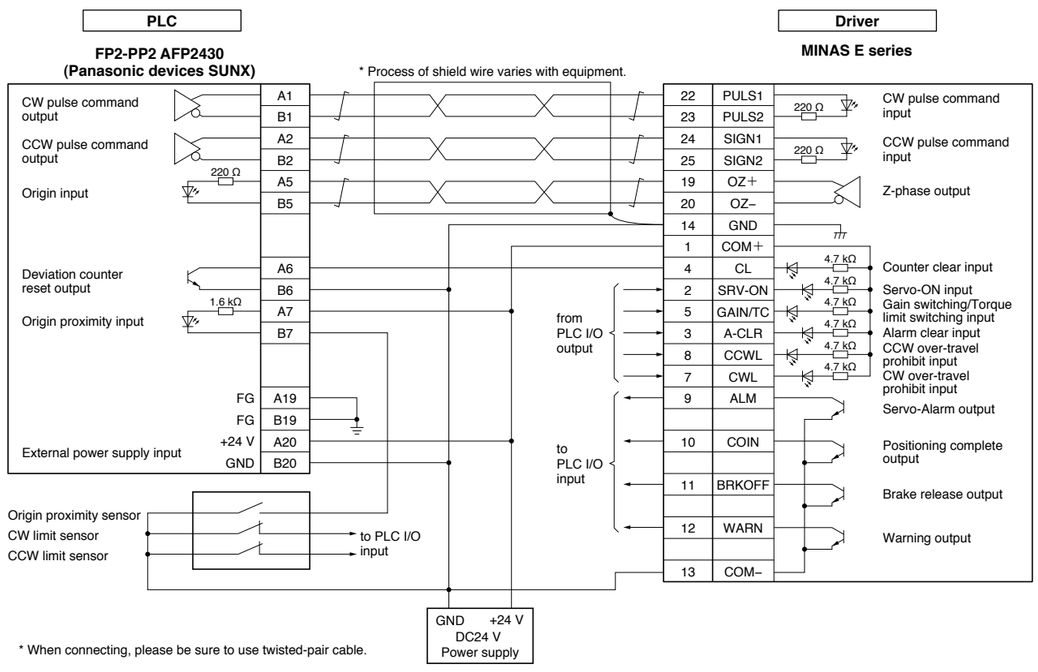
Connection Between Driver and Controller

FP7-AFP7PP02T/L(2-axes) AFP7PP04T/L(4-axes) Connection with the Panasonic devices SUNX.



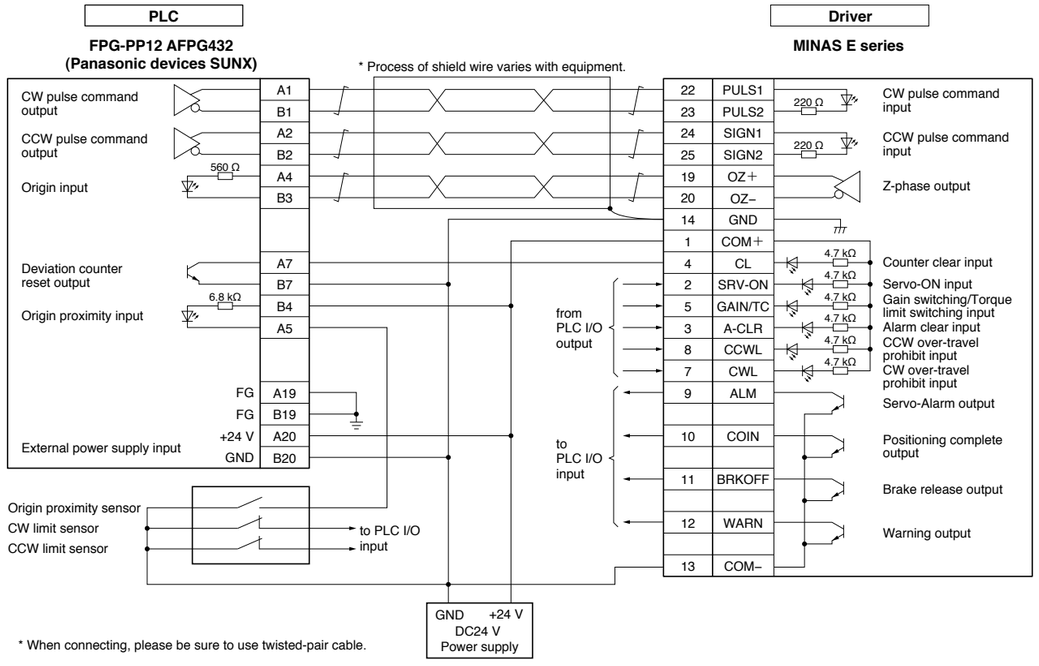
* When connecting, please be sure to use twisted-pair cable.

