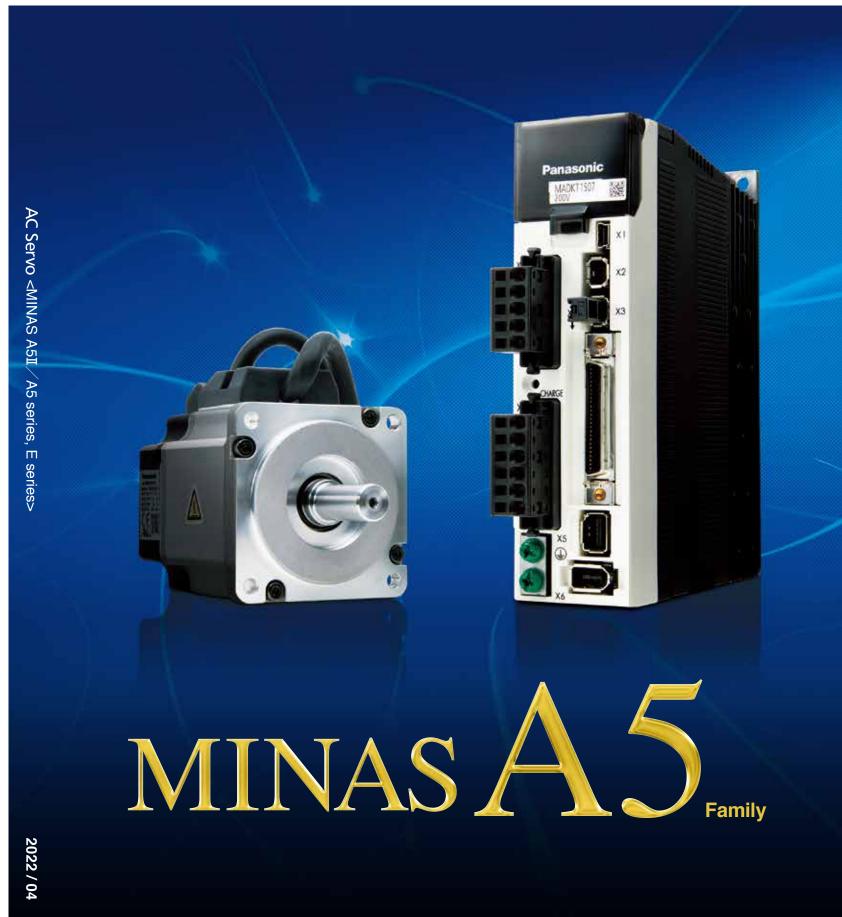
Safety Precautions
Important Notes on exporting this product or equipment containing this product;
If the end-user or application of this product is related to military affairs or weapons, its export may be controlled by "Foreign
Exchange and Foreign Trade Control Law" of Japan where export license will 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 i 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 o material to which the product will be mounted. Over tightening can damage the screw and/or material; under tightening can result in loosening.
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
<ul><li>in unexpected action. It is highly recommended that you make a fail-safe design and secure the safety in the operative range.</li><li>If the motor shaft is not electrically grounded, it may cause an electrolytic corrosion to the bearing, depending on the condition</li></ul>
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.

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

• Contact to :

# Panasonic Industry Co., Ltd., Industrial Device Business Division

1-1 Morofuku 7-chome, Daito, Osaka 574-0044, Japan ©Panasonic Industry Co., Ltd.2022 The contents of this catalog apply to the products as of April 2022.



# AC Servo MINAS A5 II / A5 series MINAS E series Catalog

This product is for industrial equipment. Don't use this product at general household.

# Servo motor that brings out potential of the machine. MINAS A





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

Rated output: 50 W to 15.0 kW 20 bit incremental encoder. 17 bit absolute/ incremental encoder All-in-one: Speed, Position, Torque<sup>\*1</sup> Full-closed<sup>\*1</sup> control type \*1 Not applicable to two-degree-of-freedom control system

# All-in-one type

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

Rated output: 50 W to 5.0 kW 20 bit incremental encoder Position control (pulse train commands)

# **Position control type**

Rated output: 50 W to 5.0 kW 20 bit incremental encoder Position control (pulse train commands)







# 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



Synchronized motion and precise CP control

Standard Ethernet cable<sup>\*2</sup> using

Two-degree-of-freedom control system

up to 32 axes with 100 Mbps communication

A5IIN

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





### 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<sup>2</sup> using
- Two-degree-of-freedom control system

# Linear motor and DD motor control type

Special Order Product series





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

Rated output: 50 W to 15.0 kW Supports PC-based controller Passed Official EtherCAT Conformance Test Standard Ethernet cable<sup>\*2</sup> using Two-degree-of-freedom control system





## Contents A5II. A5IIE. A5. A5E series

16

A5I Series Features

**A5 Family Features** Motor Line-up ...

Model Designation



D	verall Wiring river and List of pplicable Peripheral Devices	
Ta	able of Part Numbers and Options	
Driver	Driver Specifications A5II, A5 series (All-in-one type) A5IIE, A5E series (Position control type Wiring Diagram Wiring to the Connector XA, XB, XC, XD and terminal bloc Safety Function Wiring to the Connector X3 Control Circuit Diagram Wiring to the Connector X4 Wiring to the Connector X5 Wiring to the Connector X5 Wiring to the Connector X6	e) … 31 k 33 36 37 39 40 42
Motor	Motor Specifications Dimensions (IP67 motor) Motors with Gear Reducer Special Order Product Model Designation Table of Part Numbers and Options Motor Specifications Motor Specifications, Description	···· 137 ···· 141 ···· <b>151</b> ···· 152 ···· 153 ···· 155
Options	Cable part No. Designation ······ Specifications of Motor connector ·· Encoder Cable Motor Cable Brake Cable Interface Cable Connector Kit Battery for Absolute Encoder Mounting Bracket Reactor External Regenerative Resister Surge Absorber for Motor Brake List of Peripheral Devices	186 188 191 196 197 198 207 208 209 210 212 213
	series	
In	formation Index Sales Office	288

pole detection function Two-degree-of-freedom control system

## General-purpose RS485 communication AE-LINK support type

ecial Order Product

series



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<sup>2</sup> using Two-degree-of-freedom control system AE-LINK is a registered trade mark of Asahi Engineering

# Quicker, Wiser and Friendlier A5I series

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

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



 The above is a measure based on our test environment



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





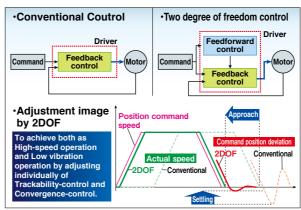


# Realizes guick and accurate movement. Fast response & High-precision positioning

# **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



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

# Easy and guick adjusting time. 5 times faster\* than conventional

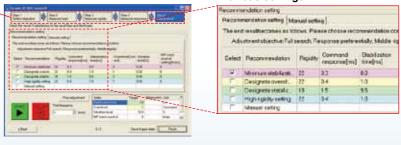
## Greatly improved "operability", easy-to-use software "PANATERM".

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.

### · Adjustment is completed in only 3 processes

# · Fit gain adjustment window





# 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.

feedback control, mutual adjustment was required. In 2DOF adopted A5I series, feedforward and feedback controls are adjusted separately, meaning "Approach" reaction to the given command, and the "Settling" can be adjusted separately.

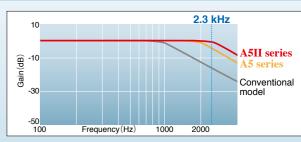
Realized low vibration and reduction of settling time. Realizes tact speed of the electronic component mounting machines, improves the accuracy of surface treatment of metal processing machines, allows for smooth operation and High speed industrial robots.

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

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

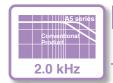
Newly developed feature "Fit Gain" maximizes the characteristics of A5II series. And adaptive notch filter function can reduce the vibration that occurs when the rigidity of the device is low, you can set and adjust automatically the best variety of gain.

### Automatically proposes various settings



4



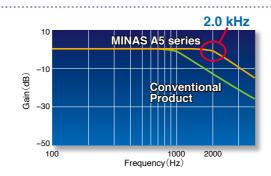


# 2.0 kHz Frequency Response

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.



A5II

<At incremental type>

Conventional

A4 Series

2500 p/r

A5

5II. A5 Series

1048576 p/r

[1.04 million pulses]

A5 A5E



Example application Machine tools, textile machinery, etc.

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

# 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.

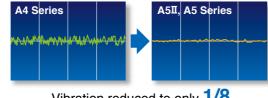


Low Cogging Torque (Excluding MSMD, MHMD, MDME 11.0 kW. 15.0 kW) A5II A5 A5IIE

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 A5∏

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.)







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 ert mie nam vom tim en s vertical axis machines and high friction machines with belts.

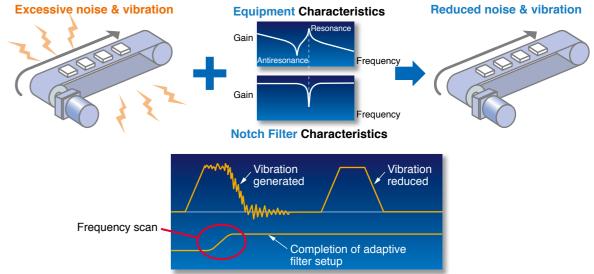
This makes it possible to perform simple optimal adjustments simply by selecting the mode and stiffness.

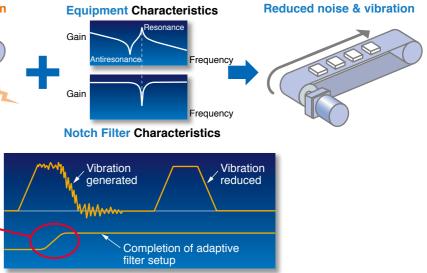


# **Manual/Auto Notch Filters**

# 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

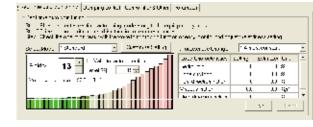






Highly Functional Real-time Auto-Gain Tuning A5II A5 A5IIE A5E

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



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

during operation. The A5I, 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.)

A5II

A5



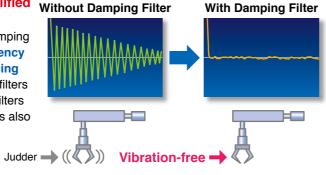
# Manual/Auto Damping Filter

Chip mounters, food processing machinery, robots,

Example application general production machinery, etc.

# Equipped with a damping filter featuring simplified Without Damping Filter 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.



A5II

A5



## **Motion Simulation**

A5II A5

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.

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### New Structure/ Innovative Core/ Innovative Encoder A5II A5 A5IIE

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



novative encod

## 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.



Weiaht

Reduction



# Compliance with EU safety standards.

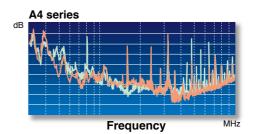
Features non-software-based independent redundant circuitry for motor power isolation. independent redundant circuitry for motor power isolation. This obviates the need for magnetic contactors to isolate



# Low noise Example application

# **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 (Proc
Example application	Machine tools

# IP67 enclosure rating for increased environmental resistance

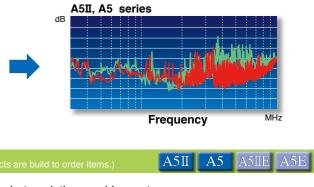
Our improved motor seals and direct-mount connectors in the motor power supply and encoder input-output areas contribute to this unit's IP67 enclosure rating.



**IP67** 

7





s, robots, printing machines, etc.

- 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.





# **PANATERM Set-up Support Software**

A5II A5 A5IIE



# 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.

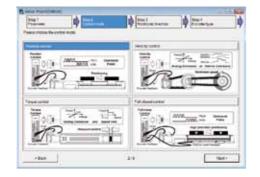


# **Setup Wizard**

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.

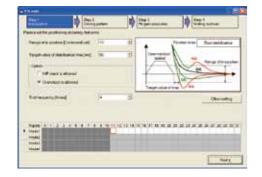


- 1) Select the adjustment method
- 2) Load measurement
- 3) Adjust gain to meet your needs by confirming results. (for A5I, A5IE)



## Fit gain

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





## **Service Life Prediction**

The service life prediction function considers the internal temperature for main components such as the fan and condenser. If the rated value is exceeded, an alarm is displayed. This approach prevents unexpected suspension of operation and allows for planning of systemized maintenance.

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Note: The life span prediction value should be considered as a guide only.

# **Encoder Temperature Monitor**

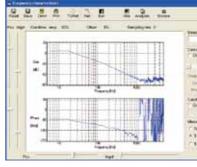
The Encoder Temperature Monitor is a new function capable of real-time measurement of the interior temperature of the encoder, something that has been difficult to achieve in the past. It is valuable for monitoring the motor and can be used as a diagnostic in the event of a malfunction (provided with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



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



### <CAUTION>

This software is applicable only to A5II, A5, A5IIE, A5E series.

ardware co	nfiguration			
	CPU	Pentium III 512MHz or more		
	Memory	256MB or more (512MB recommended)		
Personal	Hard disk capacity	Vacancy of 512MB or more recommended		
computer		Windows® XP SP3 (32-bit Ver.), Windows® VISTA SP1 (32-bit Ver.)		
	OS	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)		
Display	Number of colors	24bit colors (TrueColor) or more		

Print Print Print Print	NUMBER OF TAXABLE PARTY.	Parallel Landines
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1 contact 122"		

# **Trial run**

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





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# Significant increase of measuring objects Multi-functional waveform graphic

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# To apply this software to conventional product (A, AII, E or A4 series), consult our distributors.

### Please download from our web site and use after install to the PC. http://industrial.panasonic.com/ww/products/motors-compressors/fa-motors



## 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 A5I 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.
- Please verify the actual compliance with your machine checking the F47 standard for voltage sag immunity.

## Inrush Current Preventive Function

 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.

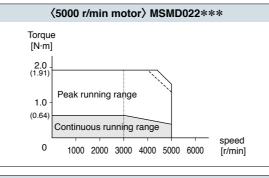
# Regenerative Energy A5II A5 A5IIE A5IIE Discharge A5III A5 A5IIE A5IIE

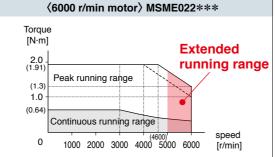
- A regenerative resistor is used to discharge regenerative energy, which is the energy generated when stopping a load with a large moment of inertia or when using this unit in vertical operation. This energy is returned to the driver from the motor.
- Frame A, B, G and frame H model drivers do not contain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

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

[Comparison of new and conventional 200 W]





## Gear head

Gear heads for 6000 r/min and 5000 r/min motors are available.Set 5000 r/min gear head only to 5000 r/min motor, and set 6000 r/min gear head only to 6000 r/min motor.

When customers prepare a gear head, use it as follows:

- MSME  $\rightarrow$  6000 r/min
- MSMD]
- MISMD MHMD → 5000 r/min

Dynamic Braking	A5II	A5	A5IIE	A5E	J
-----------------	------	----	-------	-----	---

- 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.

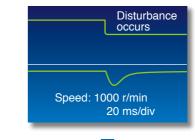
# Parameter Initialization A5II A5 A5IIE A5

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

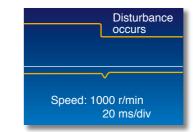
## Disturbance Observer A5II A5 A5IIE A5E

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 A5IE A5

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.

Existion Terring				
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.

# A5 Family

# 3-Step Gain

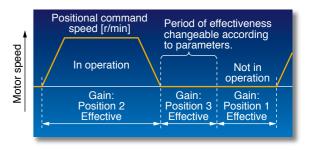
A5II A5 A5IIE A5

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 A5IE A5

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

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.

A5II A5

# Torque Limiter Switching A5II A5 A5IE 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.

MINAS	A5 Family			
Feature		P.		
oplicable ir	nternational safe	ty standards	A5II A5 A5IE A5E	Applicable External Sca
CE		CULUS US		Applicable External Scale
		Driver	(A5II, A5 series) (A5IE, A5E series) Motor	Parallel Type (AB-phase)
	EMC Directives	EN55011 EN61000-6-2 IEC61800-3	_	
	Low-Voltage Directives	EN61800-5-1	EN60034-1 EN60034-5	
C Directives	Machinery Directives Functional	ISO13849-1(PL d) (Cat. 3) EN61508(SIL2) EN62061(SILCL 2) EN61800-5-2(STO)	_	Serial Type (Incremental)
	safety *1	IEC61326-3-1		
. Standards		UL508C (E164620)	UL1004-1, UL1004-6 (E327868)	
SA Standard		C22.2 No.14	C22.2 No.100	
uth Korea)		KN61000-4-2, 3, 4, 5, 6, 8, 11	_	
Europaischen : Electromagi Underwriters L	netic Compatibility	Panasonic Testir Panasonic Serv Panasonic Marl	rective 2004/108/EC, article 9(2) ng Centre vice Europe, a division of keting Europe GmbH , 22525 Hamburg, F.R. Germany	
A5IE and A5E		utory provisions of the destination c spond to the functional safety stand adio Law	•	Serial Type (Absolute)
The user and	ver is a Class A comn dealer should be awa 무용 방송통신기자제)	nercial broadcasting radio wave ger are of this fact.	nerator not designed for home use.	
이 기기는 업 <sup>」</sup> 또는 사용자는	⊤중 정중중신기자세) 무용(A 급) 전자파적합기 - 이 점을 주의하시기 비 ⊦하는 것을 목적으로 합	<b>나라며, 가정외의</b>		

(대상기종 : Servo Driver )

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

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

		A5II A5	
	Model No.	Resolution [µs]	Maximum Speed (m/s) <sup>∗</sup> 3
	_	Maximum s 4 × multiplica	speed after ation: 4 Mpps
	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
1	PSLH	0.1	6
	LIC2197P/LIC2199P	0.05/0.1	10
	LIC4193P/LIC4195P LIC4197P/LIC4199P	0.001 /0.005 /0.01	10
	SVAP	0.05	2.5
	SAP	0.05	2.5
	GAP	0.05	2.5
	LAP	0.1	2
	SR77	0.01 to 1	3.3
	SR87	0.01 to 1	3.3
	AT573A	0.05	2.5
	ST778A(L)	0.1	5
		0.001	0.4
	RESOLUTE	0.05	20
		0.1	40

A5 Family

E Series

Information

# MINAS A5 Family Motor Line-up

# Motor Line-up

					Rated	Rotary	encoder			
	Мо	tor	Voltage	Rated output (kW)	rotational speed (Max. speed) (r/min)	20-bit incremental	17-bit absolute	Enclosure (*1)	Features	Applications
	MSMD		100 V 200 V	0.05 0.1 0.2 0.4	3000 (5000)	0	0	IP65	Leadwire type     Small capacity     Suitable for high	
		2,	200 V	0.75	3000 (4500)		-		<ul> <li>speed application</li> <li>Suitable for all applications</li> </ul>	Bonder     Semiconductor     production     equipment
Low inertia			100 V 200 V	0.05 0.1 0.2 0.4	3000	0	0	IP67	<ul> <li>Small capacity</li> <li>Suitable for high speed application</li> </ul>	Packing machines etc
nertia	MOME	2,	200 V	0.75	(6000)				Suitable for all applications	
	MSME	<b>A</b> .	400 V	0.75	3000				<ul> <li>Middle capacity</li> <li>Suitable for the machines directly</li> </ul>	SMT machines     Food
		0	200 V 400 V	1.0       1.5         2.0       3.0	(5000)	0	0	IP65 <sup>(*2)</sup>	coupled with ball screw and high stiffness and high repetitive applica-	<ul> <li>nodulation</li> <li>nodulation</li> <li>noduction</li> <li>nodulation</li> <l< td=""></l<></ul>
			400 V	4.0 5.0 0.4 0.6	(4500)				tion	etc
		4		1.0       1.5         2.0       3.0         4.0       5.0	2000 (3000)			1005(*2)	Middle capacity     Suitable for low	Conveyors     Robots
	MDME		200 V 400 V	7.5 <sup>(*3)</sup>	1500 (3000)	0	0	IP65 <sup>(*2)</sup>	stiffness machines with belt driven	Machine tool etc
Midd				11.0 <sup>(*3)</sup> 15.0 <sup>(*3)</sup>	1500 (2000)					
Middle inertia	MFME (Flat type) (*3)	6	200 V 400 V	1.5 2.5 4.5	2000 (3000)	0	0	IP67	<ul> <li>Middle capacity</li> <li>Flat type and suitable for machines with space limitation</li> </ul>	Robots     Food     machines     etc
	MGME (Low speed/ High torque type	0	200 V 400 V	0.9 2.0 3.0 4.5 <sup>(*3)</sup> 6.0 <sup>(*3)</sup>	1000 (2000)	0	0	IP65 <sup>(*2)</sup>	Middle capacity     Suitable for low     speed and high     torque application	Conveyors     Robots     Textile     machines     etc
	MHMD		100 V 200 V	0.2 0.4	3000 (5000)	0	0	IP65	Leadwire type     Small capacity     Suitable for low	Conveyors     Robots
High			200 V	0.75	3000 (4500)				stiffness machines with belt driven	etc
High inertia	МНМЕ	1	200 V 400 V	1.01.52.03.04.05.0	2000 (3000)	0	0	IP65 <sup>(*2)</sup>	Middle capacity     Suitable for low     stiffness machines     with belt driven,     and large load	Conveyors     Robots     LCD     manu-     facturing     oguinmont
(*1)	Except for o	itput shaft and	connecto	<b>7.5</b> <sup>(*3)</sup> r. (*2) IP67 mot	1500 (3000) or is also ava	ilable (*3)	Only IP67 n	notor is avil	moment of inertia	equipment etc

(\*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.

# MINASA5 Family **Model Designation**

# Servo Motor

Symbol MSMD		tia (50 \	Type N to 750 W	)					specific	ations		cificatio			
MSME		· ·	V to 5.0 kW	/				WSWE(	(50 W to	750 W	[200 V]		· ·		
MDME			00 W to 15	,				Symbol		Shaft	Kouwou	Holding	g brake	Oil	seal
MFME	Middle in	nertia (1	.5 kW to 4.9	5 kW)				Symbol	Round		Key-way, center tap	without	with	without	with
MGME	Middle ir	nertia (0	.9 kW to 6.0	) kW)				А						•	
MHMD	High ine	rtia (200	W to 750 W	W)				В							
MHME	High ine	rtia (1.0	kW to 7.5 k	(W)				С	•						•
					_			D N	•				•		•
	ated outp		-					P		•		•		Ĭ	
-			Rated output		specificat			Q							
5A	50 W	25	2.5 kW		Specification	S		R							
01	100 W	30	3.0 kW	1	100 V			S			•		-	•	
02	200 W	40	4.0 kW	2	200 V			Т			•				
04	400 W	45	4.5 kW	4	400 V			U V				•			•
06	600 W	50	5.0 kW	z	100 V/200 common	/	_   I				•				
08	750 W	60	6.0 kW	2	(50 W only					[400 V],			kW),		
09	0.9 kW	75	7.5 kW			-	_   I	MDME,	, MFME,	, MGME	, MHME				
10	1.0 kW	C1	11.0 kW					Svmbol	S	haft	Hol	ding bral	ke	Oil se	al
15	1.5 kW	C5	15.0 kW					Symbol	Round	Key-wa	y witho	out wi	th w	ithout	with
20	2.0 kW							С							
								D		-					•
	encoder	·		-		1		G H		•	•				
Symbol	Format		lse counts				_			-					•
G S	Incremen Absolut		20-bit 17-bit	1048576	5		Desig	n orde	er						
- 1		-		131072	1		Symbo	bl		Spe	cificatior	IS			
S: can	be used i	n increi	mental.				С		motor						
							1	IP67	' motor (N	/ISMD, M	HMD: IP	65)			
			uction g												

### Motor rated output Symbol Туре Symbol Rated output 01 100 W Low inertia MSMD 02 200 W (100 W to 750 W) 04 400 W Low inertia MSME (100 W to 750 W) 08 750 W High inertia (200 W to 750 W) MHMD 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. Servo Driver Speed, Position, Torque, Full-closed type M A D K T 1 5 MADKT15 Position control type Frame symbol \*-**Power device Max** Symbol Frame Symbol Frame current rating MAD Frame A MED Frame E Symbol Current rating MBD Frame B MFD Frame F T1 10 A MCD Frame C MGD Frame G T2 15 A MDD Frame D MHD Frame H T3 30 A \* A5IIE, A5E series is up to F-frame. T4 35 A Series -T5 50 A Velocity, Position, Position control T7 75 A Symbol Torque, TA 100 A type Full-Closed type TB 150 A К A5**I** series A5IE series TC 300 A н A5 series A5E series

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

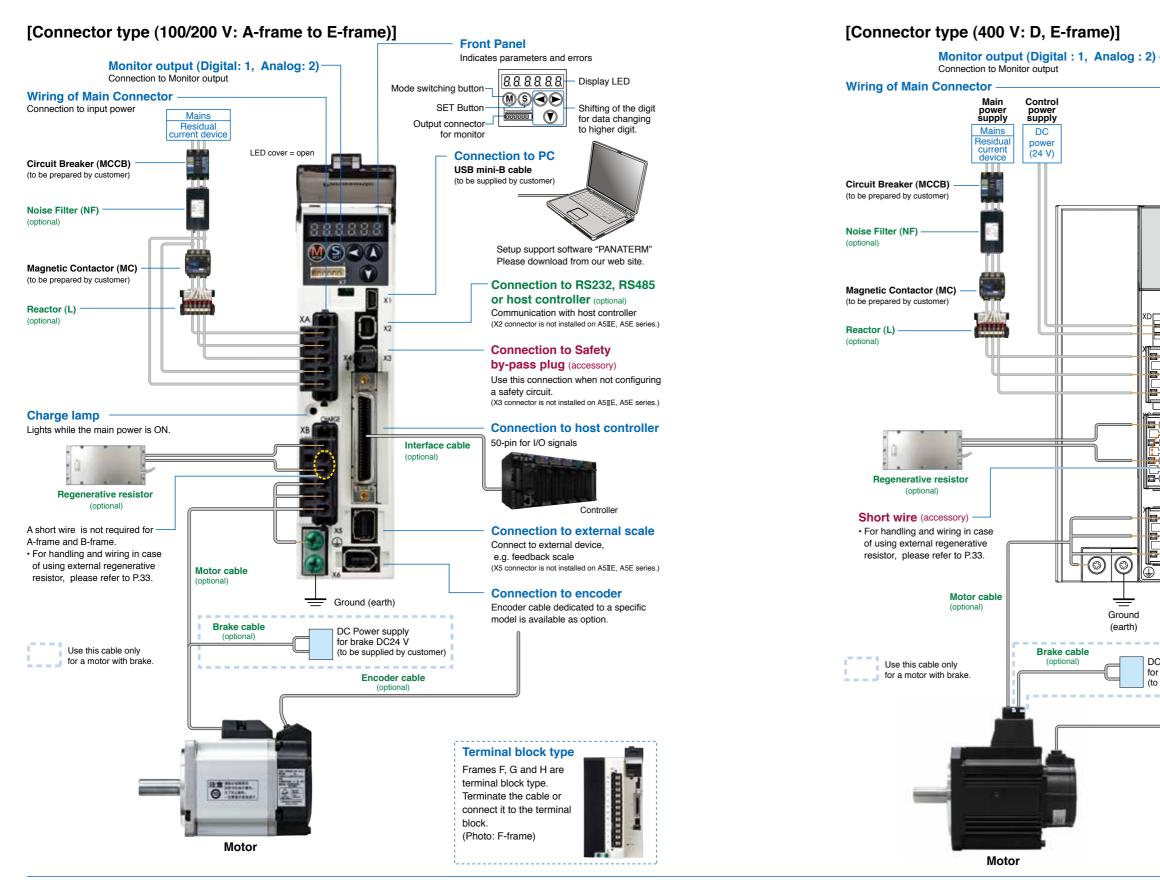
A5 Family

E Series

Information

3	1	N								
		•								
		Gear ra	atio, gear							
		Symbol	Gea	-			utput (	· ·		dear
		-	reduction		100	200	400	750	L L	уре
		1N 2N	1/5 1/9		•	•	•	•	-	
		2N 3N	1/9				•			r high curacy
		4N	1/15						acc	Juracy
					-	rod		•		
			D 100 W		prepa	rea.				
L		- Motor	structure							
		Symbol	Shaft	Hold	ling br	ake				
		Symbol	Key-way	witho	ut w	/ith				
		3								
		4				•				
0	5	* *	< * -			Spec	ial sp	ecifi	catio	ons
-	•		•							
0	5	E>	* * -			Spec	ial sp	ecifi	catio	ons
		Onl	y positio		trol					
		- 011	y positio			ront c	lataat	or 01	irror	t rating
					-		ecification			Specificatio
S	Supply	voltage			05		5 A 7.5 A		40 64	40 A 64 A
		cations			10		10 A		64 90	64 A 90 A
_	Symbol		ifications		12	-	12 A		90 A2	120 A
	1		hase, 100	V	20		20 A		~∠ B4	240 A
	3	3-phase		•	30		30 A		U-7	2-40 A
- 1-	1	3-phase					5071			

4 3-phase, 400 V 5 Single/3-phase, 200 V

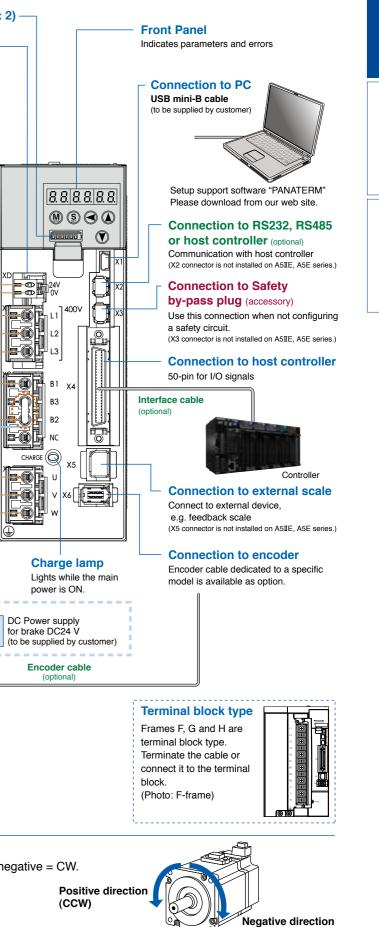


### <Caution>

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.



(CW)

# **Driver and List of Applicable Peripheral Devices**

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	Ferrite core	Rated operating current of magnetic (contactor Contact configuration *2	Diameter and withstand voltage of main circuit cable	Crimp terminal for main circuit terminal block *3	Diameter and withstand voltage of control power supply cable	Crimp terminal for control power supply terminal block	Diameter and withstand voltage of motor cable *4	Diameter and withstand voltage of brake cable
	MSME	Single phase,	50 W to 100 W	approx. 0.4 kVA		DV0P4170	DV0P4190		_				Diook		
ЛАDH ЛADK	MSMD MHMD	100 V Single/ 3-phase,	50 W to	approx. 0.5 kVA		DV0P4170	DV0P4190								
		200 V Single	200 W	0.5 kVA approx.	10 A	DV0PM20042	DV0P1450			0.75 mm²/				0.75 mm²/	0.28 mm <sup>2</sup> t 0.75 mm <sup>2</sup> /
/BDH //BDK	MSME MSMD	100 V Single/	200 W	0.5 kVA		DV0P4170 DV0P4170	DV0P4190 DV0P4190		20 A (3P+1a)	AWG18 600 VAC				AWG18 600 VAC	AWG22 to AWG18
VIDDR	MHMD	3-phase, 200 V	400 W	approx. 0.9 kVA		DV0PM20042	DV0P1450			or more				or more	100 VAC or more
ИСDH	MSME MSMD	Single 100 V Single/	400 W	approx. 0.9 kVA		DV0PM20042	DV0P4190					0.75 mm <sup>2</sup> / AWG18 600 VAC			
MCDK	MHMD	3-phase, 200 V	750 W	approx. 1.3 kVA	15 A	D VOT MEDOVE						or more			
	MDME MHME		1.0 kW	approx. 1.8 kVA											
	MGME	Single/	0.9 kW	approx. 1.8 kVA			DV0P4190 DV0P1450	DV0P1460			Conr		Conr		
	MSME MHME	3-phase, 200 V	1.0 kW	approx. 1.8 kVA	20 A	DV0P4220	DV01 1430		30 A (3P+1a)		rectior		rectior		
	MDME MFME		1.5 kW	approx. 2.3 kVA							Connection to exclusive connector		Connection to exclusive connector		
	MSME MDME		400 W	approx. 0.9 kVA							clusiv		clusiv		
MDDH MDDK	MDME		600 W	0.9 kVA approx. 1.2 kVA							e con		e con		
	MSME		750 W	approx. 1.6 kVA						2.0 mm²/	nector	0.52 mm²/	nector	2.0 mm²/	
	MSME MDME	3-phase, 400 V	1.0 kW	approx. 1.8 kVA	10 A	FN258L-16-07 (Recommended) component	DV0PM20050		20 A (3P+1a)	AWG14 600V VAC		AWG20 100 VAC		AWG14 600V VAC	
	MHME		0.9 kW	1.0 KVA		( component /			(01 1 1 4)	or more		or more		or more	
	MSME MDME MFME MHME		1.5 kW	approx. 2.3 kVA											
	MDME MSME	3-phase,	2.0 kW	approx. 3.3 kVA	00.4		DV0D4450	DV0P1460 RJ8035	60 A			0.75 mm <sup>2</sup> / AWG18			
MEDH	MHME	200 V	2.5 kW	approx. 3.8 kVA	30 A	DV0PM20043	DV0P1450	(Recommended) component *5	(3P+1a)			600 VAC or more			
MEDK	MSME MDME		2.0 kW	approx.		FN258L-16-07			00.4			0.52 mm <sup>2</sup> /			
	MHME	3-phase, 400 V	2.5 kW	3.3 kVA approx.	15 A	(Recommended)	DV0PM20050	DV0P1460	30 A (3P+1a)			AWG20 100 VAC or more			
	MGME		2.0 kW	3.8 kVA approx.								ormore			
	MDME MHME			3.8 kVA					60 A		11 mm or		11 mm or		
	MSME		3.0 kW	approx. 4.5 kVA				DV0D4 (00	(3P+1a)		smaller		smaller		
	MDME MHME MSME	3-phase, 200 V	4.0 kW	approx. 6.0 kVA	50 A	DV0P3410	DV0P1450	DV0P1460 RJ8035 (Recommended) component *5			(O) <u></u> Terminal	0.75 mm <sup>2</sup> / AWG18 600 VAC or more	(O) <u></u> Terminal		0.75 mm²/
	MFME MGME		4.5 kW	approx. 6.8 kVA				5	100 A (3P+1a)		block M5		block M5		AWG18 100 VAC
MFDH	MDME MHME MSME		5.0 kW	approx. 7.5 kVA						3.5 mm²/ AWG12			WIG	3.5 mm²/ AWG12	or more
MFDK	MGME MSME		2.0 kW	approx. 3.8 kVA						600 VAC or more				600 VAC or more	
	MDME MGME MHME		3.0 kW	approx. 4.5 kVA							10 mm or smaller	0.75 mm²/	7 mm or smaller		
	MSME MDME	3-phase, 400 V	4.0 kW	approx. 6.0 kVA	30 A	FN258L-30-07 (Recommended) component	DV0PM20050	DV0P1460	60 A (3P+1a)		φ4.3	AWG18 100 VAC			
	MHME		4.5 kW	approx. 6.8 kVA		, component /					Terminal	or more	Terminal		
	MGME MSME MDME		4.5 KW	approx. 7.5 kVA							block M4		block M3		
	MHME MDME		7.5 kW	approx.								0.75 mm²/			
	MGME	3-phase, 200 V	6.0 kW	11 kVA approx. 9.0 kVA	60 A	FS5559-60-34 (Recommended)	DV0P1450		100 A (3P+1a)		11 mm or smaller	AWG18 600 VAC	10 mm or smaller		
MGDH	MHME	200 V	7.5 kW	approx. 11 kVA		( component )			(ortid)	5.3 mm <sup>2</sup> / AWG10	$\langle \rho \rangle$	or more	$\bigcirc$	13.3 mm <sup>2</sup> /	
MGDK	MDME	0	7.5 kW	approx. 11 kVA		FN258-42-07 or				600 VAC or more	<u>φ5.3</u>	0.75 mm <sup>2</sup> /	<u>φ5.3</u>	AWG6 600 VAC	
	MGME	3-phase, 400 V	6.0 kW	approx. 9.0 kVA	30 A	FN258-42-33 (Recommended)	DV0PM20050	DV0P1460	60 A (3P+1a)		Terminal block	AWG18 100 VAC	Terminal block	or more	
	MHME		7.5 kW	approx. 11 kVA approx.		( component )		RJ8095 (Recommended component)			M5	or more	M5		
		3-phase,	11 kW	17 kVA	100 A	FS5559-80-34	DV0P1450	T400-61D (Recommended)	150 A		16 mm or smaller	0.75 mm²/ AWG18	10 mm or smaller	21.1 mm <sup>2</sup> /	-
MHDH	MDM	200 V	15 kW	approx. 22 kVA	125 A	(Recommended) component)	D VOP 1400	( component ) *5	(3P+1a)	13.3 mm <sup>2</sup> /	Ø	600 VAC or more	Ø	AWG4 600 VAC or more 13.3 mm <sup>2</sup> /	
MHDK	MDME	3-phase, 400 V	11 kW	approx. 17 kVA approx. 22 kVA	50 A 60 A	FN258-42-07 or FN258-42-33 (Recommended) component	DV0PM20050		100 A (3P+1a)	AWG6 600 VAC or more	/ <u>φ6.4</u> Terminal block M6	0.75 mm²/ AWG18 100 VAC or more	/ <u>_</u> Terminal block M4	AWG6 600 VAC or more 21.1 mm <sup>2</sup> / AWG4 600 VAC	

\*1 Select peripheral devices 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 For the ground screw, use the same crimp terminal as that for the main circuit terminal block. \*4 The diameter of the ground cable and the external dynamic brake resistor cable must be equal to, or larger than that of the motor

cable

The motor cable is a shield cable, which conforms to the EC Directives and UL Standards. (G, H-frame only) \*5 Use these products to suit an international standard.

## Related page

Noise filter	P.250 "Composition of P
Surge absorber	P.253 "Composition of P
Ferrite core	P.254 "Composition of P
Motor/brake conne	ector P.186, P.187 "Specificati

· 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>

- condition).
- · Terminal block and protective earth terminals
- Use a copper conductor cables with temperature rating of 75 °C or higher.
- 8 mm to 9 mm.

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

	5 1 (		<u> </u>		
	Driver	Termina	al block screw		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		
F(400 V)	24V、0V	M3	0.4 to 0.6	M3	0.19 to 0.21
F(400 V)	L1, L2, L3, B1, B2, B3, NC, U, V, W	M4	0.7 to 1.0	IVIO	0.1910 0.21
G	L1C, L2C, 24V, 0V, DB1, DB2, DB3, DB4, NC	M5	1.0 to 1.7		
u	L1, L2, L3, B1, B2, NC, U, V, W	M5	2.0 to 2.4	M3	0.3 to 0.5
Н	L1C, L2C, 24V, 0V, DB1, DB2	M4	0.7 to 1.0	M5	2.0 to 2.5
п	L1, L2, L3, B1, B2, NC, U, V, W	M6	2.2 to 2.5	CIVI	2.0 10 2.5

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

	Gro	und screw		ector to host roller (X4)
Driver frame	Nominal size	Fastening torque (N•m)	Nominal size	Fastening torque (N•m)
A to E	M4	0.7 to 0.8		
G	M5	1.4 to 1.6	M2.6	0.2±0.05
Н	M6	2.4 to 2.6		

<Caution>

- may generate heat (smoking, firing).

<Remarks>

· To check for looseness, conduct periodic inspection of fastening torque once a year.

Peripheral Devices" Peripheral Devices" Peripheral Devices" tions of Motor connector"

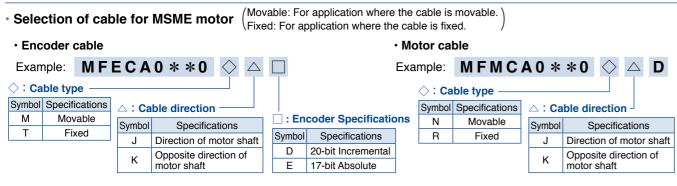
· Select a circuit breaker and noise filter which match to the capacity of power supply (including a load

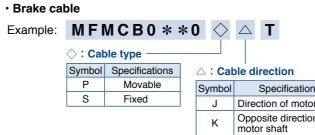
· Use the attached exclusive connector for A-frame to E-frame, and maintain the peeled off length of

 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

# 50 W to 750 W $\begin{pmatrix} MSMD, MHMD : IP65 \\ MSME : IP67 \end{pmatrix}$

Notor series         Power supply         Output (W)         Part No. Note) 1         Part No. (page)	nterface Cable nterface Convers Connector Kit for Power Supply Input Connection	A-frame to D-frame A-frame to D-frame	Part No.         Page           DV0P4360         DV0P4120           DV0P4121         197           DV0P4130         DV0P4132           DV0P4132         200           DV0PM20033         201
Motor series         Paymet supply         Pat No. (by)         Pat No. Note) 1         Pat No. Pat No. (page)         A5E series (page)         A5E	Connector Kit for Power Supply Input Connection Connector Kit for Motor Connection	A-frame to D-frame A-frame to D-frame	DV0P4120           DV0P4121           DV0P4130           DV0P4131           DV0P4132           DV0PM20032           DV0PM20033
Wotor series         supply         (w)         Note) 1         (page)         (pa	Connector Kit for Power Supply Input Connector Kit or Motor Connector Kit for Connector Kit for	A-frame Single row type Double row type A-frame to D-frame to D-frame	DV0P4121         197           DV0P4130         DV0P4131           DV0P4132         0           DV0PM20032         200           DV0PM20033         0
Image: Note	Connector Kit for Power Supply Input Connector Kit or Motor Connector Kit for Connector Kit for	A-frame to D-frame A-frame to D-frame	DV0P4130         197           DV0P4131         DV0P4132           DV0PM20032         200           DV0PM20033         0
Image: single phase flow single pha	ior Power Supply Input Connection Connector Kit ior Motor Connection	A-frame to D-frame A-frame to D-frame	DV0P4132 DV0PM20032 DV0PM20033
Single phase 100       MSMD011 1 ±       51       MAD < T1107       MAD < T1107       A-frame Approx. 0.4         MSMD       200       MSMD021 1 ±       53       MBD < T2110       MBD < T2110       B-frame Approx. 0.5       Approx. 0.5         MSMD       400       MSMD041 1 ±       55       MCD < T3120       C-frame Approx. 0.5       Approx. 0.5       MFECA 0 ** 0EED       MFECA 0 ** 0EED       MFMCB 0 ** 0EED       MFMCB 0 ** 0GET       MFMCA 0 ** 0EAE       MFMCA 0 ** 0EAE       MFMCB 0 ** 0EAE       MFECA 0 ** 0	ior Power Supply Input Connection Connector Kit ior Motor Connection	A-frame Single row type Double row type A-frame to D-frame	DV0PM20032 200 DV0PM20033
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	ior Power Supply Input Connection Connector Kit ior Motor Connection	A-frame to D-frame	200 DV0PM20033
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Connection I Connector Kit for Motor Connection Connector Kit for	D-frame Double row type A-frame to D-frame	DV0PM20033
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Connection		DV0PM20034 201
1       1       50       MSMD5AZ 1 * 50       MAD        T1505       MAD        T1505E       0 ** 0EAM       0 ** 0EAD       0 ** 0EED       0 ** 0GET       DV0P4281       DV0P4281       DV0P227         2000 r/min       1       1       50       MAD        T1505E       1       0 ** 0EAM       0 ** 0EAD       0 ** 0EED       0 ** 0GET       DV0P4281       DV0P227       DV0P227	Connector Kit for		D VOI MEOUO I
2000 r/min VOLDO 10 T LED 0 T			DV0P4290
		r	DV0P4380 202
			DV0PM20035 203
	Connector Kit for Notor/Brake Con		DV0PM20040 206
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	_	· · · · · · · · · · · · · · · · · · ·	DV0PM20102
750     MSMD082 [] 1 *     57     MCD <> T3520     MCD <> T3520E     C-frame     Approx. 1.3			DV0PM20103 198 DV0P4350
	Connector Kit	External Scale	DV0PM20026
		Encoder Analog Monitor Signal	DV0PM20010 199
single 100 MSME011 1 * 67 MAD 11107 MAD 11107 MAD 11107E 0.4 [For movable,] [for	Battery For Absol	0 0	DV0P2990
100 V     200     MSME021 □ 1 *     69     MBD ◇ T2110     MBD ◇ T2110E     B-frame     Approx.     \motor shaft /     \motor shaft /     MFMCA     MFMCB     DV0P4283	Battery Box Note	,	DV0P4430 207
MSME 400 MSME041 □ 1 * 71 MCD ○ T3120 MCD ○ T3120 F C_frame Approx. 0 ** 0MKD 0 ** 0MKE (For movable, ) DV0P4282 DV0PM20042 M00	Mounting		DV0PM20027 DV0PM20028 208
//Connectori     // // // // // // // // // // // // //	Bracket		DV0PM20029
type     50     MISMESAZ     1 *     66     MAD     11505     MAD     11505       0.5     MFECA     MFECA     MFECA     0 ** 0RJD     0 ** 0SJT     DV0P4281		-	MFECA0**0EAD 188
3000 r/min         Single         100         MSME012 [] 1 *         68         MAD (> T1505         A-frame         Approx. 0.5         0 * * 0TJD (For fixed, )         0 * * 0TJE (For fixed, )         (For fixed, )         DV0P220         DV0P4170		-	MFECA0**0EAM MFECA0**0MJD
phase/ 200 MSME022 1 * 70 MAD CT1507 MAD CT1507F Approx. (metal of motor shaft) (motor	١	without Battery Box	MFECA0**0MKD
$\frac{1}{200 \text{ V}} = \frac{1}{200 \text$			MFECA0**0TJD
Opposite direction opposite direction of motor shaft	Encoder Cable		MFECA0**0TKD MFECA0**0EAE 188
750       MSME082 [] 1 *       73       MCD        T3520       MCD        T3520E       C-frame       Approx. 1.3       Correction motor shaft       Note) 6       DV0P220       DV0PM20042		-	MFECA0**0MJE
Single       200       MHMD021 □ 1 *       59       MBD <\Color T2110       MBD <\Color T2110E       B-frame       Approx. 0.5       DV0P4283       DV0P4283       DV0P4170		with Battery Box Note) 8	MFECA0**0MKE 189
phase       phase       Image: Constraint of the state of th		-	MFECA0**0TJE MFECA0**0TKE
G /Leadwire) AU AUMARTIN ALL ALL ALL ALL ALL ALL ALL ALL ALL AL			MFMCA0**0EED
5       (type /)       Single       200       MHMD022       1 *       60       MAD        11507       A-frame       0.5       0 ** 0EAM       0 ** 0EAE       0 ** 0GET       DV0P220       DV0P220       DV0P210	Astas Oshia		MFMCA0**0NJD
$\frac{1}{100} \frac{1}{100} \frac{1}$	Motor Cable	-	MFMCA0**0NKD 191 MFMCA0**0RJD
200 V 750 MHMD082 1 1 * 63 MCD < T3520 MCD T3520E C-frame Approx. 1.3			MFMCA0**0RKD
Note) 1 Rotary encoder specifications: Motor specification: * (refer to P.16)			MFMCB0**0GET MFMCB0**0PJT
Note) 2 🗇 : Drivers series K: A5I series H: A5 series Bra	Brake Cable	-	MFMCB0**0PKT 196
Note) 3 $\diamond$ : Drivers series K: A5IE series H: A5E series A5IE series H: A5E series A5IE s			MFMCB0**0SJT
Note) 4 Because A5IE, 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) 8 Please note that a battery is not supplied together with 17-bit	1		MFMCB0**0SKT DV0P4280
Note) 5 Cable length: ** (03: 3 m, 05: 5 m, 10: 10 m, 20: 20 m) (Example. 3 m: MFECA0030EAM) absolute encoder cable (with battery box).	•		DV0P4281
r lease buy life ballery part number Divor 2330 Separately.	Regenerative		DV0P4282 210
Res	Resistor		DV0P4283 DV0P4284
(rixed. For application where the cable is fixed. /			DV0P4285
Encoder cable     Motor cable		DV0P220, DV0P221, DV0P223, DV0P224,	
	[	DV0P227, DV0P228,	DV0P20047
<ul> <li>Cable type</li> <li>Cable type</li> <li>Cable type</li> <li>Nois</li> </ul>		DV0P4170, DV0PM20 DV0P4220, DV0PM20	
Symbol       Specifications          \lapha         : Cable direction           \lapha         : Cable direction          M       Movable          : Encoder Specifications           \lapha           \lapha	1	DV0P3410	251
T Fixed Symbol Specifications Symbol Specifi			DV0P4190 DV0P1450 253
	Ferrite core		DV0P1460 254





A5 Family

E Series

# 0.4 kW to 5.0 kW IP65 motor

		Motor				Driver		Power			Optional parts					Options (IP6	5 motor)		
					A5I series A5 series	A5IIE series		capacity	Encode	er Cable	Motor Cable	Brak					Title	Part No.	Pa
	Power	Output	Part No.	Rating/	Part No.	A5E series Part No.	_	( at )				Cabl	External	Reactor		Interface Cable		DV0P4360	_
Motor series	supply	(W)	Note) 1	Spec. (page)	Speed, Position, Torque,	(Position control)	Frame	(rated load	20-bit	17-bit	without with		Regenerative Resistor	Single phase	Noise Filter			DV0P4120 DV0P4121	_
				(10490)	Full-Closed type Note) 2	Note) 3,4		(kVA)	Incremental Note) 5	Absolute Note) 4,5,8	Brake Brake Note) 5 Note) 5	Note)	5	3-phase		Interface Conve		DV0P4120	- 19
	Single								11010) 0	11010) 1,0,0				DV0P228				DV0P4131	-
	phase/	1000	MSME102 C *	74	MDD $\bigcirc$ T5540	MDD $\bigcirc$ T5540E		Approx. 1.8					DV0D4004	DV0P222	DV0D4000			DV0P4132	
	3-phase	1500	MSME152  C *	75		MDD 🔷 T5540E	D-frame	Approx. 2.3			MFMCD MFMCA		DV0P4284	DV0PM20047	DV0P4220		A-frame Single row type	DV0PM20032	
	200 V	1300		/3				Αμριοχ. 2.0	MFECA	MFECA	0**2ECD 0**2FCD	D _		DV0P222		Connector Kit		DV0PM20033	-
		2000	MSME202  C *	76	$MED\diamondsuitT7364$	MED $\bigcirc$ T7364E	E-frame	Approx. 3.3	0**0ESD	0**0ESE			DV0P4285 Note) 6	DV0P223	DV0PM20043	for Power Supply Input	D-frame type	DV0FIM20033	2
Lo	3-phase	3000	MSME302  C *		Ŷ	*		Approx. 4.5			MFMCA MFMCA	Δ	DV0P4285	DV0P224		Connection	E-frame (200 V)	DV0PM20044	_
≤ MSME	200 V		MSME402 C *			MFD O TB3A2E			_		0**3ECT 0**3FCT		×2 in parallel	DV0P225	DV0P3410		D-frame (400 V) E-frame (400 V)	DV0PM20051 DV0PM20052	_
inertia 3000 r/min		_	MSME502 C * MSME084 C *		-		_	Approx. 7.5 Approx. 1.6								Connector Kit		D VOI MILCOOL	-
L. L			MSME104 C *				-		-		MFMCD MFMCE	E	DV0PM20048			for Control Power	D-frame and	DV0PM20053	
	3-phase		MSME154  C *					Approx. 2.3		MFECA	0**2ECD 0**2FCD	D			Recommended	Supply Input	E-frame (400 V)	D VOI MILCOOO	
	400 V		MSME204 C *				E-frame		0**0ESD	0**0ESE			DV0PM20049	Note) 7	components	Connection	A-frame to D-frame	DV0PM20034	-
			MSME304 C *				F-frame	Approx. 4.5	<u>'</u>		MFMCA MFMCA		DV0PM20049		P.252	Connector Kit for Motor	E-frame (200 V)	DV0PM20046	-2
			MSME504 C *	-		-	_	Approx. 7.5			0**3ECT 0**3FCT	T	×2 in parallel			Connection	D-frame (400 V)	DV0PM20054	
	Single	1000	MDME102 \[ C *	80		MDD $\bigcirc$ T3530E		Approx. 1.8						DV0P228		Connector Kit	E-frame	DV0PM20045	
	phase/			00			D-frame				MFMCD MFMCA		DV0P4284	DV0P222	DV0P4220	for Regenerative Resistor	D-frame (400 V)	DV0PM20055	
	3-phase 200 V	1500	MDME152  C *	81	MDD $\bigcirc$ T5540	MDD $\bigcirc$ T5540E		Approx. 2.3			0**2ECD 0**2FCD			DV0PM20047				DV0P4310	
	200 1						<b>F</b> .		MFECA 0**0ESD	MFECA 0**0ESE		-	DV0P4285	DV0P222		Connector Kit fo		DV0P4320	
	3-phase						E-trame			0 OLSE			Note) 7	DV0P223	DV0PM20043	Motor/Encoder		DV0P4330	-2
	200 V		MDME302 C *				E.framo	Approx. 4.5			MFMCA MFMCA	A	DV0P4285	DV0P224	DV0P3410			DV0P4340 DV0PM20102	+
MDME			MDME402 C *		· ·	v		Approx. 0			0**3ECT 0**3FCT	т	×2 in parallel	DV0P225	DV0F3410		Safety	DV0PM20102	_
2000 r/min		400	MDME044 C *	111	MDD 🔷 T2407	MDD 🔷 T2407E		Approx. 0.9								O a mar a tam Kit	Interface	DV0P4350	
2			MDME064 C *					Approx. 1.2			MFMCD MFMCE	E	DV0PM20048			Connector Kit	External Scale	DV0PM20026	
Aiddle	2 phase		MDME104 C * MDME154 C *					Approx. 1.8 Approx. 2.3	-	MFECA	0**2ECD 0**2FCD				Recommended			DV0PM20010	
le i	400 V		MDME104 C *						-	0**0ESE		-	DV0PM20049	Note) 7	components	Battery For Abs	Analog Monitor Signal	DV0PM20031 DV0P2990	_
inertia			MDME304  C *	-	V	V		Approx. 4.5			MFMCA MFMCA	Δ	DV0PM20049		P.252	Battery Box No		DV0P2990 DV0P4430	-2
ធ									-		0**3ECT 0**3FCT		×2 in parallel			Mounting	D-frame		2
	Single	5000	MDME504 C *	118		MFD VIA464E		Approx. 7.5								Bracket		DV0PM20030	
	phase/	000		02			Duframo	Approx 1.8			MFMCD MFMCA		DV0P4284	DV0P228	DV0P4220	Encoder Cable	without Battery Box with Battery Box		-
MGME	3-phase	900	MGME092 🗌 C  *	92			D-liallie	Approx. 1.0	MFECA	MFECA	0**2ECD **2FCD	D _	D V0F 4204	DV0P221	DV0F4220		Note) 8	MFECA0**0ESE	=
/Low speed/		2000	MGME202 C *	93				Approx. 3.8	0**0ESD	0^^0ESE	MFMCA MFMCA	Δ	DV0P4285	DV0P223				MFMCA0**2ECE	כ
High torque			MGME302 C *					Approx. 4.5	-		0**3ECT 0**3FCT		×2 in parallel	DV0P224	DV0P3410			MFMCD0**2ECI	
1000 r/min	1	900	MGME094 C *	125	MDD (> T3420	MDD () T3420F	D-frame	Approx 18			MFMCD MFMCE		DV0PM20048		Recommended		without Brake	MFMCE0**2ECI	_
1000 1/1111	3-phase 400 V		MGME204 C *						MFECA 0**0ESD	MFECA 0**0ESE	0**2ECD 0**2FCD MFMCA MFMCA		DV0PM20049	-	components	Motor Cable		MEMCA0**3ECT	т
	400 V	3000	MGME204 C *	120	MFD $\bigcirc$ TA464	MFD $\bigcirc$ TA464E	F-frame	Approx. 3.8 Approx. 4.5	-	0 OLSL	0**3ECT 0**3FCT		x2 in parallel	Note) /	P.252			MFMCD0**3EC	г
	Single		MHME102 C *					Approx. 1.8						DV0P228/				MFMCA0**2FCE	D
	phase/						D-frame		-		MFMCD MFMCA 0**2ECD 0**2FCD		DV0P4284	DV0P222 DV0PM20047/	DV0P4220		with Brake	MFMCE0**2FCE	
	3-phase 200 V	1500	MHME152 🗌 C \star	98	$MDD \diamondsuit T5540$	MDD $\bigcirc$ T5540E		Approx. 2.3			0 2ECD 0 2FCD			DV0PM200477 DV0P222			50.0.05.14	MFMCA0**3FCT	i i
		2000	MHME202  C *	00			E.framo	Annual 2.2	MFECA	MFECA 0**0ESE	MFMCE MFMCE	E –	DV0P4285	DV0P223	DV0PM20043			DV0P4280 DV0P4281	-
-	3-phase								_	U UESE	0**2ECD 0**2FCD	D	Note) 6		DV0F10120043			DV0P4282	-
High MHME	200 V		MHME302 C *					Approx. 4.5	_		MFMCA MFMCA	A	DV0P4285	DV0P224	DV0P3410	External		DV0P4283	
2000 r/min		5000	MHME502 C *	102			7	Approx 75			0**3ECT 0**3FCT	т	×2 in parallel	DV0P225	DV0F3410	Regenerative Resistor	30 Ω 100 W	DV0P4284	
inertia 2000 r/min		1000	MHME104 C *	130	MDD 🔷 T2412	MDD 🔷 T2412E	D fromo	Approx. 1.8			MFMCD MFMCE	E					20 Ω 130 W	DV0P4285	_
2		1500	MHME154 C *	131	MDD 🔷 T3420	MDD $\bigcirc$ T3420E	D-manne	Approx. 2.3			0**2ECD 0**2FCD		DV0PM20048		December			DV0PM20048	_
	3-phase	2000	MHME204 🗌 C ∗	132	MED $\bigcirc$ T4430	MED $\bigcirc$ T4430E	E-frame	Approx. 3.3		MFECA	MFMCE MFMCE 0**2ECD 0**2FCD		DV0PM20049	_	Recommended components		80 Ω 190 W DV0P220, DV0P221,	DV0PM20049	+
	400 V	3000	MHME304  C *	133	MFD <> T5440	MFD $\bigcirc$ T5440E		Approx. 4.5	0**0ESD	0**0ESE				Note) 7	P.252	Reactor	DV0P223, DV0P224,	DV0P225,	1
						MFD $\bigcirc$ TA464E			-		MFMCA MFMCA 0**3ECT 0**3FCT		DV0PM20049		1.252		DV0P227, DV0P228,		_
		4000									0**3ECT 0**3FCT	1	×2 in parallel	1			DV0P4170, DV0PM2		
			MHME504 C *		MFD 🔷 TA464	MFD $\bigcirc$ TA464E		Approx. 7.5								Noise Filter	DV0P4220, DV0PM2	20043	
		5000 becificat	MHME504 C *	135 cificatio	on: * (refer to P	.16)					Note) 6 Other combin		,		uls.	Noise Filter	DV0P4220, DV0PM2 DV0P3410	20043	_
ote) 2 🛇 : Driv	vers series	5000 ecificat K: A5	MHME504 C * tions: Motor spec 5I series H: A5 s	135 cificatio eries	on: * (refer to P Note) 3 ◇	.16) Drivers series	K: A5I	E series	H: A5E ser		Note) 7 Reactor shou	ould be pr	epared by the u	ser.			DV0P3410 Single phase	DV0P4190	2
ote) 2 🔷 : Driv ote) 4 Becaus	vers series e A5IIE, A	5000 ecificat K: A5 5E serie	MHME504 C *	135 cificatio eries d for po	on: * (refer to P Note) 3	.16) Drivers series	K: A5I	E series	H: A5E ser		Note) 7 Reactor shou Note) 8 Please note	ould be pr e that a l	epared by the u	ser. supplied togeth			DV0P3410 Single phase 3-phase (200 V)		

A5 Family

E Series

Information

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

		I	lotor				Driver		Power			Option	nal parts					Options (IP6	7 motor)	
						A5II series	A5IIE series		capacity	Encod	er Cable	Mot	or Cable	Bra					Title	Part No.
		Power	Output	Part No.	Rating/	A5 series Part No.	A5E series Part No.		/ at \	Encod	er Cable	WO	or cable	Cat	External	Reactor		Interface Cable		DV0P4360
Motor se	ries	supply	(W)	Note) 1	Spec. (page)	(Speed, Position, Torque, Full-Closed type) Note) 2	(Position control type) Note) 3,4	Frame	(rated load / (kVA)	20-bit Incrementa Note) 5	17-bit Absolute Note) 4,5,9	without Brake Note) 5	wit Bra Note	ke Note	Regenerative Resistor	Single phase 3-phase	Noise Filter	Interface Conve	ersion Cable	DV0P4120 DV0P4121 DV0P4130
		Single	1000	MSME102 [] 1 *	74	,			Approx. 1.8							DV0P228 DV0P222				DV0P4131 DV0P4132
		phase/ 3-phase 200 V	1500	MSME152 🗌 1 *	75	MDD 🔷 T5540	MDD 🔷 T5540E	D-frame	Approx. 2.3	-		MFMCD 0**2ECD		-	DV0P4284	DV0PM20047	- DV0P4220	Connector Kit	A-frame Single row type	D V 01 10120002
	_		2000	MSME202 [] 1 *	76	MED 🔷 T7364	MED 🔷 T7364E	E-frame	Approx. 3.3	MFECA 0**0ETD	MFECA 0**0ETE			-	DV0P4285 Note) 7	DV0P222 DV0P223	DV0PM20043	for Power Supply Input	D-frame Double row type	DV0PM20033
		3-phase	3000	MSME302 [] 1 *	77	MED $\bigcirc$ TA390	MFD $\bigcirc$ TA390F		Approx. 4.5	-					Note) 7	DV0P224		Connection	D-frame (400 V)	DV0PM20051
MSI		200 V	4000	MSME402 🗌 1 ∗	78	MFD $\bigcirc$ TB3A2	MFD $\bigcirc$ TB3A2E	F-frame	Approx. 6			MFMCA 0**3ECT	MFN 0**3I	-	DV0P4285 ×2 in parallel	DV0P225	DV0P3410	Connector Kit	E-frame (400 V)	DV0PM20052
3000 ı	r/min		750	MSME502 1 * MSME084 1 *	104	MDD 🔷 T2412	MDD $\bigcirc$ T2412E		Approx. 7.5 Approx. 1.6									for Control Power	D-frame and E-frame (400 V)	DV0PM2005
				MSME104 [] 1 * MSME154 [] 1 *		Ť	Ť	D-frame	Approx. 1.8 Approx. 2.3			MFMCD 0**2ECD	MFN 0**2F		DV0PM20048	5	Recommended	Supply Input Connection	A-frame to D-frame	DV0PM2003
		3-phase 400 V	2000	MSME204 🗌 1 *	107	MED 🔷 T4430	MED $\bigcirc$ T4430E	E-frame	Approx. 3.3	MFECA 0**0ETD	MFECA 0**0ETE			-	DV0PM20049	Note) 8	components	Connector Kit for Motor	E-frame (200 V)	DV0PM2004
		400 0	3000	MSME304 🗌 1 ∗	108	MFD $\bigcirc$ T5440	MFD $\bigcirc$ T5440E		Approx. 4.5	0 OLID	0 OLIL	MFMCA	MFN		DV0PM20049	,	P.252	Connection	D-frame (400 V)	DV0PM2005
				MSME404 🗌 1 * MSME504 🗌 1 *		•		F-frame	Approx. 6 Approx. 7.5	-		0**3ECT	0**3		×2 in parallel			Connector Kit for Regenerative	E-frame D-frame (400 V)	DV0PM200 DV0PM200
		Cinala														DV0P228		Resistor		DV0PM200
		Single phase/	1000	MDME102 1 *	80	MDD <> T3530	MDD $\bigcirc$ T3530E	D.	Approx. 1.8						DV0D (00 (	DV0P222		Connector Kit fo	nr.	DV0PM2003 DV0PM2003
		3-phase 200 V	1500	MDME152 🗌 1 *	81	MDD 🔷 T5540	MDD 🔷 T5540E	D-frame	Approx. 2.3			MFMCD 0**2ECD		-	DV0P4284	DV0PM20047	DV0P4220	Motor/Encoder		DV0PM200
	-		2000	MDME202 1 *	82	MED 🔷 T7364	MED 🔷 T7364E	E-frame	Approx 3.3					02	DV0P4285	DV0P222 DV0P223	DV0PM20043		RS485, RS232	DV0PM200 DV0PM201
				MDME302 [] 1 *	-			Linamo		MEECA	MFECA				Note) 7	DV0P224	D FOI MEOO IO		Safety	DV0PM201
				MDME302 1 *			-	E.framo	Approx. 4.5	0**0ETD	0**0ETE	MFMCA	MFN		DV0P4285	DV0F224	DV0P3410	Connector Kit	Interface External Scale	DV0P4350 DV0PM200
		3-phase		MDME402 1 *				I -IIdille	Approx. 0	-		0**3ECT	0**31	-CT	×2 in parallel	DV0P225	01010410		Encoder	DV0PM200 DV0PM200
		200 V						<u>.</u>		-					DV0P4285		Decommended		Analog Monitor Signa	
				MDME752 1 *		MGD $\bigcirc$ TC3B4	_	G-frame	Approx. 11			_	-		×3 in parallel		Recommended components	Battery For Abs	olute Encoder	DV0P2990
MDI	ME			MDMEC12 1 *		Ť	-	H-frame	Approx. 17	-		Note) 6	Note	) 6	DV0P4285	Note) 8	P.252	Battery Box No	te) 9	DV0P4430
2000 ו	r/min			MDMEC52 1 * MDME044 1 *					Approx. 22 Approx. 0.9						×6 in parallel			Mounting Bracket	D-frame	DV0PM200
			600	MDME064 🗌 1 ∗	112		MDD $\bigcirc$ T2407E	Dímes	Approx. 1.2	]		MFMCD	MEN		DV0PM20048	,		Encoder Cable	without Battery Box with Battery Box	
			1000	MDME104 [] 1 *	113	MDD 🔷 T2412	MDD 🔷 T2412E	D-marrie	Approx. 1.8	_		0**2ECD		-	DV0F1020040	2		Littoder Cable	Note) 9	MFECA0**0
			1500	MDME154 🗌 1 🗴	114	MDD 🔷 T3420	MDD $\bigcirc$ T3420E		Approx. 2.3	-						_				MFMCA0**2
		<b>.</b>		MDME204 1 *				E-frame			MEEOA				DV0PM20049	)	Recommended			MFMCD0**2
		3-phase 400 V		MDME304 [] 1 * MDME404 [] 1 *				F.	Approx. 4.5	MFECA 0**0ETD	MFECA 0**0ETE	MFMCA	MFN	ICA –	DV0PM20049	Note) 8	components		without Brake	MFMCE0**2
		100 1		MDME404 1 *				r-trame	Approx. 0 Approx. 7.5	-	0 OLIL	0**3ECT	0**31	CT	×2 in parallel	1101070	P.252	Motor Cable		MFMCF0**2 MFMCA0**3
				MDME754 [] 1 *				G-frame	Approx. 11	-			_		DV0PM20049 ×3 in parallel					MFMCD0**3 MFMCA0**2
			11000	MDMEC14 [] 1 *	120	MHD	_		Approx. 17	-		Note) 6	Note		DV0PM20049	-			with Brake	MFMCE0**2
				MDMEC54 [] 1 *			-	H-frame	Approx. 22	-		, .		, -	×6 in parallel	, 				MFMCA0**3
		Single																	50 Ω 25 W	DV0P4280
		phase/ 3-phase	1500	MFME152 🗌 1 *	89	MDD $\bigcirc$ T5540	MDD $\bigcirc$ T5540E	D-frame	Approx. 2.3			MFMCA 0**2ECD	MFN 0**2F		DV0P4284	DV0PM20047	DV0P4220		100 Ω 25 W	DV0P4281
		200 V								MFECA	MFECA	U-2ECD	021			DV0P222		External	25 Ω 50 W 50 Ω 50 W	DV0P4282 DV0P4283
	AE		2500	MFME252 1 *	00		MED 🛇 T7364E	E trans	Approv. 2.0		0**0ETE	MFMCF	MFN		DV0P4285	DV0P224	DV0PM20043	Regenerative	30 Ω 100 W	DV0P4283 DV0P4284
MFN		3-phase	2000		90			L-Irame	Approx. 3.8	_		0**2ECD			Note) 7	D VUF 224		Resistor	20 Ω 130 W	DV0P4285
(Flat t 2000 i		200 V	4500	MFME452 🗌 1 *	91	MFD $\bigcirc$ TB3A2	MFD $\bigcirc$ TB3A2E	F-frame	Approx. 6.8			MFMCD 0**3ECT			DV0P4285 x2 in parallel	Note) 8	DV0P3410		120 Ω 80 W	DV0PM2004
_0001			1500	MFME154 🗌 1 ∗	122	MDD 🔿 T3420	MDD 🔿 T3420E	D-frame	Approx. 2.3			MFMCF	MFN		DV0PM20048	,	Recommended		80 Ω 190 W DV0P220, DV0P221	DV0PM2004
		3-phase 400 V		MFME254 🗌 1 ∗						0**0FTD	MFECA 0**0ETE	0**2ECD MFMCD			DV0PM20049 DV0PM20049		components	Reactor	DV0P223, DV0P224 DV0P227, DV0P228	, DV0P225,
			4500	MFME454 🗌 1 ∗	124	MFD $\diamondsuit$ TA464	MFD $\bigcirc$ TA464E	F-frame	Approx. 6.8		V VLIL	0**3ECT			×2 in parallel	· ·	P.252	Noise Filter	DV0P4170, DV0PM2 DV0P4220, DV0PM2	20042
				ons: 🗌 Motor spe											the connector kit				DV0P3410	
, .				I series H: A5 s		,						Note) 7	Other cor	nbinations	exist, and refer to	o P.210 for deta	ails.		Single phase	DV0P4190
				s drivers (dedicate			o not support the	17-bit	absolute s	specification	n,	,			repared by the u		or with 17 hit	Surge Absorber	3-phase (200V)	DV0P1450
-			•••	can be used in co 05: 5 m, 10: 10 m,								,			battery is not s ble (with battery	•••			3-phase (400V)	DV0PM200
	IND ION	um:^^ (O	s∵s m	un n 10.10 m	20120	unu (Evampla '		$\rightarrow \Delta N/I$							unio (milii Dallely	NUAL.		Ferrite core		DV0P1460

26

# 0.9 kW to 7.5 kW IP67 motor (MGME)

						Driver		Power			Optional parts					Options (IP6		Dout No.
		Motor			A5II series A5 series	A5IIE series A5E series		capacity	Encode	er Cable	Motor Cable	e	ake			Jata da sa Oshia	Title	Part No.
Motor series	Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	Part No. (Speed, Position, Torque, Full-Closed type)	Position control (Position control)	Frame	(at rated load) (kVA)	20-bit Incremental	17-bit Absolute	without with Brake Brak	with Brake Not	ble External Regenerativ Resistor	Single phase	Noise Filter	Interface Cable		DV0P4360 DV0P4120 DV0P4121
	Single phase/	900		00	Note) 2		Di		Note) 5	Note) 4,5,9	MFMCD MFMC	ote) 5	DV0P4284	DV0P228	DV0P4220	Interface Conve	ersion Cable	DV0P4130 DV0P4131 DV0P4132
	3-phase 200 V	900	MGME092 🗌 1 🜸	92	MDD 🔿 15540	MDD $\diamondsuit$ T5540E	D-trame	Approx. 1.0			0**2ECD 0**2F0	2FCD	DV0P4284	DV0P221	DV0P4220		A-frame Single row type	DV0PM20032
			MGME202 [] 1 *		v	V		Approx. 3.8		MFECA	MFMCA MFM0	FMCA	DV0P4285	DV0P223		Connector Kit for Power	to D-frame type	DV0PM2003
	3-phase		MGME302 🗌 1 * MGME452 🗌 1 *			MFD $\bigcirc$ TB3A2E MFD $\bigcirc$ TB3A2E		Approx. 4.5 Approx. 7.5	0**0ETD	0**0ETE	0**3ECT 0**3F		×2 in paralle	DV0P224 DV0P225	DV0P3410	Supply Input Connection	E-frame (200 V) D-frame (400 V)	DV0PM2004 DV0PM2005
MGME /Low speed High torqu	200 V		MGME602 🗌 1 *		MGD $\diamondsuit$ TC3B4			Approx. 9.0					DV0P4285		Recommended components	Connector Kit	E-frame (400 V)	DV0PM2005
1000 r/mir	1	000	MGME094 [] 1 *				D.				Note) 6 Note)	ote) 6 FMCE	×3 in paralle	-	P.252	for Control Power Supply Input Connection	D-frame and E-frame (400 V)	DV0PM2005
			MGME204 [] 1 *		·	Ť	D-trame	Approx. 1.0			0**2ECD 0**2F0	2FCD	DV0PM2004	o 	Decommended	Connector Kit	A-frame to D-frame	
	3-phase 400 V		MGME304 [] 1 *		-	-	F-frame	Approx 4.5	MFECA 0**0ETD	MFECA 0**0ETE	MFMCA MFM0 0**3ECT 0**3F0		DV0PM2004 ×2 in paralle		Recommended components	for Motor Connection	E-frame (200 V) D-frame (400 V)	DV0PM2004 DV0PM2005
	400 1	4500	MGME454 🗌 1 ∗	128	MFD $\diamondsuit$ TA464	MFD $\bigcirc$ TA464E	]	Approx. 7.5	0 OLID	0 OLIL		5101			P.252	Connector Kit for Regenerative	E-frame	DV0PM200
		6000	MGME604 🗌 1 ∗	129	MGD $\diamondsuit$ TB4A2	_	G-frame	Approx. 9.0				ote) 6	DV0PM2004 ×3 in paralle			Resistor	D-frame (400 V)	DV0PM2003 DV0PM2003
	Single phase/	1000	MHME102 🗌 1  *	97	MDD 🔷 T3530	MDD 🔷 T3530E	D-frame	Approx. 1.8			MFMCD MFMC	-	DV0P4284	DV0P228 DV0P222	DV0P4220	Connector Kit fo Motor/Encoder	Connection	DV0PM2003 DV0PM2003
	3-phase 200 V	1500	MHME152 🗌 1 *	98	MDD 🔷 T5540	MDD $\bigcirc$ T5540E		Approx. 2.3			0**2ECD 0**2F0	2FCD	D V0F 4204	DV0PM20047	D V 0F 4220		RS485, RS232	DV0PM200 DV0PM201
		2000	MHME202 🗌 1 *	99	MED 🔷 T7364	MED 🔷 T7364E	E-frame	Approx. 3.3	MFECA	MEEOA	MFMCE MFMC 0**2ECD 0**2F0		DV0P4285	DV0P223	DV0PM20043	Connector Kit	Safety Interface	DV0PM201 DV0P4350
		3000	MHME302 🗌 1 *	100	MFD $\bigcirc$ TA390	MFD $\bigcirc$ TA390E		Approx. 4.5	0**0ETD	MFECA 0**0ETE			_ Note) 8	DV0P224			External Scale Encoder	DV0PM200 DV0PM200
	3-phase	4000	MHME402 🗌 1 ∗	101	MFD $\diamondsuit$ TB3A2	MFD $\diamondsuit$ TB3A2E	F-frame				MFMCA MFM0 0**3ECT 0**3F0	-	DV0P4285 ×2 in paralle	DV0P225	DV0P3410	Detter Con Ale	Analog Monitor Signal	DV0PM200
	200 V	5000	MHME502 🗌 1 🗴	102	MFD $\bigcirc$ TB3A2	MFD $\bigcirc$ TB3A2E		Approx. 7.5						D TOT LED		Battery For Abs Battery Box No		DV0P2990 DV0P4430
MHME 2000 r/mir	1	7500	MHME752 🗌 1 ∗	103	MGD $\diamondsuit$ TC3B4	_	G-frame	Approx. 11			Note) 6 Note)	 ote) 6	DV0P4285 ×3 in paralle	 Note) 7	Recommended components	Mounting Bracket	D-frame	DV0PM200
														,	P.252		without Battery Box	MFECA0**0
			MHME104 🗌 1 * MHME154 🗌 1 *				D-frame	Approx. 1.8 Approx. 2.3			MFMCD 0**2ECD MFM0	FMCE	DV0PM2004	8		Encoder Cable	with Battery Box Note) 9	MFECA0**
		2000	MHME204 🗌 1 *	132	MED $\bigcirc$ T4430	MED $\bigcirc$ T4430E	E-frame	Approx. 3.3			MFMCE 0**2F0 0**2ECD	2FCD	DV0PM2004	9	Recommended			MFMCA0**
	3-phase 400 V		MHME304 🗌 1 ∗					Approx. 4.5	MFECA 0**0ETD	MFECA 0**0ETE	MFMCA MFM0		 DV0PM2004	 Note) 7	components		without Brake	MFMCE0**2 MFMCF0**2
			MHME404 🗌 1 *			-	-	Approx. 6 Approx. 7.5			0**3ECT 0**3F		×2 in paralle		P.252	Motor Cable		MFMCA0**3
			MHME304 1 *		· -	· -		Approx. 7.3				-	DV0PM2004					MFMCA0**2 MFMCE0**2
			ons:  Motor spe		-						Note) 6 Note)	ote) 6	×3 in paralle	1			with Brake	MFMCA0**3
			I series H:A5 s			. 10)											50 Ω 25 W	DV0P4280
ě.		-	IE series H: A5 S														100 Ω 25 W 25 Ω 50 W	DV0P4281 DV0P4282
•			es drivers (dedicate			) do not sunnort t	the 17	-hit absolu	te snecific	ation						External	50 Ω 50 W	DV0P4283
			pe can be used in													Regenerative	30 Ω 100 W	DV0P4284
-		-	05: 5 m, 10: 10 m,			3 m: MFFCA0030	(MAA)									Resistor	20 Ω 130 W	DV0P4285
	•		nnector kit of optior		.,, ( <u></u> ,  pio. (													DV0PM200
	-		ed by the user.														80 Ω 190 W	DV0PM200
B Other	combinatior	is exist,	and refer to P.210 t is not supplied tog			ute encoder cable	(with l	battery box	().							Reactor	DV0P220, DV0P221 DV0P223, DV0P224 DV0P227, DV0P228	DV0P225,
			t number "DV0P29					-	-							Noise Filter	DV0P4170, DV0PM2 DV0P4220, DV0PM2 DV0P3410	
																	01010410	
																	Single phase	1)VIIP2IIUI
																Surge Absorber	Single phase 3-phase (200 V) 3-phase (400 V)	DV0P4190 DV0P1450 DV0PM200

# **Driver Specifications**

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

		100.1/	Main	circuit	Single phase, 100 V to 120 V +10 % -15 % 50 Hz/60 Hz		
		100 V	Contro	ol circuit	Single phase, 100 V to 120 V +10 % -15 % 50 Hz/60 Hz		
			Main	A-frame to D-frame	Single/3-phase, 200 V to 240 V +10 % -15 % 50 Hz/60 Hz		
	Input	200 V	circuit	E-frame to H-frame	3-phase, 200 V to 230 V +10 % -15 % 50 Hz/60 Hz		
	Input power	200 V	Control	A-frame to D-frame	Single phase, 200 V to 240 V +10 % -15 % 50 Hz/60 Hz		
			circuit	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		
		400 V	Control circuit	D-frame to H-frame	DC 24 V ± 15 %		
			tempe	erature	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 <sup>*1</sup> )		
	Env	vironment	hum	nidity	Both operating and storage : 20 % to 85 %RH (free from condensation <sup>*1</sup> )		
			Alti	tude	Lower than 1000 m		
			Vibr	ation	5.88 m/s <sup>2</sup> or less, 10 Hz to 60 Hz (No continuous use at resonance frequency)		
	Cor	ntrol meth	nod		IGBT PWM Sinusoidal wave drive		
Ва	Enc	Encoder feedback			17-bit (131072 resolution) absolute encoder, 7-wire serial 20-bit (1048576 resolution) incremental encoder, 5-wire serial		
sic Spe				A/B phase	A/B phase, initialization signal defferential input.		
Basic Specifications		Feedback scale feedback		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		
	-		I signal Output		General purpose 10 inputs The function of general-purpose input is selected by parameters.		
	Parallel	Control			General purpose 6 outputs The function of general-purpose output is selected by parameters.		
	Ю		Input		3 inputs (16Bit A/D : 1 input, 12Bit A/D : 2 inputs)		
	conn	Analog	signal	Output	2 outputs (Analog monitor: 2 output)		
	connector			Input	2 inputs (Photo-coupler input, Line receiver input)		
	7	Pulse si	gnal	Output	4 outputs ( Line driver: 3 output, open collector: 1 output)		
				USB	Connection with PC etc.		
		mmunicat ction	tion	RS232	1 : 1 communication		
	Turn	otion		RS485	1 : n communication up to 31 axes to a host.		
	Saf	ety functi	on		Used for functional safety.		
	Fro	nt panel			<ul> <li>(1) 5 keys (2) LED (6-digit)</li> <li>(3) Connector for monitor (Analog monitor output (2ch), Digital monitor output (1ch))</li> </ul>		
	Re	generatio	n		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.)		
	Dyr	namic bra	ıke		A-frame to G-frame: Built-in (external resistor is also available to G-frame) H-frame: External only		
	Cor	ntrol mod	e		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		
	(0) Spee						

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

\*2 Not applicable to 2DOF control system.

		Control inpu	ıt	(1) Deviation
		Control Inpt	1	(3) Electric g
		Control outp	put	Positioning of
			Max. command pulse	Exclusive int
	Position control		frequency	Exclusive int
				Differential in
		Pulse	Input pulse signal format	((1) Positive direction)
		input	Electronic gear	direction)
			(Division/Multiplication of	1/1000 times
	ntr		command pulse)	
	으		Smoothing filter	Primary dela
		Analog	Torque limit command input	Individual to
		input	Torque feed forward input	Analog volta
		Instantaneo	us Speed Observer	Available
		Damping Co	ontrol	Available
		2DOF settin	igs	Only available
				(1) Selection
		Control inpu	ıt	setup 2
		-	(3) Selection	
		Control outp	but	Speed arriva
			Valaaity command input	Speed comn Parameters
	S	Analog input	Velocity command input	(6 V/Rated i
	Speed control		Torque limit command input	Individual to
	å		Torque feed forward input	Analog volta
	nt	Internal velo	ocity command	Switching the
	<u>ō</u>		Individual s	
		Soft-start/do	own function	to 10 s/100
		Zero-speed	clamp	Speed zero
			us Speed Observer	Available
Ē		Speed Cont	trol filter	Available
Function		2DOF settir	igs	Only available
on	٦	Control inpu	Speed zero	
	Forque control	Control outp	out	Speed arriva
	le c	Analog		Speed comn
	ont	input	Torque command input	Parameters
	rol *₂			torque Defa
		Speed limit	function	Speed limit v
		Control inpu	<ul><li>(1) Deviation</li><li>(3) Comman</li></ul>	
		Control inpt	switching e	
		Control outp	Full-closed p	
			Max. command pulse	Exclusive int
	Full-closed control *2		frequency	Exclusive int
	<u> </u>	Pulse	Input pulse signal format	Differential ir
	se	input	Electronic gear (Division/	
	0	mpar	Multiplication of command	1/1000 times
	ntr		pulse)	<u> </u>
	<u>o</u>		Smoothing filter	Primary dela
	10	Analog	Torque limit command input	Individual to
		input	Torque feed forward input	Analog volta
		feedback so	e of division/multiplication of	1/40 times to
		Damping Co		Available
	<u> </u>	Damping C		The load ine
				operating ac
		Auto tuning		set up suppo
	0			accordance
	Öm	Division of e	encoder feedback pulse	Set up of any
	Common		Hard error	Over-voltage
	Ē	Protective		over-heat, ov
		function	Soft error	Excess posi
		Traccability	of alarm data	etc. The alarm da
		Taceability	of alarm data	ine aidini üä

n counter clear (2) Command pulse inhibitation gear (4) Damping control switching etc.

complete (In-position) etc.

nterface for Photo-coupler: 500 kpps

nterface for line driver : 4 Mpps

input

re and Negative direction, (2) A and B-phase, (3) Command and

es to 1000 times

lay filter or FIR type filter is adaptable to the command input orque limit for both positive and negative direction is enabled. tage can be used as torque feed forward input.

le at A5I Series

on of internal velocity setup 1 (2) Selection of internal velocity

on of internal velocity setup 3 (4) Speed zero clamp etc. val etc.

mand input can be provided by means of analog voltage. s are used for scale setting and command polarity.

rotational speed Default)

orque limit for both positive and negative direction is enabled. tage can be used as torque feed forward input.

the internal 8speed is enabled by command input.

setup of acceleration and deceleration is enabled, with 0 s 00 r/min. Sigmoid acceleration/deceleration is also enabled.

le at A5∎ Series

clamp, Torque command sign input etc.

val etc.

mmand input can be provided by means of analog voltage. s are used for scale setting and command polarity. (3 V/rated fault)

value with parameter is enabled.

on counter clear (2) Command pulse inhibition

and dividing gradual increase switching (4) Damping control etc.

positioning complete etc.

nterface for Photo-coupler: 500 kpps

nterface for line driver : 4 Mpps

input

es to 1000 times

lay filter or FIR type filter is adaptable to the command input orque limit for both positive and negative direction is enabled. tage can be used as torque feed forward input.

to 160 times

ertia is identified in real time by the driving state of the motor according to the command given by the controlling device and port software "PANATERM". The gain is set automatically in e with the rigidity setting.

ny value is enabled (encoder pulses count is the max.).

ge, under-voltage, over-speed, over-load,

over-current and encoder error etc.

sition deviation, command pulse division error, EEPROM error

data history can be referred to.

# **Driver Specifications**

# A5IIE, A5E series (Position control type)

	100.1/	Main	circuit	Single phase, 100 V to 120 V +10 % -15 % 50 Hz/60 Hz		
	100 V	Control circuit		Single phase, 100 V to 120 V $^{+10\%}_{-15\%}$ 50 Hz/60 Hz		
		Main	A-frame to D-frame	Single/3-phase, 200 V to 240 V +10 % -15 % 50 Hz/60 Hz		
Input p	200 V	circuit	E-frame to F-frame	3-phase, 200 V to 230 V +10 % -15 % 50 Hz/60 Hz		
oower	200 V	Control	A-frame to D-frame	Single phase, 200 V to 240 V +10 % -15 % 50 Hz/60 Hz		
		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		
	400 V	Control circuit	D-frame to F-frame	DC 24 V ± 15 %		
	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 <sup>*1</sup> )		
Env	rironment	humidity		Both operating and storage : 20 % to 85 %RH (free from condensation <sup>*1</sup> )		
		Alti	tude	Lower than 1000 m		
		Vibr	ation	5.88 m/s <sup>2</sup> or less, 10 Hz to 60 Hz (No continuous use at resonance frequency)		
Cor	Control method			IGBT PWM Sinusoidal wave drive		
Enc	coder feed	lback		20-bit (1048576 resolution) incremental encoder, 5-wire serial		
Pa	Control	Input		General purpose 10 inputs The function of general-purpose input is selected by parameters.		
ırallel I/(	Control	Signal	Output	General purpose 6 outputs The function of general-purpose output is selected by parameters.		
	Analog s	sianal	Input	none		
nnec		J	Output	2 outputs (Analog monitor: 2 output)		
tor	Pulse si	gnal	Input	2 inputs (Photo-coupler input, Line receiver input)		
0.1			Output	4 outputs ( Line driver: 3 output, open collector: 1 output)		
		ion	USB	Connection with PC etc.		
Fro	nt panel			(1) 5 keys (2) LED (6-digit) (3) Analog monitor output (2ch)		
Reg	generatio	n		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.)		
Dyr	namic bra	ke		Built-in		
Cor	ntrol mode	e		(1) Position control (2) Internal velocity control (3) Position/ Internal velocity control		
	Con Enco Parallel I/O connector Con fun Fro Reg	400 V         400 V         400 V         Environment         Control meth         Environment         Analog s         Parallel VO on trol         Analog s         Pulse si         Communicati         function         Front panel         Regeneration         Dynamic bra	+ 100 V   -	Image: state strain		

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

		Control inpu	<ol> <li>(1) Deviation</li> <li>(3) Electric</li> </ol>	
		Control outp	Positioning	
		Pulse input	Max. command pulse frequency	Exclusive ir Exclusive ir
	Position control		Input pulse signal format	Differential ((1) Positiv direction)
	control		Electronic gear (Division/ Multiplication of command pulse)	1/1000 time
п			Smoothing filter	Primary del
Functior		Instantaneo	Available	
Ŋ		Damping Co	Available	
		2DOF settin	gs	Only availab
		Auto tuning	The load in operating a up support The gain is	
	Co	Division of e	Set up of a	
	Common	Protective	Hard error	Over-voltag over-heat, o
		function	Soft error	Excess por etc.
		Traceability	of alarm data	The alarm of

ion counter clear (2) Command pulse inhibitation c gear (4) Damping control switching etc.

ig complete (In-position) etc.

interface for Photo-coupler: 500 kpps interface for line driver : 4 Mpps

## l input

ive and Negative direction, (2) A and B-phase, (3) Command and

nes to 1000 times

elay filter or FIR type filter is adaptable to the command input

able at A5IE Series

inertia is identified in real time by the driving state of the motor according to the command given by the controlling device and set rt software "PANATERM".

is set automatically in accordance with the rigidity setting.

any value is enabled (encoder pulses count is the max.).

age, under-voltage, over-speed, over-load, , over-current and encoder error etc.

osition deviation, command pulse division error, EEPROM error

h data history can be referred to.

A5 Family

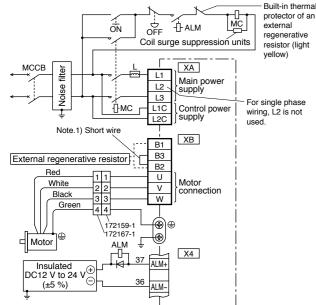
Series

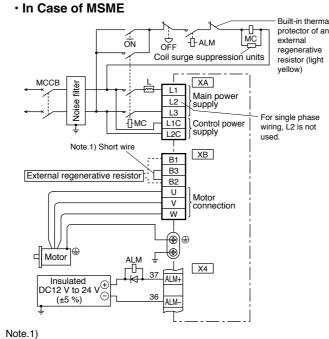
Wiring Diagram

# 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)

Note 1

Frame	Short wire	Built-in regenerative resistor	Connection of the connector XB			
No.	(Accessory)		In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.		
A-frame B-frame			Always open between B2-B3     Connect an external regenerative resistor between B1-B2	Always open between B2-B3		
C-frame D-frame		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		

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

Built-in thermal

protector of an

In case of not using

an external regenerative resistor.

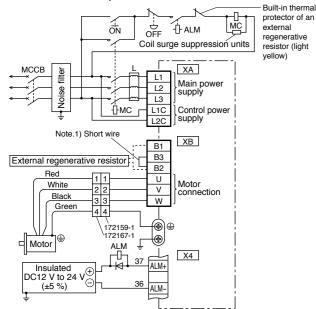
Shorted between B2-B3 with an

attached short wire

Always open between B2-B3

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

## In Case of MSMD, MHMD



OFF Coil surge suppression units	<ul> <li>Built-in therma protector of a external regenerative resistor (light</li> </ul>
MCCB WCCB	yellow)
Note. 1) Short wire B1 XB External regenerative resistor B2	
Wotor connection	
$\begin{array}{c c} & & & & & \\ \hline Motor \\ \hline \\ \hline Motor \\ \hline \\ \hline Motor \\ \hline \\ $	
Note.1)	
Frame Short wire Built-in Connection of the connector XB	

In case of using

een B2-B3

an external regenerative resistor.

Connect an external regenerativ

sistor between B1-B2 Remove the short wire accessor from between B2-B3.

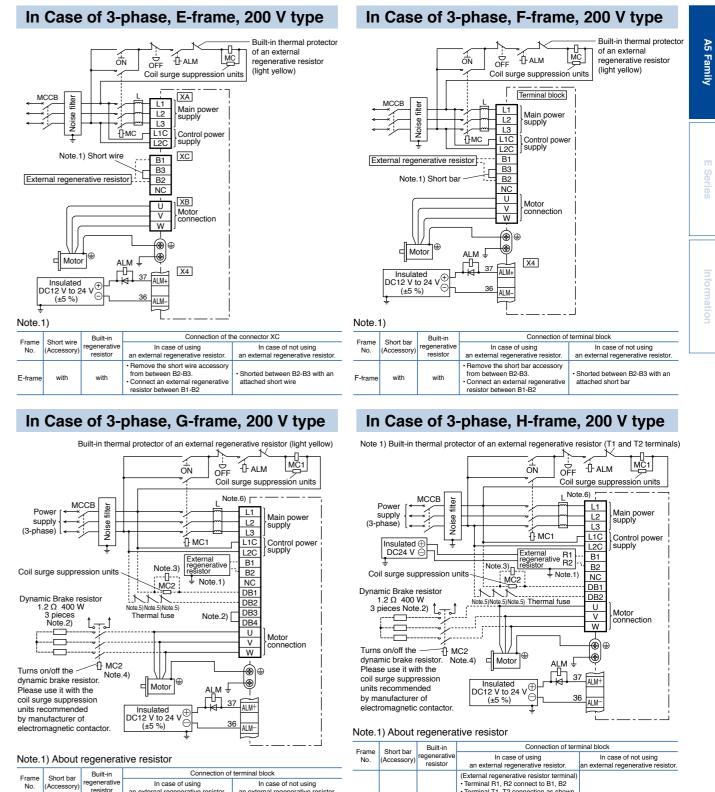
Connect an external rege

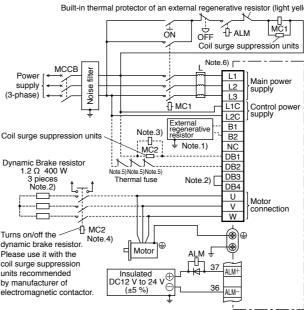
resistor between B1-B2

In Case of MSME

Frame No.	Short wire	Built-in	Connection of the connector XB			
	(Accessory)	regenerative resistor	In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.		
A-frame B-frame		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.





	,					,	resistor	an external regenerative resistor.	an external regenerative resistor.			
Frame	Short bar	Built-in	Connection of terminal block					(External regenerative resistor terminal)				
No.	(Accessory)	regenerative resistor	In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.				Terminal R1, R2 connect to B1, B2     Terminal T1, T2 connection as shown				
G-frame	without	without	Connect an external regenerative resistor between B1-B2	Open between B1-B2	H-frame	without	without	without	e without w		above • Terminal 24 V, 0 V connect to DC	Open between B1-B2
Note.	Note.2) About dynamic brake resistor							<ul> <li>power supply of DC24 V.</li> <li>E terminal connect to the ground</li> </ul>				
<b>F</b>	Short bar	Built-in	Connection of	f terminal block	Specification of external regenerative resistor, please refer to P.139, "Options Components".							
Frame No.	(Accessory)	dynamic brake resistor.	In case of using an external dynamic brake resistor.	In case of not using an external dynamic brake resistor.	Note.2) About dynamic		About dynamic brake resistor					
			Remove attached short bar		Frame	Short bar	Built-in	Connection of te	erminal block			
G-frame	with	with	between DB3-DB4. • Connect external dynamic brake	<ul> <li>Shorted with attached short bar between DB3-DB4</li> <li>Open between DB1-DB2</li> </ul>		(Accessory)	dynamic brake resistor.	In case of using an external dynamic brake resistor.	In case of not using an external dynamic brake resistor.			
	<pre>common for G &amp; H frame&gt;</pre>					without	without	Connect external dynamic brake resistor as shown above.	Open between DB1-DB2			

10n 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.

Frame Short wire

vithou

with

with

No.

A-frame B-frame

C-frame D-frame

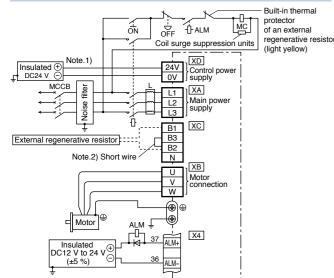
# Wiring Diagram

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

DC12 V to 24 V

(±5 %)

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

In Case of 3-phase, G-frame, 400 V type Built-in thermal protector of an external regenerative resistor (light yellow [MC1] ÓŇ OFF - ALM Coil surge suppression units Note.7) MCCB Main powe vlaque supply (3-phase) Note.3) . ☐ MC1 Control power Insulated ⊕ DC24 V ⊖ supply Power supply External regenerative resistor - Note.1) (Neutral point) The AC voltage across DB1 and DB2 must be 300 V or below. Note.4) Dynamic Brake resistor 4.8 Ω 400 W Note.6)Note.6)Note.6) Thermal fuse Note.2) 3 pieces Note.2) ----U Motor V onnection w ћ мс2 Turns on/off the Note.5) dynamic brake resistor. Motor ALM Please use it with the 37 ALM+ coil surge suppression Insulated units reco DC12 V to 24 V (±5 %) by manufacturer of 36 ALM-Note.1) About regenerative resistor Built-in Connection of terminal block Short ha In case of not using In case of using generativ resistor an external regenerative resisto ernal regenerative Connect an external regenerative without Open between B1-B2 G-frame without resistor between B1-B2 Note.2) About dynamic brake resisto Built-in Connection of Frame No. Short bar namic brak In case of using an external dynamic brake resistor In case of not using resistor an external dynamic brake resistor Remove attached short bar Shorted with attached short bar en DB3-DB4 between DB3-DB4 • Open between DB1-DB2 G-frar with onnect external dynamic brake

### In Case of 3-phase, F-frame, 400 V type Built-in the protector б'n OFF - ALM of an externa regenerative resisto Coil surge suppression units (light yellow) Terminal block 24V DC24 V Control power supply 0V MCCB L1 Main nower lague MC External regenerative resistor Note.2) Short bar Motor W ALM 1 Motor

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

ALM-

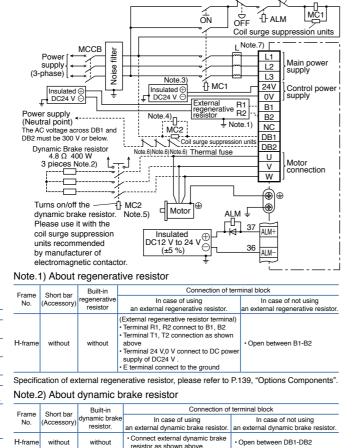
37 ALM+

X4

Frame No.	Short bar	Built-in		terminal block	
	(Accessory)	regenerative resistor	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, H-frame, 400 V type

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



### <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 A5IE, 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)

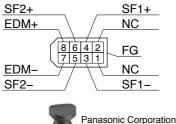
The safe torque off (STO) function is a safety function that shuts the motor current and turns off motor output torque by forcibly turning off the driving signal of the servo driver internal power transistor. For this purpose, the STO uses safety input signal and hardware (circuit). When STO function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

- conforms to the safety requirements.
- assessment.
  - holding and it cannot be used for braking application.
  - not cause any problem.
- electrical angle (max.). Make sure that this does not cause any problem.
- disconnecting device.
- than failure monitoring.
- danger condition.
- When using STO function, connect equipment conforming to the safety standards.

[Connector pin assignment] (Viewed from cable)



System configuration



# A5 Family

# **Safety Function**

When using the STO function, be sure to perform equipment risk assessment to ensure that the system

· Even while the STO function is working, the following potential safety hazards exist. Check safety in risk

· 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

• 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

· When power transistor, etc., becomes defective, the motor will move to the extent equivalent of 180

 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

External device monitor (EDM) output signal is not a safety signal. Do not use it for an application other

 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

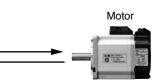
Emergency stop switch

STO signal (Safe torque off)

EDM output



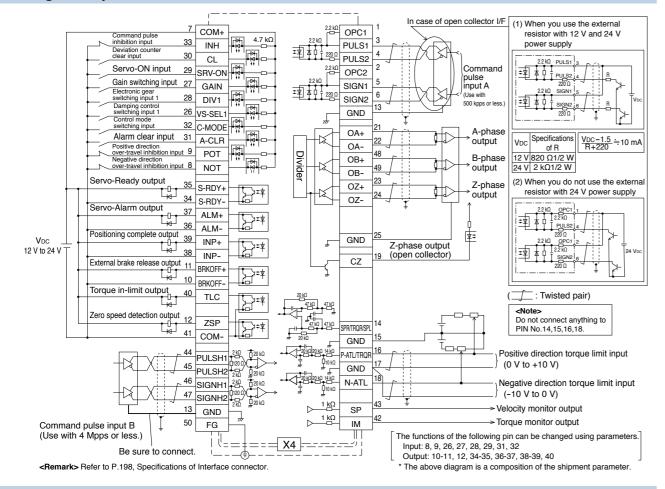




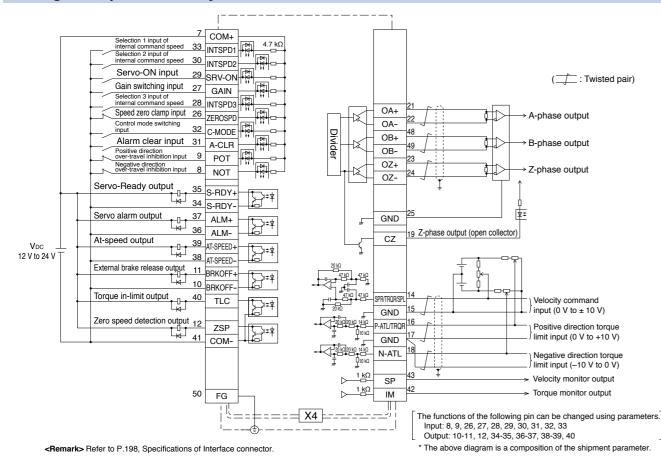
Panasonic Corporation Automotive & Industrial Systems Company http://panasonic.net/id/

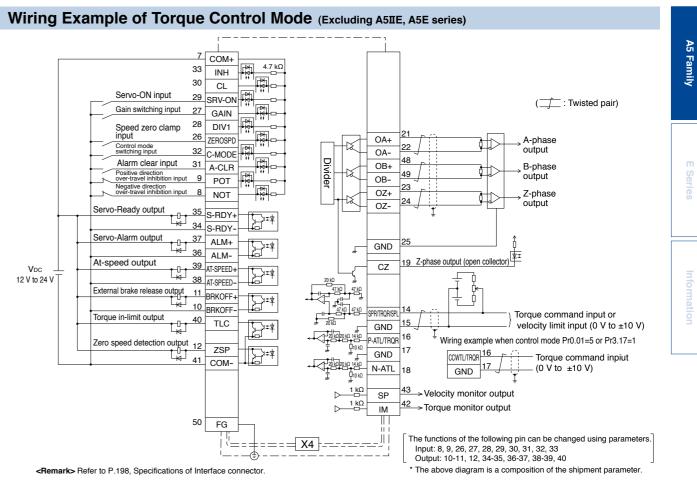
### Wiring to the Connector, X4 **Control Circuit Diagram**

# Wiring Example of Position Control Mode

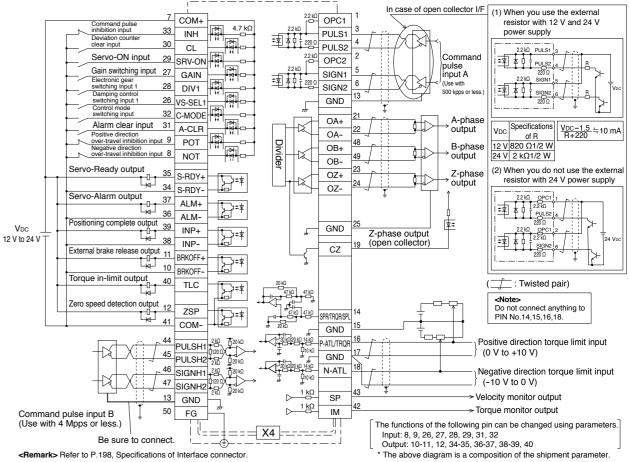


## Wiring Example of Velocity Control Mode (Excluding A5IIE, A5E series)





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



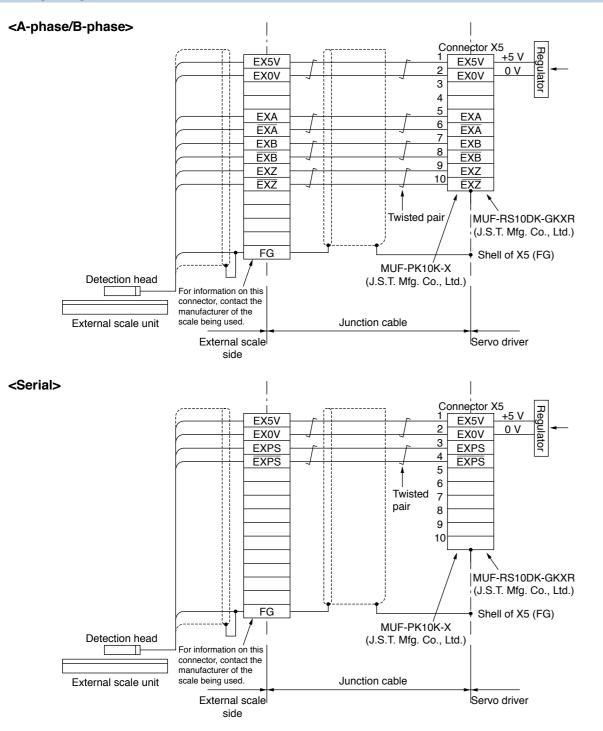
### Wiring to the Connector, X5 (Excluding A5IIE, A5E series) **Control Circuit Diagram**

# **Applicable External Scale**

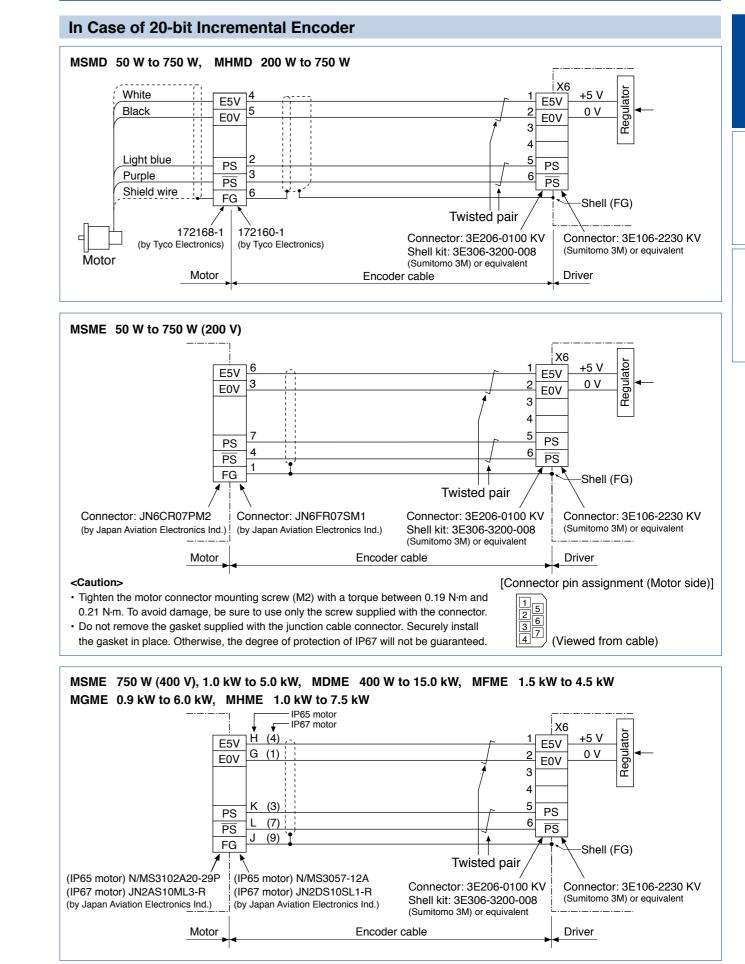
The manufacturers applicable external scales for this product are as follows.