FP2-PP2 AFP2430 Connection with the Panasonic devices SUNX.



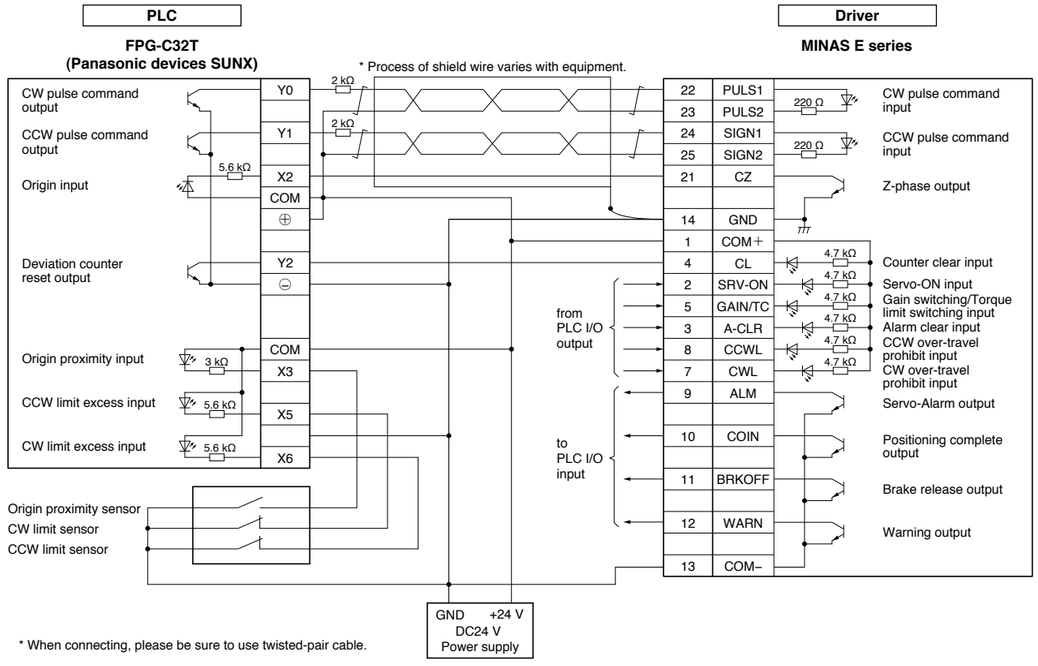
* When connecting, please be sure to use twisted-pair cable.

FPG-PP12 AFPG432 Connection with the Panasonic devices SUNX.



* When connecting, please be sure to use twisted-pair cable.