- 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



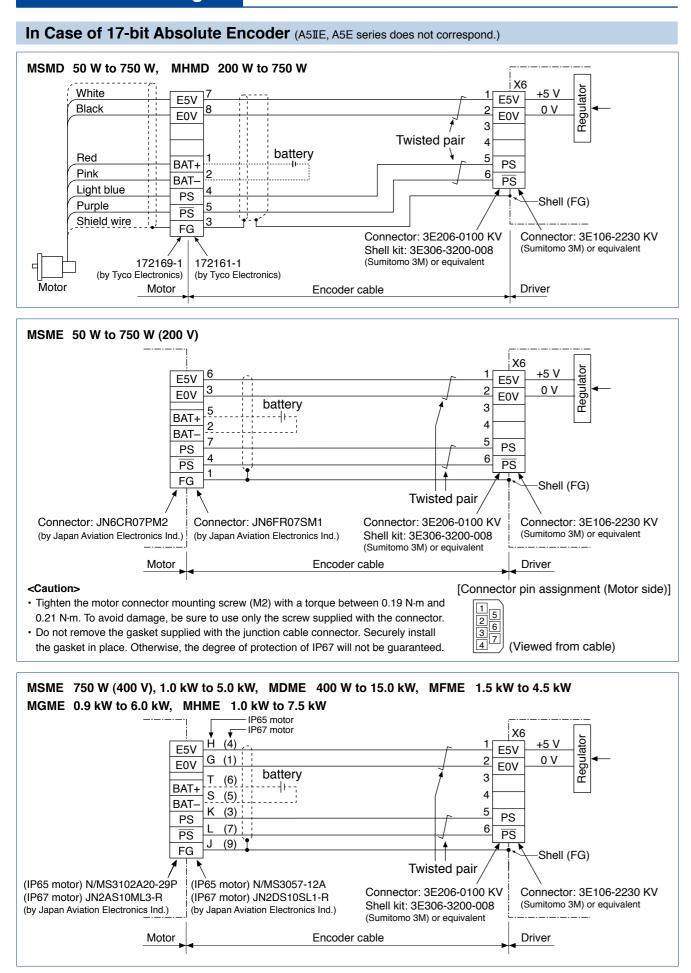
# Wiring to the Connector, X6



<sup>[</sup>Connector pin assignment] Refer to P.186, P.187 "Specifications of Motor connector".

# A5 Family **Control Circuit Diagram**

# Control Circuit Diagram Wiring to the Connector, X6

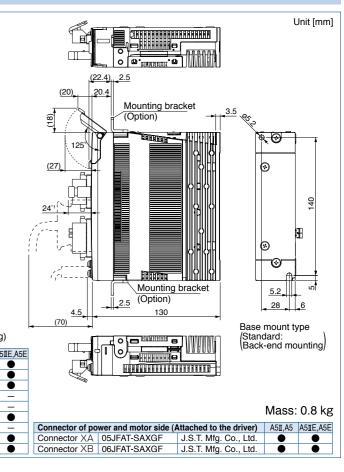


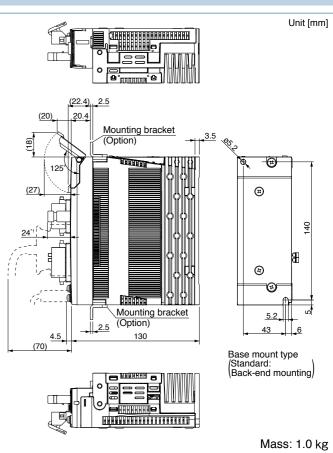
[Connector pin assignment] Refer to P.186, P.187 "Specifications of Motor connector".

A-frame 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 ŦŢ input terminals -X1 б -X2 Control power input terminals n -X3 8 2 2 XB -X4 Terminals for external regenerative resistor Terminals for motor BÖ connection -X5 ŏœ -X6 ŏŒ Name plate 5.2 7 Rack mount type (Option: Front-end mounting) Connector of driver side A5II,A5 A5IIE,A5E J.S.T. Mfg. Co., Ltd. J.S.T. Mfg. Co., Ltd. Connector XA S05B-F32SK-GGXR • • Connector XB S06B-F32SK-GGXR Connector X1 UB-M5BR-DMP14-4S (or equin ent) 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 J.S.T. Mfg. Co., Ltd. Connector X5 MUF-RS10DK-GKXR (or equivalent) • Connector X6 3E106-2230 KV (or equivalent) Sumitomo 3M Connector X7 530140610 (or equivalent Japan Molex Inc. ۲ • **B-frame** X1: USB connector X2: BS232/485 communication connector X3: Safety function connector X4: Interface connector 47 X5: For external scale connection X6: For encoder connection \$5 X7: For analog monitor signal connection X7 ХA B -X1 Main power ⊢x2 input terminals -x3 Control power 20 input terminals XB Terminals for external -X4 regenerative resistor Terminals for motor G -X5 П connection ŏœ ŏle ⊢x6 Name plate . 5.2 7 Rack mount type (Option: Front-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.

# A5 Family Dimensions of Driver



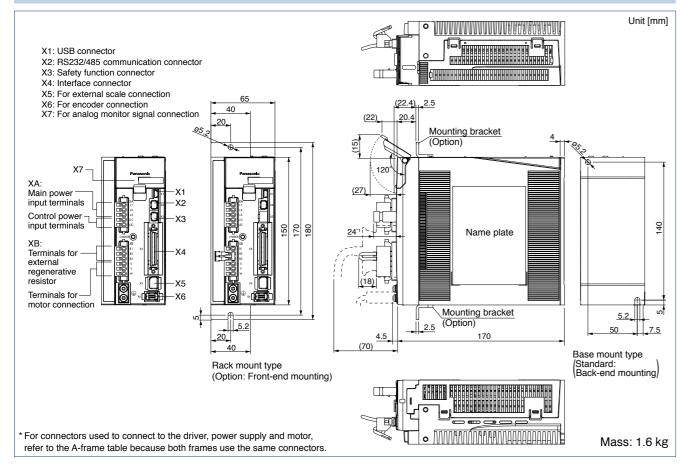




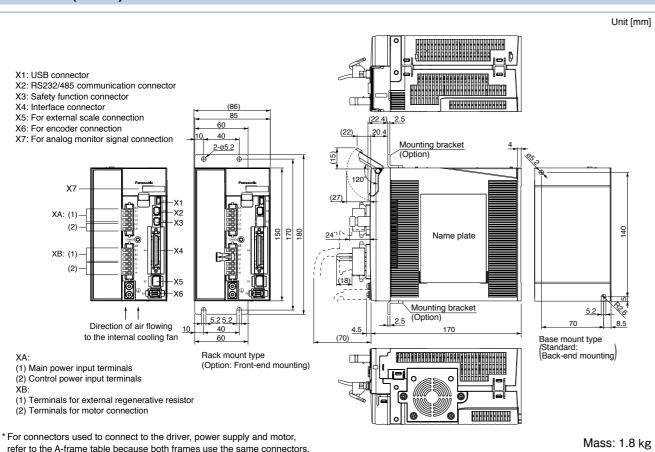
# **Dimensions of Driver**

• 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

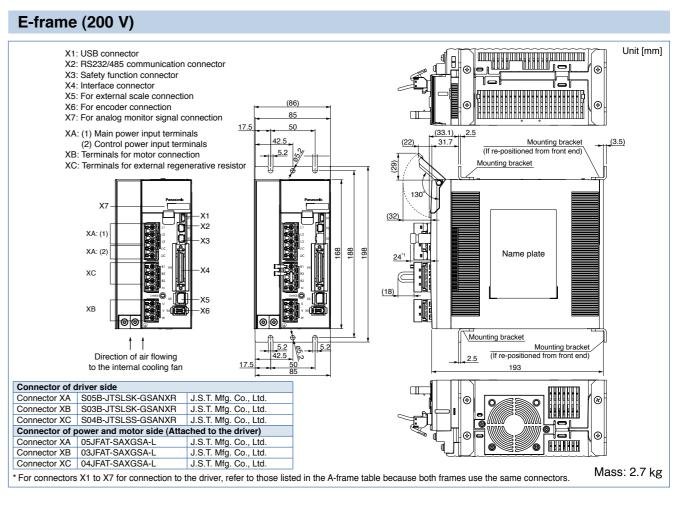


# D-frame (200 V)

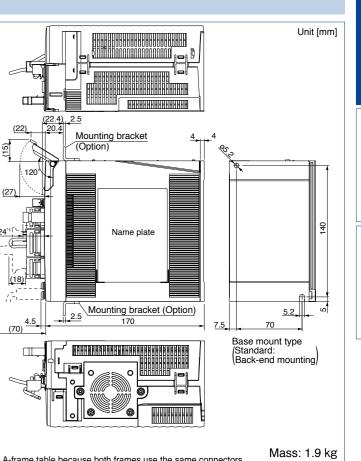


### XA: Main power input terminals XB: Terminals for motor connection XC: Terminals for external regenerative resistor XD: Control power input terminals Rack mount type X1: USB connector (Option: Front-end mounting) X2: RS232/485 communication connector (92)X3: Safety function connector X4: Interface connector 60 X5: For external scale connection 40 X6: For encoder connection <u>2-ø5.2</u> X7: For analog monitor signal connection X7 <u>, O</u> -X1 XD -X2 XA -X3 24 XC 00 00 X4 XB -X5 to the internal cooling fan 5.2 10 40 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.

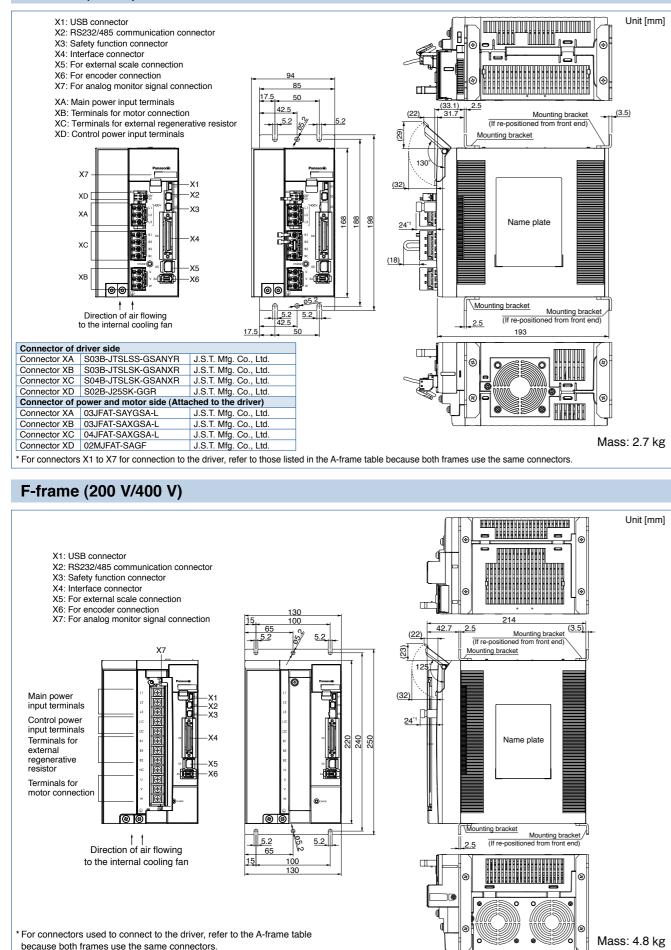


# D-frame (400 V)



# **Dimensions of Driver**

# E-frame (400 V)



• 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.

# G-frame (200 V/400 V) \* A5IIE, A5E series is out of the lineup. ø Ā Main power input terminals Control power input terminals Terminals for external regenerative resistor ī 隨 Terminals for motor -Connector X6: connection For encoder connection 80 t t Direction of air flowing to the internal cooling fan 233 210 90 90 72 90 5.2 5.2 G 0 딕 22020 881 M 5.2 IV 5.2 5.2 90 72 210

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

### 45

Connector X7: For analog monitor signal connection

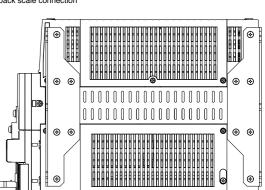
Connector X1: USB connector

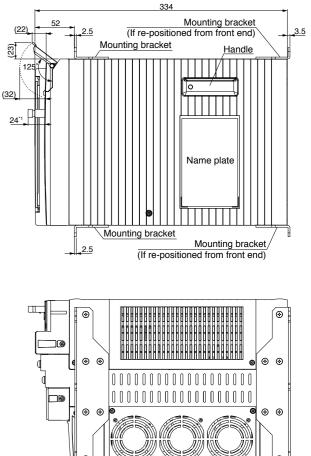
Connector X2: RS232/485 communication connector

-Connector X3: Safety function connector

Connector X4: Parallel I/O connector

Connector X5: For feedback scale connection





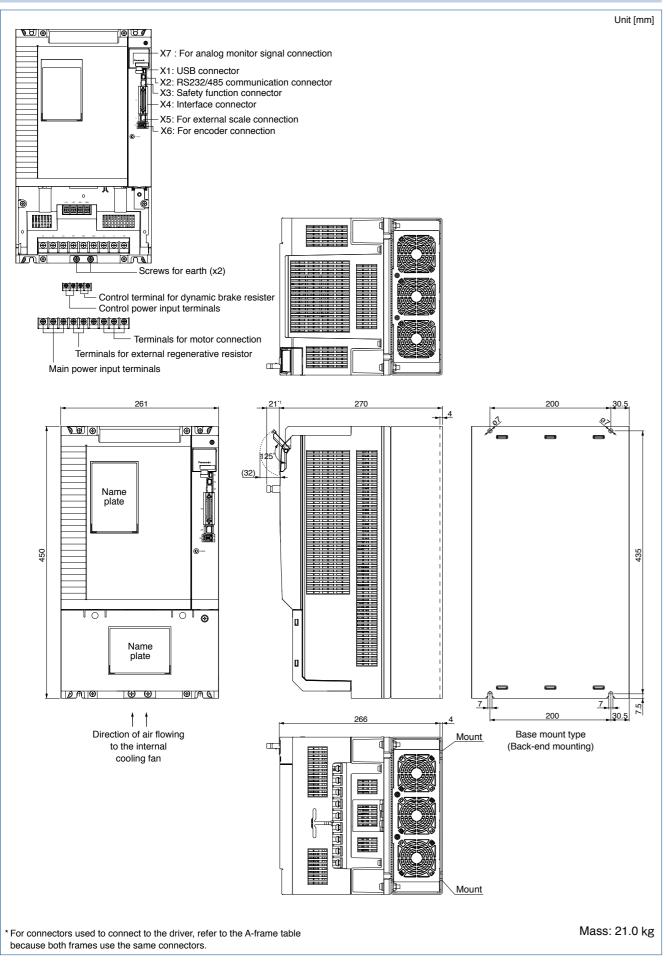
A5 Family

Unit [mm]

 A5IE, A5E series is out of the lineup. **Dimensions of Driver** 

\*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)

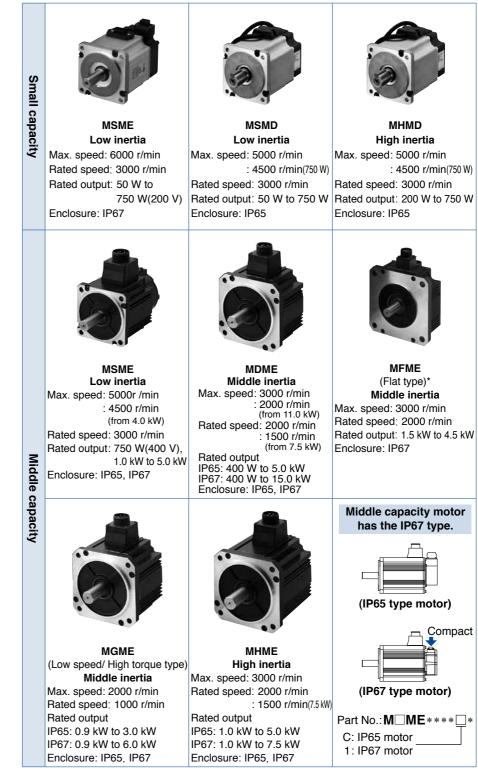


# **Features/Lineup**

# 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



# A5 Family **Motor Specifications**

# A5 Family



: 4500 r/min(750 W)



# Motor Contents

MSMD (	100 V/200	V)
50 W to	750 W	P.49

MHMD (100 V/200 V) 200 W to 750 W ...... . P.59

MSME (100 V/200 V) . P.65 50 W to 750 W .....

**MSME (200 V)** 1.0 kW to 5.0 kW. . P.74

MDME (200 V) 1.0 kW to 15.0 kW. . P.80

MFME (200 V) 1.5 kW to 4.5 kW . P.89

**MGME (200 V)** 0.9 kW to 6.0 kŴ .P.92

MHME (200 V) 1.0 kW to 7.5 kW . P.97

**MSME (400 V)** 750 W to 5.0 kW P.104

MDME (400 V) 400 W to 15.0 kW. .P.111

MFME (400 V) 1.5 kW to 4.5 kW ... . P.122

MGME (400 V) 0.9 kW to 6.0 kW ... . P.125

MHME (400 V) 1.0 kW to 7.5 kW ...... .. P.130

IP67 motor P.137 dimensions..

Motors with Gear Red	ducer
Type and Specifications	. P.141
Model No. designation	. P.142
The combination of the drive	er
and the motor	. P.142
Table of motor specifications	. P.143
Torque Characteristics of Me	otor
	. P.144
Dimensions of Motor	. P.147

**Motor Specification** 

# Description

Environmental Conditions P.182
Notes on [Motor specification]
page P.182
Permissible Load at
Output Shaft P.183
Built-in Holding Brake P.184

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

# **Specifications**

			AC1	00 V		
Motor model		IP65		MSMD5AZG1	MSMD5AZS1	
wotor moder *1		IP67		-	-	
Applicable	Model	A5II, A5	series	MAD	T1105	
Applicable driver *2	No.	A5IIE, A	5E series	MAD $\bigcirc$ T1105E	-	
differ	Fi	ame sym	bol	A-fra	ame	
Power supply	capacit	у	(kVA)	0	.4	
Rated output			(W)	5	0	
Rated torque			(N·m)	0.	16	
Momentary M	ax. pea	k torque	(N·m)	0.48		
Rated current		(	A(rms))	1.1		
Max. current			(A(o-p))	4.7		
Regenerative b	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0P4280		No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	5000		
Moment of ine	ertia	Without	t brake	0.0	25	
of rotor (×10 <sup>-4</sup>	kg∙m²)	With t	orake	0.027		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			
Rotary encode	Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute	
R	n per sing	le 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				

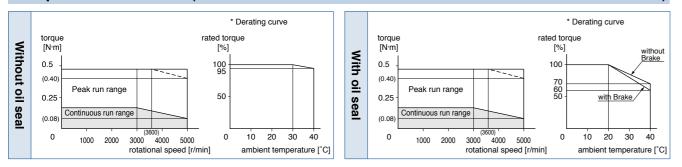
### • Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
	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  $\bigcirc$  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>

<IP65> <D-cut shaft> (a) Encoder connector (b) Motor connector 20 1 Use hexagon socket head screw for installation <Key way, center tap shaft> 38 4-03.4° M3 depth 6 26.5 \* For the dimensions with brake, refer to the right page.

[Unit: mm]

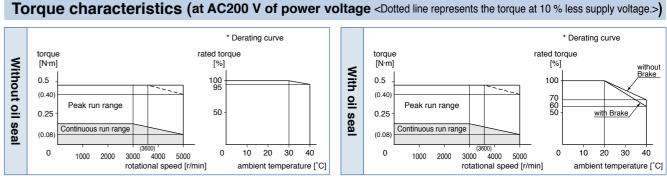
Mass: 0.32 kg

<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]

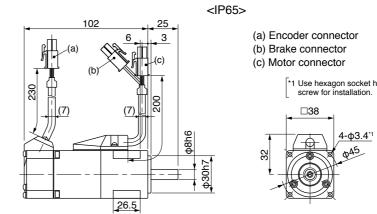
# . ...

Specif	icatio	าร						
				AC2	00 V		specifications (For detail	. ,
Motor mod	-	IP	35	MSMD5AZG1 MSMD5AZS1		(This brake will be released when it is energized.) Do not use this for braking the motor in motion.		
	81 *1	IP	67	_	_	Static fr	iction torque (N·m)	0.29 or more
	Mode	A5II,	A5 series	MAD	T1505	Engagir	ng time (ms)	35 or less
Applicable driver	*2 No.	A5II	E, A5E series	MAD $\bigcirc$ T1505E	-	Releasi	ng time (ms) Note)4	20 or less
unver	I	rame	symbol	A-fr	ame	Exciting	current (DC) (A)	0.3
Power sup	ply capac	ity	(kVA)	0	.5	Releasi	ng voltage (DC) (V)	1 or more
Rated outp	ut		(W)	50		Exciting	Exciting voltage (DC) (V)	
Rated torq	Je		(N·m)	0.16		Exciting voltage (DC) (V) 24±1.2		
Momentary	Max. pe	ak torq	ue (N·m)	0.48		• Permi	issible load (For details, ref	er to P.183)
Rated curre	ent		(A(rms))	1.1			Radial load P-direction (N)	147
Max. curre	nt		(A(o-p))	4.7		During	Thrust load A-direction (N)	88
Regenerativ			nout option	No limit Note)2		assembly	Thrust load B-direction (N)	117.6
frequency (ti	mes/min) Note	1 D'	/0P4281	No limit Note)2				68.6
Rated rotat	ional spe	ed	(r/min)	3000		During	Radial load P-direction (N)	
Max. rotation	onal spee	d	(r/min)	5000		operation	Thrust load A, B-direction (N)	58.8
Moment of	inertia	Wit	nout brake	0.025		For details of Note 1 to Note 5, refer to P.182, P.183		
of rotor (×1	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		0.027		Dimensions of Driver, refer to P.42.			
	Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		*2 The p	<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.</li> <li>*3 ◇ in number of applicable driver represents the</li> </ul>		
Rotary enc	Rotary encoder specifications Note)5		20-bit Incremental	20-bit 17-bit Detail of mode				
Resolution per single turn			single turn	1048576	131072	series. For more information about the part number		



## Dimensions

### <With Brake>

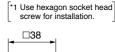


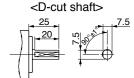
\* For the dimensions without brake, refer to the left page. <Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand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

# A5 Family **Motor Specifications**

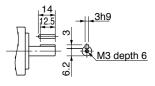
ər, please refer to P.16.

Mass: 0.53 kg





<Key way, center tap shaft>



[Unit: mm]

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

# **Specifications**

			AC1	00 V		
Motor model		IP65		MSMD011G1	MSMD011S1	
wotor model *1		IP67		-	-	
Applicable	Model	A5II, A5	series	MAD	>T1107	
Applicable driver *2	No.	A5IIE, A	5E series	MAD�T1107E	-	
unver	Fi	ame sym	bol	A-fra	ame	
Power supply	capacit	у	(kVA)	0	.4	
Rated output			(W)	1(	00	
Rated torque			(N·m)	0.	32	
Momentary N	ax. pea	k torque	(N·m)	0.95		
Rated current		(	A(rms))	1.7		
Max. current			(A(o-p))	7.2		
Regenerative	brake	Without option		No limit Note)2		
frequency (times	/min) Note)1	DV0P4280		No limit Note)2		
Rated rotation	nal spee	d	(r/min)	3000		
Max. rotation	al speed		(r/min)	5000		
Moment of in	ertia	Without	t brake	0.0	)51	
of rotor (×10 <sup></sup>	<sup>↓</sup> kg·m²)	With t	orake	0.0	)54	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times	s or less		
Rotary encod	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
Resolution per single turn			le 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

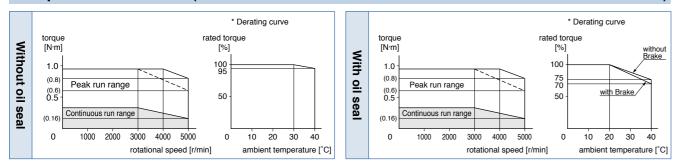
### • Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
	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  $\bigcirc$  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**

## Mass: 0.47 kg <Without Brake> <IP65> <D-cut shaft> 25 (a) Encoder connector 3 (b) Motor connector 20 1 Use hexagon socket head screw for installation □38 <Key way, center tap shaft> 4-**0**3.4° M3 depth 46.5 [Unit: mm]

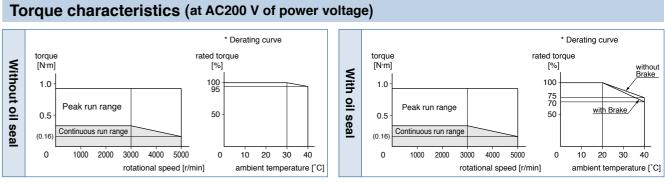
\* For the dimensions with brake, refer to the right page.

<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 100 W [Low inertia, Small capacity]

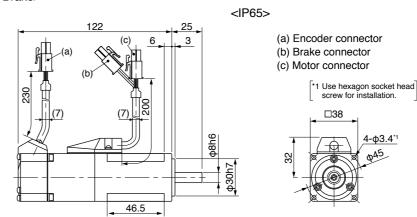
# Specifications

Specific	ation	3					
			AC2	00 V	Brake specifications (For details, refer to F (This brake will be released when it is energized.		
Motor model		IP65	MSMD012G1	MSMD012S1	(Do not use this for braking the motor in motion.)		
*1		IP67	-	-	Static fri	ction torque (N·m)	0.29 or more
Annellashia	Model	A5II, A5 series	MAD	T1505	Engagin	g time (ms)	35 or less
Applicable driver *2	No.	A5IIE, A5E series	MAD $\bigcirc$ T1505E	-	Releasir	ng time (ms) Note)4	20 or less
differ	Fi	ame symbol	A-fr	ame	Exciting	current (DC) (A)	0.3
Power supply	capacit	y (kVA)	0	.5	Releasir	ng voltage (DC) (V)	1 or more
Rated output		(W)	1(	00	Excitina	voltage (DC) (V)	24±1.2
Rated torque		(N·m)	0.	0.32			
Momentary N	ax. pea	k torque (N·m)	0.95		• Permissible load (For details, refer to P.183)		
Rated current		(A(rms))	1	.1		Radial load P-direction (N)	147
Max. current		(A(o-p))	4	.7	During	Thrust load A-direction (N)	88
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	117.6
frequency (times	, ,	DV01 4201	No limit Note)2		During	Radial load P-direction (N)	68.6
Rated rotation	-			000	operation	Thrust load A, B-direction (N)	58.8
Max. rotation	al speed	( )	5000		· ·	, , , , , , , , , , , , , , , , , , , ,	
Moment of in		Without brake	0.051		<ul> <li>For details of Note 1 to Note 5, refer to P.182, P.183.</li> <li>Dimensions of Driver, refer to P.42.</li> </ul>		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		0.054		<ul> <li>*1 Motor specifications:          <ul> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul> </li> </ul>			
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 Detail of model designation, refer to P.16		P.16.		
Resolution per single turn			1048576	131072	series. For more information about the part number, please refer to P 16		



## Dimensions

<With Brake>

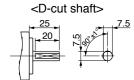


\* For the dimensions without brake, refer to the left page. <Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand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

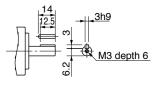
# **A5 Family Motor Specifications**

- please refer to P.16.

Mass: 0.68 kg



<Key way, center tap shaft>



[Unit: mm]

52

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

# **Specifications**

			AC1	00 V	
Matax madal		IP65	MSMD021G1	MSMD021S1	
Motor model *1		IP67	-	-	
Applicable	Model	A5II, A5 series	MBD	T2110	
Applicable driver *2	No.	A5IIE, A5E series	MBD <b>OT2110E</b>	-	
diffen	Fi	ame symbol	B-fr	ame	
Power supply	capacit	y (kVA)	0	.5	
Rated output		(W)	20	00	
Rated torque		(N·m)	0.	64	
Momentary M	ax. pea	k torque (N·m)	1.91		
Rated current		(A(rms))	2.5		
Max. current		(A(o-p))	10.6		
Regenerative I	orake	Without option	No lim	No limit Note)2	
frequency (times/	min) Note)1	DV0P4283	No limit Note)2		
Rated rotation	nal spee	d (r/min)	3000		
Max. rotationa	al speed	(r/min)	5000		
Moment of ine	ertia	Without brake	0.14		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With brake	0.16		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times	s or less	
Rotary encode	Rotary encoder specifications Note)5			17-bit Absolute	
F	lesolutio	n 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.

(I choice and here in the many inclusion in the meter in the second seco						
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					

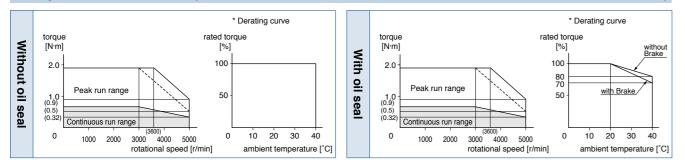
### • Permissible load (For details, refer to P.183)

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.

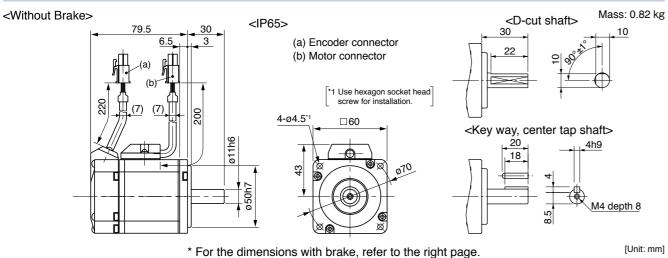
- · Dimensions of Driver, refer to P.42.
- \*1 Motor specifications:
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information 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**

<Cautions>

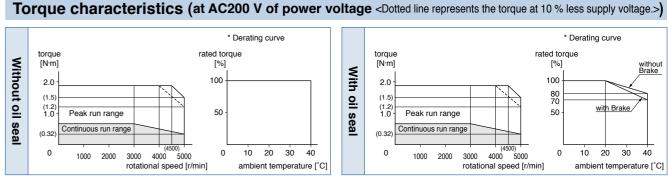


Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

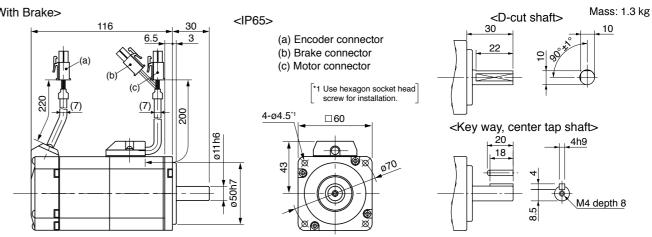
200 V MSMD 200 W [Low inertia, Small capacity]

Specific	ation	S					
		AC200 V			• Brake specifications (For details, refer to P.183		
IP65		MSMD022G1	MSMD022S1	This brake will be released when it is end Do not use this for braking the motor in n			
Motor model		IP67			Static fr	iction torque (N·m)	1.27 or more
	Model	A5II, A5 series	MAD	T1507	Engagir	ng time (ms)	50 or less
Applicable driver *2	No.	A5IIE, A5E series	MAD $\bigcirc$ T1507E	-	Releasi	ng time (ms) Note)4	15 or less
unver	F	rame symbol	A-fr	ame	Exciting	current (DC) (A)	0.36
Power supply capacity (kVA)		y (kVA)	0	.5	Releasi	ng voltage (DC) (V)	1 or more
Rated output (W)		200		Exciting	Exciting voltage (DC) (V)		
Rated torque (N·m)		0.64					
Momentary Max. peak torque (N·m)		k torque (N·m)	1.91		• Permi	ssible load (For details, ref	er to P.183)
Rated current (A(rms))		(A(rms))	1	.6		Radial load P-direction (N)	392
Max. current		(A(o-p))	6	.9	During	Thrust load A-direction (N)	147
Regenerative	brake	Without option	No limit Note)2		assembly	Thrust load B-direction (N)	196
frequency (time	s/min) Note)1	DV0P4283	No limit Note)2			Radial load P-direction (N)	245
Rated rotatio	nal spee	d (r/min)	3000		During		-
Max. rotation	al speed	(r/min)	5000		operation	Thrust load A, B-direction (N)	98
Moment of in	ertia	Without brake	0.14		For details of Note 1 to Note 5, refer to P.182, P.183		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		0.16		• Dimensions of Driver, refer to P.42.			
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less		*2 The p	<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.</li> <li>*3 ◇ in number of applicable driver represents the</li> </ul>	
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	Detail			
Resolution per single turn		1048576	131072	series. For more information about the part numb			



# Dimensions

<With Brake>



\* 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.

# **A5 Family Motor Specifications**

ər, please refer to P.16.

[Unit: mm]

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

			AC1	00 V		
Motor model		IP65		MSMD041G1	MSMD041S1	
*1		IP67		-	-	
Annlinghia	Model	A5II, A5	series	MCD<	T3120	
Applicable driver *2	No.	A5IIE, A	5E series	MCD $\bigcirc$ T3120E	-	
unver	Fi	ame sym	bol	C-fr	ame	
Power supply	capacit	у	(kVA)	0	.9	
Rated output			(W)	40	00	
Rated torque			(N·m)	1	.3	
Momentary N	lax. pea	k torque	(N·m)	3.8		
Rated curren	t	(.	A(rms))	4.6		
Max. current		(	(A(o-p))	19.5		
Regenerative	brake	Without option		No limit Note)2		
frequency (times	/min) Note)1	DV0P4282		No limit Note)2		
Rated rotatio	nal spee	d	(r/min)	3000		
Max. rotation	al speed		(r/min)	5000		
Moment of in	ertia	Without	brake	0.26		
of rotor (×10-	⁴ kg·m²)	With b	orake	0.28		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			
Rotary encoc	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)

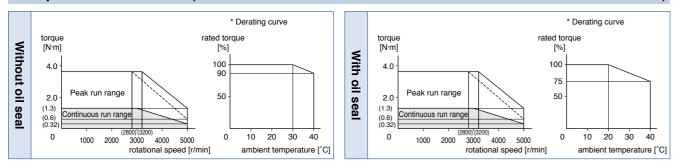
During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

• For details of Note 1 to Note 5, refer to P.182, P.183.

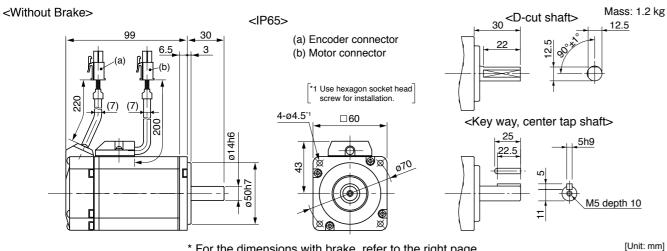
- · Dimensions of Driver, refer to P.43.
- \*1 Motor specifications:
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information 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.>)

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# **Dimensions**

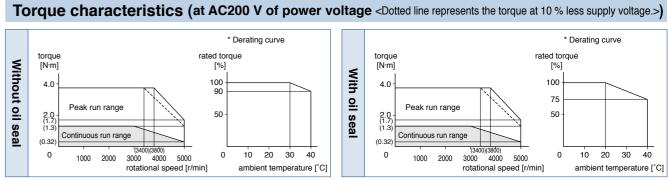


\* For the dimensions with brake, refer to the right page. Reduce the moment of inertia ratio if high speed response operation is required.

<Cautions> 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]

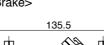
Specific	ation	s					
			AC200 V		• Brake specifications (For details, refer to P.183)		
Motor model *1 IP65		MSMD042G1	MSMD042S1	(This brake will be released when it is energi Do not use this for braking the motor in moti			
		IP67	_	– – Static friction torque (N·m)		ction torque (N·m)	1.27 or more
	Model	A5II, A5 series	MBD	T2510	Engagin	g time (ms)	50 or less
Applicable driver *2	No.	A5IIE, A5E series	MBD <b>OT2510E</b>	-	Releasir	ng time (ms) Note)4	15 or less
	Fi	ame symbol	B-fr	ame	Exciting	current (DC) (A)	0.36
Power supply capacity (kVA)		0	.9	Releasir	ng voltage (DC) (V)	1 or more	
Rated output (W)		( )	400		Exciting	voltage (DC) (V)	24±1.2
Rated torque (N·m)		1.3					
Momentary Max. peak torque (N·m)		k torque (N·m)	3.8		Permissible load (For details, refer to P.183		er to P.183)
Rated current (A(rms)) 2.6		.6		Radial load P-direction (N)	392		
Max. current (A(o-p))		11.0		During	Thrust load A-direction (N)	147	
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	196
frequency (times	/min) Note)1	DV0P4283	No limit Note)2			Radial load P-direction (N)	245
Rated rotation	nal spee	d (r/min)	3000		During		
Max. rotation	al speed	(r/min)	5000		operation	Thrust load A, B-direction (N)	98
Moment of in	ertia	Without brake	0.26		<ul> <li>For details of Note 1 to Note 5, refer to P.182, P.183.</li> <li>Dimensions of Driver, refer to P.42.</li> </ul>		
of rotor (×10 <sup></sup>	⁴ kg·m²)	With brake	0.28				
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.</li> <li>*3 </li> <li>in number of applicable driver represents the series. For more information about the part numbe place or for to P.16.</li> </ul>		
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	P.16.			
Resolution per single turn		1048576	131072	he part number,			



## Dimensions

220

<With Brake>



(a)

4-ø4.5\*1 2

<IP65>

30

3

6.5

\* 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.

# **A5 Family Motor Specifications**

ber, please refer to P.16.

Mass: 1.7 kg <D-cut shaft> 30 12.5 (a) Encoder connector (b) Brake connector (c) Motor connector \*1 Use hexagon socket head screw for installation □60 <Key way, center tap shaft> 25 22.5 Ð M5 depth 10

[Unit: mm]

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

# **Specifications**

			AC2	00 V		
Motor model		IP65		MSMD082G1	MSMD082S1	
wotor model *1		IP67		-	-	
Amplicable	Model	A5II, A5	series	MCD<	T3520	
Applicable driver *2	No.	A5IIE, A	5E series	MCD <b>\</b> T3520E	-	
unver	Fi	rame sym	bol	C-fr	ame	
Power supply	capacit	у	(kVA)	1	.3	
Rated output			(W)	7	50	
Rated torque			(N·m)	2	.4	
Momentary N	lax. pea	k torque	(N·m)	7.1		
Rated curren	t	(.	A(rms))	4.0		
Max. current		(	(A(o-p))	17.0		
Regenerative	brake	Without	option	No limit Note)2		
frequency (times	/min) Note)1	DV0P4283		No limit Note)2		
Rated rotatio	nal spee	d	(r/min)	3000		
Max. rotation	al speed		(r/min)	4500		
Moment of in	ertia	Without	brake	0.87		
of rotor (×10 <sup>-</sup>	⁴ kg·m²)	With b	orake	0.97		
Recommended moment of inertia ratio of the load and the rotor Note)3				20 time	s or less	
Rotary encoc	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)

	<b>_</b>	Radial load P-direction (N)	686
During assembly	Thrust load A-direction (N)	294	
	assembly	Thrust load B-direction (N)	392
During	Radial load P-direction (N)	392	
	operation	Thrust load A, B-direction (N)	147

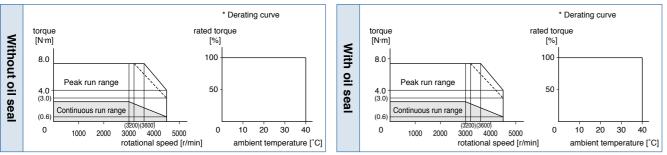
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.43.

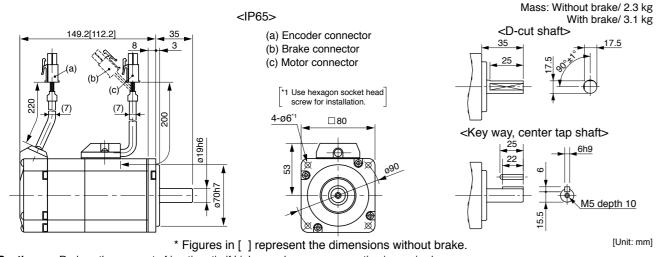
\*1 Motor specifications:

- \*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  $\bigcirc$  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



<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.



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# **MEMO**

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

# **Specifications**

			AC100 V			
Motor model	IP65		MHMD021G1	MHMD021S1		
				-	-	
Annlinghia	Model	A5II, A5	series	MBD	T2110	
Applicable driver *2	No.	A5IIE, A	5E series	MBD <b>OT2110E</b>	-	
unver	Fr	ame sym	bol	B-fra	ame	
Power supply	capacit	у	(kVA)	0	.5	
Rated output			(W)	20	00	
Rated torque			(N·m)	0.	64	
Momentary M	ax. peal	k torque	(N·m)	1.91		
Rated current		(	A(rms))	2.5		
Max. current			(A(o-p))	10.6		
Regenerative I	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0P4283		No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	al speed		(r/min)	5000		
Moment of ine	ertia	Without	brake	0.42		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	0.45		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			
Rotary encoder specification		fications	Note)5	20-bit Incremental	17-bit Absolute	
Resolution		n per sing	le 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.

(g						
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					

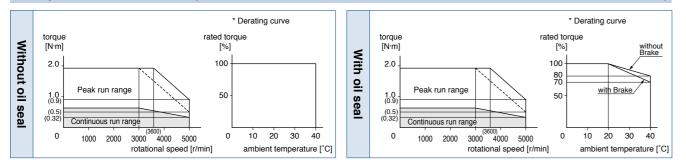
### • Permissible load (For details, refer to P.183)

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

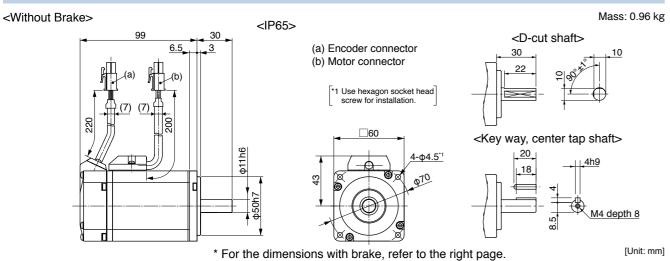
• For details of Note 1 to Note 5, refer to P.182, P.183.

- · 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  $\bigcirc$  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.>)



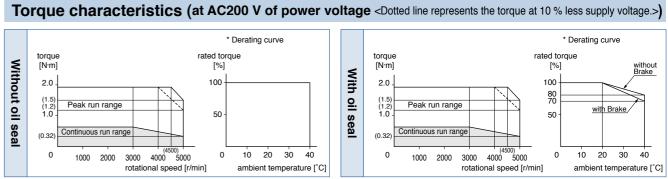
# **Dimensions**



<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.

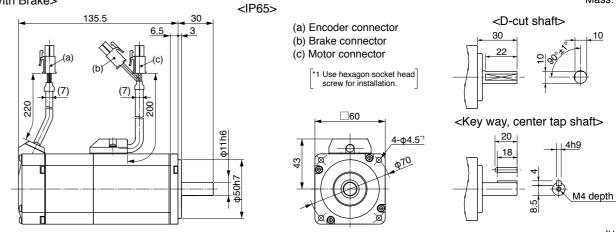
# 200 V MHMD 200 W [High inertia, Small capacity]

Specifications								
			AC200 V		• Brake specifications (For details, refer to P.183			
Motor model *1 IP65		IP65	MHMD022G1	MHMD022S1	This brake will be released when it is energ Do not use this for braking the motor in mot			
		IP67	_	-	Static friction torque (N·m) 1.		1.27 or more	
	Model	A5II, A5 series	MAD	T1507	Engagin	g time (ms)	50 or less	
Applicable driver *	No.	A5IIE, A5E series	MAD <b>\</b> T1507E	-	Releasir	ng time (ms) Note)4	15 or less	
	Fi	ame symbol	A-fr	ame	Exciting	current (DC) (A)	0.36	
Power supply capacity (kVA)		0.5		Releasir	ng voltage (DC) (V)	1 or more		
Rated output (W)		200		Exciting	Exciting voltage (DC) (V)			
Rated torque (N·m)		0.64						
Momentary	Max. pea	k torque (N·m)	1.91		<ul> <li>Permissible load (For details, refer to P.183)</li> </ul>			
Rated curre	nt	(A(rms))	1.6			Radial load P-direction (N)	392	
Max. current		(A(o-p))	6	.9	During	Thrust load A-direction (N)	147	
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	196	
frequency (time	s/min) Note)1	DV0P4283	No limit Note)2		During	Radial load P-direction (N)	245	
Rated rotation	nal spee	d (r/min)	3000		During	. ,		
Max. rotation	nal speed	(r/min)	5000		operation	Thrust load A, B-direction (N)	98	
Moment of i	nertia	Without brake	0.	42		For details of Note 1 to Note 5, refer to P.182, P.183		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		0.45		<ul> <li>Dimensions of Driver, refer to P.42.</li> <li>*1 Motor specifications:          <ul> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul> </li> </ul>				
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less						
Rotary encoder specifications Note)5 Resolution per single turn		20-bit Incremental	17-bit Absolute	Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents th		P.16.		
		1048576	131072	series. For more information about the part number				



# Dimensions

<With Brake>



\* 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.

# **A5 Family Motor Specifications**

please refer to P.16.

Mass: 1.4 kg

60

A5 Family

[Unit: mm]

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

# **Specifications**

				AC1	00 V		
Motor model	IP65		MHMD041G1	MHMD041S1			
WOLOF MODEI *1				-	-		
Applicable	Model	A5II, A5	series	MCD	MCD <b>\</b> T3120		
Applicable driver *2	No.	A5IIE, A	5E series	MCD $\bigcirc$ T3120E	_		
unver	Fi	ame sym	bol	C-fr	ame		
Power supply	capacit	у	(kVA)	0	.9		
Rated output			(W)	40	00		
Rated torque			(N·m)	1	.3		
Momentary N	lax. pea	k torque	(N·m)	3.8			
Rated current		(.	A(rms))	4.6			
Max. current		(	(A(o-p))	19.5			
Regenerative	brake	Without option		No limit Note)2			
frequency (times	/min) Note)1	DV0P4282		No limit Note)2			
Rated rotation	nal spee	d	(r/min)	3000			
Max. rotation	al speed		(r/min)	5000			
Moment of ine	ertia	Without	brake	0.67			
of rotor (×10-	¹ kg∙m²)	With b	orake	0.70			
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less				
Rotary encoder specifications		fications	Note)5	20-bit Incremental	17-bit Absolute		
Resolution		n per sing	le 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

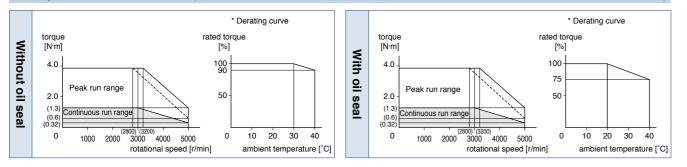
### • Permissible load (For details, refer to P.183)

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

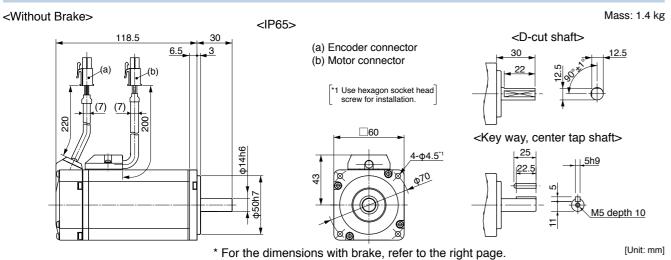
• For details of Note 1 to Note 5, refer to P.182, P.183.

- · 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  $\bigcirc$  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.>)



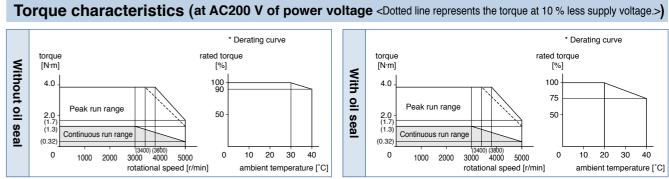
# **Dimensions**



<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.