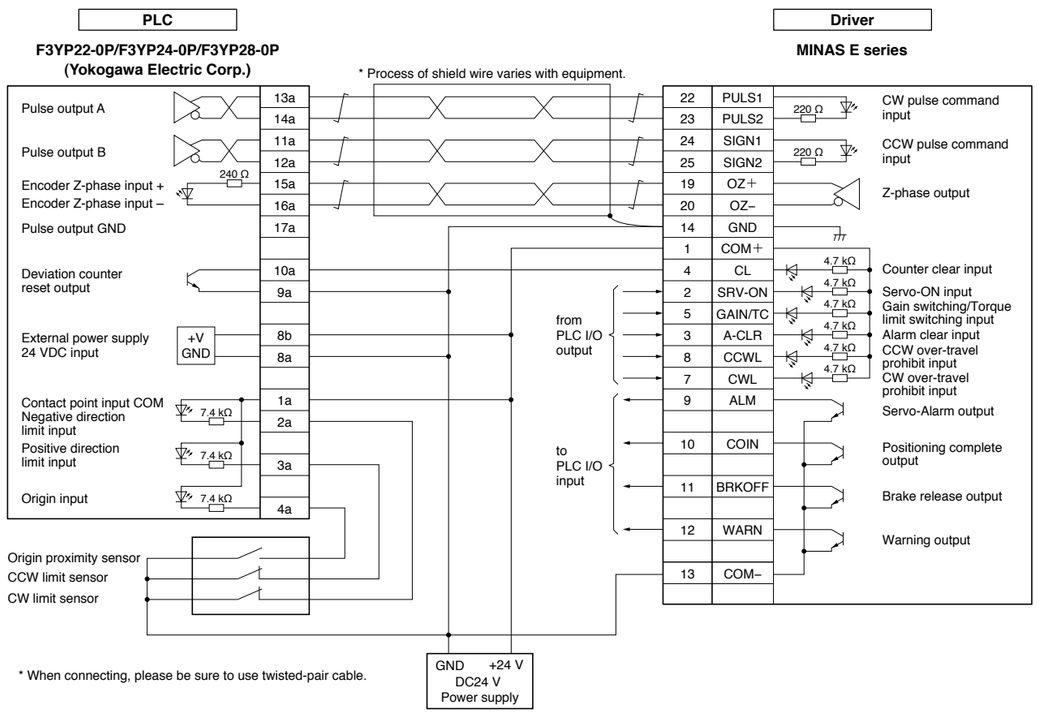
FPG-C32T Connection with the Panasonic devices SUNX.



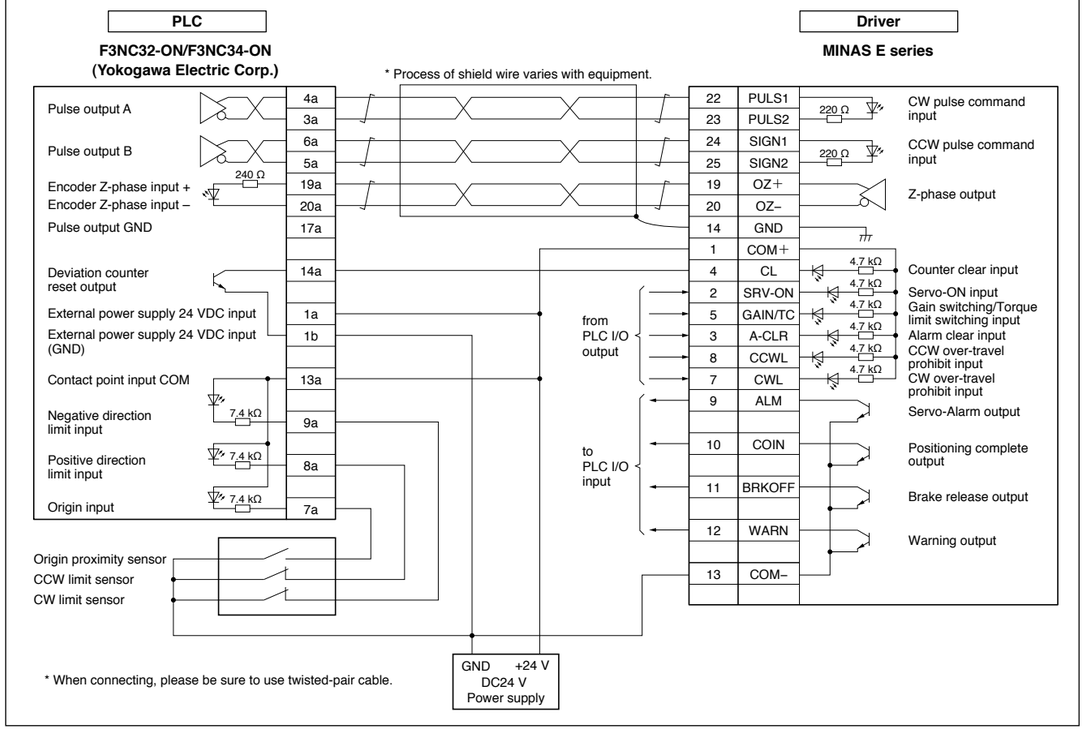
* When connecting, please be sure to use twisted-pair cable.

Connection Between Driver and Controller

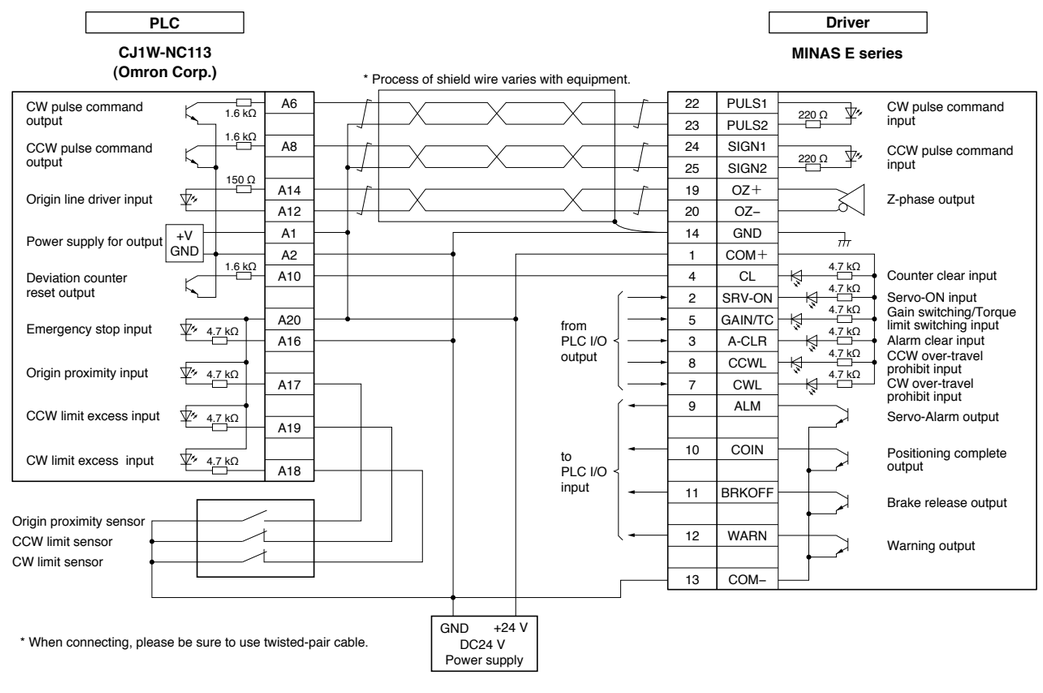
F3YP22-0P/F3YP24-0P/F3YP28-0P Connection with the Yokogawa Electric Corp.



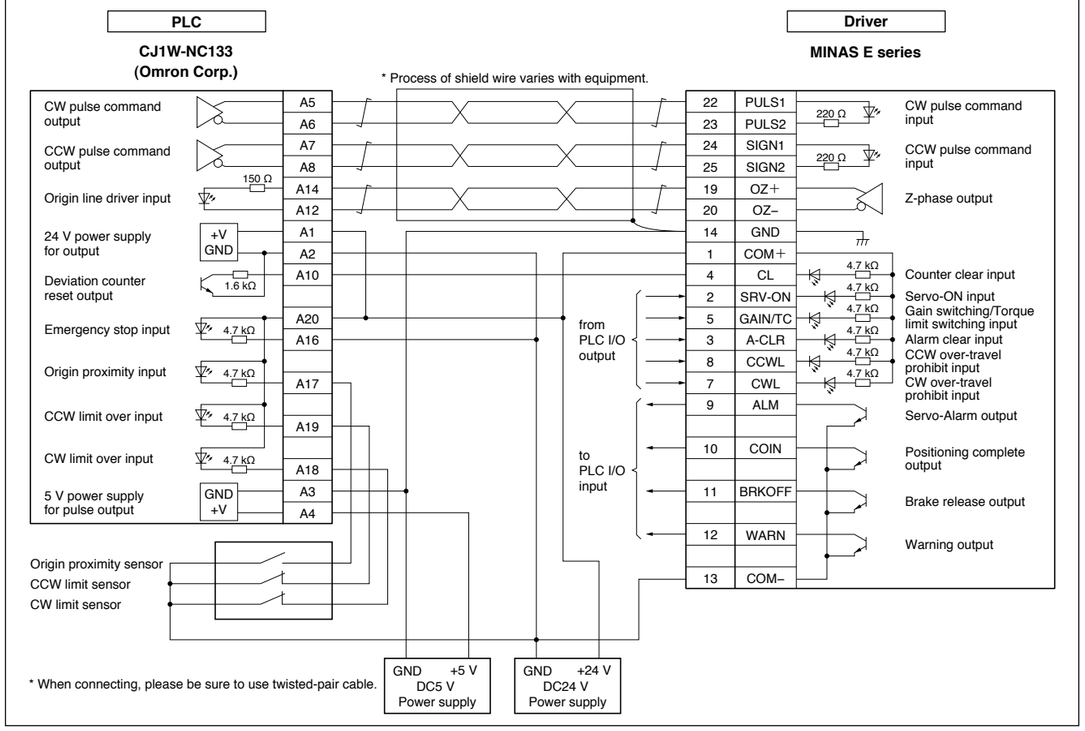
F3NC32-ON/F3NC34-ON Connection with the Yokogawa Electric Corp.