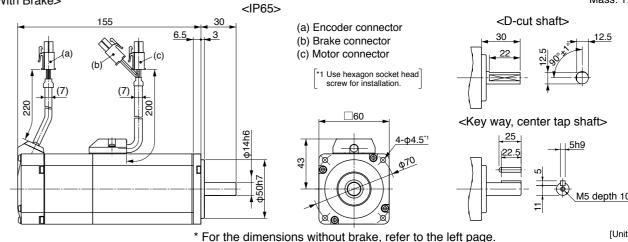
# 200 V MHMD 400 W [High inertia, Small capacity]

Specifications								
			AC200 V		• Brake specifications (For details, refer to P.183 (This brake will be released when it is energized.)			
Motor model *1 IP65		IP65	MHMD042G1 MHMD042S1		(Do not use this for braking the motor in motion. )			
		IP67	_	_	Static fri	Static friction torque (N·m) 1.		
Anniliantata	Model	A5II, A5 series	MBD	T2510	Engagin	g time (ms)	50 or less	
Applicable driver *2	No.	A5IIE, A5E series	MBD <b>OT2510E</b>	_	Releasir	ng time (ms) Note)4	15 or less	
	F	rame symbol	B-fr	ame	Exciting	current (DC) (A)	0.36	
Power supply capacity (kVA)		0	.9	Releasir	ng voltage (DC) (V)	1 or more		
Rated output (W)		400		Exciting	Exciting voltage (DC) (V)			
Rated torque (N·m)		1.3		• Permissible load (For details, refer to P.183)				
Momentary Max. peak torque (N·m)		3.8						
Rated currer	ıt	(A(rms))	2.6			Radial load P-direction (N)	392	
Max. current		(A(o-p))	11	.0	During	Thrust load A-direction (N)	147	
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	196	
frequency (time	s/min) Note)1	DV0P4283	No limit Note)2		Durin r	Radial load P-direction (N)	245	
Rated rotation	nal spee	d (r/min)	3000		During operation	( )		
Max. rotation	al speed	l (r/min)	5000		operation	Thrust load A, B-direction (N)	98	
Moment of ir	ertia	Without brake	0.	67		For details of Note 1 to Note 5, refer to P.182, P.183.		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		0.70		Dimensions of Driver, refer to P.42.				
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>				
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the		P.16.		
Resolution per single turn		1048576	131072	series. For more information about the part number				



# Dimensions

<With Brake>



\* 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.

# A5 Family **Motor Specifications**

please refer to P.16.

Mass: 1.8 kg

[Unit: mm]

62

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

# **Specifications**

			AC2	00 V			
Motor model	IP65		MHMD082G1	MHMD082S1			
WOLOF MODEI *1		IP67		-	-		
Annelisseels	Model	A5II, A5	series	MCD<	MCD\73520		
Applicable driver *2	No.	A5IIE, A	5E series	MCD <b>\</b> T3520E	-		
unver	Fi	ame sym	Ibol	C-fr	ame		
Power supply	capacit	у	(kVA)	1	.3		
Rated output			(W)	75	50		
Rated torque			(N·m)	2	.4		
Momentary N	ax. pea	k torque	(N·m)	7.1			
Rated current		(	(A(rms))	4.0			
Max. current			(A(o-p))	17.0			
Regenerative	brake	Without option		No limit Note)2			
frequency (times	/min) Note)1	DV0P4283		No limit Note)2			
Rated rotation	nal spee	d	(r/min)	3000			
Max. rotation	al speed		(r/min)	45	00		
Moment of ine	ertia	Without	t brake	1.51			
of rotor (×10-	¹ kg∙m²)	With t	orake	1.61			
Recommended moment of inertia ratio of the load and the rotor Note)3				20 times or less			
Rotary encod	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.

( <b>0</b>	/
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	Radial load P-direction (N)	392	
	operation	Thrust load A, B-direction (N)	147

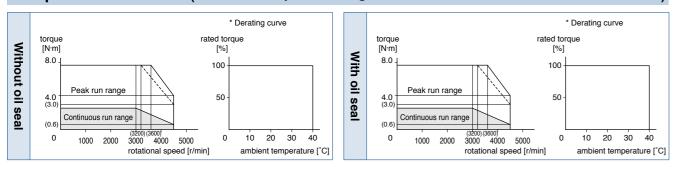
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.43.

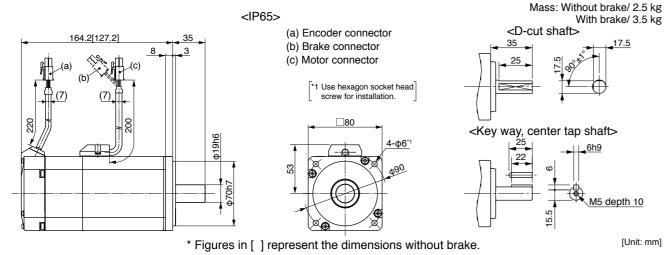
\*1 Motor specifications:

- \*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  $\diamond$  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



63

<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.

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# **MEMO**

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

# **Specifications**

				AC100 V			
Motor model		IP65		-	-		
*1		IP67		MSME5AZG1	MSME5AZS1		
Annlinghia	Model	A5II, A5	series	MAD	T1105		
Applicable driver *2	No.	A5IIE, A	5E series	MAD�T1105E	-		
unver	Fr	ame sym	Ibol	A-fra	ame		
Power supply	capacit	у	(kVA)	0	.4		
Rated output			(W)	5	0		
Rated torque			(N·m)	0.	16		
Momentary M	ax. peal	k torque	(N·m)	0.4	48		
Rated current		(	A(rms))	1	.1		
Max. current			(A(o-p))		4.7		
Regenerative t	orake Without opti		option	No limit Note)2			
frequency (times/	min) Note)1	DV0P4280		No limit Note)2			
Rated rotation	al spee	d	(r/min)	3000			
Max. rotationa	l speed		(r/min)	60	6000		
Moment of ine	ertia	Without	t brake	0.025			
of rotor (×10 <sup>-4</sup>	kg∙m²)	With t	orake	0.027			
Recommende ratio of the loa			30 times or less				
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute		
R	esolutio	n per sing	le 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.

( C	,		
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		

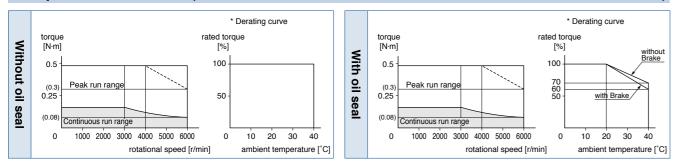
### • Permissible load (For details, refer to P.183)

	<b>_</b> .	Radial load P-direction (N)	147
During assembly	During assembly	Thrust load A-direction (N)	88
	accombry	Thrust load B-direction (N)	117.6
	During	Radial load P-direction (N)	68.6
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

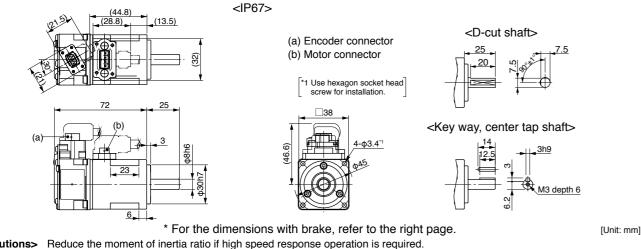
# Torque characteristics (at AC100 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



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

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

Mass: 0.31 kg

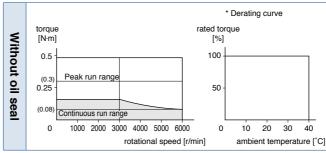


<Cautions> Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. 200 V MSME 50 W [Low inertia, Small capacity]

# Creations

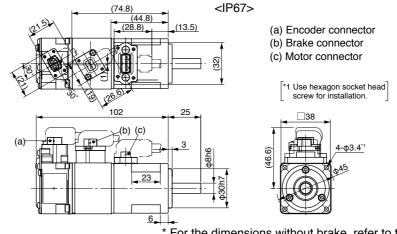
Specifications							
			AC2	00 V	Brake specifications (For details, refer to F (This brake will be released when it is energized.)		
Motor model	IP65		_	_		n motion.	
Motor model *1 IP67		IP67	MSME5AZG1	MSME5AZS1	Static fri	Static friction torque (N·m)	
	Model	A5II, A5 series	MAD	T1505	Engagin	g time (ms)	35 or less
Applicable driver *2	No.	A5IIE, A5E series	MAD $\bigcirc$ T1505E	-	Releasir	ng time (ms) Note)4	20 or less
diver	Fr	ame symbol	A-fr	ame	Exciting	current (DC) (A)	0.3
Power supply	capacit	y (kVA)	0	.5	Releasir	ng voltage (DC) (V)	1 or more
Rated output		(W)	5	0	Exciting	voltage (DC) (V)	24±1.2
Rated torque		(N·m)	0.16				
Momentary M	ax. peal	k torque (N·m)	0.48		<ul> <li>Permi</li> </ul>	ssible load (For details, refe	er to P.183)
Rated current		(A(rms))	1.1			Radial load P-direction (N)	147
Max. current		(A(o-p))	4.7		During assembly	Thrust load A-direction (N)	88
Regenerative b		Without option	No limit Note)2			Thrust load B-direction (N)	117.6
frequency (times/	min) Note)1	DV0P4280	No limit Note)2			Radial load P-direction (N)	68.6
Rated rotation	al spee	d (r/min)	3000		During operation	( )	
Max. rotationa	l speed	(r/min)	6000		·	Thrust load A, B-direction (N)	
Moment of ine		Without brake	0.025		• For details of Note 1 to Note 5, refer to P.182, P.183.		
of rotor (×10 <sup>-4</sup>	kg·m²)	With brake	0.0	)27	<ul> <li>Dimensions of Driver, refer to P.42.</li> <li>*1 Motor specifications: </li> </ul>		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less		<ul> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>		
Rotary encoder specifications Note)5		fications Note)5	20-bit 17-bit Incremental Absolute		<ul> <li>*3  imes in number of applicable driver represents the series. For more information about the part number please refer to P 16.</li> </ul>		
Resolution per single turn			1048576	131072			

### Torque characteristics (at AC200V of power voltage) \* Derating curv \* Derating curve torque [N·m] torque [N·m] rated torque rated torque [%] [%] With oil 0.5 0.5 100 100 -70 60 Peak run ran Peak run rand (0.3 (0.3 50 Iseal 0.2 0.25 with Brake (0.08 Continuous run range Continuous run range 1000 2000 3000 4000 5000 6000 10 20 30 40 1000 2000 3000 4000 5000 6000 10 20 30 40 0 0 0 0 ambient temperature [°C] rotational speed [r/min] ambient temperature [°C] rotational speed [r/min]



## **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.



\* 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.

# A5 Family **Motor Specifications**

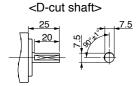


please refer to P.16.

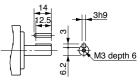




[Unit: mm]



<Key way, center tap shaft>



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

# **Specifications**

				AC100 V			
Motor model	IP65			-	-		
wotor model *1		IP67		MSME011G1	MSME011S1		
Appliaghla	Model	A5II, A5	series	MAD	>T1107		
Applicable driver *2	No.	A5IIE, A	5E series	MAD�T1107E	-		
unver	Fi	ame sym	ıbol	A-fr	ame		
Power supply	capacit	у	(kVA)	0	.4		
Rated output			(W)	1(	00		
Rated torque			(N·m)	0.	32		
Momentary M	ax. pea	k torque	(N·m)	0.	95		
Rated current		(	(A(rms))	1.6			
Max. current		(A(o-p))		6.9			
Regenerative b	orake	ke Without option		No limit Note)2			
frequency (times/	min) Note)1	DV0P4280		No limit Note)2			
Rated rotation	al spee	d	(r/min)	3000			
Max. rotationa	l speed		(r/min)	60	6000		
Moment of ine	ertia	Withou	t brake	0.051			
of rotor (×10 <sup>-4</sup>	kg∙m²)	With I	orake	0.0	0.054		
Recommender ratio of the loa			30 times or less				
Rotary encode	Rotary encoder specifications Note)5				17-bit Absolute		
R	esolutio	n per sing	gle 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.

1 0	/		
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		

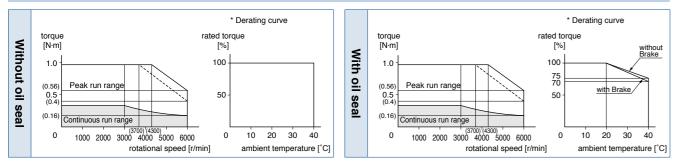
## • Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

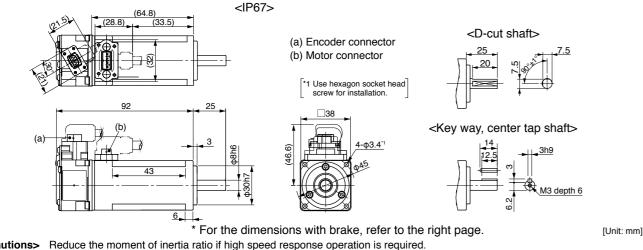
# Torque characteristics (at AC100 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



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

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

Mass: 0.46 kg

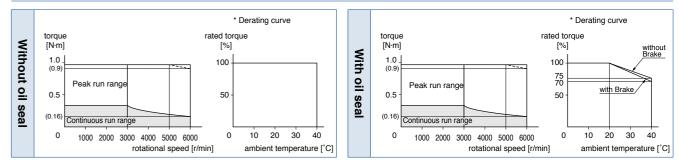


<Cautions> Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. 200 V MSME 100 W [Low inertia, Small capacity]

# - --

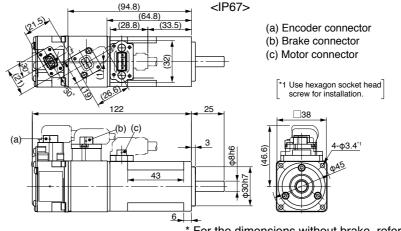
Specifications										
				AC2	• Brake specifications (For details, refer to P					
Motor model			IP65			]	(This brake will be released when it is energized.) Do not use this for braking the motor in motion.			
			IP67	MSME012G1	MSME012S1	Static friction torque (N·m) 0		0.29 or more		
Applicatel	м	lodel	A5II, A5 series	MAD	>T1505	] [	Engagin	g time (ms)	35 or less	
Applicable driver **	N	0.	A5IIE, A5E series	MAD $\bigcirc$ T1505E	-	] [	Releasir	ng time (ms) Note)4	20 or less	
		Fra	ame symbol	A-fr	ame		Exciting	current (DC) (A)	0.3	
Power suppl	y cap	oacity	y (kVA)	0	.5		Releasir	ng voltage (DC) (V)	1 or more	
Rated outpu	t		(W)	10	100 Exciting voltage (DC) (V)		24±1.2			
Rated torque	;		(N·m)	0.32		<sup>*</sup>				
Momentary	Max.	peak	k torque (N·m)	0.95		·	<ul> <li>Permi</li> </ul>	ssible load (For details, refe	er to P.183)	
Rated currer	nt		(A(rms))	1.1 4.7		] [		Radial load P-direction (N)	147	
Max. current			(A(o-p))				During	Thrust load A-direction (N)	88	
Regenerative				No limit Note)2 No limit Note)2			assembly	Thrust load B-direction (N)	117.6	
frequency (time	s/min)						Durine	Radial load P-direction (N)	68.6	
Rated rotation	onal s	speed	d (r/min)	30	000		During operation			
Max. rotation	nal sp	peed	(r/min)	60	00	L L	•	Thrust load A, B-direction (N)	58.8	
Moment of in		-	Without brake	0.0	051			ails of Note 1 to Note 5, refer t	o P.182, P.183.	
of rotor (×10	-4 kg	∵m²)	With brake	0.0	)54			ions of Driver, refer to P.42.		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>				
Rotary encoder specifications Note)5		ications Note)5	20-bit Incremental	17-bit Absolute	Detail of model designation, refer to P.16.		P.16.			
Resolution per single turn			n per single turn	1048576	131072		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.>

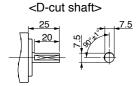
· Motor cables for opposite to output shaft cannot be used with 100 W motor.



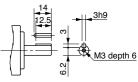
\* For the dimensions without brake, refer to the left page. <Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand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

# A5 Family **Motor Specifications**

Mass: 0.66 kg



## <Key way, center tap shaft>



[Unit: mm]

68

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

# **Specifications**

				AC100 V			
Motor mode		IP65		-	-		
	:1	IP67		MSME021G1	MSME021S1		
Annlinghla	Model	A5II, A5	series	MBD	T2110		
Applicable driver *	No.	A5IIE, A	5E series	MBD <b>OT2110E</b>	-		
unver	Fr	ame sym	bol	B-fra	ame		
Power supp	ly capacit	у	(kVA)	0	.5		
Rated outpu	ut		(W)	20	00		
Rated torqu	e		(N·m)	0.	64		
Momentary	Max. peal	k torque	(N·m)	1.91			
Rated curre	nt	(	A(rms))	2.5			
Max. curren	t		(A(o-p))	10.6			
Regenerativ	e brake	Without option		No limit Note)2			
frequency (tim	nes/min) Note)1	DV0P	DV0P4283		No limit Note)2		
Rated rotati	onal spee	d	(r/min)	3000			
Max. rotatio	nal speed		(r/min)	60	6000		
Moment of i	nertia	Without	t brake	0.14			
of rotor (×10	D <sup>−4</sup> kg·m²)	With t	orake	0.16			
Recomment ratio of the I			30 times	s or less			
Rotary enco	Rotary encoder specifications Note)5				17-bit Absolute		
	Resolutio	n per sing	le 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.

1 0	/		
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		

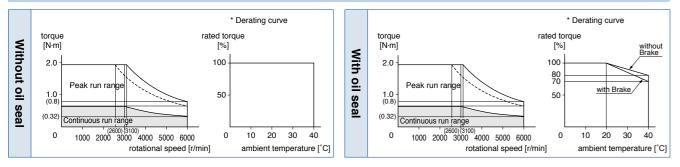
## • Permissible load (For details, refer to P.183)

	<b>_</b> .	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147	
4550	assembly	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.

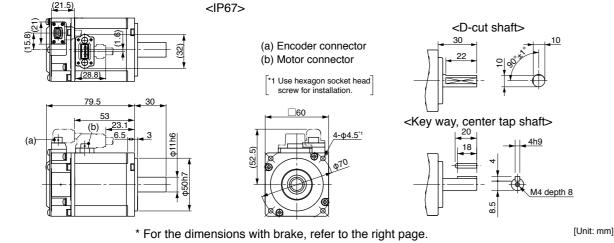
- · Dimensions of Driver, refer to P.42.
- \*1 Motor specifications:
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information 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.>

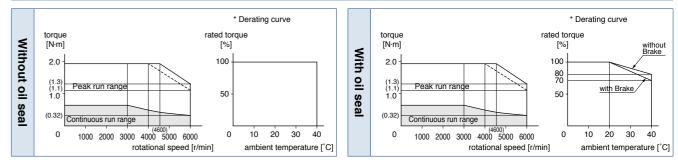
Mass: 0.78 kg



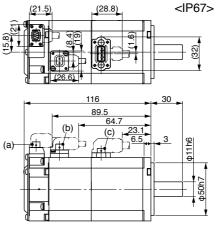
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. 200 V MSME 200 W [Low inertia, Small capacity]

Specifications									
			AC200 V     • Brake specifications (For			. ,			
Motor model		IP65			(This brake will be released when it is energized. Do not use this for braking the motor in motion. )				
*1		IP67	MSME022G1	MSME022S1	E022S1 Static friction torque (N·m)		1.27 or more		
Annlinghia	Mode	A5II, A5 series	MAD	T1507	Engagin	g time (ms)	50 or less		
Applicable driver *2	No.	A5IIE, A5E series	MAD $\bigcirc$ T1507E	-	Releasir	ng time (ms) Note)4	15 or less		
	F	rame symbol	A-fr	ame	Exciting	current (DC) (A)	0.36		
Power supply	/ capaci	ty (kVA)	0	.5	Releasir	ng voltage (DC) (V)	1 or more		
Rated output		(W)	2	200 Exciting voltage (DC) (V)		24±1.2			
Rated torque		(N·m)	0.64			0 ( )()			
Momentary N	lax. pea	ak torque (N·m)	1.91		Permi	• Permissible load (For details, refer to P.183)			
Rated curren	t	(A(rms))	1.5			Radial load P-direction (N)	392		
Max. current		(A(o-p))	6.5		During	Thrust load A-direction (N)	147		
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	196		
frequency (time	s/min) Note)	1 DV0P4283	No limit Note)2			Radial load P-direction (N)	245		
Rated rotatio	nal spee	ed (r/min)	3000		During				
Max. rotation	al spee	d (r/min)	6000		operation	Thrust load A, B-direction (N)	98		
Moment of in	ertia	Without brake	0.	14		For details of Note 1 to Note 5, refer to P.182, P.183.			
of rotor (×10	<sup>4</sup> kg·m²)	With brake	0.	16		ions of Driver, refer to P.42.			
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>					
Rotary encoder specifications Note)5		20-bit Incremental	20-bit 17-bit Detail of model designation, refer to P.16.		P.16.				
Resolution per single turn			1048576	131072	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.>)



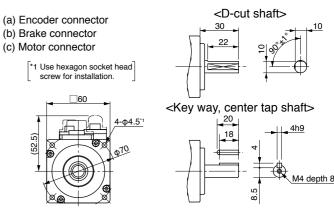
# Dimensions <In Case of With Brake, Cable direction to output shaft.>



\* For the dimensions without brake, refer to the left page. Reduce the moment of inertia ratio if high speed response operation is required. <Cautions> 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.

# A5 Family **Motor Specifications**

Mass: 1.2 kg



[Unit: mm]

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

### **Specifications**

			AC100 V			
Motor model	IP65			-	-	
		IP67		MSME041G1	MSME041S1	
Amplicable	Model	A5II, A5	series	MCD<	T3120	
Applicable driver *2	No.	A5IIE, A	5E series	MCD $\bigcirc$ T3120E	_	
unver	Fi	ame sym	nbol	C-fr	ame	
Power supply	capacit	у	(kVA)	0	.9	
Rated output			(W)	4(	00	
Rated torque			(N·m)	1	.3	
Momentary M	ax. pea	k torque	(N·m)	3.8		
Rated current		(	(A(rms))	4.6		
Max. current			(A(o-p))	19.5		
Regenerative I	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0P4282		No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	6000		
Moment of ine	ertia	Withou	t brake	0.26		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With I	brake	0.	28	
	Recommended moment of inertia ratio of the load and the rotor Note)3			30 times	30 times or less	
Rotary encode	Rotary encoder specifications Not			20-bit 17-bit Incremental Absolute		
F	esolutio	n per sing	gle 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.

1 0	/
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

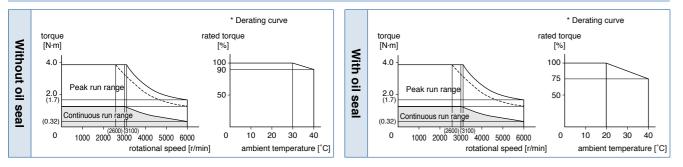
### • Permissible load (For details, refer to P.183)

	Radial load P-direction (N)	392	
	During assembly	Thrust load A-direction (N)	147
	assembly	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.

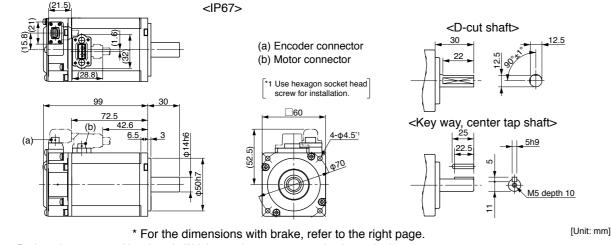
- · Dimensions of Driver, refer to P.43.
- \*1 Motor specifications:
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information 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.>

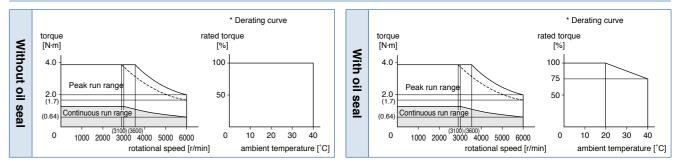
Mass: 1.2 kg



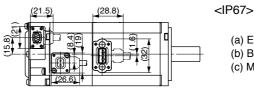
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

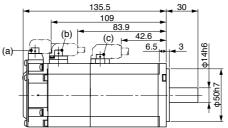
Specifications								
		AC2	00 V		• Brake specifications (For details, refer to P.183)			
Motor model				(This brake will be released when it is energized.) Do not use this for braking the motor in motion.				
*1			iction torque (N·m)	1.27 or more				
Annlinghia	Model	A5II, A5 series	MBD	T2510	Engagir	ng time (ms)	50 or less	
Applicable driver *2	No.	A5IIE, A5E series	MBD <b>OT2510E</b>	-	Releasi	ng time (ms) Note)4	15 or less	
	F	rame symbol	B-fr	ame	Exciting	current (DC) (A)	0.36	
Power supply	capacit	y (kVA)	0	.9	Releasi	ng voltage (DC) (V)	1 or more	
Rated output		(W)	400		Exciting	voltage (DC) (V)	24±1.2	
Rated torque		(N·m)	1.3			0 ( )( )		
Momentary Max. peak torque (N·m)		3.8		Permissible load (For details, refer to P.183)				
Rated current (A(rms))		2	.4		Radial load P-direction (N)	392		
Max. current		(A(o-p))	10	0.2	During assembly	Thrust load A-direction (N)	147	
Regenerative		Without option	No lim	No limit Note)2		Thrust load B-direction (N)	196	
frequency (times	min) Note)1	DV0P4283	No lim	t Note)2		Radial load P-direction (N)	245	
Rated rotation	nal spee	d (r/min)	3000		During			
Max. rotationa	al speed	l (r/min)	6000		operation	Thrust load A, B-direction (N)	98	
Moment of ine	ertia	Without brake	0.26		For details of Note 1 to Note 5, refer to P.182, P.183.			
of rotor (×10 <sup>-4</sup>	kg∙m²)	With brake	0.	28		• Dimensions of Driver, refer to P.42.		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>				
Rotary encoder specifications Note)5		20-bit     17-bit       Incremental     Absolute		P.16.				
F	lesolutio	on per single turn	1048576	131072		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.>

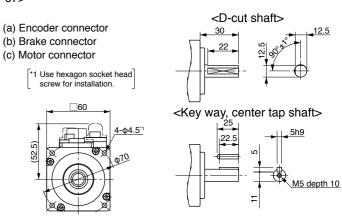




\* For the dimensions without brake, refer to the left page. Reduce the moment of inertia ratio if high speed response operation is required. <Cautions> Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand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

## A5 Family **Motor Specifications**





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A5 Family

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

### **Specifications**

			AC200 V			
Motor model		IP65		-	-	
		IP67		MSME082G1	MSME082S1	
Amplicable	Model	A5II, A5	series	MCD<	T3520	
Applicable driver *2	No.	A5IIE, A	5E series	MCD $\bigcirc$ T3520E	-	
diver	Fi	rame sym	nbol	C-fr	ame	
Power supply	capacit	у	(kVA)	1	.3	
Rated output			(W)	75	50	
Rated torque			(N·m)	2	.4	
Momentary M	ax. pea	k torque	(N·m)	7.1		
Rated current		(	(A(rms))	4.1		
Max. current			(A(o-p))	17.4		
Regenerative	orake	Without option		No limit Note)2		
frequency (times	min) Note)1	DV0P4283		No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	al speed		(r/min)	6000		
Moment of ine	ertia	Withou	t brake	0.87		
of rotor (×10 <sup>-2</sup>	kg∙m²)	With I	brake	0.	97	
	Recommended moment of inertia ratio of the load and the rotor Note)3			20 times	20 times or less	
Rotary encoder specifications			Note)5	20-bit Incremental	17-bit Absolute	
F	lesolutio	n per sing	gle 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.

( C	/
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

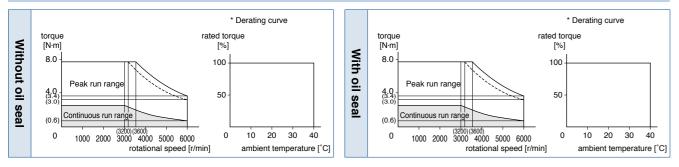
### • Permissible load (For details, refer to P.183)

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

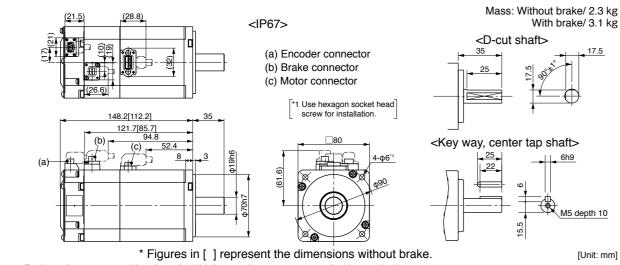
• For details of Note 1 to Note 5, refer to P.182, P.183.

- · 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  $\bigcirc$  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.>)



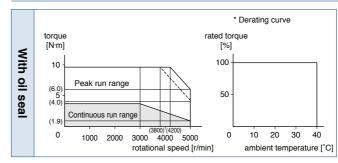
### **Dimensions** <In Case of With Brake, Cable direction to output shaft.>



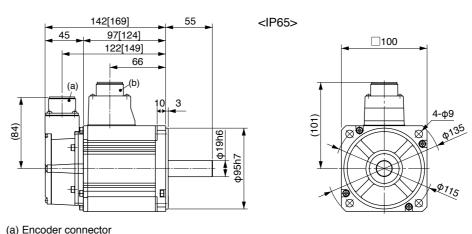
Reduce the moment of inertia ratio if high speed response operation is required. <Cautions> Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. 200 V MSME 1.0 kW [Low inertia, Middle capacity]

## **A** 141 11

Specific	ation	IS					
			AC2	00 V		specifications (For details	
IP65		MSME102GC MSME102SC		(This brake will be released when it is energized.) Do not use this for braking the motor in motion.			
Motor model		IP67	MSME102G1	MSME102S1	Static fri	Static friction torque (N·m) 7.8	
Annelisse	Model	A5II, A5 series	MDD	T5540	Engagin	g time (ms)	50 or less
Applicable driver *2	No.	A5IIE, A5E series	MDD <b>O</b> T5540E	-	Releasir	ng time (ms) Note)4	15 or less
unitor	F	rame symbol	D-fr	ame	Exciting	current (DC) (A)	0.81±10 %
Power suppl		,		.8	Releasir	ng voltage (DC) (V)	2 or more
Rated output		(W)	1000		Exciting	voltage (DC) (V)	24±2.4
Rated torque		(N·m)	3.18				
Momentary N	· ·	k torque (N·m)	9.55		• Permissible load (For details, refer to P.183)		
Rated currer	Rated current (A(rms))					Radial load P-direction (N)	980
Max. current		(A(o-p))		28	During	Thrust load A-direction (N)	588
Regenerative		Without option		it Note)2	assembly	Thrust load B-direction (N)	686
frequency (time		D VOI 4204		it Note)2	During	Radial load P-direction (N)	490
Rated rotatio		( )		000	operation	Thrust load A, B-direction (N)	196
Max. rotation	al speed	d (r/min)	50	000		Thrust load A, D-direction (N)	130
Moment of ir		Without brake	2.03		• For details of Note 1 to Note 5, refer to P.182, P.183.		
of rotor (×10	⁴ kg·m²)	With brake	2.	35	Dimensions of Driver, refer to P.43.		
	Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.</li> <li>*3 ◇ in number of applicable driver represents the</li> </ul>		
Rotary enco	Rotary encoder specifications Note)5		20-bit 17-bit Incremental Absolute				
	Resolutio	on per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.		



### Dimensions



(b) Motor/Brake connector

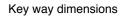
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

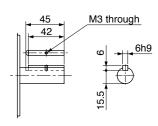
## A5 Family **Motor Specifications**

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

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

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





\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

			AC200 V			
Motor model		IP65		MSME152GC	MSME152SC	
*1		IP67		MSME152G1	MSME152S1	
Annlinghle	Model	A5II, A5	series	MDD¢	T5540	
Applicable driver *2	No.	A5IIE, A	5E series	MDD <b>O</b> T5540E	-	
unver	Fr	ame sym	bol	D-fra	ame	
Power supply	capacit	y	(kVA)	2	.3	
Rated output			(W)	15	00	
Rated torque			(N·m)	4.	77	
Momentary M	ax. peal	< torque	(N·m)	14.3		
Rated current		(.	A(rms))	8.2		
Max. current		(	(A(o-p))	35		
Regenerative b	orake	Without option		No limit Note)2		
frequency (times/		DV0P4284		No limit Note)2		
Rated rotation	al spee	d	(r/min)	30	00	
Max. rotationa	l speed		(r/min)	5000		
Moment of ine	rtia	Without brake		2.84		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	3.17		
	Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	15 times or less	
Rotary encode	fications	Note)5	20-bit Incremental	17-bit Absolute		
R	esolutio	n 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)

<b>_</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

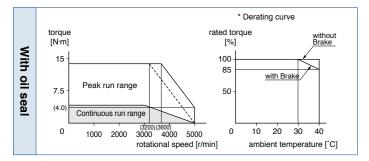
Mass: Without brake/ 4.4 kg

M3 through

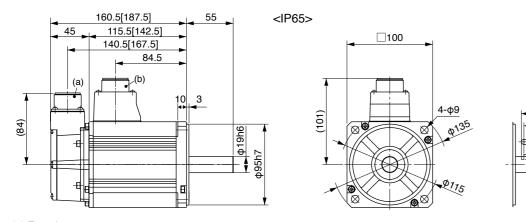
Key way dimensions

With brake/ 5.4 kg

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



### Dimensions



(a) Encoder connector

(b) Motor/Brake connector

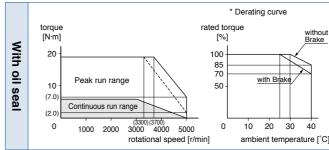
\* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

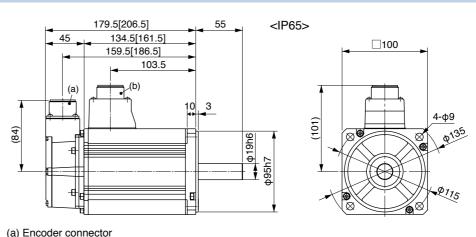
6h9

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

Specifications								
		IP65	AC2	00 V MSME202SC	/This br	specifications (For details ake will be released when it is e use this for braking the motor in	energized.	
Motor model		IP67	MSME202G1	MSME202S1	``	ction torque (N·m)	7.8 or more	
	Model	A5II, A5 series	MED	>T7364	Engagin	g time (ms)	50 or less	
Applicable driver *2	No.	A5IIE, A5E series	MED $\bigcirc$ T7364E	_	Releasir	ng time (ms) Note)4	15 or less	
	Fi	ame symbol	E-fr	ame	Exciting	current (DC) (A)	0.81±10 %	
Power supply	capacit	y (kVA)	3	.3	Releasir	ng voltage (DC) (V)	2 or more	
Rated output		(W)	2000		Exciting	Exciting voltage (DC) (V)		
Rated torque		(N·m)						
Momentary M	ax. pea	k torque (N·m)	19.1		• Permissible load (For details, refer to P.183)			
Rated current		(A(rms))	11.3			Radial load P-direction (N)	980	
Max. current		(A(o-p))	4	8	During	Thrust load A-direction (N)	588	
Regenerative I	orake	Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686	
frequency (times/	min) Note)1	DV0P4285	No lim	it Note)2				
Rated rotation	al spee	d (r/min)	3000		During	Radial load P-direction (N)	490	
Max. rotationa	al speed	(r/min)	5000		operation	Thrust load A, B-direction (N)	196	
Moment of ine	ertia	Without brake	3.68		• For details of Note 1 to Note 5, refer to P.182, P.183.			
of rotor (×10 <sup>-4</sup>		With brake	4.	01	Dimensions of Driver, refer to P.44.			
	Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Designation control type"</li> </ul>			
Rotary encode	Rotary encoder specifications Note)5		20-bit 17-bit D		Detail	<ul> <li>designation has "E" is "Position control type".</li> <li>Detail of model designation, refer to P.16.</li> <li>*3 ◊ in number of applicable driver represents the</li> </ul>		
F	lesolutio	n per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.			



### Dimensions



(b) Motor/Brake connector

<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.

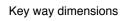
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

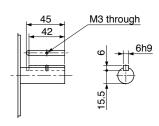
## A5 Family **Motor Specifications**

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

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

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





\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

					00 V	
Motor model		IP65		MSME302GC	MSME302SC	
*1		IP67		MSME302G1	MSME302S1	
Angliaghte	Model	A5II, A5	series	MFD🛇	TA390	
Applicable driver *2	No.	A5IIE, A	5E series	MFD <b></b>	-	
unver	Fr	ame sym	bol	F-fra	ame	
Power supply	Power supply capacity (kVA)			4	.5	
Rated output			(W)	30	00	
Rated torque			(N·m)	9.55		
Momentary M	ax. peal	< torque	(N·m)	28.6		
Rated current		(	A(rms))	18.1		
Max. current		(	(A(o-p))	77		
Regenerative b	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0P4285×2		No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	50	00	
Moment of ine	rtia	Without brake		6.50		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	6.85		
	Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less		
Rotary encode	Rotary encoder specific			20-bit Incremental	17-bit Absolute	
R	esolutio	on 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)

<b>.</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	490
operation	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:

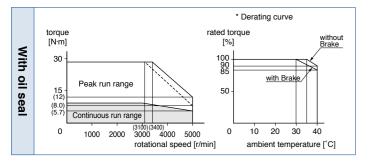
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

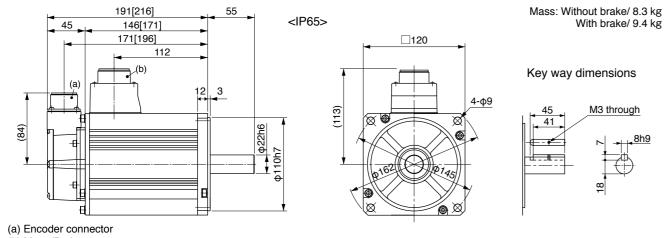
8h9

[Unit: mm]

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



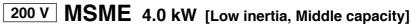
### **Dimensions**



(b) Motor/Brake connector

\* Figures in [ ] represent the dimensions with brake.

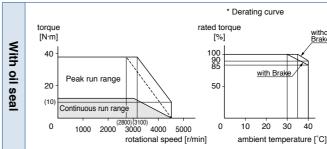
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



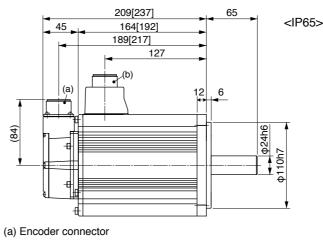
## - ··· ··

Specific	ation	S						
			AC2	00 V		• Brake specifications (For details, refer to P.183)		
Motor model		IP65	MSME402GC MSME402SC			(This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)		
*1		IP67	MSME402G1	MSME402S1	Static fri	ction torque (N·m)	16.2 or more	
	Model	A5II, A5 series	MFD\TB3A2		Engagin	g time (ms)	110 or less	
Applicable driver *2	No.	A5IIE, A5E series	MFD <b></b>	_	Releasir	ng time (ms) Note)4	50 or less	
	F	rame symbol	F-fr	ame	Exciting	current (DC) (A)	0.90±10 %	
Power supply capacity (kVA)			6	.0	Releasir	ng voltage (DC) (V)	2 or more	
Rated output (W)		4000		Exciting	voltage (DC) (V)	24±2.4		
Rated torque (N·m)				2.7				
Momentary Max. peak torque (N·m)		38.2		Permi	ssible load (For details, refe	er to P.183)		
Rated curren	t	(A(rms))	19.6			Radial load P-direction (N)	980	
Max. current		(A(o-p))	8	3	During	Thrust load A-direction (N)	588	
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686	
frequency (times	s/min) Note)1	DV0P4285×2	No lim	it Note)2	During	Radial load P-direction (N)	784	
Rated rotatio	nal spee	ed (r/min)	30	000	During operation			
Max. rotation	al speed	d (r/min)	4500		operation	Thrust load A, B-direction (N)	343	
Moment of in	ertia	Without brake	12.9			• For details of Note 1 to Note 5, refer to P.182, P.183.		
of rotor (×10-	<sup>₄</sup> kg·m²)	With brake	14	1.2		ions of Driver, refer to P.45.		
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less		*2 The pi	<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary encoder specifications Note)5		20-bit Incremental	20-bit 17-bit Detail of model designation, refer to F		P.16.			
F	Resolutio	on per single turn	1048576	131072	series	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



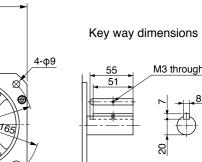
(b) Motor/Brake connector

<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.

## **A5 Family Motor Specifications**

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

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



\* Figures in [ ] represent the dimensions with brake.

**130** 

[Unit: mm]

118)

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

### **Specifications**

			AC2	00 V	
Motor model		IP65	MSME502GC	MSME502SC	
wotor model *1		IP67	MSME502G1	MSME502S1	
Annlinghia	Model	A5II, A5 series	MFD🛇	TB3A2	
Applicable driver *2	No.	A5IIE, A5E series	MFD <b></b> TB3A2E	-	
unver	Fi	ame symbol	F-fra	ame	
Power supply	Power supply capacity (kVA)			.5	
Rated output		(W)	50	00	
Rated torque		(N·m)	15	5.9	
Momentary M	ax. pea	k torque (N·m)	47.7		
Rated current		(A(rms))	24.0		
Max. current		(A(o-p))	102		
Regenerative	brake	Without option	357		
frequency (times	/min) Note)1	DV0P4285×2	No limit Note)2		
Rated rotation	nal spee	d (r/min)	3000		
Max. rotationa	al speed	(r/min)	4500		
Moment of ine	ertia	Without brake	17.4		
of rotor (×10-	¹ kg∙m²)	With brake	18	3.6	
	Recommended moment of inertia ratio of the load and the rotor Note)3			s or less	
Rotary encod	er speci	fications Note)5	20-bit Incremental	17-bit Absolute	
F	Resolutio	n 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)

<b>_</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	784
operation	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.182, P.183.

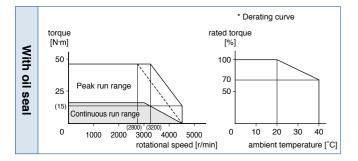
- · Dimensions of Driver, refer to P.45.
- \*1 Motor specifications:
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

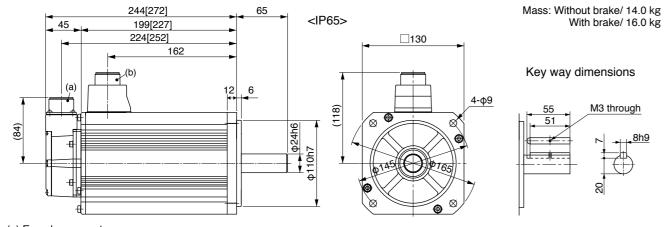
8h9

[Unit: mm]

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



### Dimensions



<sup>(</sup>a) Encoder connector

(b) Motor/Brake connector

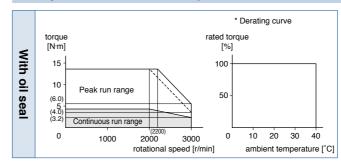
\* Figures in [ ] represent the dimensions with brake.

<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.

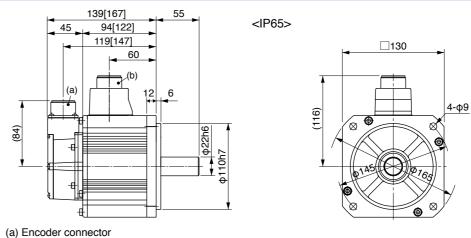


### Specifications

			AC2	00 V	<ul> <li>Brake</li> </ul>	specifications (For details	, refer to P.18
M-4	Motor model *1 IP65		MDME102GC MDME102SC MDME102S1			ake will be released when it is e use this for braking the motor ir	
					Static fri	ction torque (N·m)	4.9 or more
	Model	A5II, A5 series	MDD	>T3530	Engagin	g time (ms)	80 or less
Applicable driver *	2 No.	A5IIE, A5E series	MDD <b>OT3530E</b>	-	Releasir	ng time (ms) Note)4	70 or less
unver	F	rame symbol	D-fr	ame	Exciting	current (DC) (A)	0.59±10 %
Power supp	ly capaci	ty (kVA)	1	.8	Releasir	ng voltage (DC) (V)	2 or more
Rated output	t	(W)	1000		Exciting	voltage (DC) (V)	24±2.4
Rated torque (N·m)		4.77		0 ( )()			
Momentary Max. peak torque (N·m)		14.3		<ul> <li>Permi</li> </ul>	ssible load (For details, refe	er to P.183)	
Rated curre	nt	(A(rms))	5.7			Radial load P-direction (N)	980
Max. curren	t	(A(o-p))	2	24	During	Thrust load A-direction (N)	588
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686
frequency (tim	es/min) Note)	DV0P4284	No limit Note)2		During	Radial load P-direction (N)	490
Rated rotati	onal spee	ed (r/min)	2000		During operation		
Max. rotatio	nal speed	d (r/min)	3000		operation	Thrust load A, B-direction (N)	196
Moment of i	nertia	Without brake	4.60			ails of Note 1 to Note 5, refer to	o P.182, P.18
of rotor (×10	<sup>−4</sup> kg·m²)	With brake	5.90			ions of Driver, refer to P.43.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary encoder specifications Note)5		20-bit Incremental	20-bit 17-bit Detail of model designation, refer to P.16.			P.16.	
	Resolutio	on per single turn	1048576	131072	series. For more information about the part number please refer to P.16.		



### Dimensions



(b) Motor/Brake connector

<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.

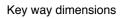
## A5 Family

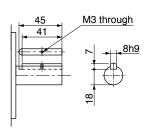
## **Motor Specifications**

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

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

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





\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

					00 V	
Motor model		IP65		MDME152GC	MDME152SC	
		IP67		MDME152G1	MDME152S1	
Angliaghte	Model	A5II, A5	series	MDD¢	T5540	
Applicable driver *2	No.	A5IIE, As	5E series	MDD <b></b>	-	
unver	Fr	ame sym	bol	D-fra	ame	
Power supply	Power supply capacity (kVA)			2	.3	
Rated output			(W)	15	00	
Rated torque			(N·m)	7.16		
Momentary Ma	ax. peal	k torque	(N·m)	21.5		
Rated current		(4	A(rms))	9.4		
Max. current		(	(A(o-p))	40		
Regenerative b	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0P4284		No limit Note)2		
Rated rotation	al spee	d	(r/min)	2000		
Max. rotationa	l speed		(r/min)	3000		
Moment of ine	rtia	Without	brake	6.70		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	7.99		
	Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less		
Rotary encode	Rotary encoder specifications			20-bit Incremental	17-bit Absolute	
R	esolutio	n per sing	le 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)

<b>_</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	490
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

Mass: Without brake/ 6.7 kg

Key way dimensions

41

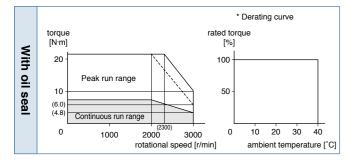
<u>⊨-</u>₩ <u>...</u> With brake/ 8.2 kg

M3 through

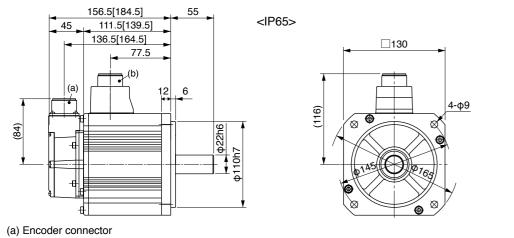
.8h9

[Unit: mm]

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



### **Dimensions**



(b) Motor/Brake connector

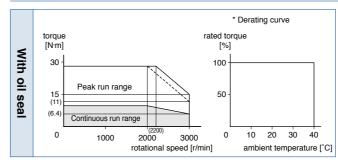
\* Figures in [ ] represent the dimensions with brake.

<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.

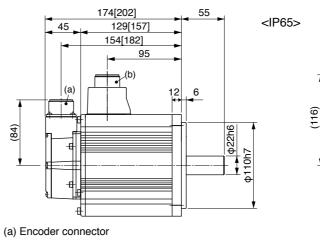


### Creations

Specif	ICa	llion	S					
				AC2	00 V		e specifications (For details rake will be released when it is e	
Motor mod	Motor model		MDME202GC MDME202SC			t use this for braking the motor in		
	*1		IP67	MDME202G1	MDME202G1 MDME202S1		iction torque (N·m)	13.7 or more
Annlinghin		Model	A5II, A5 series	MED	T7364	Engagii	ng time (ms)	100 or less
Applicable driver	*2	No.	A5IIE, A5E series	MED $\bigcirc$ T7364E	-	Releasi	ng time (ms) Note)4	50 or less
		Fr	ame symbol	E-fr	E-frame		current (DC) (A)	0.79±10 %
Power supply capacity (kVA)		3	.3	Releasi	ng voltage (DC) (V)	2 or more		
	Rated output (W)		( )	2000		Exciting	Exciting voltage (DC) (V)	
Rated torque (N·m)		9.55			· · · · · · · · · · · · · · · · · · ·			
Momentary Max. peak torque (N·m)		1 ( )	28.6		• Perm	issible load (For details, refe	er to P.183)	
Rated curr	ent		(A(rms))		.5		Radial load P-direction (N)	980
Max. curre	nt		(A(o-p))	4	.9	During	Thrust load A-direction (N)	588
Regenerativ			Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686
frequency (ti	mes/m	nin) Note)1	DV0P4285	No limit Note)2			Radial load P-direction (N)	490
Rated rotat	tiona	al spee	d (r/min)	2000		During		
Max. rotati	onal	speed	(r/min)	3000		operation	Thrust load A, B-direction (N)	196
Moment of	iner	rtia	Without brake	8.72			ails of Note 1 to Note 5, refer t	o P.182, P.183
of rotor (×1	0-4	kg∙m²)	With brake	10.0			sions of Driver, refer to P.44.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		*2 The p	<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary encoder specifications Note)5		20-bit Incremental	D-bit 17-bit Detail of model designation, refer to P.16.			P.16.		
	Re	esolutio	n per single turn	1048576	131072	series	5. For more information about t e refer to P.16.	



### Dimensions



(b) Motor/Brake connector

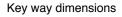
## A5 Family

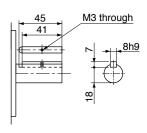
## **Motor Specifications**

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

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

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





**130 1-**Φ

\* Figures in [ ] represent the dimensions with brake.

<sup>&</sup>lt;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	IP65			MDME302GC	MDME302SC		
Motor model *1		IP67		MDME302G1	MDME302S1		
Angliaghte	Model	A5II, A5	series	MFD🛇	TA390		
Applicable driver *2	No.	A5IIE, A	5E series	MFD <b></b>	-		
unver	Fr	ame sym	bol	F-fra	ame		
Power supply capacity (kVA)				4	.5		
Rated output			(W)	30	00		
Rated torque			(N·m)	14	l.3		
Momentary M	ax. peal	k torque	(N·m)	43.0			
Rated current		(	A(rms))	17.4			
Max. current			(A(o-p))	74			
Regenerative b	orake	Without option		No limit Note)2			
frequency (times/	min) Note)1	DV0P4285×2		No limit Note)2			
Rated rotation	al spee	d (r/min)		2000			
Max. rotationa	al speed		(r/min)	30	00		
Moment of ine	ertia	Without	brake	12.9			
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	14.2			
	Recommended moment of inertia ratio of the load and the rotor Note):			10 times or less			
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute		
R	lesolutio	n per sing	le 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.

( U	/
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)

<b>_</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
accombry	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	784
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

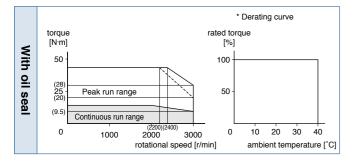
With brake/ 12.6 kg

M3 through

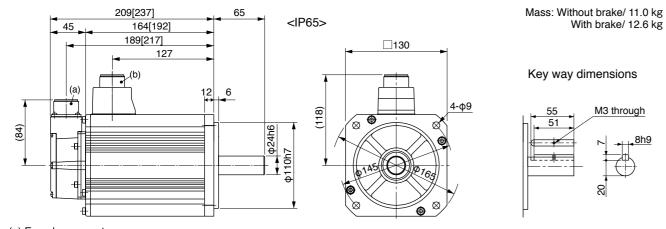
8h9

[Unit: mm]

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



### **Dimensions**



(a) Encoder connector

(b) Motor/Brake connector

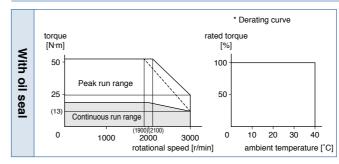
\* Figures in [ ] represent the dimensions with brake.