CJ1W-NC113 Connection with the Omron Corp.

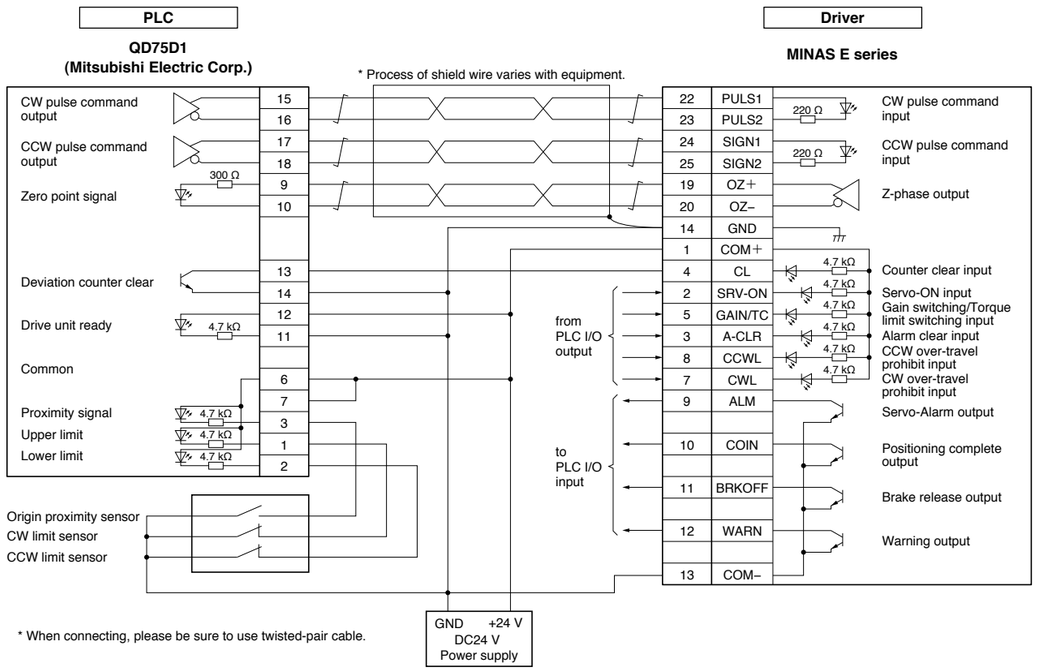


CJ1W-NC133 Connection with the Omron Corp.



Connection Between Driver and Controller

QD75D1 Connection with the Mitsubishi Electric Corp.



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Sales Office

[Panasonic Sales Office of Motors]

(February.01.2016)

Country	Company Name [Category]	City	Address	TEL / FAX
U.S.A	Panasonic Industrial Devices Sales Company of America [Sales office]	New Jersey	Two Riverfront Plaza, 7th Floor Newark, NJ 07102-5490 U.S.A	+1-800-228-2350
				—
Brazil	Panasonic do Brazil [Sales office]	Sao Paulo	Avenida do Cafe, 277 Torre A-8 Andar Jabaquara ZIP Code: 04311-900 Sao Paulo SP Brazil	+55-11-3889-4022
				+55-11-3889-4103
Germany	Panasonic Industrial Devices Sales Europe GmbH [Sales office] [European Headquarter]	Munich	Hans-Pinsel-Strasse 2 · D - 85540 Haar · Germany	+49-89-46-159-0
				+49-89-46-159-212
			e-mail	http://eu.industrial.panasonic.com/about-us/contact-us
			Web site	http://eu.industrial.panasonic.com/products/motors-compressors-pumps
	ghv Vertriebs-GmbH [Distributors]	Munich	Am Schammacher Feld 47 D-85567 Grafing b. Munich	+49(0)-80-92/81-89-0
				+49(0)-80-92/81-89-99
			e-mail	http://www.ghv.de/kontakt.html
	Panasonic Electric Works Europe AG [Sales office] [European Headquarter]	Holzkirchen	Rudolf-Diesel-Ring 2, 83607 Holzkirchen, Deutschland	+49 (0) 8024 648-0
				+49 (0) 8024 648-111
			e-mail	https://www.panasonic-electric-works.com/eu/93.htm
			Web site	https://www.panasonic-electric-works.com/eu/index.htm
	Panasonic Electric Works Europe AG [Subsidiary]	Holzkirchen	Rudolf-Diesel-Ring 2, 83607 Holzkirchen, Deutschland	+49 (0) 8024 648-0
				+49 (0) 8024 648-111
			e-mail	https://www.panasonic-electric-works.com/eu/93.htm
			Web site	https://www.panasonic-electric-works.com/eu/index.htm
France	Panasonic Electric Works Sales Western Europe B.V. [Sales office]	Verrières-Le-Buisson	10, rue des petits ruisseaux, 91370 Verrières-Le-Buisson, France	+33(0)160135757
				+31(0)160135758
			e-mail	https://www.panasonic-electric-works.com/eu/93.htm
			Web site	https://www.panasonic-electric-works.com/eu/index.htm
Italy	Panasonic Electric Works Italia srl [Subsidiary]	Verona	Via del Commercio 3-5 (Z.I.Ferlina), 37012 Bussolengo (VR), Italy	+39-045-6752711
				+39-045-6700444
			e-mail	https://www.panasonic-electric-works.com/eu/93.htm
			Web site	https://www.panasonic-electric-works.com/eu/322.htm
	Lenze Italia S.r.l. [Distributors]	Milano	Viale Monza 338 20128 Milano	+39-02-270-98-1
				+39-02-270-98-290
			e-mail	mail@LenzeItalia.it
			Web site	http://www.lenze.com/it-it/azienda/lenze-in-italia/
United Kingdom	Panasonic Electric Works UK Ltd. [Sales office]	Milton Keynes	Sunrise Parkway, Linford Wood Milton Keynes, MK14 6LF United Kingdom	+44(0)1908231599
				+44(0)1908231555
			e-mail	https://www.panasonic-electric-works.com/eu/93.htm
			Web site	https://www.panasonic-electric-works.com/eu/index.htm
	Lenze Limited [Distributors]	Bedford	Priory Business Park, Bedford, MK44 3WH.	+44-1234-7532-00
				+44-1234-7532-20
			e-mail	uk.sales@lenze.com
			Web site	http://www.lenze.com/en-gb/about-lenze/lenze-in-united-kingdom/
Austria	Panasonic Electric Works Austria GmbH [Sales office]	Biedermannsdorf	Josef Madersperger Strasse 2, 2362 Biedermannsdorf (Vienna), Austria	+43(0)2236-26846
				+43(0)2236-46133
			e-mail	https://www.panasonic-electric-works.com/eu/93.htm
			Web site	https://www.panasonic-electric-works.com/eu/index.htm
Polska	Panasonic Electric Works Polska sp. z.o.o. [Sales office]	Warszawa	ul. Wołoska 9a, 02-583 Warszawa	+48(0)22338-11-33
				+48(0)22213-95-01
			e-mail	https://www.panasonic-electric-works.com/eu/93.htm
			Web site	https://www.panasonic-electric-works.com/eu/index.htm
Nederland	Panasonic Electric Works Sales Western Europe B.V. [Sales office]	PJ Best	De Rijn 4 (Postbus 211), 5684 PJ Best, Nederland	+31(0)499372727
				+31(0)499372185
			e-mail	https://www.panasonic-electric-works.com/eu/93.htm
			Web site	https://www.panasonic-electric-works.com/eu/index.htm