<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.

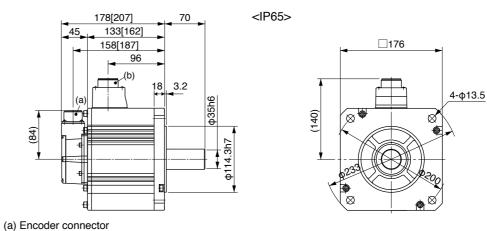


### Specifications

Specifi	catio	n	5						
				AC2	00 V		e specifications (For details rake will be released when it is o		
IP65		MDME402GC MDME402SC			t use this for braking the motor in				
	Motor model *1 IP67		MDME402G1 MDME402S1		Static fi	Static friction torque (N·m)			
Annelisatela	Мо	del	A5II, A5 series	MFD🛇	TB3A2	Engagi	ng time (ms)	80 or less	
Applicable driver	INU.		A5IIE, A5E series	MFD <b>OTB3A2E</b>	-	Releas	ing time (ms) Note)4	25 or less	
anver		Fr	ame symbol	F-fr	ame	Exciting	g current (DC) (A)	1.3±10 %	
Power supply capacity (kVA)			/ (kVA)	6	.0	Releas	ng voltage (DC) (V)	2 or more	
Rated outp			(W)		00	Exciting	y voltage (DC) (V)	24±2.4	
Rated torqu			(N·m)	19.1			• • • • • • • • •		
Momentary		eak	1 ( )	57.3		• Perm	issible load (For details, refe	er to P.183)	
Rated curre	Rated current (A(rms))		21.0			Radial load P-direction (N)	1666		
Max. currer	nt		(A(o-p))	8	9	During	Thrust load A-direction (N)	784	
Regenerativ			Without option	No limit Note)2		assembly	Thrust load B-direction (N)	980	
frequency (tir	nes/min) No	ite)1	DV0P4285×2	No limit Note)2			Radial load P-direction (N)	784	
Rated rotat	ional sp	eed	d (r/min)	2000		During			
Max. rotatio	onal spe	ed	(r/min)	3000		operation	Thrust load A, B-direction (N)	343	
Moment of	inertia		Without brake	37.6		For details of Note 1 to Note 5, refer to P.182, P.183			
of rotor (×1	0⁻⁴ kg·n	1²)	With brake	42.9			sions of Driver, refer to P.45.		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		*2 The p	<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>				
Rotary enc	oder sp	ecif	ications Note)5	20-bit 17-bit Incremental Absolute		Detai	Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the		
[	Resolu	itio	n per single turn	1048576	131072	series. For more information about the part number please refer to P.16.			



### Dimensions



(b) Motor/Brake connector

<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.

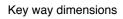
## A5 Family

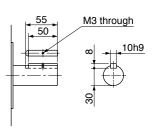
## **Motor Specifications**

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

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

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





\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

					AC200 V		
Motor model		IP65		MDME502GC	MDME502SC		
*1		IP67		MDME502G1	MDME502S1		
Annlinghia	Model	A5II, A5	series	MFD🔷	TB3A2		
Applicable driver *2	No.	A5IIE, A	5E series	MFD $\bigcirc$ TB3A2E	-		
unver	Fr	ame sym	bol	F-fra	ame		
Power supply capacity (kVA			(kVA)	7.	.5		
Rated output			(W)	50	00		
Rated torque			(N·m)	23	9.9		
Momentary Ma	ax. peal	k torque	(N·m)	71.6			
Rated current		(	A(rms))	25.9			
Max. current			(A(o-p))	110			
Regenerative b	orake	Without option		120			
frequency (times/	min) Note)1	DV0P4285×2		No limit Note)2			
Rated rotation	al spee	d (r/min)		2000			
Max. rotationa	l speed		(r/min)	30	3000		
Moment of ine	rtia	Without brake		48.0			
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	53.3			
	Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less			
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute		
R	esolutio	n per sing	le 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.

1 0	/
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)

<b>_</b> .	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
accombry	Thrust load B-direction (N)	980
During	Radial load P-direction (N)	784
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

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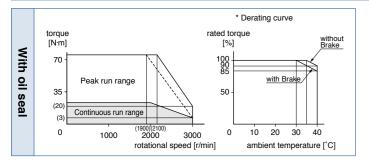
With brake/ 21.8 kg

M3 through

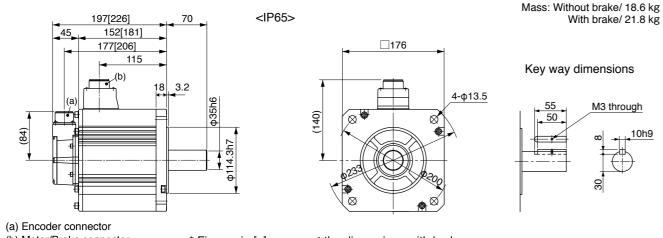
10h9

[Unit: mm]

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



### Dimensions



(b) Motor/Brake connector

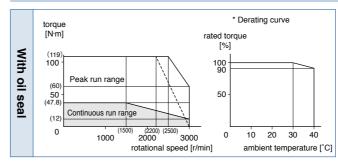
\* Figures in [ ] represent the dimensions with brake.

<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.

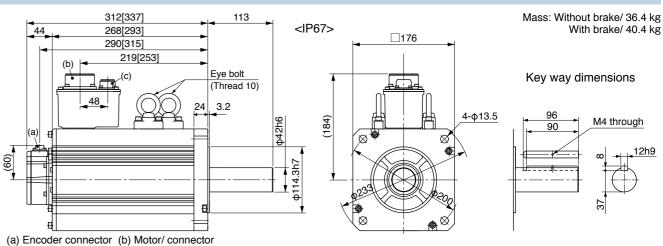
## 200 V MDME 7.5 kW [Middle inertia, Middle capacity]

### Specifications

Specif	Ca	uon	5					
				AC2	00 V		e <b>specifications</b> (For details rake will be released when it is e	
IP65		-	-		use this for braking the motor in			
	Motor model *1 IP67		IP67	MDME752G1	MDME752S1	2S1 Static friction torque (N·m)		58.8 or mor
Annelisselete		Model	A5II, A5 series	MGD¢	TC3B4	Engagir	g time (ms)	150 or less
Applicable driver	*2	No.	A5IIE, A5E series	-	-	Releasi	ng time (ms) Note)4	50 or less
		Fr	ame symbol	G-fr	ame	Exciting	current (DC) (A)	1.4±10 %
Power sup	-	capacity			1	Releasi	ng voltage (DC) (V)	2 or more
Rated outp			(W)	7500		Exciting	voltage (DC) (V)	24±2.4
Rated torque (N·m)			( )	47.8				
Momentary Max. peak torque (N·m)		,	119		• Permi	ssible load (For details, refe	er to P.183)	
Rated curre	ent		(A(rms))	44.0			Radial load P-direction (N)	2058
Max. curre	nt		(A(o-p))	165		During	Thrust load A-direction (N)	980
Regenerativ			Without option	No limit Note)2		assembly	Thrust load B-direction (N)	1176
frequency (tir	nes/m	nin) Note)1	DV0P4285×3	No limit Note)2			Radial load P-direction (N)	1176
Rated rotat	iona	al spee	d (r/min)	1500		During		
Max. rotatio	onal	speed	(r/min)	3000		operation	Thrust load A, B-direction (N)	490
Moment of	iner	tia	Without brake	101			ails of Note 1 to Note 5, refer t	o P.182, P.18
of rotor (×1	0 <sup>-4</sup>	kg∙m²)	With brake	107			ions of Driver, refer to P.46.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>				
Rotary enc	ode	r speci	fications Note)5	20-bit 17-bit Detail of model designation ras E is Positic Detail of model designation, ras and the second designation ras			of model designation, refer to	P.16.
[	Re	esolutio	n per single turn	1048576	131072	series. For more information about the part numbe please refer to P.16.		



### Dimensions



(c) Brake connector (only with 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.

## A5 Family

## **Motor Specifications**

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

\* Figures in [] represent the dimensions with brake.

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

### **Specifications**

				AC2	00 V	
Motor model		IP65		-	-	
*1		IP67		MDMEC12G1	MDMEC12S1	
Annlinghle	Model	A5II, A5	series	MHD🛇	TC3B4	
Applicable driver *2	No.	A5IIE, A	5E series	-	_	
diver	Fi	ame sym	bol	H-fra	ame	
Power supply capacity (kVA)				1	7	
Rated output	Rated output (W)				000	
Rated torque			(N·m)	70	0.0	
Momentary M	ax. pea	k torque	(N·m)	175		
Rated current		(	A(rms))	54.2		
Max. current			(A(o-p))	203		
Regenerative t	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0P4285×6		No limit Note)2		
Rated rotation	al spee	d	(r/min)	1500		
Max. rotationa	l speed		(r/min)	20	00	
Moment of ine	ertia	Without	t brake	212		
of rotor (×10 <sup>-4</sup>	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )			22	20	
	Recommended moment of inertia ratio of the load and the rotor Note		tia Note)3	10 times or less		
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
R	esolutio	n per sing	le 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.

1 0	/
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)

<b>_</b> .	Radial load P-direction (N)	4508
During assembly	Thrust load A-direction (N)	1470
assembly	Thrust load B-direction (N)	1764
During	Radial load P-direction (N)	2254
operation	Thrust load A, B-direction (N)	686

• For details of Note 1 to Note 5, refer to P.182, P.183.

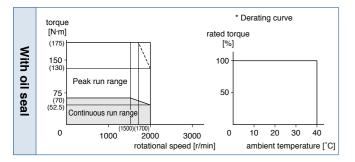
· Dimensions of Driver, refer to P.47.

\*1 Motor specifications:

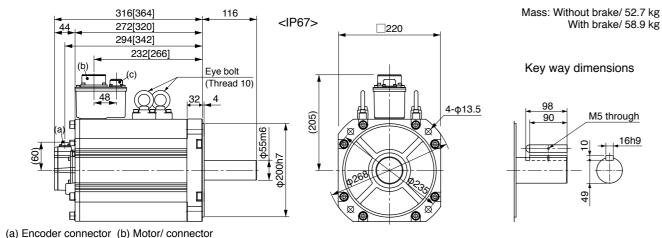
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

[Unit: mm]

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



### **Dimensions**



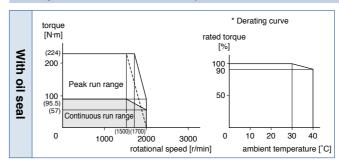
(c) Brake connector (only with brake)

\* Figures in [ ] represent the dimensions with brake.

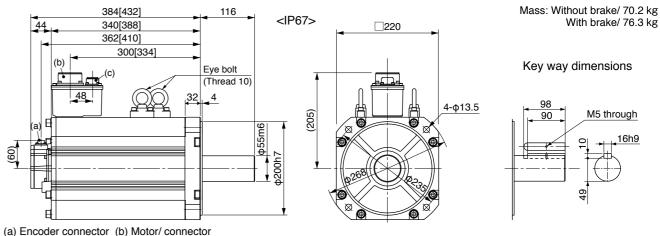
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. 200 V MDME 15.0 kW [Middle inertia, Middle capacity]

### Specifications

Specifi	Lan	Л	•						
				AC2	00 V		specifications (For details		
Motor model		IP65			(This brake will be released when it is energized.) Do not use this for braking the motor in motion.				
	;1		IP67	MDMEC52G1	MDMEC52S1	Static fr	ction torque (N·m)	100 or more	
Annlinghla	Мо	del	A5II, A5 series	MHD¢	TC3B4	Engagir	ig time (ms)	300 or less	
Applicable driver *	2 No.		A5IIE, A5E series	-	-	Releasi	ng time (ms) Note)4	140 or less	
		Fra	ame symbol	H-fr	ame	Exciting	current (DC) (A)	1.08±10 %	
Power supply capacity (kVA)			(kVA)	2	2	Releasi	ng voltage (DC) (V)	2 or more	
Rated outpu	ut		(W)	15000		Exciting	voltage (DC) (V)	24±2.4	
Rated torque (N·m)		95.5							
Momentary Max. peak torque (N·m)		224		• Perm	Permissible load (For details, refer to P.1)				
Rated curre	nt		(A(rms))	66.1		During assembly	Radial load P-direction (N)	4508	
Max. curren	t		(A(o-p))	236			Thrust load A-direction (N)	1470	
Regenerativ		- H	Without option	No limit Note)2			Thrust load B-direction (N)	1764	
frequency (tim	es/min) No	ote)1	DV0P4285×6	No lim	t Note)2		Radial load P-direction (N)	2254	
Rated rotati	onal sp	eec	d (r/min)	1500		During			
Max. rotatio	nal spe	ed	(r/min)	2000		operation	Thrust load A, B-direction (N)	686	
Moment of i	nertia		Without brake	302		For details of Note 1 to Note 5, refer to P.182, P.183			
of rotor (×10	)-₄ kg•n	n²)	With brake	311		• Dimensions of Driver, refer to P.47.			
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>					
Rotary enco	oder sp	ecif	ications Note)5	20-bit Incremental	17-bit Absolute	Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the			
	Resolu	utior	n per single turn	1048576	131072	series. For more information about the part number please refer to P.16.			



### Dimensions



(c) Brake connector (only with 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.

## A5 Family

## **Motor Specifications**

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

\* Figures in [ ] represent the dimensions with brake.

## 200 V MFME 1.5 kW

[Middle inertia, Middle capacity] Flat type

### **Specifications**

				AC2	00 V	
Mator model	IP65			-	-	
Motor model *1		IP67		MFME152G1	MFME152S1	
Applicable driver *2	Model	A5II, A5	series	MDD	>T5540	
	No.	A5IIE, A	5E series	MDD <b>OT5540E</b>	-	
unver	Fr	ame sym	nbol	D-fr	ame	
Power supply of	capacit	у	(kVA)	2	.3	
Rated output			(W)	15	00	
Rated torque			(N·m)	7.	16	
Momentary Ma	ax. peal	ak torque (N·m) (A(rms)) (A(o-p))		21.5 7.5 32		
Rated current						
Max. current						
Regenerative b	rake	Without option		100		
frequency (times/m	nin) Note)1	DV0P4284		No limit Note)2		
Rated rotationa	al spee	d (r/min)		2000		
Max. rotational	speed		(r/min)	30	00	
Moment of iner	rtia	Withou	t brake	18.2		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With I	brake	23.5		
Recommended mome ratio of the load and th			rtia Note)3	10 times	s or less	
Rotary encode	r speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
Re	esolutio	n per sing	gle 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)

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

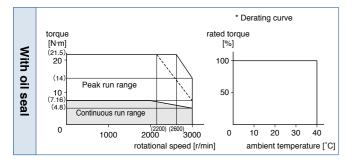
For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.43.

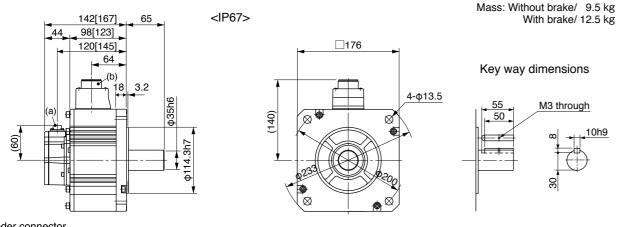
\*1 Motor specifications:

- \*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  $\diamond$  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



- (a) Encoder connector (b) Motor/Brake connector
- \* Figures in [ ] represent the dimensions with 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.

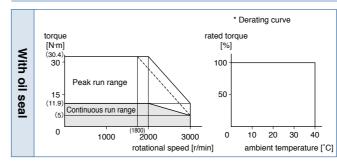


[Unit: mm]

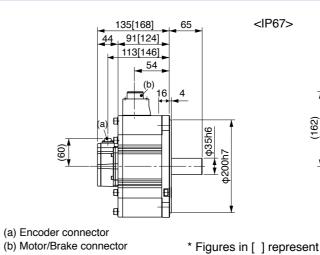
10h9

# 200 V MFME 2.5 kW [Middle inertia, Middle capacity]

Specif	ica	tion	S						
				AC2	00 V		e specifications (For detail		
Motor mod		IP65				(This brake will be released when it is energized. (Do not use this for braking the motor in motion. )			
	*1 IP67		MFME252G1	MFME252S1	Static f	Static friction torque (N·m)			
Annlinghia		Model	A5II, A5 series	MED	T7364	Engagi	ng time (ms)	150 or less	
Applicable driver	*2	No.	A5IE, A5E series	MED $\bigcirc$ T7364E	_	Releas	ing time (ms) Note)4	100 or less	
		Fr	rame symbol	E-fr	ame	Exciting	g current (DC) (A)	0.75±10 %	
Power supply capacity (kVA)		y (kVA)	3	.8	Releas	ing voltage (DC) (V)	2 or more		
Rated output (W)		2500		Exciting	Exciting voltage (DC) (V)				
			(N·m)	11.9			, , , , , ,		
Momentary Max. peak torque (N·m)		k torque (N·m)	30.4		Perm	issible load (For details, ref	er to P.183)		
Rated curr	ent		(A(rms))	13.4			Radial load P-direction (N)	1862	
Max. curre	nt		(A(o-p))	57		During	Thrust load A-direction (N)	686	
Regenerati			Without option	75		assembly	Thrust load B-direction (N)	686	
frequency (ti	mes/m	nin) Note)1	DV0P4285	No limit Note)2			Radial load P-direction (N)	784	
Rated rotat	tiona	al spee	d (r/min)	2000		During			
Max. rotati	onal	speed	(r/min)	3000		operation	Thrust load A, B-direction (N)	294	
Moment of	ine	rtia	Without brake	35.8		• For details of Note 1 to Note 5, refer to P.182, P.183.			
of rotor (×1	0-4	kg∙m²)	With brake	45	5.2		Dimensions of Driver, refer to P.44.		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>					
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the					
	Re	esolutio	n per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.			



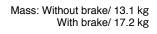
### Dimensions

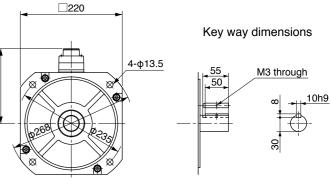


<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

## A5 Family **Motor Specifications**

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





### \* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

				AC2	00 V	
Motor mod		IP65		-	-	
Motor model *1		IP67		MFME452G1	MFME452S1	
Appliaghla	Model	A5II, A5	series	MFD🛇	TB3A2	
	∗2 No.	A5IIE, A	5E series	MFD <b>OTB3A2E</b>	_	
	Fi	rame sym	nbol	F-fra	ame	
Power supp	oly capacit	у	(kVA)	6	.8	
Rated outp	ut		(W)	45	00	
Rated torqu	le		(N·m)	21	.5	
Momentary	Max. pea	k torque	(N·m)	54.9		
Rated curre	ent	(A(rms)) (A(o-p))		24.7 105		
Max. currer	nt					
Regenerativ	ve brake	Without option		67		
frequency (tir	nes/min) Note)1	DV0P4285×2		375		
Rated rotat	ional spee	d	(r/min)	2000		
Max. rotatio	onal speed	(r/min) 300		00		
Moment of	inertia	Withou	t brake	63.1		
of rotor (×1	0 <sup>-4</sup> kg·m²)	With	brake	70.9		
Recommended momer ratio of the load and the			rtia Note)3	10 times	s or less	
Rotary enc	oder speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
	Resolutio	n per sing	gle 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)

<b>.</b> .	Radial load P-direction (N)	1862
During assembly	Thrust load A-direction (N)	686
accombry	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	784
operation	Thrust load A, B-direction (N)	294

For details of Note 1 to Note 5, refer to P.182, P.183.

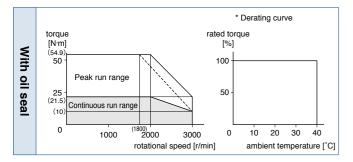
· Dimensions of Driver, refer to P.45.

\*1 Motor specifications:

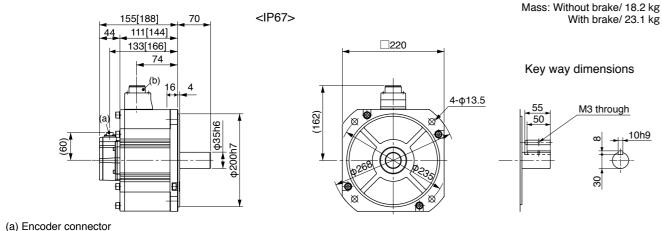
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\diamond$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

[Unit: mm]

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



### **Dimensions**



(b) Motor/Brake connector

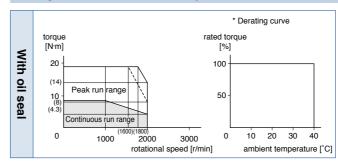
\* Figures in [ ] represent the dimensions with brake.

<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.

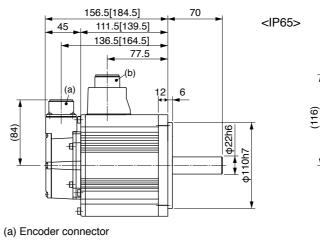


### Specifications

Specifi	Latio	115						
			AC2	00 V		specifications (For details ake will be released when it is e		
Motor mode	Motor model *1 IP65		MGME092GC MGME092SC MGME092G1 MGME092S1			use this for braking the motor in		
					Static fri	ction torque (N·m)	13.7 or more	
Annlinghia	Mode	A5II, A5 series	MDD	<b>T5540</b>	Engagin	g time (ms)	100 or less	
Applicable driver *	2 No.	A5IIE, A5E series	MDD <b>O</b> T5540E	-	Releasir	ng time (ms) Note)4	50 or less	
		Frame symbol	D-fr	ame	Exciting	current (DC) (A)	0.79±10 %	
Power supply capacity (kVA)			1	.8	Releasir	ng voltage (DC) (V)	2 or more	
Rated output		(W)	900		Exciting	voltage (DC) (V)	24±2.4	
Rated torque (N·m)					• • • • • •	l		
Momentary Max. peak torque (N·m)		19.3		• Permi	ssible load (For details, refe	er to P.183)		
Rated curre	nt	(A(rms))	7	.6		Radial load P-direction (N)	980	
Max. currer	t	(A(o-p))	2	24	During	Thrust load A-direction (N)	588	
Regenerativ		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686	
frequency (tim	es/min) Note	<sup>b)1</sup> DV0P4284	No limit Note)2		<b></b>	Radial load P-direction (N)	686	
Rated rotati	onal spe	ed (r/min)	1000		During			
Max. rotatio	nal spee	ed (r/min)	2000		operation	Thrust load A, B-direction (N)	196	
Moment of	nertia	Without brake	6.	70	• For details of Note 1 to Note 5, refer to P.182, P.18			
of rotor (×10	) <sup>−4</sup> kg·m <sup>2</sup>	) With brake	7.	99		• Dimensions of Driver, refer to P.43.		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>				
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Detail of model designation, refer to P.16.			P.16.		
	Resolut	ion per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.			



### Dimensions



(b) Motor/Brake connector

<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.

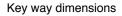
## A5 Family

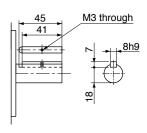
## **Motor Specifications**

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

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

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





**130 1-**Φ

<sup>\*</sup> Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

				AC2	00 V	
Matarianadal	IP65			MGME202GC	MGME202SC	
Motor model *1		IP67		MGME202G1	MGME202S1	
Annlinghla	Model	A5II, A5	series	MFD🗘	TA390	
Applicable	No.	A5IIE, A	5E series	MFD <b></b>	-	
driver *2	Fr	ame sym	bol	F-fra	ame	
Power supply	capacit	у	(kVA)	3	.8	
Rated output			(W)	20	00	
Rated torque			(N·m)	19	19.1	
Momentary M	ax. peal	torque (N·m)		47.7		
Rated current		(A(rms))		17.0		
Max. current		(A(o-p))		60		
Regenerative t	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0P4285×2		No limit Note)2		
Rated rotation	al spee	d (r/min)		1000		
Max. rotationa	l speed		(r/min)	2000		
Moment of ine	ertia	Without	t brake	30.3		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With t	orake	35.6		
Recommende ratio of the loa			tia <sub>Note)3</sub>	10 times	s or less	
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
R	esolutio	n per sing	le 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)

<b>.</b> .	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
accombry	Thrust load B-direction (N)	980
During	Radial load P-direction (N)	1176
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

Mass: Without brake/ 14.0 kg

Key way dimensions

50

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. .

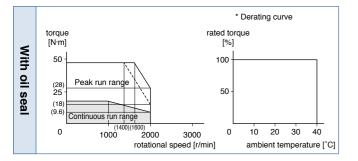
With brake/ 17.5 kg

M3 through

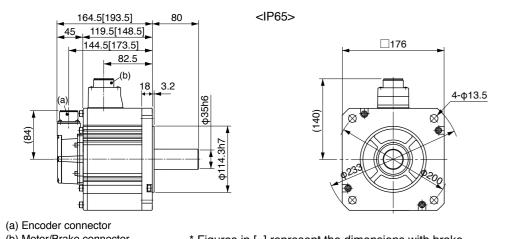
10h9

[Unit: mm]

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



### Dimensions



(b) Motor/Brake connector

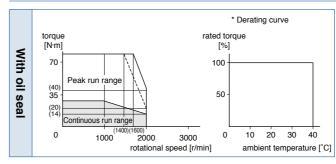
\* Figures in [ ] represent the dimensions with brake.

<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.

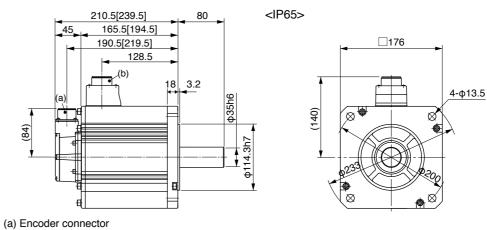
## 200 V MGME 3.0 kW [Middle inertia, Middle capacity]

### Specifications

Specini		3					
			AC2	00 V		specifications (For details rake will be released when it is e	
Motor mode	IP65		MGME302GC	MGME302SC	(Do not use this for braking the motor in motion. )		
*		IP67	MGME302G1	MGME302S1	Static fri	Static friction torque (N·m)	
Applicable	Model	A5II, A5 series	MFD	TB3A2	Engaging time (ms)		150 or less
Applicable driver **	No.	A5IIE, A5E series	MFD <b>OTB3A2E</b>	-	Releasir	ng time (ms) Note)4	50 or less
	Fi	rame symbol	F-fr	ame	Exciting	current (DC) (A)	1.4±10 %
Power suppl	y capacit	y (kVA)	4	.5	Releasir	ng voltage (DC) (V)	2 or more
Rated outpu		(W)			Exciting	voltage (DC) (V)	24±2.4
Rated torque (N·m)					<b></b>		
Momentary		1 ( )	71.7		• Permi	ssible load (For details, refe	er to P.183)
Rated currer	nt	(A(rms))		22.6		Radial load P-direction (N)	2058
Max. current		(A(o-p))	80 No limit Note)2		During	Thrust load A-direction (N)	980
Regenerative		Without option			assembly	Thrust load B-direction (N)	1176
frequency (time	s/min) Note)1	DV0P4285×2	No limit Note)2		Durring	Radial load P-direction (N)	1470
Rated rotation	nal spee	d (r/min)	1000		During		
Max. rotation	nal speed	(r/min)	2000		operation	Thrust load A, B-direction (N)	490
Moment of in	nertia	Without brake	48	3.4	For details of Note 1 to Note 5, refer to P.182, P.18		
of rotor (×10	<sup>-4</sup> kg·m²)	With brake	53	3.7		ions of Driver, refer to P.45.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary encoder specifications Note)5		20-bit 17-bit Incremental Absolute $33$ $33$ $33$ $33$ $33$ $33$ $33$ $33$		P.16.			
	Resolutio	n per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.		



### Dimensions



(b) Motor/Brake connector

<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.

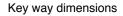
## A5 Family

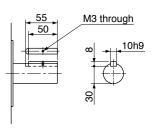
## **Motor Specifications**

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

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

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





\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

				AC2	00 V	
Motor model		IP65		-	-	
*1		IP67		MGME452G1	MGME452S1	
Applicable	Model	A5II, A5	series	MFD🛇	TB3A2	
	No.	A5IIE, A	5E series	MFD <b>OTB3A2E</b>	-	
unver	Fi	rame sym	lod	F-fra	ame	
Power supply capacity (kVA)			(kVA)	7.	.5	
Rated output	Rated output (W)			45	00	
Rated torque (N				43	3.0	
Momentary N	lax. pea	k torque	(N·m)	107		
Rated curren	t	(	(A(rms))	29.7		
Max. current			(A(o-p))	110		
Regenerative	brake	Without option		No limit Note)2		
frequency (times	s/min) Note)1	DV0P4285×2		No limit Note)2		
Rated rotatio	nal spee	d	(r/min)	1000		
Max. rotation	al speed		(r/min)	20	00	
Moment of in	ertia	Without	t brake	79.1		
of rotor (×10	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )			84	1.4	
Recommended moment of inertia ratio of the load and the rotor Note)3			rtia Note)3	10 times or less		
Rotary encod	ler speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
	Resolutio	n per sing	gle 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

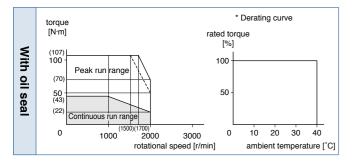
### • Permissible load (For details, refer to P.183)

<b>_</b> .	Radial load P-direction (N)	2058
During assembly	Thrust load A-direction (N)	980
assembly	Thrust load B-direction (N)	1176
During	Radial load P-direction (N)	1470
operation	Thrust load A, B-direction (N)	490

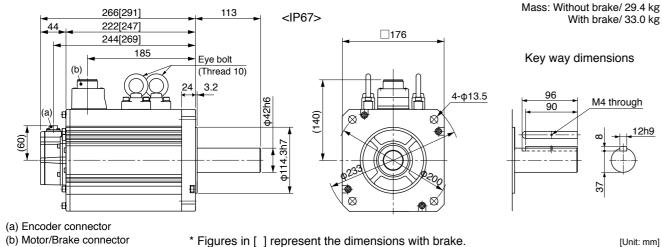
• For details of Note 1 to Note 5, refer to P.182, P.183.

- · 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  $\bigcirc$  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**



(b) Motor/Brake connector

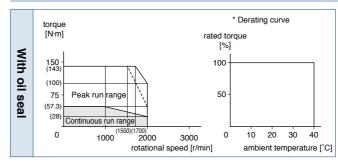
\* Figures in [ ] represent the dimensions with brake.

<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.

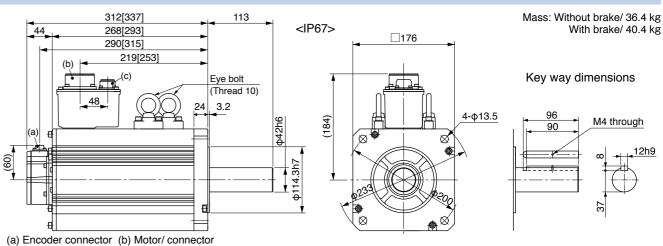
## 200 V MGME 6.0 kW [Middle inertia, Middle capacity]

## Specifications

Specific	ation	S						
			AC200 V			• Brake specifications (For details, refer to P.183 (This brake will be released when it is energized.)		
IP65		-	– – (Do not use this for braking the motor in					
wotor mode		IP67	MGME602G1	MGME602S1	Static fr	Static friction torque (N·m)		
	Model	A5II, A5 series	MGD <b>◇TC3B</b> 4		Engagir	ng time (ms)	150 or less	
Applicable driver *	No.	A5IIE, A5E series	—	—	Releasi	ng time (ms) Note)4	50 or less	
	F	rame symbol	G-fr	ame	Exciting	current (DC) (A)	1.4±10 %	
Power supply capacity (kVA)			9	.0	Releasi	ng voltage (DC) (V)	2 or more	
· ·	Rated output (W)			000	Exciting	voltage (DC) (V)	24±2.4	
Rated torque (N·m)			57.3		• Dorm	acible land (For datails, raf	r to D (100)	
,	Momentary Max. peak torque (N·m)			143		issible load (For details, refe	er 10 P. 183)	
Rated curre	nt	(A(rms))	38.8		During	Radial load P-direction (N)	2058	
Max. current		(A(o-p))	149		During assembly	Thrust load A-direction (N)	980	
Regenerative		Without option	No limit Note)2			Thrust load B-direction (N)	1176	
frequency (time		BTOT ILCOXT	No limit Note)2		During	Radial load P-direction (N)	1764	
Rated rotation		. ,	1000		operation		588	
Max. rotation	nal speed	(r/min)	2000					
Moment of in	nertia	Without brake	101			ails of Note 1 to Note 5, refer t	io P.182, P.183	
of rotor (×10	<sup>-4</sup> kg·m²)	With brake	10	07		sions of Driver, refer to P.46.		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary enco	der speci	fications Note)5	20-bit         17-bit         Detail of model designation, refer           Incremental         Absolute         *3 ◇ in number of applicable driver			of model designation, refer to	P.16.	
	Resolutio	n per single turn	1048576	131072	series	. For more information about t e refer to P.16.		



### Dimensions



(c) Brake connector (only with 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.

## A5 Family

## **Motor Specifications**

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

\* Figures in [] represent the dimensions with brake.

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

### **Specifications**

				AC200 V			
Motor model		IP65		MHME102GC	MHME102SC		
*1		IP67		MHME102G1	MHME102S1		
Annlinghle	Model	A5II, A5	series	MDD¢	T3530		
Applicable driver *2	No.	A5IIE, A	5E series	MDD <b>O</b> T3530E	-		
diver	Fr	ame sym	bol	D-fra	ame		
Power supply	Power supply capacity (kVA)				.8		
Rated output			(W)	10	00		
Rated torque			(N·m)	4.	77		
Momentary M	ax. peal	k torque	(N·m)	14.3			
Rated current		(	A(rms))	5.7			
Max. current			(A(o-p))	24			
Regenerative t	orake	Without option		83			
frequency (times/	min) Note)1	DV0P4284		No limit Note)2			
Rated rotation	al spee	d	(r/min)	2000			
Max. rotationa	l speed		(r/min)	3000			
Moment of ine	ertia	Without brake		24.7			
of rotor (×10 <sup>-4</sup>	kg∙m²)	With t	orake	26	6.0		
	Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less			
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute		
R	esolutio	n per sing	le 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.

(Be not use this for braining the motor i	
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)

<b>_</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	490
operation	Thrust load A, B-direction (N)	196

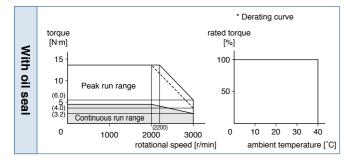
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.43.

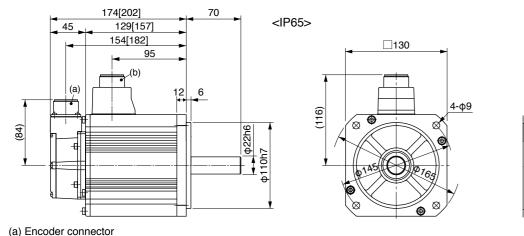
\*1 Motor specifications:

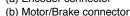
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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



### **Dimensions**





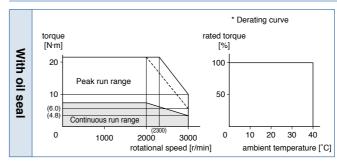
\* Figures in [ ] represent the dimensions with brake.

<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.

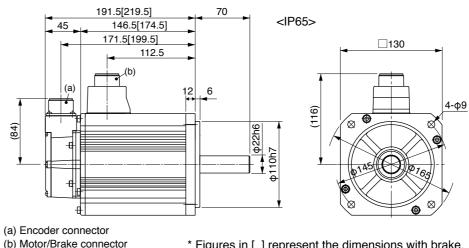


### Specifications

Specific		-			<b>_</b> -		
			AC2	200 V		specifications (For details	
IP65		MHME152GC MHME152SC		(This brake will be released when it is energized. Do not use this for braking the motor in motion.			
Motor model		IP67	MHME152G1 MHME152S1		Static fri	ction torque (N·m)	13.7 or more
Annelissahla	Model	A5II, A5 series	MDD	<b>T5540</b>	Engagin	g time (ms)	100 or less
Applicable driver *2	No.	A5IIE, A5E series	MDD <b>O</b> T5540E	-	Releasir	ng time (ms) Note)4	50 or less
	F	rame symbol	D-fr	ame	Exciting	current (DC) (A)	0.79±10 %
Power suppl	y capacit	y (kVA)	2	3	Releasir	ng voltage (DC) (V)	2 or more
Rated output		(W)	1500		Exciting	voltage (DC) (V)	24±2.4
Rated torque (N·m)			7.16			· · · · · ·	
Momentary Max. peak torque (N·m)		21.5		• Permi	Permissible load (For details, refer to		
Rated currer	nt	(A(rms))	9	9.4		Radial load P-direction (N)	980
Max. current		(A(o-p))	4	10	During	Thrust load A-direction (N)	588
Regenerative		Without option	2	22	assembly	Thrust load B-direction (N)	686
frequency (time	s/min) Note)1	DV0P4284	130				
Rated rotatio	nal spee	d (r/min)	2000		During	Radial load P-direction (N)	490
Max. rotation	al speed	(r/min)	3000		operation	Thrust load A, B-direction (N)	196
Moment of ir	nertia	Without brake	37.1		For details of Note 1 to Note 5, refer to P.182, P.		
of rotor (×10	<sup>-4</sup> kg·m²)	With brake	38.4			ions of Driver, refer to P.43.	
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary enco	der speci	fications Note)5	20-bit     17-bit       Incremental     Absolute			P.16.	
	Resolutio	n per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.		



### Dimensions

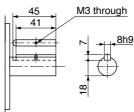


<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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

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

Key way dimensions



[Unit: mm]

# A5 Family

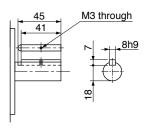
## **Motor Specifications**

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

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

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

### Key way dimensions



\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

				AC200 V			
Motor model		IP65		MHME202GC	MHME202SC		
		IP67		MHME202G1	MHME202S1		
Annlinghia	Model	A5II, A5	series	MED	<b>T7364</b>		
Applicable driver *2	No.	A5IIE, A	5E series	MED◇T7364E	-		
unver	Fr	ame sym	bol	E-fra	ame		
Power supply	capacit	у	(kVA)	3	.3		
Rated output			(W)	20	00		
Rated torque			(N·m)	9.	55		
Momentary M	ax. peal	k torque	(N·m)	28.6			
Rated current		(	A(rms))	11.1			
Max. current			(A(o-p))	47			
Regenerative I	orake	Without option		45			
frequency (times/	min) Note)1	DV0P4285		142			
Rated rotation	al spee	d	(r/min)	2000			
Max. rotationa	al speed		(r/min)	3000			
Moment of ine	ertia	Without brake		57.8			
of rotor (×10 <sup>-4</sup>	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )			59.6			
	Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less			
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute		
F	lesolutio	n per sing	le 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)

<b>_</b> .	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
assembly	Thrust load B-direction (N)	980
During	Radial load P-direction (N)	784
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

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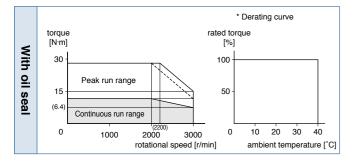
With brake/ 15.5 kg

M3 through

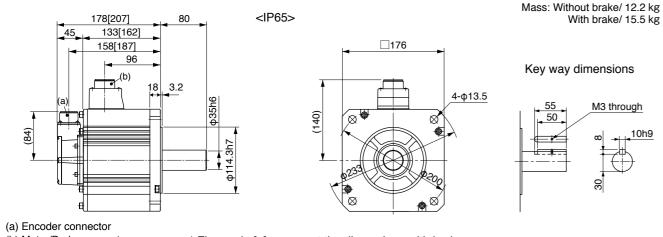
10h9

[Unit: mm]

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



### Dimensions



(b) Motor/Brake connector

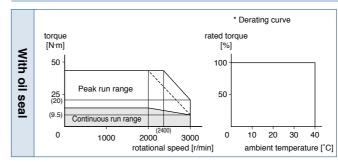
\* Figures in [ ] represent the dimensions with brake.

<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.

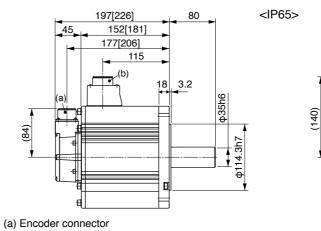
## 200 V MHME 3.0 kW [High inertia, Middle capacity]

### Specifications

Specifi	callo	113							
			AC200 V		<ul> <li>Brake specifications (For details, refer to P.183 /This brake will be released when it is energized.)</li> </ul>				
Motor mode	IP65		MHME302GC MHME302SC		(Do not use this for braking the motor in motion. )				
	1		IP67	MHME302G1	MHME302S1	Static friction torque (N·m)		24.5 or more	
Applicable	Mod	el /	A5II, A5 series	MFD	TA390	Eng	agin	g time (ms)	80 or less
Applicable driver *	2 No.		A5IIE, A5E series	MFD <b>OTA390E</b>	-	Rele	easir	g time (ms) Note)4	25 or less
		Fra	ime symbol	F-fr	ame	Exci	iting	current (DC) (A)	1.3±10 %
Power supp	ly capa	city	(kVA)		.5	Rele	easir	ig voltage (DC) (V)	2 or more
	Rated output (W)		( )	3000		Exci	iting	voltage (DC) (V)	24±2.4
Rated torque (N·m)			. ,	14.3		L	-		
Momentary		ak	,	43.0		Permissible load (For details, refer to P.183)			er to P.183)
Rated curre	nt		(A(rms))	16	3.0			Radial load P-direction (N)	1666
Max. curren	t		(A(o-p))	6	8	During	~	Thrust load A-direction (N)	784
Regenerativ		- H	Without option	19		assen	noiy	Thrust load B-direction (N)	980
frequency (tim	es/min) Not	e)1	DV0P4285×2	142		Durin		Radial load P-direction (N)	784
Rated rotati	onal sp	eed	(r/min)	2000		During	~ F		
Max. rotatio	nal spe	əd	(r/min)	30	000	opera	uion	Thrust load A, B-direction (N)	343
Moment of i	nertia		Without brake	90.5		For details of Note 1 to Note 5, refer to P.182, P.18			
of rotor (×10	) <sup>_4</sup> kg∙m	<sup>2</sup> )	With brake	92.1				ons of Driver, refer to P.45.	
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>					
Rotary enco	oder spe	cifi	cations Note)5	20-bit Incremental	20-bit 17-bit Detail of model designation, refer to P.16.			P.16.	
Γ	Resolu	tion	per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.			



### Dimensions



(b) Motor/Brake connector

<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.

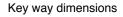
# A5 Family

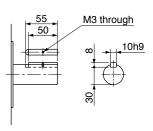
## **Motor Specifications**

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

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

Mass: Without brake/ 16.0 kg With brake/ 19.2 kg





**176** 4-φ13.5 ø∅  $\otimes$ 

\* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

100

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

### **Specifications**

			AC200 V			
Motor model		IP65		MHME402GC	MHME402SC	
Motor model *1		IP67		MHME402G1	MHME402S1	
Angliaghte	Model	A5II, A5	series	MFD🛇	TB3A2	
Applicable driver *2	No.	A5IIE, A	5E series	MFD <b>OTB3A2E</b>	-	
unver	Fr	ame sym	bol	F-fra	ame	
Power supply	capacit	y	(kVA)	6	.0	
Rated output			(W)	40	00	
Rated torque			(N·m)	19	9.1	
Momentary M	ax. peal	< torque	(N·m)	57.3		
Rated current		(	A(rms))	21.0		
Max. current			(A(o-p))	89		
Regenerative b	orake	Without option		17		
frequency (times/	min) Note)1	DV0P4285×2		125		
Rated rotation	al spee	d	(r/min)	2000		
Max. rotationa	l speed		(r/min)	3000		
Moment of ine	ertia	Without	brake	112		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	114		
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times	or less		
Rotary encode	Rotary encoder specifications Note			20-bit 17-bit Incremental Absolute		
R	esolutio	n per sing	le 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.

1 0	/
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)

	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
assembly	Thrust load B-direction (N)	980
During	Radial load P-direction (N)	784
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

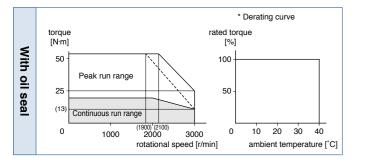
With brake/ 21.8 kg

M3 through

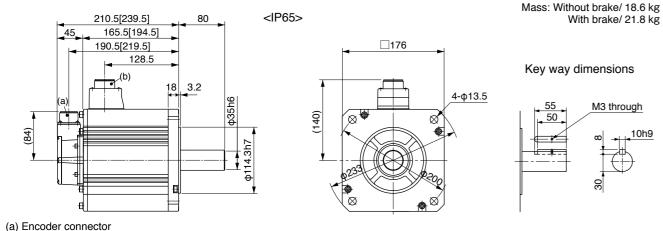
10h9

[Unit: mm]

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



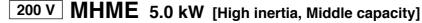
### Dimensions



(b) Motor/Brake connector

\* Figures in [ ] represent the dimensions with brake.

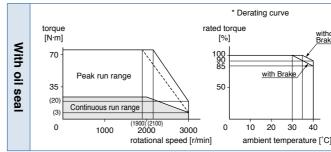
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



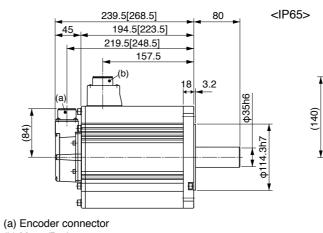
### Specifications

Specifications								
	AC200 V		• Brake specifications (For details, refer to P.183) (This brake will be released when it is energized.)					
Motor model		IP65	MHME502GC MHME502SC		Do not use this for braking the motor in motion.			
*1		IP67	MHME502G1	MHME502S1	Static fri	ction torque (N·m)	24.5 or more	
Angliashia	Model	A5II, A5 series	MFD🛇	TB3A2	Engagin	g time (ms)	80 or less	
Applicable driver *2	No.	A5IIE, A5E series	MFD <b>OTB3A2E</b>	-	Releasir	ng time (ms) Note)4	25 or less	
	F	rame symbol	F-fra	ame	Exciting	current (DC) (A)	1.3±10 %	
Power supply	/ capacit	y (kVA)	7.	.5	Releasir	ng voltage (DC) (V)	2 or more	
Rated output		(W)	50	00	Exciting	voltage (DC) (V)	24±2.4	
Rated torque		(N·m)	23.9		3			
Momentary N	Momentary Max. peak torque (N·m)		71.6		• Permissible load (For details, refer to P.183)			
Rated curren	t	(A(rms))	25.9			Radial load P-direction (N)	1666	
Max. current		(A(o-p))	110		During assembly	Thrust load A-direction (N)	784	
Regenerative		Without option	10		assembly	Thrust load B-direction (N)	980	
frequency (times		DV01 4200X2	76		During	Radial load P-direction (N)	784	
Rated rotatio		, ,			operation	Thrust load A, B-direction (N)	343	
Max. rotation		, ,	3000		For details of Note 1 to Note 5, refer to P.182, P.183.     Dimensions of Driver, refer to P.45.			
Moment of in of rotor (×10 <sup>-</sup>		Without brake	162					
	0 /	With brake	16	54	*1 Motor specifications:			
	Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		<ul> <li>*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.</li> <li>*3 ◇ in number of applicable driver represents the</li> </ul>			
Rotary encod	Rotary encoder specifications Note)5		20-bit 17-bit Incremental Absolute					
F	Resolutio	n per single turn	1048576	131072	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.>) \* Derating curve torque [N·m] rated torqu [%] Brake 70 100 with Brak Peak run range 35 50 (20) Continuous run range (3) 10 20 30 40 0 0 1000 2000 3000 rotational speed [r/min] ambient temperature [°C]



### Dimensions



(b) Motor/Brake connector

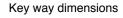
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

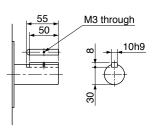
# A5 Family

## **Motor Specifications**

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

Mass: Without brake/ 23.0 kg With brake/ 26.2 kg





**176** 4-φ13.5 ø∅  $\otimes$ 

### \* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

			AC200 V			
Motor model	IP65			-	-	
*1		IP67		MHME752G1	MHME752S1	
Annelissiste	Model	A5I, A5 s	series	MGD🛇	TC3B4	
Applicable driver *2	No.	A5IIE, A5	E series	—	_	
GIVOI	Fi	ame symb	ool	G-fr	ame	
Power supply	capacit	у	(kVA)	1	1	
Rated output			(W)	75	00	
Rated torque			(N·m)	47	7.8	
Momentary Ma	ax. pea	k torque	(N·m)	119		
Rated current		(4	A(rms))	44.0		
Max. current		(.	A(o-p))	165		
Regenerative b	rake	Without	option	No limit Note)2		
frequency (times/	nin) Note)1	DV0P42	V0P4285×4 No limit Note)2		t Note)2	
Rated rotation	al spee	d	(r/min)	1500		
Max. rotationa	l speed		(r/min)	3000		
Moment of ine	rtia	Without	brake	273		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	rake	279		
	Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less		
Rotary encode	Rotary encoder specifications Note)5			20-bit 17-bit Incremental Absolute		
R	esolutio	n per singl	e 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.

1	/
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)

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

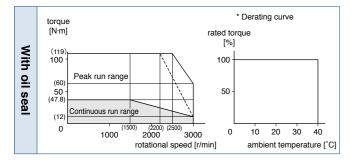
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.46.

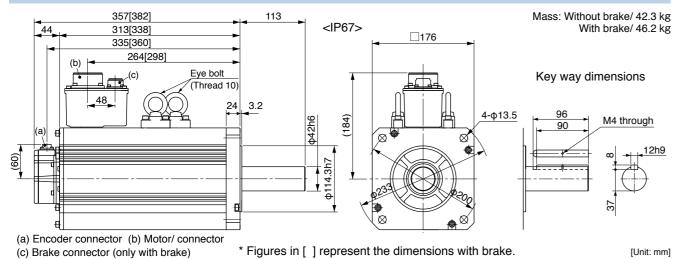
\*1 Motor specifications:

- \*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  $\bigcirc$  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.>)

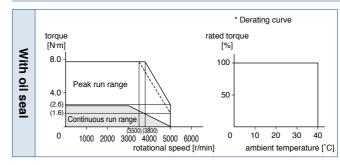


### Dimensions

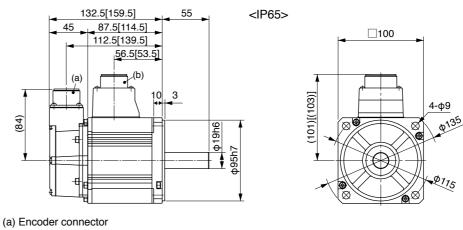


<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. 400 V MSME 750 W [Low inertia, Middle capacity]

Specifications									
		AC400 V			• Brake specifications (For details, refer to P.183)				
Motor mode			IP65	MSME084GC MSME084SC		(This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)			
	1 1		IP67	MSME084G1	MSME084S1	Sta	atic frie	ction torque (N·m)	2.5 or more
Annlinghts	Ν	Nodel	A5II, A5 series	MDD	T2412	Eng	gagin	g time (ms)	50 or less
Applicable driver *	2 N	۱o.	A5IIE, A5E series	MDD <b>OT2412E</b>	-	Re	leasin	g time (ms) Note)4	15 or less
		Fr	ame symbol	D-fr	ame	Exc	citing	current (DC) (A)	0.70±10 %
Power supp	ly ca	apacity	/ (kVA)	1	.6	Re	leasin	g voltage (DC) (V)	2 or more
Rated outpu	Rated output (W)		(W)	750		Exc	Exciting voltage (DC) (V)		24±2.4
Rated torque (N·m)		. ,	2.39			0	0 ( )( )		
Momentary	Momentary Max. peak torque (N·m)		torque (N·m)	7.16		Permissible load (For details, refer to P.183)			er to P.183)
Rated current (A(rms))		(A(rms))	2.4				Radial load P-direction (N)	980	
Max. curren	t		(A(o-p))	10		Durir	J	Thrust load A-direction (N)	588
Regenerativ			Without option	No limit Note)2 No limit Note)2		asse	mbly	Thrust load B-direction (N)	686
frequency (tim	es/min	i) Note)1	DV0PM20048					Radial load P-direction (N)	490
Rated rotati	onal	speed	d (r/min)	3000		Durir oper	٠	Thrust load A, B-direction (N)	196
Max. rotatio	nal s	speed	(r/min)	5000		open	allori	Thrust IDau A, D-ulrection (N)	190
Moment of i			Without brake	1.61		• For details of Note 1 to Note 5, refer to P.182, P.183.			
of rotor (×10	) <sup>-4</sup> k	g∙m²)	With brake	1.	93		• Dimensions of Driver, refer to P.44.		
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less		*2 T	<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.</li> <li>*3 ◇ in number of applicable driver represents the</li> </ul>				
Rotary encoder specifications Note)5		ications Note)5	20-bit 17-bit Deta						
	Res	solutio	n per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.			