Sales Office

Country	Company Name [Category]	City	Address	TEL / FAX
Czech Republic	Panasonic Electric Works Czech s.r.o. [Sales office]	Brno	Veveří 3163/111, 616 00 Brno, Czech	+420(0)541217001 / +420(0)541217101
			e-mail: https://www.panasonic-electric-works.com/eu/93.htm	
			Web site: https://www.panasonic-electric-works.com/eu/index.htm	
Spain	Panasonic Electric Works Espana S.A. [Subsidiary]	Madrid	Barajas Park, San Severo 20, 28042 Madrid, Spain	+34-91-329-3875 / +34-91-329-2976
			e-mail: https://www.panasonic-electric-works.com/eu/93.htm	
			Web site: https://www.panasonic-electric-works.com/eu/322.htm	
Romania	C.I.T. Automatizari SRL [Distributors]	Bucuresti	sos. Bucuresti, nr.63, Ciorogirla, Ilfov, RO-077055, ROMANIA	+40-21-255-0543 / +40-21-255-0544
			e-mail: office@citautomatizari.ro	
			Web site: http://www.citautomatizari.ro	
Hungary	Panasonic Electric Works Hungary [Sales office]	Budapest	Neumann J. u. 1., 1117 Budapest, Hungary	+36(0)19998926 / +36(0)19998927
			e-mail: https://www.panasonic-electric-works.com/eu/93.htm	
			Web site: https://www.panasonic-electric-works.com/eu/index.htm	
Switzerland	Panasonic Electric Works Schweiz AG [Sales office]	Rotkreuz	Grundstrasse 8, 6343 Rotkreuz, Schwitzerland	+33(0)417997050 / +31(0)417997055
			e-mail: https://www.panasonic-electric-works.com/eu/93.htm	
			Web site: https://www.panasonic-electric-works.com/eu/index.htm	
Russia	Electroprivod Ltd. [Distributors]	St.Petersburg	Office 417, litera 43, Polustrovskiy avenue, Saint-Petersburg, Russia	+7-812-703-09-81 / +7-812-493-27-26
			Web site: http://www.electroprivod.ru	
Turkey	BOSTEK TEKNOLOJI GELISTIRME VE ROBOT SIST.SAN.TIC.A.S [Distributors]	Izmir	10042 SOK.NO:10 A.O.S.B CIGLI-IZMIR, TURKEY	+90 232 433 8515 / +90 232 433 8881
			e-mail: sales@bostek.com.tr	
			Web site: http://www.bostek.com.tr/	
	Savior Kontrol Otomasyon [Distributors]	Istanbul	Des Sanayi Sitesi 104 Sokak A07 Blok No:02 Yukarı Dudullu Ümraniye İstanbul Turkey	+90-216-466-3683 / +90-216-466-3685
			e-mail: info@savior.com.tr	
			Web site: http://www.savior.com.tr/	
China	Panasonic Industrial Devices Sales (Hong Kong) Co.,Ltd. (PIDSHK) [Sales office]	Hong kong	Top Floor, South Wing, ChinaChem Gloden Plaza, 77 Mody Road, S.T.S. East, Kowloon, HongKong	+852-2529-7322 / +852-2598-9743
	Panasonic Industrial Devices Sales (China) Co.,Ltd. (PIDSCN) [Sales office]	Shanghai	Floor 6, China Insurance Building, 166 East Road LuJiaZui PuDong New District, Shanghai, China	+86-21-3855-2442 / +86-21-3855-2375
	Panasonic Industrial Devices Sales (China) Co.,Ltd. (PIDSCN) [Sales office]	Shenzhen	8/F, Tower Three, Kerry Plaza, 1-1 Zhongxinsi Road, Futian District, Shenzhen, China	+86-755-8255-8791 / —
India	Industrial Division, Panasonic India Pvt Ltd. [Sales office]	Gurgaon, Haryana	12th Floor, Ambience Commercial, Behind Ambience Mall, Gurgaon - 122002, Haryana, India	+91-124-6670400 / +91-124-6670338
			Web site: http://industrial.panasonic.com/sa/products/motors-compressors/fa-motors	
	Lubi Electronics [Distributors]	Gandhinaga, Gujarat	Sardar Patel Ring Road, Near Bright School, Nana Chiloda, Dist.: Gandhinagar - 382330, Gujarat, India	+91-79-39845300 / +91-79-39845599
			Web site: http://www.lubielectronics.com	
	Luna Bearings [Distributors]	Mumbai, Maharashtra	59, Bibijan Street, 2nd Floor, Moiz Manzil, Mumbai - 400003, Maharashtra, India	+91-22-23455052 / +91-22-23427773
			Web site: http://www.lunabearings.com	
	Vashi Electricals Pvt. Ltd. [Distributors]	Mumbai, Maharashtra	A/6, Plot No.74, Shree Ganesh Complex, Behind Gupta Compound, Dapole Road, Mankoli Naka, Bhiwandi - 421305, Maharashtra, India	+91-2522-661600 / +91-2522-661620
			Web site: http://www.vashielectricals.com	