### Dimensions



(b) Motor/Brake connector

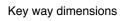
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

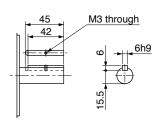
## A5 Family **Motor Specifications**

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

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

Mass: Without brake/ 3.1 kg With brake/ 4.1 kg





\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

			AC400 V				
Motor model		IP65		MSME104GC	MSME104SC		
*1	Motor model *1			MSME104G1	MSME104S1		
Angliaghte	Model	A5II, A5 serie	es	MDD¢	T3420		
Applicable driver *2	No.	A5IIE, A5E s	eries	MDD <b></b>	-		
unver	Fr	ame symbol		D-fra	ame		
Power supply	capacit	y (k	(VA	1	.8		
Rated output			(W)	10	00		
Rated torque		1)	l∙m)	3.	3.18		
Momentary M	ax. peal	k torque (N	l∙m)	9.55			
Rated current		(A(rr	ns))	3.3			
Max. current		(A(c	o-p))	14			
Regenerative b	orake	Without option		No limit Note)2			
frequency (times/	min) Note)1	DV0PM20048		No limit Note)2			
Rated rotation	al spee	d (r/r	nin)	3000			
Max. rotationa	l speed	(r/r	nin)	5000			
Moment of ine	rtia	Without bra	ake	2.03			
of rotor (×10 <sup>-4</sup>	kg∙m²)	With brak	е	2.35			
	Recommended moment of inertia ratio of the load and the rotor Note)3				s or less		
Rotary encode	Rotary encoder specificati			20-bit Incremental	17-bit Absolute		
R	esolutio	n per single tu	ırn	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)

<b>.</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	490
operation	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:

4-Φ9

- \*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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

Mass: Without brake/ 3.5 kg

M3 through

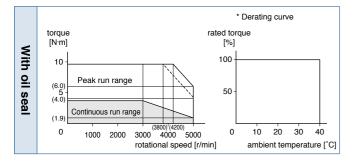
6h9

[Unit: mm]

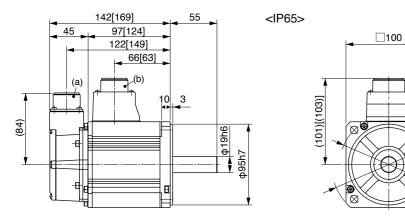
Key way dimensions

With brake/ 4.5 kg

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



### Dimensions





(b) Motor/Brake connector

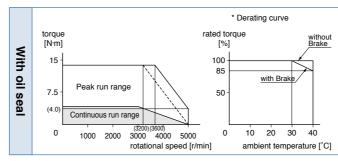
\* Figures in [ ] represent the dimensions with brake.

<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.

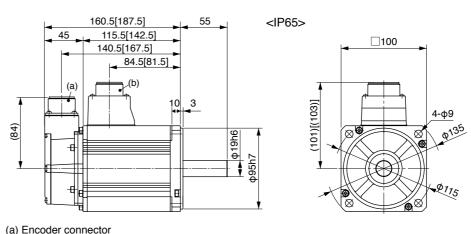
## 400 V MSME 1.5 kW [Low inertia, Middle capacity]

Specifications							
IP65			AC4	00 V MSME154SC	• 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.		
Motor model *1		IP67	MSME154G1			ction torque (N·m)	7.8 or more
	Model	A5II, A5 series	MDD	T3420	Engagin	ig time (ms)	50 or less
Applicable driver *2	No.	A5IIE, A5E series	MDD <b></b>	-	Releasir	ng time (ms) Note)4	15 or less
	Fi	rame symbol	D-fr	ame	Exciting	current (DC) (A)	0.81±10 %
Power supply	capacit	y (kVA)		.3	Releasir	ng voltage (DC) (V)	2 or more
Rated output		(W)	1500		Exciting	voltage (DC) (V)	24±2.4
Rated torque		(N·m)	4.77			0 ( ) ( )	
Momentary M	ax. pea	k torque (N·m)	14.3		Permissible load (For details, refer to P.183)		
Rated current		(A(rms))	4.2			Radial load P-direction (N)	980
Max. current		(A(o-p))	18		During	Thrust load A-direction (N)	588
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686
frequency (times	/min) Note)1	DV0PM20048	No limi	No limit Note)2			
Rated rotation	nal spee	d (r/min)	3000		During	Radial load P-direction (N)	490
Max. rotationa	al speed	(r/min)	50	00	operation	Thrust load A, B-direction (N)	196
Moment of ine	ertia	Without brake	2.	84	<ul> <li>For details of Note 1 to Note 5, refer to P.182, P.183.</li> <li>Dimensions of Driver, refer to P.44.</li> </ul>		
of rotor (×10-	<sup>↓</sup> kg·m²)	With brake	3.	17			
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>		
Rotary encod	Rotary encoder specifications Note)5			bit 17-bit Absolute $33 \bigcirc$ in number of applicable driver represent			P.16.
Resolution per single turn 1048576 131072 series. For more information about t please refer to P.16.						he part number,	

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



### Dimensions



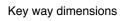
(b) Motor/Brake connector

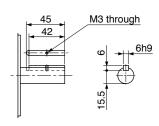
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

## A5 Family **Motor Specifications**

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

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





\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

				AC400 V		
	Motor model			MSME204GC	MSME204SC	
		IP67		MSME204G1	MSME204S1	
	Model	A5II, A5	series	MED	T4430	
Applicable driver *2	No.	A5IIE, A5	5E series	MED <sub>\begin{tabular}{l} T4430E \\ T4450E </sub>	-	
unver	Fr	ame syml	bol	E-fra	ame	
Power supply	capacit	у	(kVA)	3	.3	
Rated output			(W)	20	00	
Rated torque			(N·m)	6.	37	
Momentary M	ax. peal	k torque	(N·m)	19.1		
Rated current		(/	A(rms))	5.7		
Max. current		(	(A(o-p))	24		
Regenerative I	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0PM20049		No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	al speed		(r/min)	5000		
Moment of ine	ertia	Without	brake	3.68		
of rotor (×10 <sup>-4</sup>	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )		rake	4.01		
	Recommended moment of inertia ratio of the load and the rotor		tia Note)3	15 times	s or less	
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
F	lesolutio	n per sing	le 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)

<b>_</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	490
operation	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:

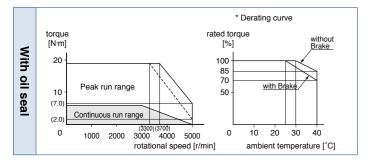
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

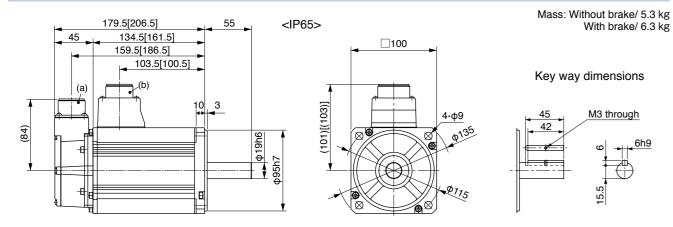
6h9

[Unit: mm]

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



### Dimensions



<sup>(</sup>a) Encoder connector

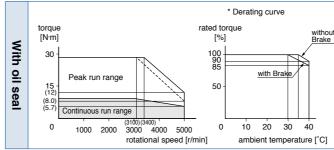
\* Figures in [ ] represent the dimensions with brake.

<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.

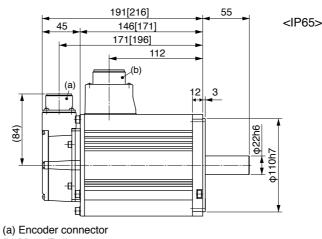
## 400 V MSME 3.0 kW [Low inertia, Middle capacity]

## . ...

Specific	ation	s						
			AC4	00 V		• Brake specifications (For details, refer to P.183)		
Motor model		IP65	MSME304GC MSME304SC		(This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)			
*1		IP67	MSME304G1 MSME304S1		Static fri	ction torque (N·m)	11.8 or more	
Annelle shi s	Model	A5II, A5 series	MFD	T5440	Engagin	g time (ms)	80 or less	
Applicable driver *2	No.	A5IIE, A5E series	MFD <b></b>	MFD\>T5440E –		ng time (ms) Note)4	15 or less	
	Fr	ame symbol	F-frame		Exciting	current (DC) (A)	0.81±10 %	
Power supply	capacit	y (kVA)	4	.5	Releasir	ng voltage (DC) (V)	2 or more	
Rated output	Rated output (W)		3000		Excitina	voltage (DC) (V)	24±2.4	
Rated torque (N·m)		9.55						
Momentary M	Momentary Max. peak torque (N·m)		28.6		Permissible load (For details, refer to P.183)			
Rated current		(A(rms))	9.2			Radial load P-direction (N)	980	
Max. current		(A(o-p))	39		During	Thrust load A-direction (N)	588	
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686	
frequency (times	min) Note)1	DV0PM20049×2	No limit Note)2			Radial load P-direction (N)	490	
Rated rotation	nal spee	d (r/min)	3000		During	( )		
Max. rotationa	al speed	(r/min)	5000		operation	Thrust load A, B-direction (N)	196	
Moment of ine	ertia	Without brake	6.50		<ul> <li>For details of Note 1 to Note 5, refer to P.182, P.183.</li> <li>Dimensions of Driver, refer to P.45.</li> </ul>			
of rotor (×10-	kg∙m²)	With brake	6.85					
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>				
Rotary encoder specifications Note)5		20-bit Incremental	20-bit 17-bit Detail of model designation, refer to F		P.16.			
F	lesolutio	n per single turn	1048576	131072	series	For more information about to refer to P.16.		



### Dimensions



(b) Motor/Brake connector

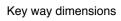
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

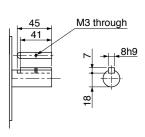
## A5 Family **Motor Specifications**

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

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

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





**120** 4-Φ9 113)

\* Figures in [ ] represent the dimensions with brake.

<sup>(</sup>b) Motor/Brake connector

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

### **Specifications**

				AC4	00 V	
Motor model		IP65		MSME404GC		
		IP67		MSME404G1	MSME404S1	
	Model	A5II, A5 serie	s	MFD🛇	TA464	
Applicable driver *2	No.	A5IIE, A5E s	eries	MFD <b></b>	-	
unver	Fr	ame symbol		F-fra	ame	
Power supply	capacit	y (k	VA)	6	.8	
Rated output			(W)	40	00	
Rated torque		(N	l∙m)	12	2.7	
Momentary Ma	ax. peal	k torque (N	l∙m)	38.2		
Rated current		(A(rn	ns))	9.9		
Max. current		(A(o	-p))	42		
Regenerative b	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0PM20049×2		No limit Note)2		
Rated rotation	al spee	d (r/n	nin)	3000		
Max. rotationa	l speed	(r/n	nin)	45	00	
Moment of ine	rtia	Without brake		12.9		
of rotor (×10 <sup>-4</sup>	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )		ə	14.2		
	Recommended moment of inertia ratio of the load and the rotor No		ote)3	15 times	s or less	
Rotary encode	er speci	fications No	ote)5	20-bit Incremental	17-bit Absolute	
R	esolutio	n per single tu	Irn	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)

<b>.</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	ist load A-direction (N) 588 ist load B-direction (N) 686 ial load P-direction (N) 784
operation	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:

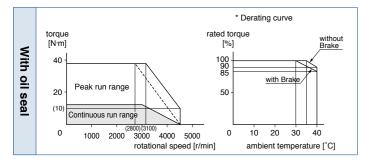
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

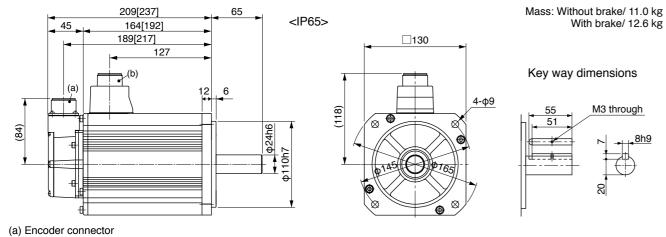
8h9

[Unit: mm]

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



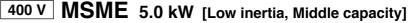
### Dimensions



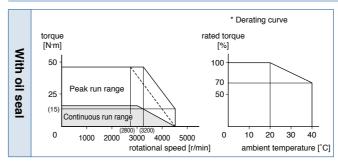
(b) Motor/Brake connector

\* Figures in [ ] represent the dimensions with brake.

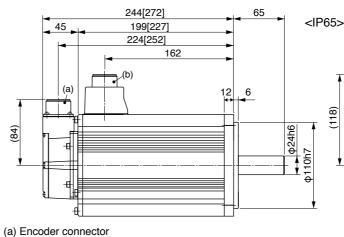
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



Specific	ation	S							
			AC4	00 V		specifications (For details	. ,		
Motor model	Motor model		MSME504GC MSME504SC			(This brake will be released when it is energized.) Do not use this for braking the motor in motion. )			
*1		IP67	MSME504G1 MSME504S1		Static fri	ction torque (N·m)	16.2 or more		
Annellisselle	Model	A5II, A5 series	MFD <b></b>		Engagin	g time (ms)	110 or less		
Applicable driver *2	No.	A5IIE, A5E series	MFD\CTA464E –		Releasir	ng time (ms) Note)4	50 or less		
	F	rame symbol	F-frame		Exciting	current (DC) (A)	0.90±10 %		
Power supply	Power supply capacity (kVA)			.5	Releasir	ng voltage (DC) (V)	2 or more		
· ·	Rated output (W)		5000		Exciting	voltage (DC) (V)	24±2.4		
Rated torque (N·m)		15.9							
Momentary N	Momentary Max. peak torque (N·m)		47.7		• Permissible load (For details, refer to P.183)				
Rated curren	t	(A(rms))	12.0			Radial load P-direction (N)	980		
Max. current		(A(o-p))	5	51	During	Thrust load A-direction (N)	588		
Regenerative		Without option	357		assembly	Thrust load B-direction (N)	686		
frequency (time	s/min) Note)1	DV0PM20049×2	No limit Note)2		During	Radial load P-direction (N)	784		
Rated rotatio	nal spee	d (r/min)	3000		During				
Max. rotation	al speed	l (r/min)	4500		operation	Thrust load A, B-direction (N)	343		
Moment of in	ertia	Without brake	17	7.4	For details of Note 1 to Note 5, refer to P.182, P.183.				
of rotor (×10	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		18.6		• Dimensions of Driver, refer to P.45.				
	Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less		*2 The p	<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary encod	ler speci	fications Note)5	20-bit 17-bit Incremental Absolute		Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the				
	Resolutio	n per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.				



### Dimensions



(b) Motor/Brake connector

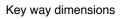
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

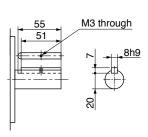
## A5 Family **Motor Specifications**

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

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

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





**130** 4-φ9 (118)

\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

				AC400 V		
Motor model	Motor model			MDME044GC	MDME044SC	
*1		IP67		MDME044G1	MDME044S1	
	Model	A5II, A5	series	MDD¢	<b>T2407</b>	
Applicable driver *2	No.	A5IIE, A	5E series	MDD <b>OT2407E</b>	-	
unver	Fr	ame sym	bol	D-fra	ame	
Power supply	capacit	у	(kVA)	0	.9	
Rated output			(W)	40	00	
Rated torque			(N·m)	1.9	91	
Momentary M	ax. peal	k torque	(N·m)	5.73		
Rated current		(.	A(rms))	1.2		
Max. current		(	(A(o-p))	4.9		
Regenerative t	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0PM20048		No limit Note)2		
Rated rotation	al spee	d	(r/min)	20	00	
Max. rotationa	al speed		(r/min)	30	00	
Moment of ine	ertia	Without	brake	1.61		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	1.93		
	Recommended moment of inertia ratio of the load and the rotor		tia <sub>Note)3</sub>	10 times	s or less	
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
R	lesolutio	n per sing	le 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)

<b>.</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	490
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

Mass: Without brake/ 3.1 kg

M3 through

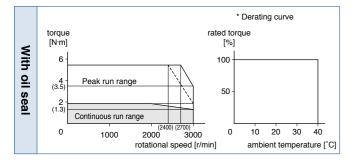
6h9

[Unit: mm]

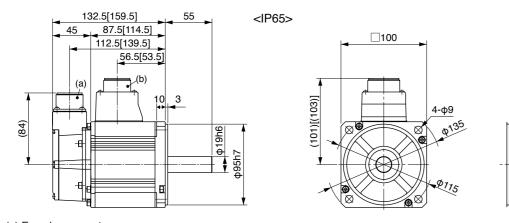
Key way dimensions

With brake/ 4.1 kg

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



### Dimensions



(a) Encoder connector

(b) Motor/Brake connector

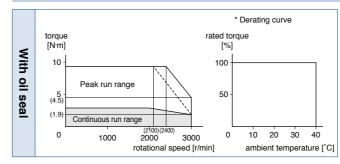
\* Figures in [ ] represent the dimensions with brake.

<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.

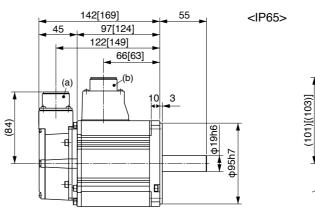


### Specifications

Specifi	calloi	15					
			AC4	00 V		specifications (For details ake will be released when it is e	
IP65		MDME064GC MDME064SC			use this for braking the motor in		
	:1	IP67	MDME064G1	MDME064S1	Static friction torque (N·m)		2.5 or more
Annellashia	Mode	A5II, A5 series	MDD	T2407	Engagin	g time (ms)	50 or less
Applicable driver *	2 No.	A5IIE, A5E series	MDD <b>OT2407E</b>	-	Releasir	ng time (ms) Note)4	15 or less
	I	Frame symbol	D-fr	ame	Exciting	current (DC) (A)	0.70±10 %
Power supp	ly capac	ity (kVA)	1	.2	Releasir	ng voltage (DC) (V)	2 or more
Rated outp		(W)	600		Exciting	voltage (DC) (V)	24±2.4
Rated torque (N·m)		2.86			- · · · ·		
Momentary		1 ( )	8.59		• Permi	ssible load (For details, refe	er to P.183)
Rated curre	nt	(A(rms))	1	1.5		Radial load P-direction (N)	980
Max. currer	t	(A(o-p))	6	.5	During	Thrust load A-direction (N)	588
Regenerativ		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686
frequency (tin	es/min) Note	DV0PM20048	No limit Note)2			Radial load P-direction (N)	490
Rated rotat	onal spe	ed (r/min)	20	00	During		
Max. rotatic	nal spee	d (r/min)	3000		operation	Thrust load A, B-direction (N)	196
Moment of	nertia	Without brake	2.03		<ul> <li>For detail</li> </ul>	ails of Note 1 to Note 5, refer to	o P.182, P.18
of rotor (×1	) <sup>-4</sup> kg·m²	With brake	2.35			ions of Driver, refer to P.44.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary enco	oder spec	cifications Note)5	20-bit Incremental	b-bit 17-bit Detail of model designation, refer to P.16.			P.16.
Γ	Resoluti	on per single turn	1048576	131072	series. For more information about the part number please refer to P.16.		



### Dimensions



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

<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.

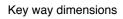
## A5 Family

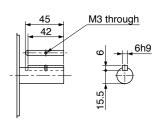
## **Motor Specifications**

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

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

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





**100** 4-Φ9 φ<sup>135</sup>

\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

			AC4	00 V		
Motor model		IP65	MDME104GC	MDME104SC		
WOTOR MODEI *1		IP67	MDME104G1	MDME104S1		
Annlinghia	Model	A5II, A5 series	MDD	<b>T2412</b>		
Applicable driver *2	No.	A5IIE, A5E serie	MDD <b>OT2412E</b>	-		
unver	Fr	ame symbol	D-fr	ame		
Power supply	capacit	y (kVA	1	.8		
Rated output		(W)	10	000		
Rated torque		(N·m	4.	77		
Momentary M	ax. peal	k torque (N·m	14	14.3		
Rated current		(A(rms)	2	2.8		
Max. current		(A(o-p)	1	12		
Regenerative t	orake	Without option	No limit Note)2			
frequency (times/	min) Note)1	DV0PM20048	No lim	No limit Note)2		
Rated rotation	al spee	d (r/min	2000			
Max. rotationa	l speed	(r/min	30	000		
Moment of ine	ertia	Without brake	4.	4.60		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With brake	5.	90		
	Recommended moment of inertia ratio of the load and the rotor Note)3			s or less		
Rotary encode	er speci	fications Note)	20-bit Incremental	17-bit Absolute		
R	esolutio	n 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 During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

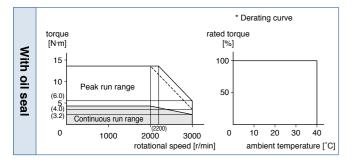
With brake/ 6.7 kg

M3 through

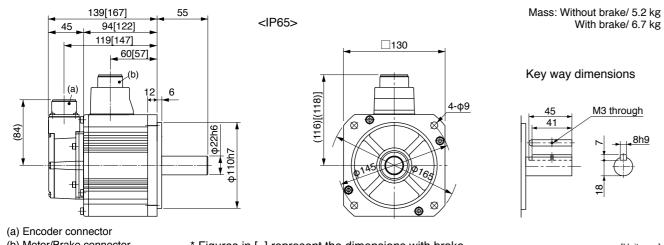
.8h9

[Unit: mm]

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



### Dimensions



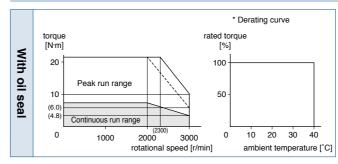
(b) Motor/Brake connector

\* Figures in [ ] represent the dimensions with brake.

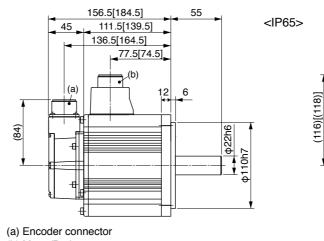
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. 400 V MDME 1.5 kW [Middle inertia, Middle capacity]

### Specifications

Specific	alion	5					
			AC4	AC400 V		specifications (For details	
	IP65		MDME154GC MDME154SC			ake will be released when it is e use this for braking the motor ir	
Motor model *1		IP67	MDME154G1	MDME154S1	Static fri	Static friction torque (N·m)	
<b>A</b> 12 1 1	Model	A5II, A5 series	MDD	T3420	Engagin	g time (ms)	100 or le
Applicable driver *2	No.	A5IIE, A5E series	MDD <b>OT3420E</b>	-	Releasir	ng time (ms) Note)4	50 or les
unver	Fi	ame symbol	D-fr	ame	Exciting	current (DC) (A)	0.79±10
Power supply	/ capacit	y (kVA)	2	.3	Releasir	ng voltage (DC) (V)	2 or mor
Rated output		(W)		00	Exciting	voltage (DC) (V)	24±2.4
	Rated torque (N·m)		7.16			0 ( )()	
Momentary N	Momentary Max. peak torque (N·m)		21.5		• Permi	ssible load (For details, refe	er to P.183)
Rated currer	t	(A(rms))	4	4.7		Radial load P-direction (N)	980
Max. current		(A(o-p))	2	0	During	Thrust load A-direction (N)	588
Regenerative		Without option	No lim	t Note)2	assembly	Thrust load B-direction (N)	686
frequency (time	s/min) Note)1	DV0PM20048	No limit Note)2			Radial load P-direction (N)	490
Rated rotatio	nal spee	d (r/min)	20	00	During		
Max. rotation	al speed	(r/min)	30	00	operation	Thrust load A, B-direction (N)	196
Moment of in	ertia	Without brake	6.70			ails of Note 1 to Note 5, refer t	o P.182, P.1
of rotor (×10	⁴ kg·m²)	With brake	7.99			ions of Driver, refer to P.44.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary encoder specifications Note)5		fications Note)5	20-bit Incremental	17-bit Absolute	Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the		
	Resolutio	n per single turn	1048576	131072	series	For more information about t refer to P.16.	



### Dimensions



(b) Motor/Brake connector

<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.

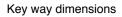
## A5 Family

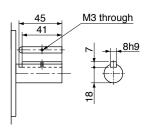
## **Motor Specifications**

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

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

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





**130** 4-Φ

\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

			AC4	00 V		
	Motor model			MDME204GC	MDME204SC	
		IP67		MDME204G1	MDME204S1	
Annlinghia	Model	A5II, A5 s	series	MED	T4430	
Applicable driver *2	No.	A5IIE, A5	E series	MED <sub>\begin{tabular}{l} T4430E \\ T4450E </sub>	-	
unver	Fr	ame symb	ool	E-fra	ame	
Power supply	capacit	у	(kVA)	3	.3	
Rated output			(W)	20	00	
Rated torque			(N·m)	9.	55	
Momentary M	ax. peal	k torque	(N·m)	28.6		
Rated current		(/	A(rms))	5.9		
Max. current		(	A(o-p))	25		
Regenerative I	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0PM20049		No limit Note)2		
Rated rotation	al spee	d	(r/min)	2000		
Max. rotationa	al speed		(r/min)	3000		
Moment of ine	ertia	Without	brake	8.72		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	rake	10.0		
	Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less		
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
F	lesolutio	n per singl	e 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.

1 0	/
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 During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

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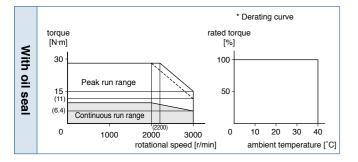
<u>⊨-</u>₩ <u>...</u> With brake/ 9.5 kg

M3 through

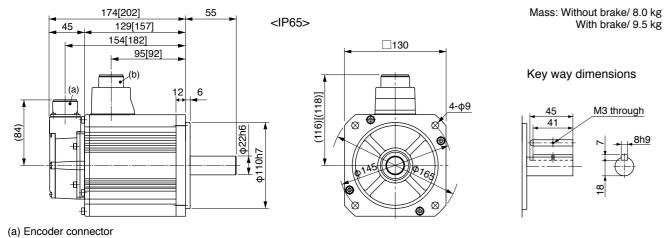
.8h9

[Unit: mm]

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



### **Dimensions**



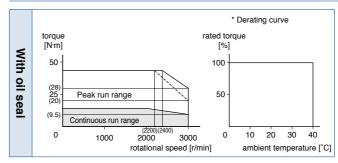
- (b) Motor/Brake connector
- \* Figures in [ ] represent the dimensions with brake.

<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.

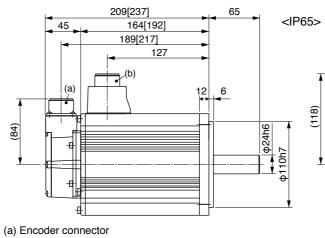
## 400 V MDME 3.0 kW [Middle inertia, Middle capacity]

### Specifications

Specifi	Calle	0115					
			AC4	00 V		specifications (For details ake will be released when it is e	
Motor model		MDME304GC	MDME304GC MDME304SC		use this for braking the motor in		
	<b>#I</b> ⊫1	IP67	MDME304G1	MDME304S1	Static fri	ction torque (N·m)	16.2 or more
Annelisse	Мо	del A5I, A5 series	MFD	T5440	Engagin	g time (ms)	110 or less
Applicable driver	⊧2 No.	A5IE, A5E series	MFD◇T5440E	-	Releasir	ng time (ms) Note)4	50 or less
		Frame symbol	F-fr	ame	Exciting	current (DC) (A)	0.90±10 %
Power supp	<i>,</i> ,	city (kVA)	-	.5	Releasir	ng voltage (DC) (V)	2 or more
Rated outp		(W)	3000		Exciting	voltage (DC) (V)	24±2.4
Rated torque (N·m)		14.3			• • • •		
Momentary			43.0		• Permi	ssible load (For details, refe	er to P.183)
Rated curre	ent	(A(rms))		.7		Radial load P-direction (N)	980
Max. currer	nt	(A(o-p))	3	37	During	Thrust load A-direction (N)	588
Regenerativ			No limit Note)2		assembly	Thrust load B-direction (N)	686
frequency (tir	nes/min) No	te)1 DV0PM20049×2	No limit Note)2			Radial load P-direction (N)	784
Rated rotat	ional sp	eed (r/min)	20	000	During operation		
Max. rotatio	onal spe	ed (r/min)	30	3000		Thrust load A, B-direction (N)	343
Moment of	inertia	Without brake	12.9		<ul> <li>For detail</li> </ul>	ails of Note 1 to Note 5, refer t	o P.182, P.183
of rotor (×1	0 <sup>-4</sup> kg∙n	<sup>12</sup> ) With brake	14	14.2		ions of Driver, refer to P.45.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 time	10 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>		
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the			
Γ	Resolu	ition per single turn	1048576	131072	series. For more information about the part number please refer to P.16.		



### Dimensions



(b) Motor/Brake connector

<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.

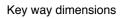
## A5 Family

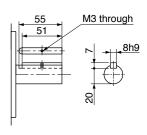
## **Motor Specifications**

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

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

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





**130** 4-Φ

\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

				AC4	00 V	
Motor model		IP65		MDME404GC		
wotor model *1		IP67		MDME404G1	MDME404S1	
Annlinghle	Model	A5II, A5 seri	es	MFD🛇	TA464	
Applicable driver *2	No.	A5IIE, A5E	series	MFD <b></b>	-	
unver	Fi	ame symbol		F-fra	ame	
Power supply	capacit	у (	kVA)	6	.8	
Rated output			(W)	40	00	
Rated torque		(	N∙m)	19	0.1	
Momentary M	ax. pea	k torque (	N∙m)	57.3		
Rated current		(A(r	ms))	10.6		
Max. current		(A(	o-p))	45		
Regenerative t	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0PM20049×2		No limit Note)2		
Rated rotation	al spee	d (r/	′min)	2000		
Max. rotationa	l speed	(r/	′min)	3000		
Moment of ine	ertia	Without br	ake	37.6		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With bral	ke	42	2.9	
	Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less		
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
R	esolutio	n per single t	urn	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 During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

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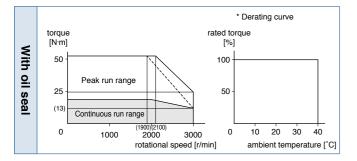
With brake/ 18.7 kg

M3 through

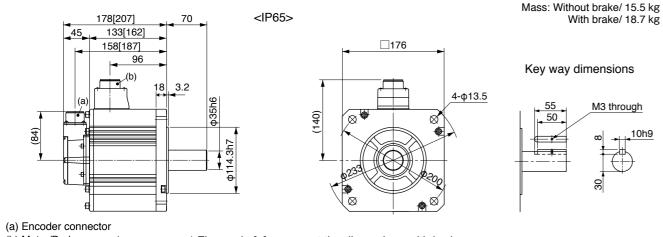
10h9

[Unit: mm]

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



### Dimensions



(b) Motor/Brake connector

\* Figures in [ ] represent the dimensions with brake.

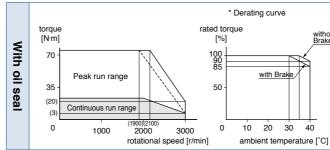
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



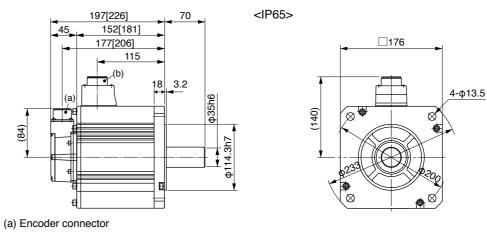
### Specifications

Specini	catior	15					
			AC400 V		<ul> <li>Brake specifications (For details, refer to P.183) (This brake will be released when it is energized.)</li> </ul>		
IP65		MDME504GC MDME504SC		(Do not use this for braking the motor in motion. )			
wotor mode *		IP67	MDME504G1	MDME504S1	Static fri	Static friction torque (N·m)	
Annellashia	Mode	A5II, A5 series	MFD	TA464	Engagin	g time (ms)	80 or less
Applicable driver *	2 No.	A5IIE, A5E series	MFD <b></b>	-	Releasir	ng time (ms) Note)4	25 or less
0.110	F	rame symbol	F-fr	ame	Exciting	current (DC) (A)	1.3±10 %
Power supp	ly capaci	ty (kVA)		.5	Releasir	ng voltage (DC) (V)	2 or more
Rated output		(W)	5000		Exciting	voltage (DC) (V)	24±2.4
	Rated torque (N·m)		23.9				
Momentary	· ·	,	71.6		• Permi	ssible load (For details, refe	er to P.183)
Rated curre	nt	(A(rms))	10	3.0		Radial load P-direction (N)	1666
Max. curren	t	(A(o-p))		55	During	Thrust load A-direction (N)	784
Regenerative		Without option	120		assembly	Thrust load B-direction (N)	980
frequency (tim	es/min) Note)	<sup>1</sup> DV0PM20049×2	No limit Note)2		During	Radial load P-direction (N)	784
Rated rotati	onal spee	ed (r/min)	2000		During operation		-
Max. rotatio	nal speed	d (r/min)	3000		operation	Thrust load A, B-direction (N)	343
Moment of i	nertia	Without brake	48.0		For details of Note 1 to Note 5, refer to P.182, P.183.		
of rotor (×10	) <sup>−4</sup> kg·m²)	With brake	53.3			ions of Driver, refer to P.45.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary encoder specifications Note)5		20-bit Incremental	20-bit 17-bit Detail of model designation, refer to		P.16. presents the		
	Resolution	on per single turn	1048576	131072	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.>) \* Derating curve torque [N·m] rated torque withou Brake 100 90 85 70 Peak run rang with Brake 50 35 (20) Continuous run range (3) 0 0 10 20 30 40 3000 1000 2000 rotational speed [r/min] ambient temperature [°C]



### Dimensions



(b) Motor/Brake connector

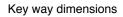
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

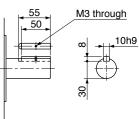
## A5 Family

## **Motor Specifications**

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

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





\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

			AC4	00 V		
Motor model		IP65		-	-	
		IP67		MDME754G1	MDME754S1	
Annlinghia	Model	A5II, A5	series	MGD�	TB4A2	
Applicable driver *2	No.	A5IIE, A	5E series	-	-	
unver	Fi	rame sym	Ibol	G-fr	ame	
Power supply	capacit	у	(kVA)	1	1	
Rated output			(W)	75	00	
Rated torque			(N·m)	47	7.8	
Momentary N	lax. pea	k torque	(N·m)	119		
Rated curren	t	(	A(rms))	22		
Max. current			(A(o-p))	83		
Regenerative	brake	Without option		No limit Note)2		
frequency (times	/min) Note)1	DV0PM20049×3		No limit Note)2		
Rated rotatio	nal spee	d	(r/min)	1500		
Max. rotation	al speed		(r/min)	3000		
Moment of in	ertia	Without	t brake	1(	01	
of rotor (×10	<sup>₄</sup> kg·m²)	With I	orake	1(	07	
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times	s or less	
Rotary encod	Rotary encoder specifications			20-bit Incremental	17-bit Absolute	
	Resolutio	ion 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.

1 0	1
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	
	assembly	Thrust load B-direction (N)	1176
	During	Radial load P-direction (N)	1176
operation	Thrust load A, B-direction (N)	490	

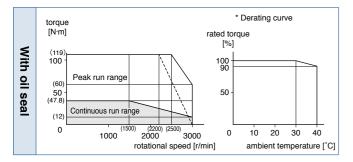
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.46.

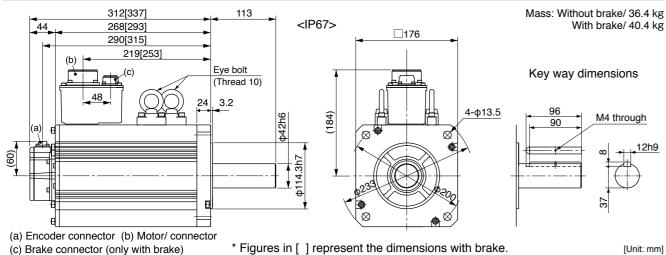
\*1 Motor specifications:

- \*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  $\bigcirc$  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



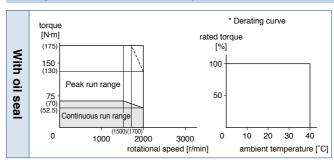
(c) Brake connector (only with brake)

<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.

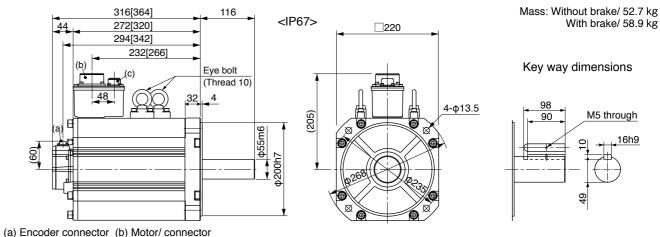


### Specifications

Specin	cau		5						
				AC4	00 V		specifications (For details ake will be released when it is e		
IP65		-	-		use this for braking the motor in				
	;1		IP67	MDMEC14G1	MDMEC14S1	Static fri	Static friction torque (N·m)		
Applicable	Mo	odel	A5II, A5 series	MHD¢	TB4A2	Engagin	g time (ms)	300 or less	
Applicable driver *	2 No	).	A5IIE, A5E series	_	_	Releasir	ng time (ms) Note)4	140 or less	
		Fra	ame symbol	H-fr	ame	Exciting	current (DC) (A)	1.08±10 %	
Power supp		bacity	. ,	-	7	Releasir	ng voltage (DC) (V)	2 or more	
Rated outpu			(W)		000	Exciting	Exciting voltage (DC) (V)		
Rated torqu			(N·m)	-	0				
Momentary		реак	1 ( )	• Permissible load (For details, re		SSIDIE IOAO (For details, refe	er to P.183)		
Rated curre	nt		(A(rms))	27.1			Radial load P-direction (N)	4508	
Max. curren	t		(A(o-p))	101 No limit Note)2		During assembly	Thrust load A-direction (N)	1470	
Regenerativ			Without option				Thrust load B-direction (N)	1764	
frequency (tim	ies/min) N	Note)1	DV0PM20049×6	No limit Note)2				2254	
Rated rotati	onal s	speed	d (r/min)	1500		During	Radial load P-direction (N)	686	
Max. rotatio	nal sp	beed	(r/min)	20	00	operation	operation Thrust load A, B-direction (N)		
Moment of i	nertia		Without brake	212		For details of Note 1 to Note 5, refer to P.182, P.18			
of rotor (×10	)-4 kg∙l	m²)	With brake	220			ions of Driver, refer to P.46.		
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times	10 times or less *2 The pro		specifications: roduct that the end of driver m		
Rotary enco	oder sp	pecif	ications Note)5	20-bit Incremental				P.16.	
Resolution per single turn				1048576	131072	series. For more information about the part number please refer to P.16.			



### Dimensions



(c) Brake connector (only with 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.

## A5 Family

## **Motor Specifications**

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

\* Figures in [ ] represent the dimensions with brake.

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

### **Specifications**

			AC4	00 V		
Motor model		IP65		-	-	
*1		IP67		MDMEC54G1	MDMEC54S1	
Annlinghia	Model	A5II, A5	series	MHD🛇	TB4A2	
Applicable driver *2	No.	A5IIE, A	5E series	-	-	
unver	Fi	rame sym	bol	H-fr	ame	
Power supply	/ capacit	у	(kVA)	2	2	
Rated output			(W)	150	000	
Rated torque			(N·m)	95	5.5	
Momentary N	/lax. pea	k torque	(N·m)	224		
Rated curren	t	(.	A(rms))	33.1		
Max. current		(	(A(o-p))	118		
Regenerative	brake	Without option		No limit Note)2		
frequency (times	s/min) Note)1	DV0PM20049×6		No limit Note)2		
Rated rotatio	nal spee	d	(r/min)	1500		
Max. rotation	al speed		(r/min)	2000		
Moment of in	ertia	Without	brake	30	02	
of rotor (×10	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )			2	11	
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times	s or less	
Rotary encod	Rotary encoder specification			20-bit Incremental	17-bit Absolute	
	Resolutio	on 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.

1	1
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	Radial load P-direction (N)	2254
operation	Thrust load A, B-direction (N)	686

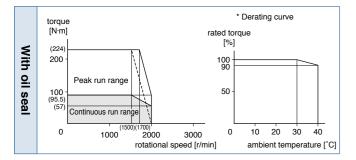
• For details of Note 1 to Note 5, refer to P.182, P.183.

• Dimensions of Driver, refer to P.47.

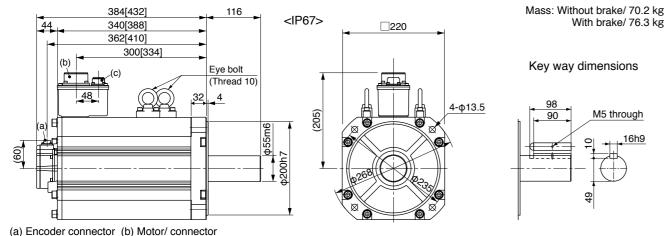
\*1 Motor specifications:

- \*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  $\bigcirc$  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.>)



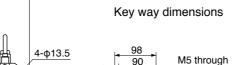
### **Dimensions**



(c) Brake connector (only with brake)

\* Figures in [ ] represent the dimensions with brake.

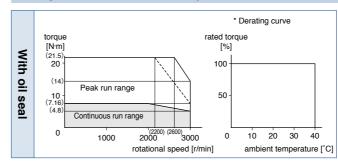
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



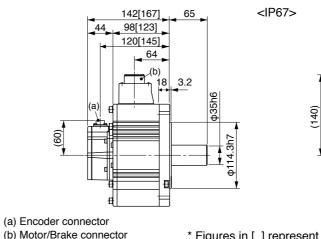
[Unit: mm]

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

AC400 V         Motor model       IP65       -       -         *1       IP67       MFME154G1       MFME154S1       Static friction torque (N·m)         Applicable       Model       A5II, A5 series       MDD◇T3420       -         Motor supply capacity       (kVA)       D-frame       Releasing time (ms) Note)4         Power supply capacity       (kVA)       2.4       Releasing voltage (DC) (V)			
Motor model *1     IP65     -     -       Motor model *1     IP67     MFME154G1     MFME154S1     Static friction torque (N·m)       Applicable driver *2     Model No.     A5II, A5 series     MDD T3420     Engaging time (ms)       Power supply capacity     (kVA)     D-frame     Exciting current (DC) (A)       Releasing voltage (DC) (V)     1500     Releasing voltage (DC) (V)			
*1     IP67     MFME154G1     MFME154S1     Static friction torque (N·m)       Applicable driver     *2     A5II, A5 series     MDD T3420     –       Applicable driver     A5IE, A5E series     MDD T3420E     –       Frame symbol     D-frame     Exciting current (DC) (A)       Power supply capacity     (kVA)     2.4       Bated output     (W)     1500			
Applicable driver     No.     ASIE, ASE series     MDD T3420E     –       Frame symbol     D-frame     Exciting current (DC) (A)       Power supply capacity     (kVA)     2.4       Bated output     (W)     1500	7.8 or more		
Indext     ASILE, ASE series     MDD T3420E     -     Releasing time (ms)     Note)4       driver     *2     Frame symbol     D-frame     Exciting current (DC) (A)       Power supply capacity     (kVA)     2.4     Releasing voltage (DC) (V)       Bated output     (W)     1500     Image: Constraint of the series	80 or less		
Frame symbol     D-frame     Exciting current (DC) (A)       Power supply capacity     (kVA)     2.4     Releasing voltage (DC) (V)       Bated output     (W)     1500     Image: Constraint of the symbol o	35 or less		
Bated output (W) 1500	0.83±10 %		
Rated output (W) 1500	2 or more		
Exciting voltage (DC) (V)	24±2.4		
Rated torque (N·m) 7.16			
Momentary Max. peak torque (N·m) 21.5 • Permissible load (For	details, refer to P.183)		
Rated current (A(rms)) 3.8 Radial load P-direct	ction (N) 980		
Max. current (A(o-p)) 16 During Thrust load A-direct	tion (N) 588		
Regenerative brake         Without option         100         assembly         Interformation	tion (N) 686		
trequency (times/min) Note)1 DV0PM20048 No limit Note)2 During Badial load P-direct			
Rated rotational speed (r/min) 2000			
Max. rotational speed (r/min) 3000			
Moment of inertia Without brake 18.2 • For details of Note 1 to Not			
of rotor (x10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake 23.5 • Dimensions of Driver, refer	to P.44.		
Recommended moment of inertia 10 times or less *2 The product that the end	<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>		
Rotary encoder specifications     Note)5     20-bit     17-bit     Detail of model designation       Note)5     20-bit     17-bit     Absolute     *3 ◇ in number of applicable	on, refer to P.16.		
Resolution per single turn 1048576 131072 series. For more informat please refer to P.16.	series. For more information about the part number,		



### Dimensions

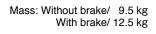


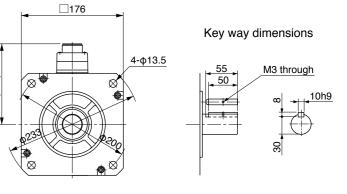
\* Figures in [ ] represent the dimensions with brake.

<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.

## A5 Family **Motor Specifications**

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





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

### **Specifications**

			AC4	00 V		
Motor model		IP65		-	-	
*1		IP67		MFME254G1	MFME254S1	
Annlinghia	Model	A5II, A5	series	MED	<b>T4430</b>	
Applicable driver *2	No.	A5IIE, A	5E series	MED <sub>\begin{tabular}{l} T4430E \\ T4450E </sub>	-	
unver	F	rame sym	lodr	E-fr	ame	
Power supply	capacit	у	(kVA)	3	.9	
Rated output			(W)	25	00	
Rated torque			(N·m)	11	.9	
Momentary N	lax. pea	k torque	(N·m)	30.4		
Rated curren	t		(A(rms))	6.7		
Max. current			(A(o-p))	29		
Regenerative	brake	ake Without option		75		
frequency (times	/min) Note)1	DV0PM20049		No limit Note)2		
Rated rotatio	nal spee	d	(r/min)	2000		
Max. rotation	al speed		(r/min)	3000		
Moment of in	ertia	Without brake		35.8		
of rotor (×10	⁴ kg·m²)	With	brake	45.2		
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times	s or less	
Rotary encod	Rotary encoder specifications Note)5			20-bit 17-bit Incremental Absolute		
	Resolutio	n per sing	gle 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)

<b>.</b> .	Radial load P-direction (N)	1862
During assembly	Thrust load A-direction (N)	686
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	784
operation	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.

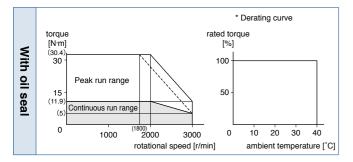
\*1 Motor specifications:

- \*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  $\diamond$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

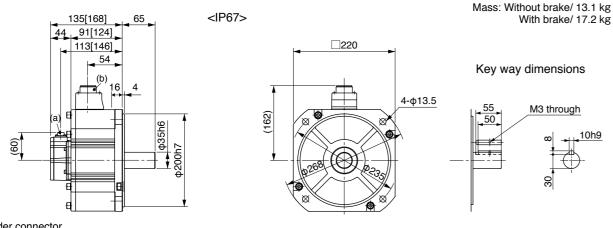
10h9

[Unit: mm]

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



### Dimensions



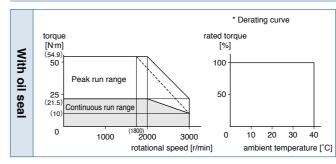
(a) Encoder connector (b) Motor/Brake connector

\* Figures in [ ] represent the dimensions with brake.

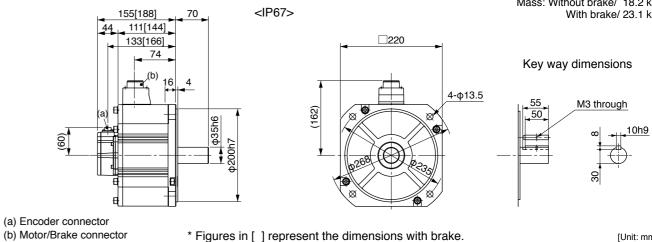
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



Specifi	са	tion	s						
IDAS		AC400 V			• Brake specifications (For details, refer to P.183) (This brake will be released when it is energized.)				
Motor model *1 IP65		- MFME454G1	-     \Do not use this for braking the motor in       MFME454S1     Static friction torque (N·m)		31.4 or more				
		Model	A5II, A5 series	MFD	TA464		Engagin	g time (ms)	150 or less
Applicable driver *	2	No.	A5IIE, A5E series	MFD <b></b>	-		Releasir	ng time (ms) Note)4	100 or less
		Fr	ame symbol	F-fr	ame		Exciting	current (DC) (A)	0.75±10 %
Power supp	ly c	capacit	y (kVA)	6	.9		Releasir	ng voltage (DC) (V)	2 or more
Rated outpu	ut		(W)	45	00		Exciting	ng voltage (DC) (V) 24±2.4	
· ·	Rated torque (N·m)			2-	1.5				
Momentary	Ма	x. peal	k torque (N·m)	54	1.9	Permissible load (For details, refer to P.183)		er to P.183)	
Rated curre	nt		(A(rms))	12	12.4 Radial load P-direction (N)		1862		
Max. curren	t		(A(o-p))	53			During assembly	Thrust load A-direction (N)	686
Regenerativ			Without option	67				Thrust load B-direction (N)	686
frequency (tim	ies/m	iin) Note)1	DV0PM20049×2	375			<b>_</b>	Radial load P-direction (N)	784
Rated rotati	ona	al spee	d (r/min)	2000			During	( )	
Max. rotatio	nal	speed	(r/min)	30	000		operation	Thrust load A, B-direction (N) 29	
Moment of i	ner	tia	Without brake	63	3.1		For details of Note 1 to Note 5, refer to P.182		to P.182, P.183.
of rotor (×10	) <sup>-4</sup>	kg∙m²)	With brake	70	).9		Dimensions of Driver, refer to P.45.		
	Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less			<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary enco	de	r speci	fications Note)5	20-bit Incremental	20-bit 17-bit Detail		Detail of model designation, refer to P.16. *3 $\bigcirc$ in number of applicable driver represents the		
	Re	esolutio	n per single turn	1048576	131072		series. For more information about the part number, please refer to P.16.		



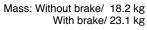
### Dimensions



<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.

## A5 Family **Motor Specifications**

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



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

### **Specifications**

				AC400 V		
Motor model		IP65		MGME094GC	MGME094SC	
		IP67		MGME094G1	MGME094S1	
Applicable Model	A5II, A5	series	MDD¢	T3420		
Applicable	No.	A5IIE, A	5E series	MDD <b></b>	-	
driver *2	Fr	ame sym	bol	D-fra	ame	
Power supply	capacit	у	(kVA)	1	.8	
Rated output			(W)	90	00	
Rated torque			(N·m)	8.	59	
Momentary M	ax. peal	k torque	(N·m)	19.3		
Rated current		(A(rms))		3.8		
Max. current		(A(o-p))		12		
Regenerative I	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0PM20048		No limit Note)2		
Rated rotation	al spee	d	(r/min)	1000		
Max. rotationa	al speed		(r/min)	20	00	
Moment of ine	ertia	Without	brake	6.70		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	orake	7.99		
	Recommended momen ratio of the load and the		tia <sub>Note)3</sub>	10 times	s or less	
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
F	lesolutio	n per sing	le 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.