Country		Company Name [Category]	City	Address	TEL / FAX
Korea		Panasonic Industrial Devices Sales Korea Co., Ltd. (PIDSKR) [Sales office]	Seoul	6F DONG-IL Tower 38, Teheran-ro 114-gil, Gangnam-gu, Seoul, 135-851, Korea	+82-2-795-9600 / +82-2-2052-1053
Taiwan		Panasonic Industrial Devices Sales Taiwan Co.,Ltd. [Sales office]	Taipei	12F, No.9, SongGao Rd., Taipei 110, Taiwan, R.O.C.	+886-2-2757-1900 / +886-2-2757-1977
South-eastern Asia		Panasonic Industrial Devices Sales Asia Pte.Ltd. [Sales office]	Singapore	No.3 Bedok South Road Singapore 469269	+65-6390-3718 / +65-9435-6844
	Singapore	Intermech Machinery Pte.Ltd. [Distributors]	Singapore	2 Woodlands Sector 1 #03-25, Woodlands Spectrum 1 Singapore 738068	+65-6751-5088 / +65-6759-2122
				Web site: http://www.intermech.com.sg	
	Malaysia	Panamech Machinery Sdn Bhd [Distributors]	Kuala Lumpur	No.14, Lorong Sanggul 1C, Bandar Puteri, 41200 Klang, Selangor Darul Ehsan	+60-3-5161-7876 / +60-3-5161-7136
				Web site: http://panamech.com.my/	
		Panamech (PG) Sdn Bhd [Distributors]	Penang	Sri Relau Komplex, Unit 1-3-11, Persiaran Bukit Jambul 1, 11900 Penang	+60-4-643-8266 / +60-4-645-1639
				Web site: http://panamech.com.my/	
	Thailand	Premier Automation Center Co.,Ltd. [Distributors]	Bangkok	73 Soi Ladkrabang 30 Ladkrabang Ladkrabang Bangkok 10520	+66-2181-2299 / +66-2181-2288
				Web site: http://www.premier-ac.co.th	
		Plenty Island (Thai) Co.,Ltd. [Distributors]	Bangkok	3 Soi Charoenrat 10, Charoenrat Road., Bangkhlo, Bangkhorlaem, Bangkok 10120	+66-2291-9933 / +66-2291-2065
				Web site: http://www.plenty.co.th	
	Indonesia	PT. Handal Yesindo Sejahtera [Distributors]	Surabaya	Jl. Raya Kutisari 8A, Surabaya, Indonesia	+62-31-843-8844 / +62-31-841-4333
				Web site: http://www.handalyesindo.com	
		PT.Riasarana Electrindo [Distributors]	Jakarta	Jl. Prof. Dr. Latumenten Grogol Permai blok D No. 8-15 Jakarta 11460, Indonesia	+62-21-564-9178 / +62-21-566-7405
				Web site: http://www.risacorps.com	
	Philippines	Movaflex Designs Unlimited, Inc. [Distributors]	Manila	136 Calbayog Street, Mandaluyong City, Metro Manila, Philippines.	+63-2-881-3636 / +63-2-998-3881
				Web site: http://www.movaflex.com/	