( U	/		
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)

<b>_</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	686
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

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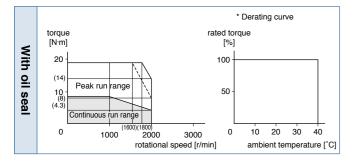
With brake/ 8.2 kg

M3 through

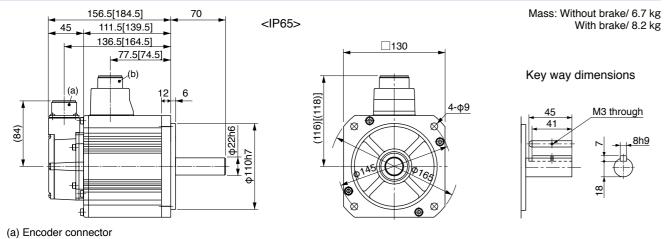
.8h9

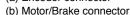
[Unit: mm]

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



### **Dimensions**





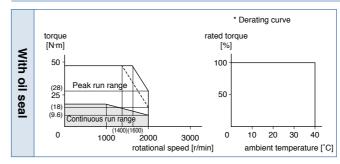
\* Figures in [ ] represent the dimensions with brake.

<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.

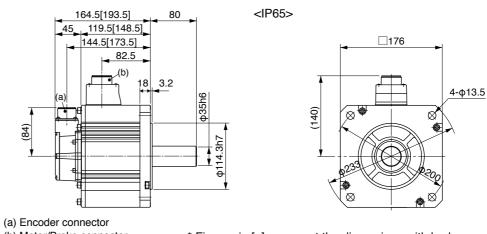


### Specifications

Specifi					• Broke	onooifiontiono (Far datalle	rofor to D 10		
			AC4	00 V		specifications (For details ake will be released when it is e			
Motor mode		IP65	MGME204GC	MGME204SC		use this for braking the motor in			
	Aotor model *1 IP67		MGME204G1 MGME204S1		Static fri	ction torque (N·m)	24.5 or more		
	Model A5I, A5 series		MFD	T5440	Engagin	g time (ms)	80 or less		
Applicable No.	A5IIE, A5E series	MFD <b></b>	-	Releasir	ng time (ms) Note)4	25 or less			
	F	rame symbol	F-fr	ame	Exciting	current (DC) (A)	1.3±10 %		
Power supply capacity (kVA)				.8	Releasir	ng voltage (DC) (V)	2 or more		
Rated outpu		(W)	2000		Exciting	voltage (DC) (V)	24±2.4		
Rated torque (N·m)		× /	19.1			•••••			
Momentary		• • • •	47.7		• Permi	ssible load (For details, refe	er to P.183)		
Rated curre	nt	(A(rms))	8	.5		Radial load P-direction (N)	1666		
Max. curren	t	(A(o-p))	3	80	During	Thrust load A-direction (N)	784		
Regenerativ		Without option	No limit Note)2 No limit Note)2 1000		assembly	Thrust load B-direction (N)	980		
frequency (tim	es/min) Note)	DV0PM20049×2			During	Radial load P-direction (N)	1176		
Rated rotati	onal spee	ed (r/min)							
Max. rotatio	nal speed	d (r/min)	20	000	operation	Thrust load A, B-direction (N)	490		
Moment of i	nertia	Without brake	30	30.3		For details of Note 1 to Note 5, refer to P.182, P.18			
of rotor (×10	) <sup>-4</sup> kg·m²)	With brake	35	5.6		• Dimensions of Driver, refer to P.45.			
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>					
Rotary enco	der spec	fications Note)5	20-bit Incremental	20-bit 17-bit Detail of model designation, refer to P.16.			P.16.		
	Resolutio	on per single turn	1048576	131072	series. For more information about the part number please refer to P.16.				



### Dimensions



(b) Motor/Brake connector

<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.

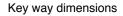
## A5 Family

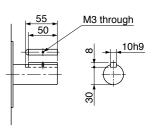
## **Motor Specifications**

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

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

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





\* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

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

### **Specifications**

				AC4	00 V	
Motor model	IP65			MGME304GC	MGME304SC	
WOTOL MODEL *1		IP67		MGME304G1	MGME304S1	
Model	A5II, A5 series		MFD🛇	TA464		
Applicable	No.	A5IIE, A5E serie	es	MFD <b></b>	-	
	ame symbol		F-fra	ame		
Power supply	capacit	y (kVA	۹)	4	.5	
Rated output		(W	V)	30	00	
Rated torque		(N·m	1)	28	3.7	
Momentary M	ax. pea	torque (N·m)		71.7		
Rated current		(A(rms))		11.3		
Max. current		(A(o-p))		40		
Regenerative b	orake	Without option		No limit Note)2		
frequency (times/	min) Note)1	DV0PM20049×2		No limit Note)2		
Rated rotation	al spee	d (r/min)		1000		
Max. rotationa	l speed	(r/mir	ר)	20	00	
Moment of ine	ertia	Without brake	Without brake		3.4	
of rotor (×10 <sup>-4</sup>	kg∙m²)	With brake		53.7		
	nmended moment of inertia f the load and the rotor Note)3			10 times or less		
Rotary encode	er speci	fications Note	)5	20-bit Incremental	17-bit Absolute	
R	esolutio	n 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	

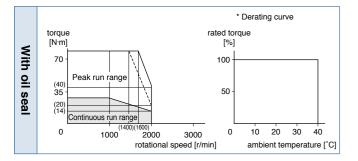
### • Permissible load (For details, refer to P.183)

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

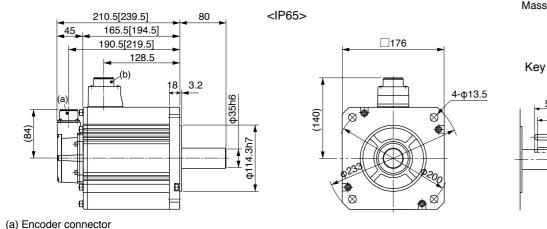
• For details of Note 1 to Note 5, refer to P.182, P.183.

- · 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  $\bigcirc$  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



(b) Motor/Brake connector

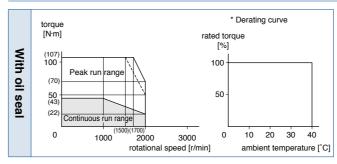
\* Figures in [ ] represent the dimensions with brake.

<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.

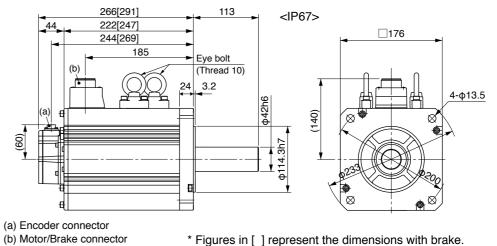
## 400 V MGME 4.5 kW [Middle inertia, Middle capacity]

## Specifications

Specifi	catio	ns							
			AC4	00 V		specifications (For details	,		
Motor model		IP65	-	<ul> <li>– – – (This brake will be released when it is ener Do not use this for braking the motor in motor</li> </ul>					
	*1 IP67		MGME454G1 MGME454S1		Static friction torque (N·m)		58.8 or more		
Anneliset	Model A5I, A5 series		MFD	TA464	Engagin	g time (ms)	150 or less		
Applicable driver *	No.	A5IIE, A5E series	MFD <b>OTA464E</b>	-	Releasir	ng time (ms) Note)4	50 or less		
anver		Frame symbol	F-fr	ame	Exciting	current (DC) (A)	1.4±10 %		
Power supp	у сара	city (kVA)	7	.5	Releasir	ng voltage (DC) (V)	2 or more		
Rated output	t	(W)	4500		Exciting	voltage (DC) (V)	24±2.4		
Rated torque (N·m)			43.0						
Momentary Max. peak torque (N·m)		107		• Permissible load (For details, refer to P.183)					
Rated curre	nt	(A(rms))	14	4.8		Radial load P-direction (N)	2058		
Max. curren	:	(A(o-p))	5	5	During assembly	Thrust load A-direction (N)	980		
Regenerative		Without option		No limit Note)2		Thrust load B-direction (N)	1176		
frequency (tim	es/min) Not	e)1 DV0PM20049×2	No limit Note)2			Radial load P-direction (N)	1470		
Rated rotation	onal sp	eed (r/min)	10	000	During				
Max. rotatio	nal spe	ed (r/min)	20	000	operation	Thrust load A, B-direction (N)	490		
Moment of i	nertia	Without brake	79	9.1	For details of Note 1 to Note 5, refer to P.182, P.183				
of rotor (×10	⁻⁴ kg·m	<sup>2</sup> ) With brake	84	4.4		• Dimensions of Driver, refer to P.45.			
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		<ul> <li>*1 Motor specifications: □</li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>					
Rotary enco	der spe	cifications Note)5	20-bit     17-bit     Detail of model designation, refer to P.16.       Incremental     Absolute     *3 ◇ in number of applicable driver represent			P.16.			
	Resolu	tion per single turn	1048576	131072	series. For more information about the part number please refer to P.16.				



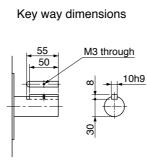
### Dimensions



<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.

### (For IP67 motor, refer to P.139.) Mass: Without brake/ 20.0 kg

With brake/ 23.5 kg



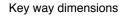
[Unit: mm]

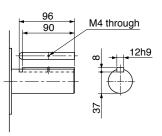
## **A5 Family**

## **Motor Specifications**

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

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





## 400 V MGME 6.0 kW [Middle inertia, Middle capacity]

### **Specifications**

				AC4	00 V	
Motor model		IP65		-	-	
*1		IP67		MGME604G1	MGME604S1	
Amplianhla	Model	A5II, A5	series	MGD🗘	TB4A2	
Applicable driver *2	No.	A5IIE, A	5E series	-	-	
unver	Fi	rame sym	bol	G-fr	ame	
Power supply	Power supply capaci		(kVA)	9	.0	
Rated output			(W)	60	00	
Rated torque			(N·m)	57	7.3	
Momentary N	ax. pea	k torque	torque (N·m)		143	
Rated current		(A(rms))		19.4		
Max. current		(A(o-p))		74		
Regenerative	brake	Without option		No limit Note)2		
frequency (times	/min) Note)1	DV0PM2	20049×3	No limit Note)2		
Rated rotation	nal spee	d	(r/min)	1000		
Max. rotation	al speed		(r/min)	20	00	
Moment of ine	ertia	Without	t brake	101		
of rotor (×10-	¹ kg∙m²)	With t	orake	1(	07	
	ed moment of inertia ad and the rotor Note)3 10 times or less		s or less			
Rotary encod	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
F	Resolutio	n per sing	le 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.

1 0	1
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)

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

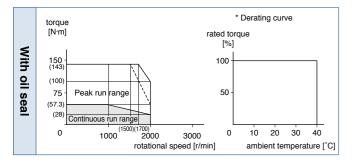
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.46.

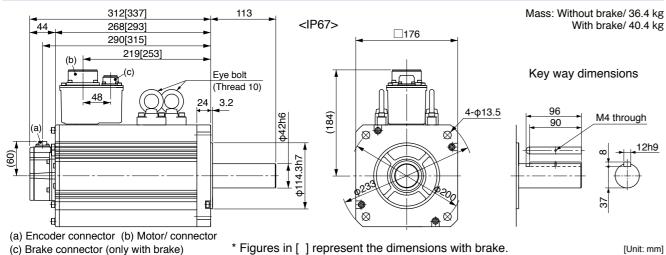
\*1 Motor specifications:

- \*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  $\bigcirc$  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.>)

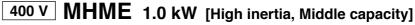


### Dimensions



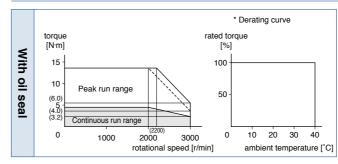
(c) Brake connector (only with brake)

<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.

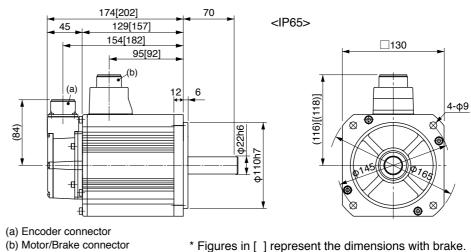


### Specifications

Specif	Ca	lion	5							
				AC4	00 V		specifications (For details ake will be released when it is e			
Motor mod		IP65		MHME104GCMHME104SCMHME104G1MHME104S1			use this for braking the motor in			
Motor model *1			IP67			Static friction torque (N·m)		4.9 or more		
Applicable driver *2 Model A5II, A5 series No. A5IIE, A5E series		MDD	T2412	Engagin	g time (ms)	80 or less				
		No.	A5IIE, A5E series	MDD <b>O</b> T2412E	-	Releasir	ng time (ms) Note)4	70 or less		
		Frame symbol		D-fr	ame	Exciting	current (DC) (A)	0.59±10 %		
Power supply capacity (kVA)			, ,		.8	Releasir	ng voltage (DC) (V)	2 or more		
Rated outp			(W)			Exciting	voltage (DC) (V)	24±2.4		
Rated torque (N·m)			× /				1			
Momentary Max. peak torque (N·m)		1 ( )	14.3		• Permi	ssible load (For details, refe	er to P.183)			
Rated curre	ent		(A(rms))	2	.9	_	Radial load P-direction (N)	980		
Max. curre	nt		(A(o-p))	1	2	During	Thrust load A-direction (N)	588		
Regenerativ				83 No limit Note)2		assembly	Thrust load B-direction (N)	686		
frequency (ti	mes/mii						Radial load P-direction (N)	490		
Rated rotat	iona	l spee	d (r/min)	2000 3000		During				
Max. rotation	onal	speed	(r/min)			operation	Thrust load A, B-direction (N)	196		
Moment of	inert	tia	Without brake	24	24.7		For details of Note 1 to Note 5, refer to P.182, P.183			
of rotor (×1	0 <sup>-4</sup> k	(g∙m²)	With brake	26	6.0		Dimensions of Driver, refer to P.44.			
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>						
Rotary enc	oder	specif	fications Note)5	20-bit Incremental	17-bit Absolute	Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the				
	Re	solutio	n per single turn	1048576	131072	series. For more information about the part number please refer to P.16.				



### Dimensions



<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.

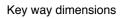
# A5 Family

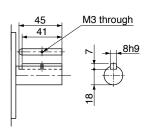
## **Motor Specifications**

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

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

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





## 400 V MHME 1.5 kW [High inertia, Middle capacity]

### **Specifications**

				AC4	00 V	
Motor model		IP65		MHME154GC	MHME154SC	
		IP67		MHME154G1	MHME154S1	
A	Model	A5II, A5 series	s	MDD¢	T3420	
Applicable driver *2	No.	A5IIE, A5E s	eries	MDD <b></b>	-	
unver	Fi	ame symbol		D-fra	ame	
Power supply	capacit	y (k'	VA)	2	.3	
Rated output			(W)	15	00	
Rated torque	Rated torque			7.	16	
Momentary M	ax. pea	k torque (N	ŀm)	21.5		
Rated current		(A(rn	ns))	4.7		
Max. current		(A(o	-p))	20		
Regenerative	orake	Without option		22		
frequency (times	min) Note)1	DV0PM20048		130		
Rated rotation	nal spee	d (r/n	(r/min) 2000		00	
Max. rotationa	al speed	(r/n	nin)	30	00	
Moment of ine	ertia	Without bra	ke	37	'.1	
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )		With brake	Э	38	3.4	
	Recommended moment of inertia ratio of the load and the rotor		ote)3	5 times	or less	
Rotary encode	er speci	fications No	ote)5	20-bit Incremental	17-bit Absolute	
F	lesolutio	n per single tu	rn	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)

<b>.</b> .	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	490
operation	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

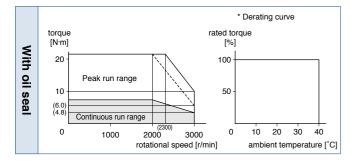
With brake/ 10.1 kg

M3 through

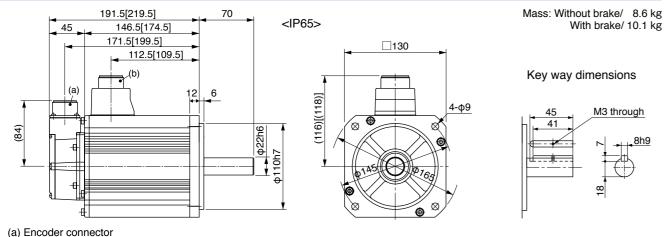
.8h9

[Unit: mm]

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



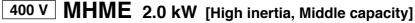
### **Dimensions**



(b) Motor/Brake connector

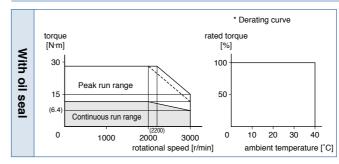
\* Figures in [ ] represent the dimensions with brake.

<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.

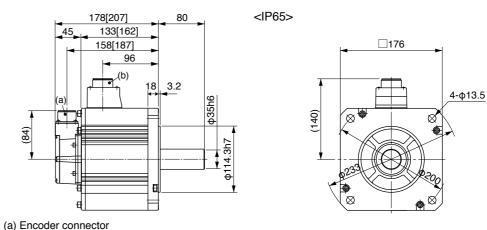


### Specifications

Applicable driver       A5IL       A5	Specin	callo	15					
Motor model       IP65       MHME204GC       MHME204SC       \Do not use this for braking the motor in motion. )         Applicable driver       *1       IP67       MHME204G1       MHME204S1         Applicable driver       No.ell       A5IL, A5 series       MED\T4430       -         Frame symbol       E-frame       BED\T4430E       -         Frame symbol       E-frame       Beleasing time (ms)       80 or less         Rated output       (WV)       2000       Releasing voltage (DC) (V)       2 or more         Rated torque       (N-m)       9.55       Medial load P-direction (N)       13±10 %         Momentary Max. peak torque       (N-m)       24       Permissible load (For details, refer to P.183)         Rated current       (A(o-p))       24       Permissible load (For details, refer to P.183)         Rated rotational speed       (r/min)       3000       Thrust load A-direction (N)       784         Moment of inertia       Without brake       57.8       During       Radial load P-direction (N)       343         Noment of inertia       Without brake       59.6       *1 Motor specifications: □       *2 The product that the end of driver model designation, refer to P.16.         Recommended moment of inertia       20-bit       17-bit       17-bit				AC4	00 V		•	
**1       IP67       MHME204G1       MHME204S1         Applicable driver **2       Model No.       A5IE, A5 series       MED\T4430       -         Frame symbol       E-frame       Engaging time (ms)       80 or less         Power supply capacity       (kVA)       3.3       Releasing time (ms)       Note)4       25 or nore         Rated output       (W)       2000       Exciting current (DC) (A)       1.3±10 %         Rated torque       (N·m)       9.55       Releasing voltage (DC) (V)       24±2.4         Momentary Max. pak torque       (N·m)       28.6       Permissible load (For details, refer to P.183)         Rated current       (A(rms))       5.5       Max. current       (A(o-p))       24         Regenerative brake frequency (times/min Nete)       Without option       45       Thrust load A-direction (N)       1666         Max. rotational speed       (r/min)       2000       Insu toad A-direction (N)       343       For details of Note 1 to Note 5, refer to P.182, P.18       During       Radial load P-direction (N)       343         Moment of inertia ratio of the load and the rotor       With brake       59.6       S1 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.	Motor mode		IP65	MHME204GC	MHME204SC			
Applicable driver       Model researce       MED T4430E          Applicable driver       No.       A5IE, A5E series       MED T4430E          Frame symbol       E-frame        Releasing time (ms) Note)4       25 or less         Power supply capacity       (kVA)       3.3        Releasing time (ms) Note)4       25 or less         Rated output       (W)       2000        Releasing voltage (DC) (V)       2 or more         Rated torque       (N·m)       9.55        Releasing voltage (DC) (V)       24±2.4         Momentary Max. peak torque       (N·m)       28.6			IP67	MHME204G1	MHME204S1	· · · · · ·		24.5 or more
driver       *2       NO.       ASIE, ASE series       MED(14430E)       -         Frame symbol       E-frame       Frame symbol       E-frame       Releasing time (ms) Note)4       25 or less         Power supply capacity       (kVA)       3.3       Releasing time (ms) Note)4       25 or less         Rated output       (W)       2000       Releasing voltage (DC) (V)       2 or more         Rated torque       (N·m)       9.55       Releasing voltage (DC) (V)       24±2.4         Momentary Max. peak torque       (N·m)       28.6       Radial load P-direction (N)       1666         Max. current       (A(o-p))       24       Permissible load (For details, refer to P.183)       Thrust load A-direction (N)       784         Regenerative brake frequency (times/min Note)1       DVOPM20048       142       During       Radial load P-direction (N)       784         Rated rotational speed       (r/min)       2000       Radial load P-direction (N)       784         Moment of inertia of rotor (x10 <sup>-4</sup> kg·m²)       With brake       57.8       For details of Note 1 to Note 5, refer to P.182, P.18         Noter specifications:       S times or less       5 times or less       *1 Motor specifications:       *2 The product that the end of driver model designation, refer to P.16.	Annlinghia	Mode	A5II, A5 series	MED	<b>T4430</b>	Engaging time (ms)		80 or less
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(ms))       5.5         Max. current       (A(o-p))       24         Regenerative brake frequency (times/min Note)t       Without option       45         DVOPM20048       142       Thrust load A-direction (N)       784         Rated rotational speed       (r/min)       2000       During       Radial load P-direction (N)       784         Moment of inertia of rotor (x10 <sup>-4</sup> kg·m <sup>2</sup> )       Without brake       57.8       Thrust load A, B-direction (N)       343         Recommended moment of inertia ratio of the load and the rotor       5 times or less       *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.			A5IIE, A5E series	MED\CT4430E	-	Releasir	ng time (ms) Note)4	25 or less
Rated output       (W)       2000         Rated output       (W)       2000         Rated output       (W)       9.55         Momentary Max. peak torque       (N·m)       9.55         Max. current       (A(rms))       5.5         Max. current       (A(o-p))       24         Regenerative brake frequency (times/min) Note)       Without option       45         DVOPM20048       142         Rated rotational speed       (r/min)       2000         Moment of inertia of rotor (x10 <sup>-4</sup> kg·m <sup>2</sup> )       With brake       57.8         Recommended moment of inertia ratio of the load and the rotor       5 times or less         Rotary encoder specifications       Note)3       5 times or less			Frame symbol	E-fr	ame	Exciting	current (DC) (A)	1.3±10 %
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       DVOPM20048       142         Rated rotational speed       (r/min)       2000         Max. rotational speed       (r/min)       3000         Moment of inertia of rotor (x10 <sup>-4</sup> kg·m <sup>2</sup> )       With brake       57.8         Recommended moment of inertia ratio of the load and the rotor       S times or less         Rotary encoder specifications       Note)5       20-bit       17-bit						Releasir	ng voltage (DC) (V)	2 or more
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 DVOPM20048       45       During assembly       Radial load P-direction (N)       1666         Max. rotational speed       Without option DVOPM20048       42       Permissible load (For details, refer to P.183)         Max. rotational speed       (r/min)       2000       Badial load P-direction (N)       784         Moment of inertia of rotor (x10 <sup>-4</sup> kg·m <sup>2</sup> )       With brake       57.8       During 0 peration       Radial load P-direction (N)       784         Recommended moment of inertia ratio of the load and the rotor       Withouts       5 times or less       * For details of Note 1 to Note 5, refer to P.45.       *1 Motor specifications: *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.	1 ( )				Exciting	voltage (DC) (V)	24±2.4	
Rated current       (A(rms))       5.5         Max. current       (A(o-p))       24         Regenerative brake frequency (times/min) Note)1       Without option       45         DVOPM20048       142         Rated rotational speed       (r/min)       2000         Max. rotational speed       (r/min)       3000         Moment of inertia of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )       With brake       57.8         Recommended moment of inertia ratio of the load and the rotor       With brake       57.8         Recommended moment of inertia ratio of the load and the rotor       Yithout brake       51 mes or less         Botary encoder specifications       Note)5       20-bit       17-bit	· · · · · · · · · · · · · · · · · · ·							
Max. current       (A(o-p))       24       Induiting the second	Momentary Max. peak torque (N·m)				• Permi	• Permissible load (For details, refer to P.183)		
Regenerative brake frequency (times/min) Note)1       Without option       45       Thrust load A-direction (N)       784         Rated rotational speed       (r/min)       2000       assembly       Thrust load A-direction (N)       980         Max. rotational speed       (r/min)       2000       Radial load P-direction (N)       784         Max. rotational speed       (r/min)       2000       Radial load P-direction (N)       784         Moment of inertia of rotor (x10 <sup>-4</sup> kg·m²)       With brake       57.8       For details of Note 1 to Note 5, refer to P.182, P.18         Recommended moment of inertia ratio of the load and the rotor Note)3       5 times or less       *1 Motor specifications: □         *2 The product that the end of driver model designation, refer to P.16.       20-bit       17-bit	Rated curre	Rated current (A(rms))					Radial load P-direction (N)	1666
Regenerative brake frequency (times/min) Note)1       Without option1       45       Thrust load B-direction (N)       980         Rated rotational speed       (r/min)       2000       Batial load P-direction (N)       784         Max. rotational speed       (r/min)       3000       Thrust load A, B-direction (N)       343         Moment of inertia of rotor (×10 <sup>-4</sup> kg <sup>m2</sup> )       With brake       57.8       For details of Note 1 to Note 5, refer to P.182, P.18         Recommended moment of inertia ratio of the load and the rotor       Note)3       5 times or less       *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.       P.16.	Max. curren	nt	(A(o-p))			Ű	Thrust load A-direction (N)	784
Trequency (times/min) Note)1       DV0PM20048       142         Rated rotational speed       (r/min)       2000         Max. rotational speed       (r/min)       3000         Moment of inertia of rotor (×10 <sup>-4</sup> kg·m²)       With brake       57.8         Recommended moment of inertia ratio of the load and the rotor Note)3       5 times or less         Rotary encoder specifications       Note)5       20-bit         17-bit       17-bit				45		assembly	Thrust load B-direction (N)	980
Rated rotational speed       (r/min)       2000         Max. rotational speed       (r/min)       3000         Moment of inertia of rotor (×10 <sup>-4</sup> kg·m²)       Without brake       57.8         Recommended moment of inertia ratio of the load and the rotor       Wote)3       5 times or less         Botary encoder specifications       Note)3       20-bit       17-bit	frequency (tim	ies/min) Note	<sup>)1</sup> DV0PM20048	142		<b></b>		794
Max. rotational speed       (r/min)       3000         Moment of inertia of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )       Without brake       57.8         Recommended moment of inertia ratio of the load and the rotor       With brake       59.6         Botary encoder specifications       Note)3       20-bit       17-bit         Botary encoder specifications       Note)5       20-bit       17-bit	Rated rotati	onal spe	ed (r/min)	2000		- 5		
Moment of mental of rotor (×10 <sup>-4</sup> kg·m²)       With brake       59.6         Recommended moment of inertia ratio of the load and the rotor       S times or less         Botary encoder specifications       Note)3         20-bit       17-bit         Botary encoder specifications       Note)5	Max. rotatio	nal spee	d (r/min)	3000		operation	Thrust load A, B-direction (N)	343
Recommended moment of inertia ratio of the load and the rotor       Stimes or less       *1 Motor specifications:       *1 Motor specifications:         Botary encoder specifications       Note)3       20-bit       17-bit       *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.	Moment of	inertia	Without brake	57.8		For details of Note 1 to Note 5, refer to P.182, P.183.		
Recommended moment of inertia ratio of the load and the rotor       5 times or less       *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.	of rotor (×10	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		59.6		,		
Botary encoder specifications Note) 20-bit 17-bit Detail of model designation, refer to P.16.			5 times	5 times or less		*2 The product that the end of driver model		
3 V in number of applicable driver represents the	Rotary enco	Rotary encoder specifications Note)5		20-bit 17-bit Incremental Absolute				
Resolution per single turn 1048576 131072 series. For more information about the part numb please refer to P.16.		Resolut	on per single turn	1048576	131072	series	. For more information about t	



### Dimensions



(b) Motor/Brake connector

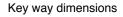
# A5 Family

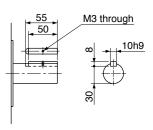
## **Motor Specifications**

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

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

Mass: Without brake/ 12.2 kg With brake/ 15.5 kg





\* Figures in [ ] represent the dimensions with brake.

[Unit: mm]

132

<sup>&</sup>lt;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**

				AC4	00 V	
Motor model		IP65		MHME304GC	MHME304SC	
*1		IP67		MHME304G1	MHME304S1	
Annlinghla	Model	A5II, A5	series	MFD🗘	T5440	
Applicable driver *2	No.	A5IIE, A	5E series	MFD <b></b>	-	
unver	Fi	rame sym	bol	F-fra	ame	
Power supply	capacit	у	(kVA)	4	.5	
Rated output			(W)	30	00	
Rated torque	Rated torque (N-			14.3		
Momentary M	ax. pea	k torque	(N·m)	43.0		
Rated current		(	A(rms))	8.0		
Max. current			(A(o-p))	34		
Regenerative	orake	Without option		19		
frequency (times	min) Note)1	DV0PM20049×2		142		
Rated rotatior	nal spee	d (r/min)		2000		
Max. rotationa	al speed	(r/min)		3000		
Moment of ine	ertia	Without	brake	90.5		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With			orake	92	2.1	
Recommended moment of inertia ratio of the load and the rotor Note			tia <sub>Note)3</sub>	5 times or less		
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
F	lesolutio	n per sing	le 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)

<b>_</b> .	Radial load P-direction (N)	1666
During assembl	Thrust load A-direction (N)	784
400001101	Thrust load B-direction (N)	980
During	Radial load P-direction (N)	784
operatio	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  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

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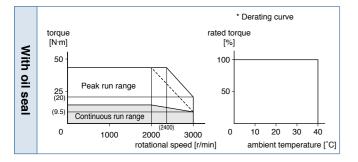
With brake/ 19.2 kg

M3 through

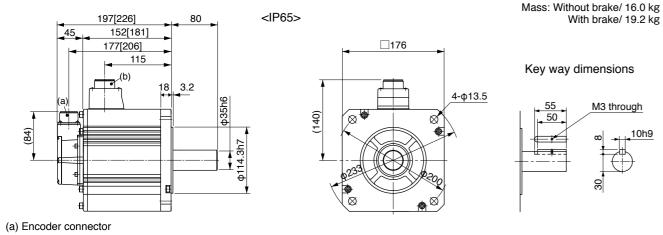
10h9

[Unit: mm]

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



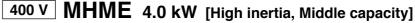
### Dimensions



(b) Motor/Brake connector

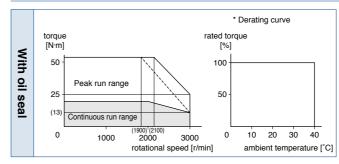
\* Figures in [ ] represent the dimensions with brake.

<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.

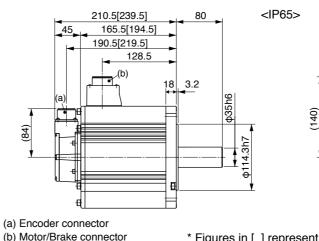


### Specifications

Specific	ation	S					
			AC4	00 V		specifications (For details ake will be released when it is e	
Motor model		MHME404GC MHME404SC		(Do not use this for braking the motor in motion. )			
wotor model *1		IP67	MHME404G1	MHME404S1			24.5 or more
Annilisahia	Model	A5II, A5 series	MFD¢	TA464	Engaging time (ms)		80 or less
Applicable driver *2	No.	A5IIE, A5E series	MFD <b></b>	-	Releasir	Releasing time (ms) Note)4	
	Fi	rame symbol	F-fr	ame	Exciting	current (DC) (A)	1.3±10 %
Power supply capacity (kVA)			6.8		Releasir	ng voltage (DC) (V)	2 or more
Rated output (W)				Exciting	voltage (DC) (V)	24±2.4	
Rated torque (N·m)							
Momentary Max. peak torque (N·m)		57.3		• Permissible load (For details, refer to P.183)			
	Rated current (A(rms))		10.5		<b>_</b> .	Radial load P-direction (N)	1666
Max. current		(A(o-p))	45		During assembly	Thrust load A-direction (N)	784
Regenerative		Without option	17		assembly	Thrust load B-direction (N)	980
Trequency (times	/min) Note)1	DV0PM20049×2	125		During	Radial load P-direction (N)	784
Rated rotation	nal spee	d (r/min)	2000		During operation		
Max. rotationa	al speed	(r/min)	3000		operation	Thrust load A, B-direction (N)	343
Moment of ine	ertia	Without brake	112		For details of Note 1 to Note 5, refer to P.182, P.183.		
of rotor (×10-	<sup>t</sup> kg·m²)	With brake	1	14		ions of Driver, refer to P.45.	
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>			
Rotary encod	Rotary encoder specifications Note)5		20-bit 17-bit Incremental Absolute		Detail of model designation, refer to P.16. *3 ♦ in number of applicable driver represents the		
F	Resolutio	n per single turn	1048576	131072	series. For more information about the part number, please refer to P.16.		



### Dimensions



<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.

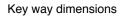
# A5 Family

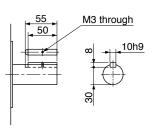
## **Motor Specifications**

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

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

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





**176** 4-φ13.5 øØ  $\otimes$ 

\* Figures in [ ] represent the dimensions with brake.

## 400 V MHME 5.0 kW [High inertia, Middle capacity]

### **Specifications**

				AC4	00 V	
		IP65		MHME504GC	MHME504SC	
Motor model *1		IP67		MHME504G1	MHME504S1	
•	Model	A5II, A5	series	MFD🛇	TA464	
Applicable driver *2	No.	A5IIE, A8	5E series	MFD <b></b>	-	
unver	Fi	rame sym	bol	F-fra	ame	
Power supply	Power supply capacity			7	.5	
Rated output			(W)	50	00	
Rated torque	Rated torque (N			23.9		
Momentary M	ax. pea	k torque	(N·m)	71.6		
Rated current		(4	A(rms))	13.0		
Max. current		(	(A(o-p))	55		
Regenerative	orake	Without option		10		
frequency (times	min) Note)1	DV0PM20049×2		76		
Rated rotation	nal spee	d (r/min)		2000		
Max. rotationa	al speed		(r/min)	3000		
Moment of ine	ertia	Without	brake	162		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With b			rake	16	64	
	Recommended moment of inertia ratio of the load and the rotor Note)3			5 times	or less	
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
F	lesolutio	n per sing	le 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)

<b>_</b> .	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
assembly	Thrust load B-direction (N)	980
During	Radial load P-direction (N)	784
operation	Thrust load A, B-direction (N)	343

• For details of Note 1 to Note 5, refer to P.182, P.183.

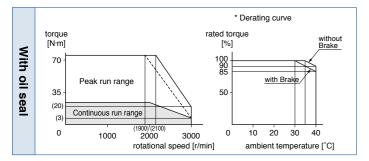
- · Dimensions of Driver, refer to P.45.
- \*1 Motor specifications:
- \*2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- \*3  $\bigcirc$  in number of applicable driver represents the series. For more information about the part number, please refer to P.16.

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

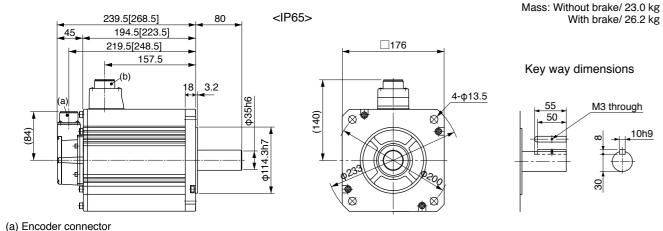
10h9

[Unit: mm]

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

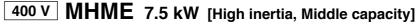


### Dimensions



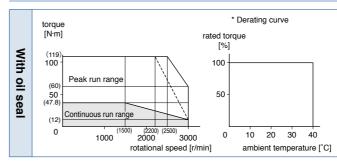
- (b) Motor/Brake connector
- \* Figures in [ ] represent the dimensions with brake.

<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.

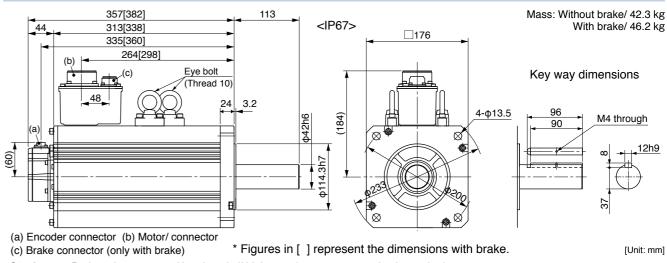


### Specifications

			A.C.4	00 V	Brake	specifications (For details	s, refer to P.18
		IDoc	AU4		/This br	ake will be released when it is e	energized.
Motor model				(Do not use this for braking the motor in motion. )			
*	1	IP67	MHME754G1	MHME754S1	Static fri	Static friction torque (N·m)	
Annlinghia	Model	A5II, A5 series	MGD	TB4A2	Engagin	Engaging time (ms)	
Applicable driver *	No.	A5IIE, A5E series	-	-	Releasir	ng time (ms) Note)4	50 or less
	F	rame symbol	G-fr	ame	Exciting	current (DC) (A)	1.4±10 %
Power supply capacity (kVA) 9.0			.0	Releasir	ng voltage (DC) (V)	2 or more	
Rated output (W)		7500		Exciting	voltage (DC) (V)	24±2.4	
Rated torque (N·m)			47.8			0 ( )()	
Momentary Max. peak torque (N·m)		119		<ul> <li>Permi</li> </ul>	ssible load (For details, refe	er to P.183)	
Rated curre	nt	(A(rms))	22.0		During	Radial load P-direction (N)	2058
Max. curren	urrent (A(o-p))			83		Thrust load A-direction (N)	980
Regenerative		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	1176
		DV0PM20049×3	No limit Note)2		During	Radial load P-direction (N)	1176
Rated rotation		( )	1500		operation	Thrust load A, B-direction (N)	490
Max. rotatio	•	· · · · ·	3000		· ·	, , , , , , , , , , , , , , , , , , , ,	
Moment of i		Without brake	273			ails of Note 1 to Note 5, refer t ions of Driver, refer to P.46.	0 P.182, P.18
of rotor (×10	<u> </u>	With brake	279			specifications:	
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		*2 The pr	roduct that the end of driver m nation has "E" is "Position cont		
Rotary encoder specifications Note)5		20-bit Incremental	20-bit 17-bit Detail of model designation, refer to P.16.			P.16.	
	Resolutio	on per single turn	1048576	131072		For more information about t	



### Dimensions



<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.

# A5 Family

## **Motor Specifications**

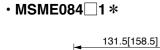
Torque characteristics (at AC400 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)

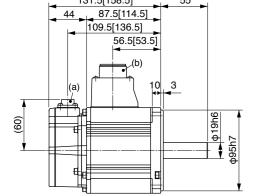
### A5 Family

**Dimensions** 

## IP67 motor (MSME 200 V/ 400 V type)

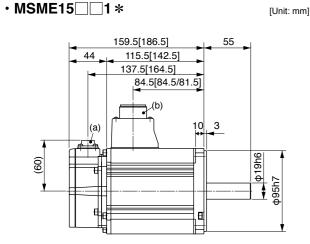
[Unit: mm]



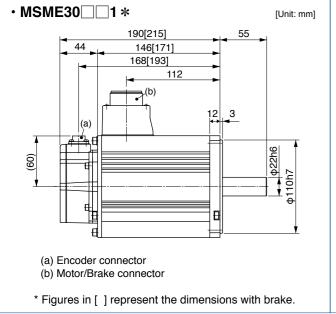


(a) Encoder connector (b) Motor/Brake connector

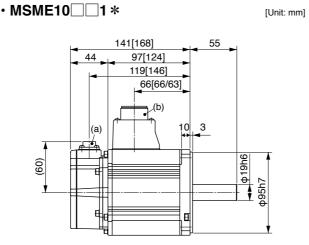
\* Figures in [ ] represent the dimensions with brake.



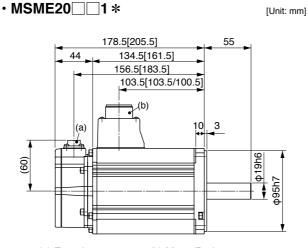
(a) Encoder connector (b) Motor/Brake connector \* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ], left figure is for 200 V and right figure is for 400 V.



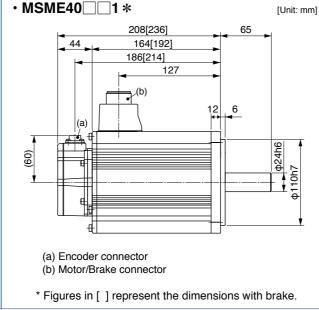
\* For motor specifications, refer to IP65 motor page.



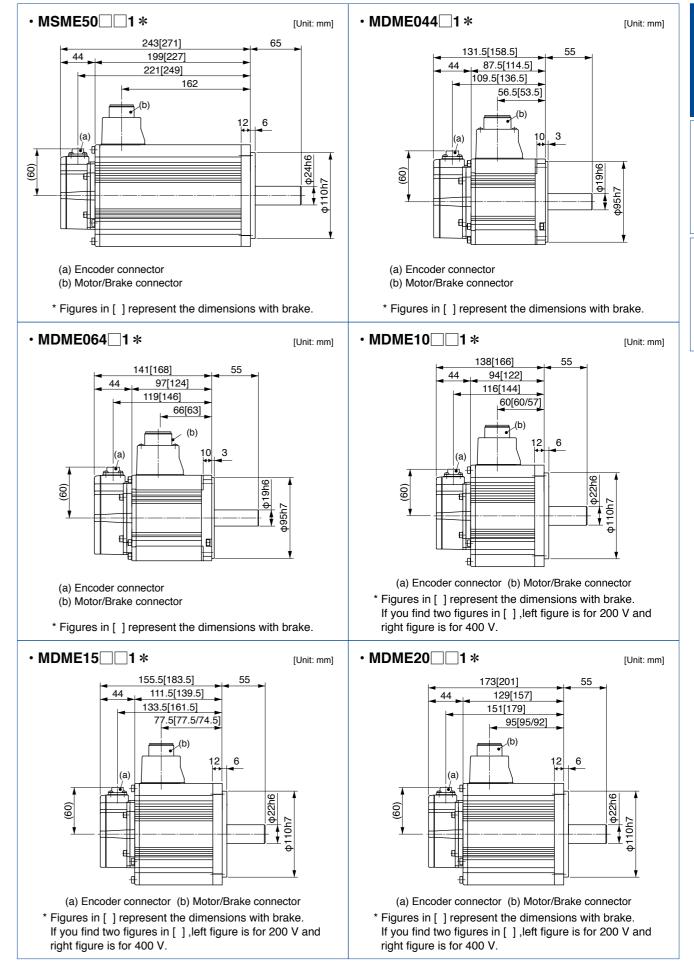
(a) Encoder connector (b) Motor/Brake connector \* Figures in [ ] represent the dimensions with brake. If you find two figures in [ ], left figure is for 200 V and right figure is for 400 V.



(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.



# IP67 motor (MSME 200 V/ 400 V type) MDME 200 V/ 400 V type)



\* For motor specifications, refer to IP65 motor page.

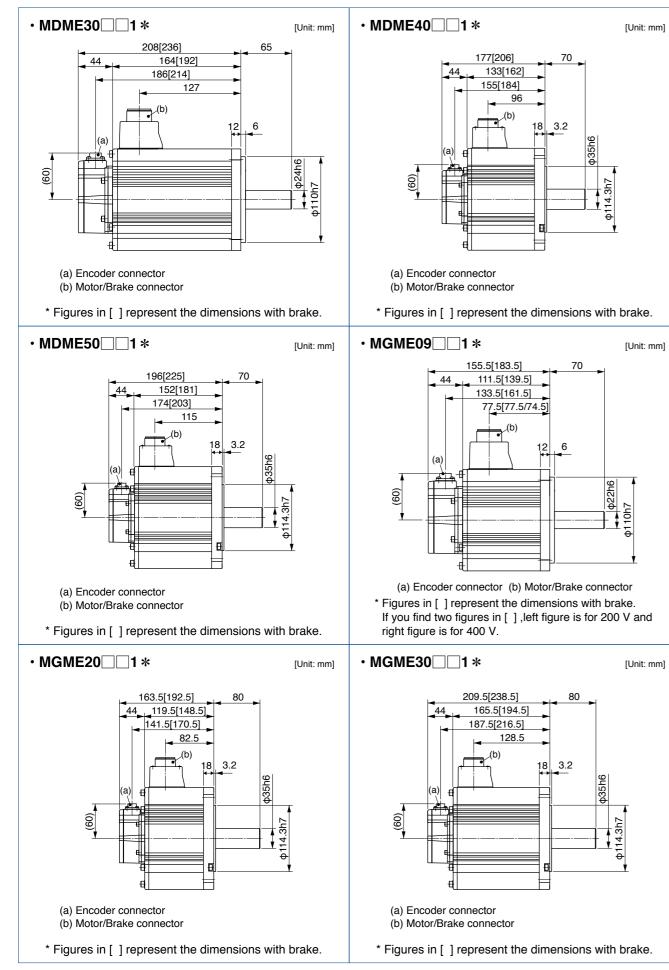
## A5 Family **Dimensions**

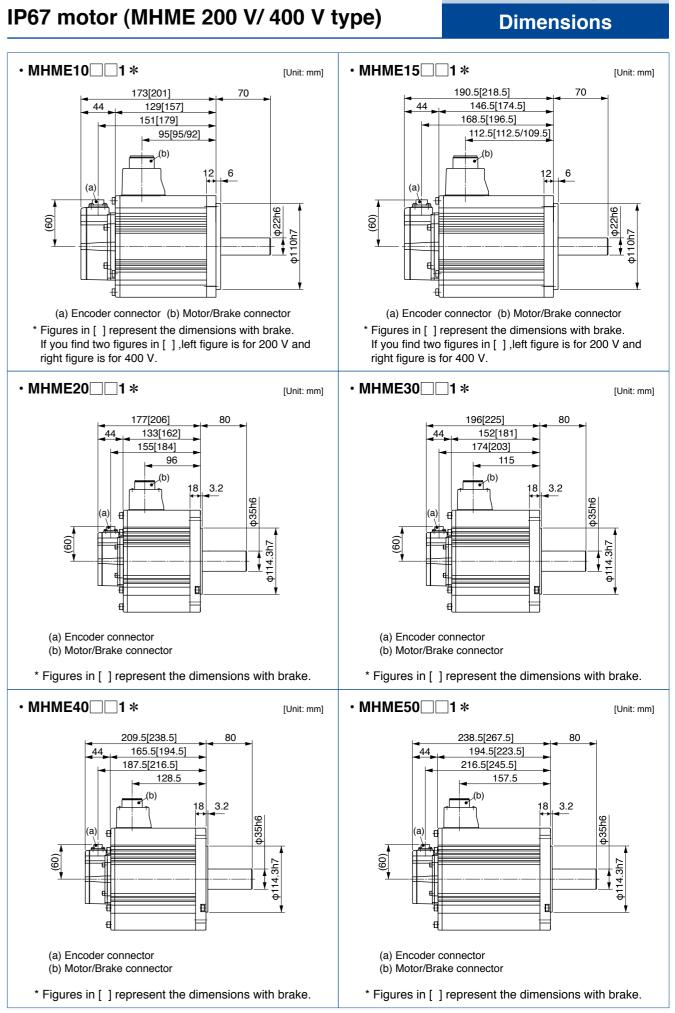
A5 Fam

### A5 Family

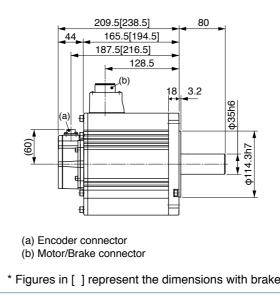
## **Dimensions**

# IP67 motor (MDME 200 V/ 400 V type) MGME 200 V/ 400 V type)









\* For motor specifications, refer to IP65 motor page

\* For motor specifications, refer to IP65 motor page.

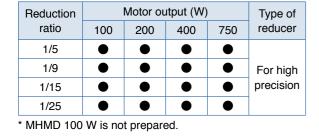
139

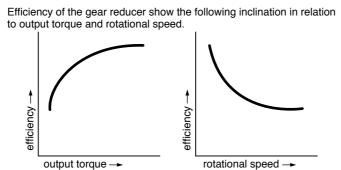
# A5 Family

# Motors with Gear Reducer Type and Specifications

## Motor Types with Gear Reducer







### Specifications of Motor with Gear Reducer

	Items	Specifications						
	Backlash	3 minutes or smaller (initial value) at output shaft of the reducer						
	Composition of gear	Planetary gear						
	Gear efficiency	65 % to 85 %						
Gear reducer	Lubrication	Grease lubrication						
Gearreducer	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 mot						
	Protective structure	IP44 (at gear reducer)						
	Ambient temperature	0 °C to 40 °C (free from condensation)						
Environment	Ambient humidity	85 %RH (free from condensation) or less						
Environment	Vibration resistance	49 m/s <sup>2</sup> or less (at motor frame)						
	Impact resistance	98 m/s² or less						

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e Co	omb	oinat	ion	of the	Dr	iver a	anc	l th	e I	No	tor	Moto	ors	witl	ו G	ear	Re	ducer		
	* For combination of elements of model number, refer to Index.																			
del	Jesi	gnati	on																	
	Μ	S	Μ	Ε	0	1	1	C	ì	3	1	N								
				Motor r	ated c	output														
mbol		Туре		Symbol	Symbol Specifications						Motor 1	1	Ū							
SMD	Low inertia 100 W to 750 W		01	100 W						Symbo	Reduction I		100	200	tput (V 400	v) 750	Type of reducer			
	Low inertia 100 W to 750 W		02	200 W						1N	1/5		•	•	•	•				
SME			04	400 W 750 W						2N	1/9	)	•		•	٠	For high			
HMD	High inertia		08	7:	50 VV					ЗN	1/1	5	•		•	٠	precision			
	200	W to 75	0 W 0	Voltage	Voltage specifications4N															
	Symbol Rated output									* MHME	* MHMD 100 W is not prepared.									
				1	1 100 V						Motor structure									
				2	2	00 V					0	Sha		Н	olding	g brak	е			
Bot	any on	codor er	ocificat	ione							Syl	mbol K	ey wa	y wit	thout	with	I			
Rotary encoder specification			Pulse coun	ts Resolution		Wire					3	۲		•						
-	G	Increm		20-bit	1048576		-	5				4	●			•				
	S Absolute			17-bit		131072	_	7												
* S:	can be	e used in	increm	ental.	1		_(													

A5 Family

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lodel Designation/									A5 Family									
		•		of the	Dr	iver a	anc	d th	ne	Mo	tor	Mot	ors	wi	th G	ear	Re	ducer
										* For	r combin	ation o	f elem	ents c	of mode	l numl	oer, ret	er to Inde
lode	l Des	ignat	ion															
		•		_	•				<b>^</b>	•								
	Μ	S	Μ	E	0	1	1		G	3	1	ſ	N					
				Motor r	ated o	utput												
Symbo	ol	Туре		Symbol	Speci	fications					Motor	types	with	-				
MSMI	– ר	Low inertia		01	100 W						Symbo	ור	Reduction ratio		lotor ou	• •	·	Type of reducer
	100	100 W to 750 W		02	200 W						1N		1/5	100	200	400	750	1000001
MSM	-	Low inertia 100 W to 750 W		04	400 W						2N		1/9	-				
	L	High inertia		08	08 750 W						3N	-	/15	•	•	•	•	For high precision
MHMI	1MD 200 W to 750 W		Voltago							4N		/25	•	•	•	•	-	
Voltage specifications       * MHMD 100 W is not prepared.																		
Symbol     Rated output       1     100 V																		
				2		00 V					— Mo	otor st	ructu	-				
2 200 V					00 1					Sy	Symbol Sh			Holding		_		
Rotary encoder specifications									-	Key w	ay v	vithout	with	ו				
	Symbol	ymbol Format P		Pulse coun	se counts Resolution		V	Vire			_	3	•		•		_	
	G	Incren	nental	20-bit		1048576		5				4	•					
	S	Abso	olute	17-bit		131072		7										
*	S: can b	e used ir	n increm	ental.														

### S: can be used in incremental.

## The Combination of the Driver and the Motor with gear reducer

	100	v	200 V					
Motor output	Part No. of motor	Single phase, 100 V	Part No. of motor	Single/3-phase, 200 V				
•	with gear reducer	Part No. of driver	with gear reducer	Part No. of driver				
100 W	MSME011	MADHT1107 MADKT1107	MSME012	MADHT1505 MADKT1505				
100 W		MADHT1107E MADKT1107E	MSMD012	MADHT1505E MADKT1505E				
200 W	MSME021	MBDHT2110 MBDKT2110	MSME022	MADHT1507 MADKT1507				
200 W		MBDHT2110E MBDKT2110E		MADHT1507E MADKT1507E				
400 W	MSME041N MSMD041N	MCDHT3120 MCDKT3120	MSME042 N MSMD042 N	MBDHT2510 MBDKT2510				
400 W		MCDHT3120E MCDKT3120E		MBDHT2510E MBDKT2510E				
750 W			MSME082	MCDHT3520 MCDKT3520				
750 VV				MCDHT3520E MCDKT3520E				

\* Motor specifications enter to of the motor model number. Refer to "Model designation".

## **Motors with Gear Reducer**

## **Table of Motor Specifications**

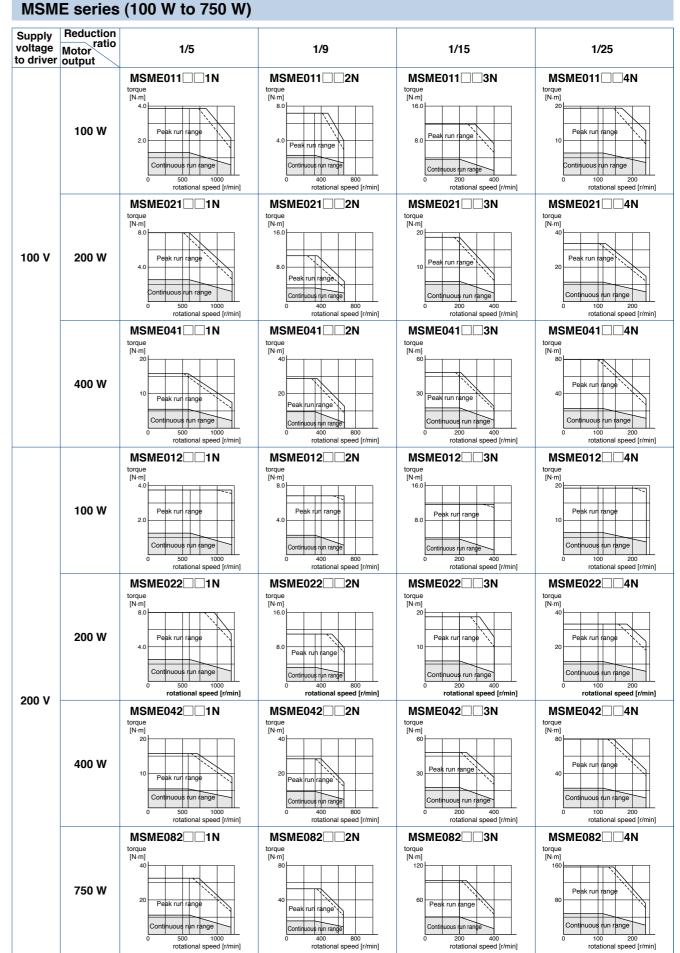
## **Table of Motor Specifications**

	Model	Motor Output	Reduction ratio	Output	Rated speed	Max. speed	Rated torque	Peak max. torque	(motor + conv to moto	or shaft)		ISS	Permissible radial load	Permissible thrust load
		(W)		(W)	(r/min)	(r/min)	(N∙m)	(N.m)	w/o brake J(x10 <sup>-,</sup>		w/o brake (k		(N)	(N)
	MSME01 1N	(W)	1/5	( <b>W</b> ) 75	600	1200	1.18	3.72	0.091	0.094	1.0	s) 1.2	490	245
		-	1/9	80	333	666	2.25	6.86	0.0853	0.0883	1.0	1.2	588	294
		100	1/15	80	200	400	3.72	11.4	0.086	0.089	1.15	1.35	784	392
			1/25	80	120	240	6.27	19.0	0.0885	0.0915	2.15	2.35	1670	833
			1/5	170	600	1200	2.65	8.04	0.258	0.278	1.5	1.92	490	245
2			1/9	132	333	666	3.72	11.3	0.408	0.428	2.48	2.9	1180	588
MSME		200	1/15	132	200	400	6.27	18.8	0.44	0.46	2.88	3.3	1470	735
		-	1/25	140	120	240	11.1	33.3	0.428	0.448	2.88	3.3	1670	833
No No			1/5	340	600	1200	5.39	16.2	0.623	0.643	2.9	3.3	980	490
Low inertia			1/9	332	333	666	9.51	28.5	0.528	0.548	2.9	3.3	1180	588
rtia		400	1/15	332	200	400	15.8	47.5	0.56	0.58	3.3	3.7	1470	735
		-	1/25	332	120	240	26.4	79.2	0.56	0.58	4.4	4.8	2060	1030
	MSME082 . 1N		1/5	672	600	1200	10.7	32.1	1.583	1.683	4.4	5.2	980	490
	MSME082		1/9	635	333	666	18.2	54.7	1.52	1.62	5.7	6.5	1470	735
	MSME082 3N	750	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
	MSMD01 0 1N		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 0 3N	100	1/15	80	200	333	3.72	11.4	0.086	0.089	1.17	1.38	784	392
	MSMD01 0 4N		1/25	80	120	200	6.27	19.0	0.0885	0.0915	2.17	2.38	1670	833
	MSMD02		1/5	170	600	1000	2.65	8.04	0.258	0.278	1.54	2.02	490	245
Ξ	MSMD02 2N		1/9	132	333	555	3.72	11.3	0.408	0.428	2.52	3	1180	588
MSMD	MSMD02 3N	200	1/15	132	200	333	6.27	18.8	0.44	0.46	2.92	3.4	1470	735
	MSMD02		1/25	140	120	200	11.1	33.3	0.428	0.448	2.92	3.4	1670	833
Low inert	MSMD04		1/5	340	600	1000	5.39	16.2	0.623	0.643	2.9	3.4	980	490
ine	MSMD04 2N		1/9	332	333	555	9.51	28.5	0.528	0.548	2.9	3.4	1180	588
tia	MSMD04 🗌 🗌 3N	400	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		1/5	672	600	900	10.7	32.1	1.583	1.683	4.4	5.2	980	490
	MSMD082 . 2N	750	1/9	635	333	500	18.2	54.7	1.52	1.62	5.7	6.5	1470	735
	MSMD082 🗌 3N	750	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
	MHMD02		1/5	170	600	1000	2.65	8.04	0.538	0.568	1.68	2.12	490	245
	MHMD02	200	1/9	132	333	555	3.72	11.3	0.688	0.718	2.66	3.1	1180	588
	MHMD02	200	1/15	132	200	333	6.27	18.8	0.72	0.75	3.06	3.5	1470	735
ş	MHMD02		1/25	140	120	200	11.1	33.3	0.708	0.738	3.06	3.5	1670	833
MHMD	MHMD04 🗌 🗌 1N		1/5	340	600	1000	5.39	16.2	1.033	1.063	3.1	3.5	980	490
	MHMD04 🗌 🗌 2N	400	1/9	332	333	555	9.51	28.5	0.938	0.968	3.1	3.5	1180	588
gh i	MHMD04 🗌 🗌 3N	400	1/15	332	200	333	15.8	47.5	0.97	1.0	3.5	3.9	1470	735
High inertia	MHMD04 🗌 🗌 4N		1/25	332	120	200	26.4	79.2	0.97	1.0	4.6	5.0	2060	1030
tia	MHMD082 🗌 🗌 1N	-	1/5	672	600	900	10.7	32.1	2.223	2.323	4.6	5.4	980	490
	MHMD082 🗌 🗌 2N	750	1/9	635	333	500	18.2	54.7	2.16	2.26	5.9	6.7	1470	735
	MHMD082 🗌 🗌 3N	130	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".

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## **Torque Characteristics of Motor**



Dotted line represents the torque at 10 % less supply voltage.

# A5 Family Motors with Gear Reducer

A5 Family

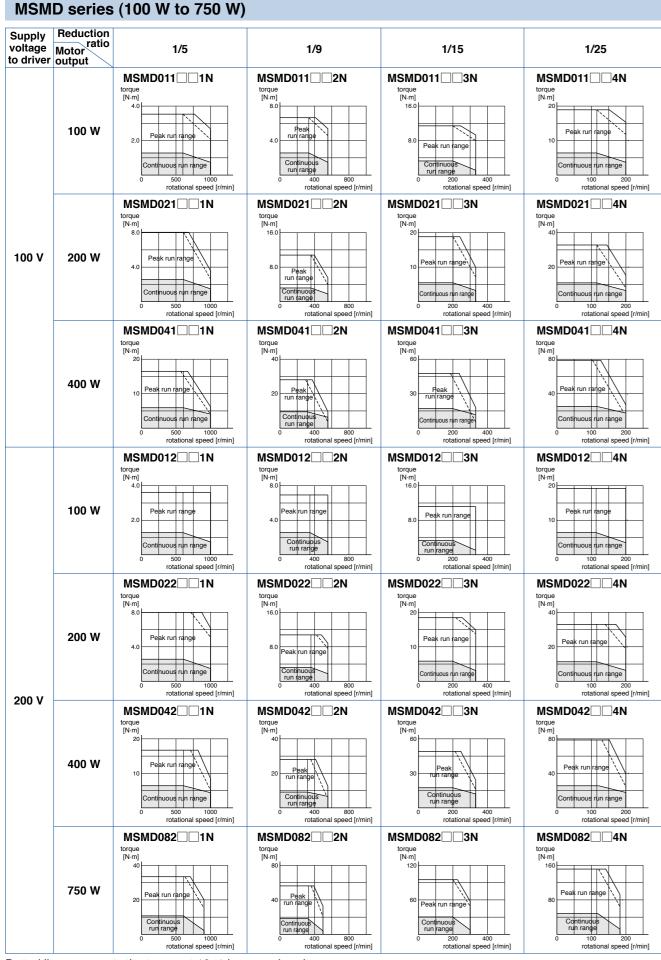
Series

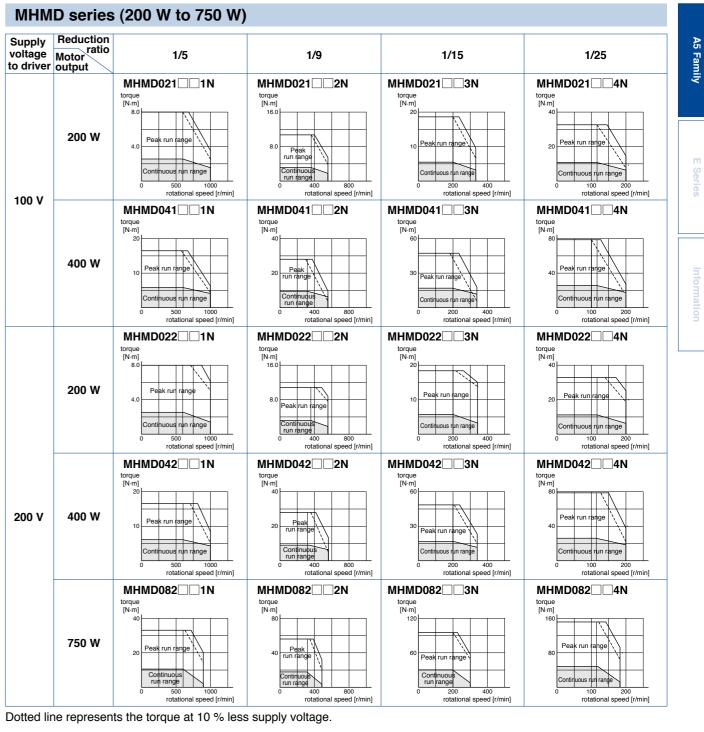
Information

al speed [r/min]

## **Motors with Gear Reducer**

## **Torque Characteristics of Motor**

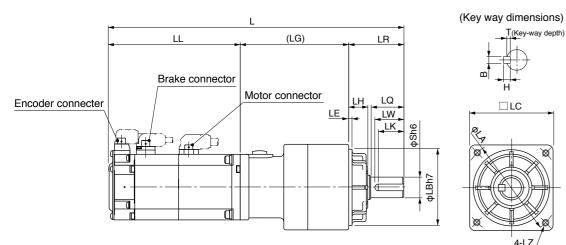




Dotted line represents the torque at 10 % less supply voltage.

# Motors with Gear Reducer Dimensions of Motor

## **MSME** series

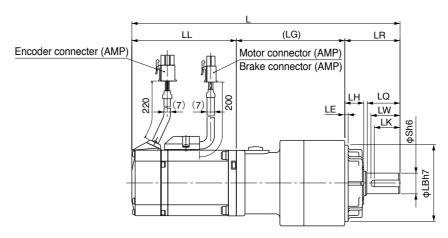


\* The figure represents the dimensions with brake.

Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	s	LH	LZ	LW	(LG)	LE	Key way B×H×LK	т
MSME01		1/5	191.5	92													
	-		221.5	122										67.5			
MSME01		1/9	191.5	92	32	20	52	50	60	12	10	M5 Depth	18			4×4×16	2.5
	100		221.5	122								12					
MSME01		1/15	202	92										78			
			232 234	122 92								M6					
MSME01		1/25	234	92 122	50	30	78	70	90	19	17	Depth 20	26	92		6×6×22	3.5
			184	79.5								M5					
MSME02		1/5	220.5	116	32	20	52	50	60	12	10	Depth 12	18	72.5		4×4×16	2.5
			219	79.5								12			-		
MSME02 2N		1/9	255.5	116										89.5	3		
	200	4/45	229.5	79.5													
MSME02 3N		1/15	266	116										100			
MSME02		1/25	229.5	79.5				70						100			
		1/25	266	116	50	30	78		90	19	17	M6 Depth	26			6×6×22	3.5
MSME04		1/5	238.5	99	00	00	70	10	50	10		20	20			UNUNEL	0.0
	-		275	135.5										89.5			
MSME04		1/9	238.5	99													
	400		275	135.5													
MSME04		1/15	249 285.5	99 135.5										100			
	-		265.5 264	99								M8					
MSME04		1/25	300.5	135.5	61	40	98	90	115	24	18	Depth 20	35	104	5	8×7×30	4
			255.7	112.2								M6					
MSME082		1/5	291.7	148.2	50	30	78	70	90	19	17	Depth 20	26	93.5	3	6×6×22	3.5
			270.7	112.2													
MSME082 2N	750	1/9	306.7	148.2										97.5			
MSME082 3N	100	1/15	283.2	112.2	61	40	00	90	115	24	18	M8 Dopth	35		5	8×7×30	4
		1/15	319.2	148.2	61	40	98	90	115	24	10	Depth 20	30	110	э	6x7x30	4
MSME082		1/25	283.2										110				
		1/20	319.2	148.2													

[Unit: mm]

## MSMD series

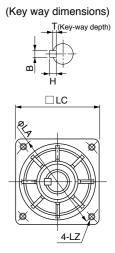


\* The figure represents the dimensions without brake.

Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	s	LH	LZ	LW	(LG)	LE	Key way B×H×LK	т		
MSMD01		1/5	191.5	92															
	-	1/5	221.5	122										67.5					
MSMD01 2N		1/9	191.5	92	32	20	52	50	60	12	10	M5 Depth	18	07.0		4×4×16	2.5		
	100		221.5	122			-					12				_			
MSMD01		1/15	202	92										78					
	-		232	122								M6							
MSMD01		1/25	234	92	50	30	78	70	90	19	17	Depth	26	92		6×6×22	3.5		
			264	122								20 M5							
MSMD02		1/5	184	79.5	32	20	52	50	60	12	10	Depth	18	72.5		4×4×16	2.5		
	-		220.5	116								12							
MSMD02		1/9	219	79.5										89.5	3				
	200		255.5 229.5	116 79.5															
MSMD02		1/15	229.5	116															
				229.5	79.5										100				
MSMD02		1/25	266	116						) 19		M6							
					238.5	99	50	30	78	8 70	90	0 19	17	Depth	26			6×6×22	3.5
MSMD04				1/5	238.5 275	135.5								20					
			273 135.5 238.5 99										89.5						
MSMD04		1/9	275	135.5															
	400	4.45	249	99										400					
MSMD04		1/15	285.5	135.5										100					
MSMD04	1	1/25	264	99	61	40	98	90	115	24	18	M8 Depth	35	104	5	8×7×30	4		
		1/25	300.5	135.5	61	40	98	90	115	24	18	Depth 20	35	104	э	8×7×30	4		
MSMD082		1/5	255.7	112.2	50	30	78	70	90	19	17	M6 Depth	26	93.5	3	6×6×22	3.5		
		1/5	292.7	149.2	50	30	/0	70	90	19	17	Depth 20	20	93.5	3	0x0x22	3.5		
MSMD082		1/0	270.7	112.2										97.5					
	1/9	307.7	149.2										97.5						
MSMD082	,	1/15 28	283.2	112.2	61	40	98	90	115	24	18	M8 Depth	35		5	8×7×30	4		
			320.2	149.2			98	90 1	0 115	27	.0	20	00	110	J	5.1, 200	т		
MSMD082		1/25	283.2 1	112.2															
····· ···			320.2	149.2															

Upper column: without brake

Upper column: without brake \_\_\_\_\_\_ Lower column: with brake \_\_\_\_\_\_ [Unit: mm]



A5 Family

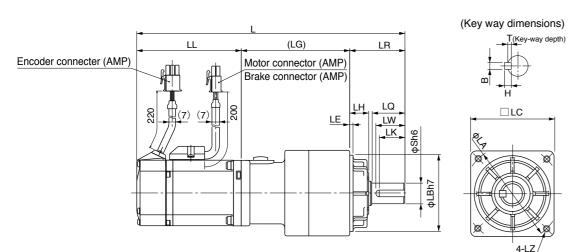
Series

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Information

#### **Dimensions of Motor** Motors with Gear Reducer

## MHMD series



\* 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	т		
		. /=	203.5	99								M5							
MHMD02		1/5	240	135.5	32	20	52	50	60	12	10	Depth 12	18	72.5		4×4×16	2.5		
		1/9	238.5	99										89.5	1				
MHMD02	200	1/9	275	135.5										89.5					
MHMD02	200	1/15	249	99											]				
		1/15	285.5	135.5										100					
MHMD02		1/25	249	99										100	3				
		1/25	285.5	135.5	50	30	78	70	90	19	17	M6 Depth	26			6×6×22	3.5		
MHMD04		1/5	258	118.5	50	50	70	70	30	15	17	20	20			02022	0.0		
		1/5	294.5	155										89.5					
MHMD04	400			1/9	258	118.5										00.0			
			294.5	155															
MHMD04	400	1/15	268.5	118.5										100					
			305	155															
MHMD04		1/25	283.5	118.5	61	40	98	90	115	24	18	M8 Depth	35	104	5	8×7×30	4		
		1/25	320	155	01	40	30	30	115	24	10	20	55	104	5	0.27.200	4		
			270.7	127.2								M6							
MHMD082		1/5	307.7	164.2	50	30	78	70	90	19	17	Depth 20	26	93.5	3	6×6×22	3.5		
			285.7	127.2															
MHMD082 2N	750	1/9	322.7	164.2										97.5					
	750		298.2	127.2		40			44.5		10	M8	05			0 7 00			
MHMD082		1/15	335.2	164.2	61	40	98	90	115	24	18	Depth 20	35		5	8×7×30	4		
		1/05	298.2										110						
MHMD082			1/25	335.2	164.2														

Upper column: without brake Lower column: with brake

[Unit: mm]

## MEMO


# Special Order Product 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 Special Order Product Motor Contents MSMJ (200 V) 200 W to 750 W ... . P.155 Small capacity MSME (200 V) 1.0 kW to 5.0 kW ..... P.158 MSMJ MHMJ Low inertia High inertia MDME (200 V) Max. speed : 5000 r/min Max. speed : 5000 r/min 1.0 kW to 5.0 kW ..... P.164 : 4500 r/min (750 W) : 4500 r/min (750 W) Rated speed : 3000 r/min Rated speed : 3000 r/min Rated output: 200 W to 750 W Rated output: 200 W to 750 W MGME (200 V) Enclosure : IP65 Enclosure : IP65 0.9 kW to 3.0 kW ..... P.170 MHMJ (200 V) 200 W to 750 W ..... P.173 MHME (200 V) 1.0 kW to 5.0 kW ..... P.176 MDMF MSMF Middle inertia Low inertia Max. speed : 5000 r/min Max. speed : 3000 r/min : 4500 r/min Rated speed : 2000 r/min (from 4.0 kW) Rated output: IP65 1.0 kW to 5.0 kW Rated speed : 3000 r/min Enclosure : IP65 Middle capacity Rated output: 1.0 kW to 5.0 kW Enclosure : IP65 MGME МНМЕ (Low speed/ High torque type) High inertia High inertia Max. speed : 3000 r/min Max. speed : 2000 r/min Rated speed: 1000 r/min Rated speed : 2000 r/min Rated output: IP65 0.9 kW to 3.0 kW Rated output: IP65 1.0 kW to 5.0 kW Enclosure : IP65 Enclosure : IP65

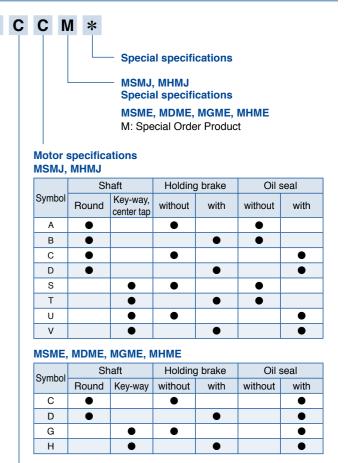
<Cautions> Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

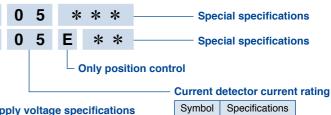
# **Model Designation**

											*	For com	bination o	f elemen	ts of mo	odel number,	refer
ervo M	otor																
					_	_	-	-	-			-					
		Μ	S	Μ	E	5	0	2	G	С	CI	M *					
													0				
													— Spec	ial spec	ificatio	ons	
Symbol		Tur	20											J, MHM			
Symbol MSMJ	Low inertia	Typ a (200		50 W	<b>`</b>								Spec	ial spec	ificatio	ns	
MSME	Low inertia				,											AE, MHME	
MDME	Middle ine												M: Sp	ecial Or	der Pro	oduct	
MGME	High inerti				,						Motor	specifi	eations				
MHMJ	High inerti											, MHMJ	auons				
MHME	High inerti	a (1.0	kW to	5.0 k\	V)								Shaft	Hold	ing brak	ke Oil	l seal
											Symbol	Round	Key-way		t wit	th without	w
	ed output						1						center ta	0	U VVII	-	~
Symbol	Rated out	put			Volta	ge sp	ecific	atio	ıs		A	•				•	
02	200 W	_			2: 200	ν c					B	•	-				
04	400 W										C			•			
08	750 W										DS	-		•	-	•	
09 10	0.9 kW 1.0 kW										T		•	-		-	
15	1.0 KW										U		•				
20	2.0 kW										V		•	-			
30	3.0 kW																
40	4.0 kW										MSME	, MDME	, MGME,	MHME			
50	5.0 kW										Symbol	5	Shaft	_	ing brak	ke Oil	l seal
	010 111										Cymbol	Round	l Key-way	withou	it wi	th without	w
otary en	coder spe	cifica	tions								С	•		•			
Symbol	Format		ilse co	unts	Reso	lution	Wir	es	1		D	•	_				
G	Increment	al	20-bi	t	104	8576	5	;			G		•	•	_		
S	Absolute	)	17-bi	t	13	1072	7	,	1		Н						
S: can be	e used in ir	ncreme	ental.														
										Des	ign orde	er					_
<cautior< td=""><td>IS&gt;</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Syr</td><td>mbol</td><td></td><td></td><td>ecificatio</td><td></td><td></td><td></td></cautior<>	IS>									Syr	mbol			ecificatio			
Please av	void the m	otor, c	or equ	ipme	nt co	ntainii	ng						r (MSME, I		GME, N	1HME)	
	r to be dis		d to J	apan	, or o	ther					1	P65 moto	r (MSMJ, N	ИНМЈ)			
egions th	hrough Ja	pan.															
ervo D	river																
Sneed P	osition, To	orque		_	_		_		_		-						
Full-clos		orque,	Μ	Α	D	Κ	Т	1	5	0	5	* *	*		- Spe	cial specific	catio
Position	control ty	pe	Μ	Α	D	Κ	Т	1	5	0	5 I	E *	*		- Spe	cial specific	catio
Frame	symbol * -												position	control			
Symbo	-	ne												Cı	irrent d	detector cur	rrent
MAD	Fram													_	ymbol	Specificatio	-
MBD	Fram	-									oltage	·			07	7.5 A	
MCD	Fram	-							S	ymbol	· ·	pecificati			10	10 A	
MDD	Fram									3	· ·	se, 200 \			20	20 A	
MED	Fram	ie E								5	Single	e/3-phase	e, 200 V		30	30 A	
MFD	Fram	ne F							- Po	wer d	evice M	ax cur	ent ratin	a –	40	40 A	
										ymbol	1	nt rating		9	64	64 A	
	Series									T1		10 A	1		90	90 A	_
			ty, Posi	tion,	Posit	ion cor	trol			T2		15 A	-		A2	120 A	
	Symbol		orque, losed t	vpe	. 001	type				T3	-	30 A					
	К		I serie		A5	IIE ser	ies			T5		50 A	1				
	L									T7		75 A	1				
											1		_				
										TA	1	00 A					
										TA TB	-	00 A 50 A					

# A5 Family **Special Order Product**

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





## A5 Family Table of Part Numbers and Options: Special Order Product 0.2 kW to 5.0 kW

		Motor				Driver		Power			Op	tional p	parts					Options			
					A5I series	A5IIE series		capacity	Encode	er Cable	Mo	otor Cab	hle	Brake					Title	Part No.	Page
<b>.</b>	Power	Output	Part No.	Rating/	Part No. /Speed, Position,)	Part No.	_	(at)						Cable	External	Reactor	Noise Filter	Interface Cable		DV0P4360	
Motor series	supply	(W)	Note) 1	Spec. (page)	Torque,	(Position control type)	Frame	(rated load	20-bit Incremental	17-bit I Absolute	withou Brake	-	with Brake		Regenerative Resistor	Single phase	Single phase			DV0P4120	_
				u ·· <b>J</b> · /	Full-Closed type	Note) 2		(kVA)	Note) 3	Note) 2,3,6	Note)	-	Note) 3	Note) 3		3-phase	3-phase	Interface Conve	rsion Cable	DV0P4121 DV0P4130	197
		200	MSMJ022 🗌 1 *	155	MADKT1507	MADKT1507E	۸	A								DV0P227		Interface Conve	dision Gable	DV0P4131	_
MSMJ (Leadwire)		200	WISIWJU22 🗌 T 🛪	155	MADKT 1507	MADKT 1507E	A-trame	Approx. U.S	MFECA	MFECA	N	MFMCA	Δ	MFMCB		DV0P220	DV0P4170			DV0P4132	
(type)	Oinaila	400	MSMJ042 🗌 1 🗴	156	MBDKT2510	MBDKT2510E	B-frame	Approx. 0.9	0**0EAM	0**0EAE		)**0EED		0**0GET	DV0P4283	DV0P228	DV0PM20042	Connector Kit	A-frame Single row	DV0PM20032	
3000 r/min	Single phase/	750	MSMJ082 🗌 1 *	157	MCDKT3520	MCDKT3520E	C-frame	Approx. 1.3		Note) 4						DV0P220	DV0PM20042	Connector Kit for Power	to Type	v	20
	3-phase 200 V															DV0P228		Supply Input Connection	D-frame Double row type	<sup>v</sup> DV0PM20033	
Low	200 V	1000	MSME102 C * M	158	MDDKT5540	MDDKT5540E		Approx. 1.8								DV0P222			E-frame	DV0PM20044	_
vine		1500		150		MDDKT5540E	D-frame				MFMC		IFMCA		DV0P4284	DV0PM20047	DV0P4220	Connector Kit for Motor	A-frame to D-frame	DV0PM20034	_
inertia		1500	MSME152 🗌 C * M	159	MDDKT5540	MDDK15540E		Approx. 2.3			0**2EC	CD 0*'	*2FCD			DV0P222		Connection	E-frame	DV0PM20046	20-
MSME		2000	MSME202  C * M	160	MEDKT7364	MEDKT7364E	E-frame	Approx. 3.3						_	DV0P4285	DV0P223	DV0PM20043	Connector Kit for Regenerative	E-frame	DV0PM20045	
3000 r/min		2000	MSME302 🗌 C * M	161	MFDKTA390	MFDKTA390E									Note) 5	DV0P224		Resistor			
	3-phase 200 V	3000		161			-	Approx. 4.5			MFMC		IFMCA		DV0P4285	DV0P224	-			DV0P4290	202
	200 1	4000	MSME402 🗌 C * M	162	MFDKTB3A2	MFDKTB3A2E	F-frame	Approx. 6			0**3EC		**3FCT		×2 in parallel	DV0P225	DV0P3410	Connector Kit f		DV0P4310 DV0P4320	20
		5000	MSME502 C * M	163	MFDKTB3A2	MFDKTB3A2E		Approx. 7.5								D VOI 220		Connector Kit f Motor/Encoder		DV0P4330	-
	Single	1000		104												DV0P228				DV0P4340	20
	phase/	1000	MDME102 🗌 C * M	164	MDDKT3530	MDDKT3530E	D-frame	Approx. 1.8							DV0P4284	DV0P222	DV0P4220		1	DV0P4380	20
2	3-phase 200 V	1500	MDME152 C * M	165	MDDKT5540	MDDKT5540E	D-liallie	Approx. 2.3	MFECA	MFECA	0**2EC		IFMCA **2FCD		0 101 4204	DV0PM20047	0101 4220		RS485, RS232	DV0PM20102	_
Middle MDME	200 V							, pp. co. 210	0**0ESD	0**0ESE	0 2EC		2FGD		D) (0D (005	DV0P222			Safety Interface	DV0PM20103 DV0P4350	198
		2000	MDME202 C * M	166	MEDKT7364	MEDKT7364E	E-frame	Approx. 3.3							DV0P4285 Note) 5	DV0P223	DV0PM20043	Connector Kit	External Scale	DV0P4350 DV0PM20026	
inertia 2000 r/min		3000	MDME302 C * M	167	MFDKTA390	MFDKTA390E		Approx. 4.5								DV0P224			Encoder	DV0PM20010	19
ß	3-phase 200 V		MDME402 C * M		MFDKTB3A2	MFDKTB3A2E	- -				MFMC	A M	IFMCA		DV0P4285		DV0P3410		Analog Monitor Signa	al DV0PM20031	
	200 V	4000		168			r -trame				0**3EC	CT 0*	**3FCT	_	×2 in parallel	DV0P225	DV0P3410	Battery For Abs	olute Encoder	DV0P2990	20
		5000	MDME502 C * M	169	MFDKTB3A2	MFDKTB3A2E		Approx. 7.5										Battery Box No	,	DV0P4430	
MGME	Single phase/										MFMC	ю м	IFMCA			DV0P228			A-frame B-frame	DV0PM20027 DV0PM20028	_
/Low speed/	3-phase	900	MGME092 🗌 C * M	170	MDDKT5540	MDDKT5540E	D-frame	Approx. 1.8			0**2EC		*2FCD		DV0P4284	DV0P221	DV0P4220	Mounting Bracket	C-frame	DV0PM20029	20
High torque	200 V																		D-frame	DV0PM20030	-
	3-phase	2000	MGME202 C * M	171	MFDKTA390	MFDKTA390E	F-frame	Approx. 3.8			MFMC		IFMCA		DV0P4285	DV0P223	DV0P3410			MFECA0**0EAD	) 18
1000 r/min	200 V	3000	MGME302 🗌 C * M	172	MFDKTB3A2	MFDKTB3A2E		Approx. 4.5			0**3EC	CT 0*	**3FCT		×2 in parallel	DV0P224			without Battery Box		
		200	MHMJ022 🗌 1 *	173	MADKT1507	MADKT1507E	Δ.framo	Approx 0.5								DV0P227	DV0P4170	Encoder Cable		MFECA0**0ESE MFECA0**0EAE	
MHMJ (Leadwire)		200		170	MADICI 1307	WADRENSONE	Aname	Appiox. 0.0	MFECA	MFECA	N	MFMCA	Δ	MFMCB		DV0P220			with Battery Box Note) 7	MFECA0 0EAE	
⊥ type /	Circela	400	MHMJ042 🗌 1  *	174	MBDKT2510	MBDKT2510E	B-frame	Approx. 0.9	0**0EAM			)**0EEC		0**0GET	DV0P4283	DV0P228	DV0PM20042			MFMCA0**0EEI	
명 3000 r/min	Single phase/	750	MHMJ082 🗌 1 🜸	175	MCDKT3520	MCDKT3520E	<u></u>	Approx. 1.3		Note) 4						DV0P220	DV0PM20042		without Brake	MFMCD0**2EC	D 19
inertia	3-phase 200 V						C-frame									DV0P228		Motor Cable	without brake	MFMCE0**2ECI	D
lia	200 V	1000	MHME102 🗌 C * M	176	MDDKT3530	MDDKT3530E		Approx. 1.8			MFMC	ю м	IFMCA			DV0P222				MFMCA0**3EC	
							D-frame				0**2EC		-		DV0P4284	DV0PM20047	DV0P4220		with Brake	MFMCA0**2FCI	
		1500	MHME152 🗌 C * M	177	MDDKT5540	MDDKT5540E		Approx. 2.3								DV0P222		Brake Cable		MFMCB0**0GE	
МНМЕ		2000	MHME202 🗌 C * M	178	MEDKT7364	MEDKT7364E	E-frame	Approx. 3.3	MFECA	MFECA	MFMC		IFMCE	_	DV0P4285	DV0P223	DV0PM20043		A-frame		
2000 r/min									0**0ESD	0**0ESE	0**2EC	CD 0**	*2FCD		Note) 5				B-frame	DV0P4283	
	3-phase	3000	MHME302 C * M	179	MFDKTA390	MFDKTA390E	1	Approx. 4.5			MFMC		IFMCA			DV0P224		External Regenerative	C-frame		210
	200 V	4000	MHME402 🗌 C * M	180	MFDKTB3A2	MFDKTB3A2E	F-frame	Approx. 6			0**3EC		**3FCT		DV0P4285 ×2 in parallel		DV0P3410	Resistor	D-frame	DV0P4284	_
		5000	MHME502 🗌 C * M	181	MFDKTB3A2	MFDKTB3A2E	1	Approx. 7.5							·	DV0P225			E-frame F-frame	DV0P4285	
Noto) 1 Rotany	ncodor s	ocifica	tions: D Motor speci	fication		152)					Noto) 6	6 Ploa	aco not	o that a h	attory is not s	upplied toget	her with 17-bit		DV0P220, DV0P221	. DV0P222.	-
			ivers (dedicated for p			,	'-bit ab	solute sp	ecification.		Note) (				e (with battery	•••••		Reactor	DV0P223, DV0P224 DV0P227, DV0P228	1, DV0P225,	20
			ype can be used in c		-				,						part number "l	,	parately.		DV0P4170, DV0PM		
,	•		05: 5 m, 10: 10 m, 20				,							,			· •	Noise Filter	DV0P4220, DV0PM		25
· ·			solute encoder as an			please use the	encode	er cable M	FECA0**0E	EAD.									DV0P3410	DV0D (100	25 <sup>-</sup>
Note) 5 Other c	ombinatio	ns exist	, and refer to P.210 fo	r detail	S.													Surge Absorbe	Single phase 3-phase	DV0P4190 DV0P1450	- 253
																		Ferrite core	0-111030	DV0P1450 DV0P1460	254
																				2.0.1100	204

<Cautions> Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

# Information

E Series

**Motor Specifications** 

#### Special Order Product

## 200 V MSMJ 200 W [Low inertia, Small capacity]

#### **Specifications**

			AC2	00 V				
Motor model		IP65	MSMJ022G1	MSMJ022S1				
		IP67	-	-				
Annlinghia	Model	A5I series	MADK	T1507				
Applicable driver *2	No.	A5IE series	MADKT1507E –					
unver	Fr	ame symbol	A-fra	ame				
Power supply	capacit	y (kVA)	0	.5				
Rated output		(W)	20	00				
Rated torque		(N·m)	0.	64				
Momentary N	/lax. peal	k torque (N·m)	1.9	91				
Rated curren	t	(A(rms))	1.6					
Max. current		(A(o-p))	6.9					
Regenerative	brake	Without option	No limi	t Note)2				
frequency (time	s/min) Note)1	DV0P4283	No limi	t Note)2				
Rated rotatio	nal spee	d (r/min)	30	00				
Max. rotation	al speed	(r/min)	50	00				
Moment of in	ertia	Without brake	0.	14				
of rotor (×10	<sup>-4</sup> kg·m²)	With brake	0.	16				
Recommend ratio of the lo			30 times	s or less				
Rotary encod	ler speci	fications Note)5	20-bit Incremental	17-bit Absolute				
	Resolutio	n per single turn	1048576 131072					

Please contact us for more information.

• 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)

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

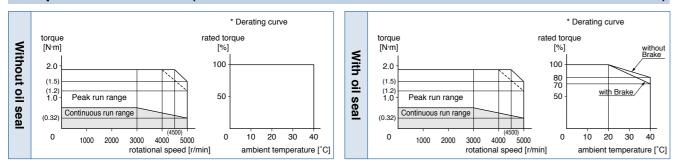
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.42.

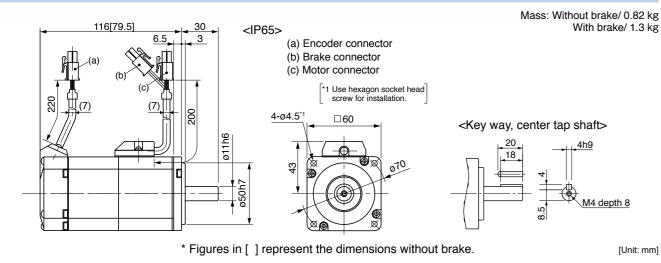
\*1 Motor specifications:

\*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.>)



#### **Dimensions**



<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.

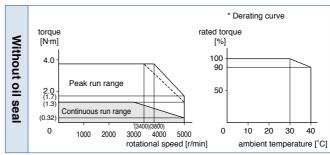
#### **Special Order Product**

## 200 V MSMJ 400 W [Low inertia, Small capacity]

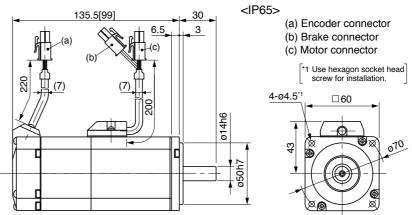
#### Specifications

Specific	alion	5								
			AC2	00 V		specifications (For details				
Motor model		IP65	MSMJ042G1	MSMJ042S1		ake will be released when it is e use this for braking the motor in				
MOTOL THOOLEI *1		IP67	-	-	Static fri	ction torque (N·m)	1.27 or more			
	Model	A5I series	MBDK	T2510	Engagin	g time (ms)	50 or less			
Applicable driver *2	No.	A5IIE series	MBDKT2510E	-	Releasir	ng time (ms) Note)4	15 or less			
unver	Fi	ame symbol	B-fra	ame	Exciting	0.36				
Power supply	capacit	y (kVA)	0.	.9	Releasir	ng voltage (DC) (V)	1 or more			
Rated output	Rated output (V			00	Exciting	voltage (DC) (V)	24±1.2			
Rated torque		(N·m)	1.	.3	/ioning					
Momentary M	ax. pea	k torque (N·m)	3	.8	<ul> <li>Permi</li> </ul>	ssible load (For details, refe	er to P.183)			
Rated current		(A(rms))	2	.6		Radial load P-direction (N)	392			
Max. current		(A(o-p))	11	.0	During	Thrust load A-direction (N)	147			
Regenerative I		Without option	No limi	t Note)2	assembly	Thrust load B-direction (N)	196			
frequency (times/	min) Note)1	DV0P4283	No limi	t Note)2	During	Radial load P-direction (N)	245			
Rated rotation	nal spee	d (r/min)	30	00	During operation					
Max. rotationa	al speed	(r/min)	50	00	· ·	Thrust load A, B-direction (N)	98			
Moment of ine		Without brake	0.:	26		ails of Note 1 to Note 5, refer t	o P.182, P.183.			
of rotor (×10 <sup>-4</sup>	'kg∙m²)	With brake	0.	28		ions of Driver, refer to P.42.				
	Recommended moment of inertia ratio of the load and the rotor Note)		30 times	s or less	<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>					
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute	0	of model designation, refer to	21			
Resolution per single turn			1048576	131072						

#### Torque characteristics (at AC200 V of power voltage <Dotted line represents the torque at 10 % less supply voltage.>) \* Derating curv \* Derating curve torque [N·m] rated torque rated torque torque . [N·m] [%] With 100 100 40 4 ( 90 oil seal 75 Peak run rang Peak run rang 2.Ļ 50 50



#### Dimensions



<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.

## A5 Family **Motor Specifications**

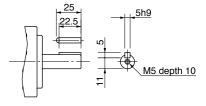
Please contact us for more information

Continuous run range (0.32) 0 0 10 20 30 40 3000 4000 5000 1000 2000 ambient temperature [°C] rotational speed [r/min]

> Mass: Without brake/ 1.2 kg With brake/ 1.7 kg

> > [Unit: mm]

<Key way, center tap shaft>



\* Figures in [ ] represent the dimensions without brake.

## **Special Order Product**

## 200 V MSMJ 750 W [Low inertia, Small capacity]

# **Motor Specifications**

|--|

#### **Specifications**

			AC200 V			
Motor model	IP65		MSMJ082G1	MSMJ082S1		
*1		IP67		-	-	
Applicable	Model	A5I serie	S	MCDKT3520		
Applicable driver *2	No.	A5IIE se	ries	MCDKT3520E	-	
	Fi	rame sym	lod	C-fr	ame	
Power supply	capacit	у	(kVA)	1.3		
Rated output			(W)	75	50	
Rated torque			(N·m)	2.4		
Momentary M	ax. pea	k torque	(N·m)	7.1		
Rated current		(	(A(rms))	4.0		
Max. current (A(o-p))			17	<b>7.0</b>		
Regenerative brake frequency (times/min) Note)1		Without	t option	NO limit Note)2		
		DV0P4283		No limit Note)2		
Rated rotation	nal spee	d	(r/min)	3000		
Max. rotationa	al speed		(r/min)	4500		
Moment of inertia		Withou	t brake	0.87		
of rotor (×10-	With brake		0.97			
	Recommended moment of inertia ratio of the load and the rotor Note)3			20 times or less		
Rotary encod	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.
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 During operation	Radial load P-direction (N)	686
	Thrust load A-direction (N)	294
	Thrust load B-direction (N)	392
	Radial load P-direction (N)	392
	Thrust load A, B-direction (N)	147

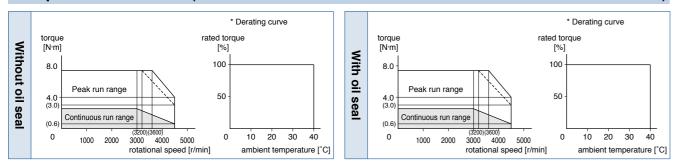
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.43.

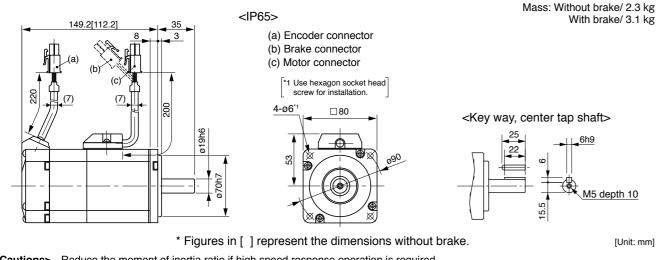
\*1 Motor specifications:

\*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



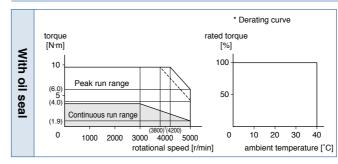
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

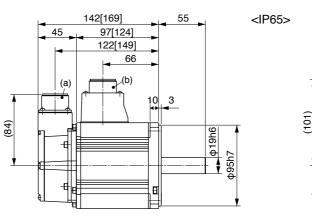
## 200 V MSME 1.0 kW [Low inertia, Middle capacity]

#### Specifications

-								
		AC200 V		• Brake specifications (For details, refer to P.183)				
IP65		MSME102GC	MSME102SC M		(This brake will be released when it is energized.) Do not use this for braking the motor in motion.			
Motor model		IP67	_	-	Static fri	ction torque (N·m)	7.8 or more	
Annlinghia	Model	A5I series	MDDK	T5540	Engagin	g time (ms)	50 or less	
Applicable driver *2	No.	A5IIE series	MDDKT5540E	_	Releasir	ng time (ms) Note)4	15 or less	
	F	ame symbol	D-fr	ame	Exciting	current (DC) (A)	0.81±10 %	
Power suppl	/ capacit	y (kVA)	1.	.8	Releasir	ng voltage (DC) (V)	2 or more	
Rated outpu		(W)		00	Exciting	voltage (DC) (V)	24±2.4	
Rated torque		(N·m)	) 3.18					
Momentary Max. peak torque (N·m)		9.55		Permissible load (For details, refer to P.183)				
Rated currer	t	(A(rms))	6.6			Radial load P-direction (N)	980	
Max. current		(A(o-p))	28		During	Thrust load A-direction (N)	588	
		Without option	No lim	t Note)2	assembly	Thrust load B-direction (N)	686	
frequency (time	Uency (times/min) Note)1 DV0P4284 No limit Note)2		<b>D</b> .	Radial load P-direction (N)	490			
Rated rotation	Rated rotational speed (r/min)		3000		During			
Max. rotational speed (r/min)		5000		operation	Thrust load A, B-direction (N)	196		
Moment of inertia Without brake		2.03		<ul> <li>For details of Note 1 to Note 5, refer to P.182, P.183.</li> <li>Dimensions of Driver, refer to P.43.</li> <li>*1 Motor specifications:  *2 The product that the end of driver model designation has "E" is "Position control type".</li> </ul>				
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) 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	designation has "E" is "Position control type". Detail of model designation, refer to P.152.				
Resolution per single turn			1048576	131072				



#### Dimensions



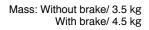
(a) Encoder connector (b) Motor/Brake connector

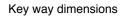
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan. 158

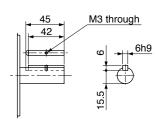
A5 Family **Motor Specifications** 

· Please contact us for more information

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







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\* Figures in [ ] represent the dimensions with brake.

**Motor Specifications** 

#### **Special Order Product**

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

# **Specifications**

			AC200 V		
Motor model		IP65	MSME152GC	MSME152SC M	
		IP67	-	-	
Annlinghia	Model	A5I series	MDDKT5540		
Applicable driver *2	No.	A5IIE series	MDDKT5540E	-	
diver	Fr	ame symbol	D-fra	ame	
Power supply	capacit	y (kVA)	2	.3	
Rated output		(W)	15	00	
Rated torque		(N·m)	4.77		
Momentary M	ax. peal	k torque (N·m)	14.3		
Rated current		(A(rms))	8.2		
Max. current (A(o-p))			3	5	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2		
		DV0P4284	No limit Note)2		
Rated rotation	nal spee	d (r/min)	3000		
Max. rotationa	Max. rotational speed (r/min)			5000	
Moment of inertia of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )		Without brake	2.3	2.84	
		With brake	3.17		
Recommender ratio of the loa			15 times or less		
Rotary encode	Rotary encoder specifications Note)5			17-bit Absolute	
F	lesolutio	n per single turn	1048576	131072	

- Please contact us for more information.
- 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 During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	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.

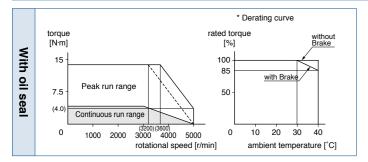
[Unit: mm]

· Dimensions of Driver, refer to P.43.

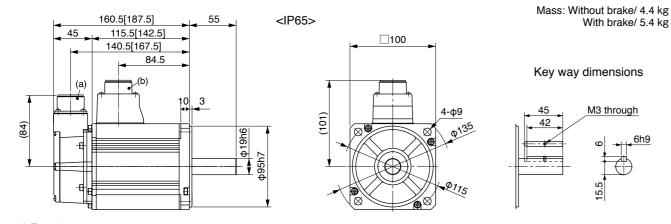
\*1 Motor specifications:

\*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



<sup>(</sup>a) Encoder connector

\* Figures in [ ] represent the dimensions with brake.

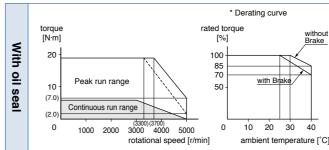
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

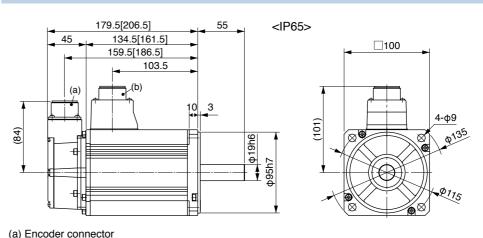
## 200 V MSME 2.0 kW [Low inertia, Middle capacity]

#### Specifications

					AC200 V			
			IP65		MSME202GC	MSME202		
Motor mod	101 *1		IP67		_	-		
		Model	A5I series	;	MEDK	T7364		
Applicable driver	*2	No.	A5IIE seri	es	MEDKT7364E	-		
unver		Fr	ame syml	loc	E-fr	E-frame		
Power sup	ply	capacit	у	(kVA)	3	.3		
Rated outp	out			(W)	20	00		
Rated torq	ue			(N·m)	6.37			
Momentar	y Ma	ax. peal	k torque	(N·m)	19.1			
Rated current			(/	A(rms))	11.3			
Max. current (A(o-p))			A(o-p))	4	8			
Regenerative brake frequency (times/min) Note)1		Without option		No limit Note)2				
		nin) Note)1	<sup>1</sup> DV0P4285		No limit Note)2			
Rated rota	Rated rotational speed (r/min)		(r/min)	3000				
Max. rotational speed (r/		(r/min)	5000					
Moment of inertia		Without brake		3.68				
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )			With brake		4.01			
Recommended moment of inertia ratio of the load and the rotor Note)3				15 times or less				
Rotary encoder specifi		fications	Note)5	20-bit Incremental	17-ł Abso			
Resolution per single t				e turn	1048576	1310		



#### Dimensions



(b) Motor/Brake connector

<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. 160

A5 Family **Motor Specifications** 

Please contact us for more information

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

• For details of Note 1 to Note 5, refer to P.182, P.183.

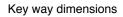
· Dimensions of Driver, refer to P.44.

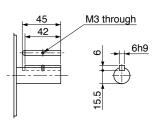
\*1 Motor specifications:

\*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.>)

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





\* Figures in [ ] represent the dimensions with brake.

<sup>(</sup>b) Motor/Brake connector

**Motor Specifications** 

#### **Special Order Product**

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

#### **Specifications**

			AC2	00 V	
Motor model		IP65	MSME302GC M	MSME302SC M	
		IP67	-	_	
Annlinghia	Model	A5I series	MFDK	TA390	
Applicable driver *2	No.	A5IIE series	MFDKTA390E	-	
unver	Fr	ame symbol	F-fra	ame	
Power suppl	y capacit	y (kVA)	4	.5	
Rated output	t	(W)	30	00	
Rated torque	9	(N·m)	9.	9.55	
Momentary I	Max. peal	k torque (N·m)	28.6		
Rated currer	nt	(A(rms))	18.1		
Max. current		(A(o-p))	7	7	
Regenerative	brake	Without option	No limit Note)2		
frequency (time	s/min) Note)1	DV0P4285×2	No limit Note)2		
Rated rotation	nal spee	d (r/min)	3000		
Max. rotatior	nal speed	(r/min)	50	5000	
Moment of ir	nertia	Without brake	6.50		
of rotor (×10	<sup>-4</sup> kg·m²)	With brake	6.85		
	Recommended moment of inertia ratio of the load and the rotor Note)3			s or less	
Rotary enco	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolutio		n per single turn	1048576	131072	

- Please contact us for more information.
- 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 During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

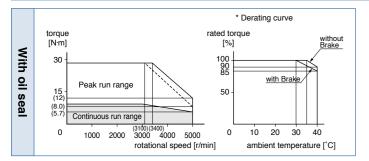
For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.45.

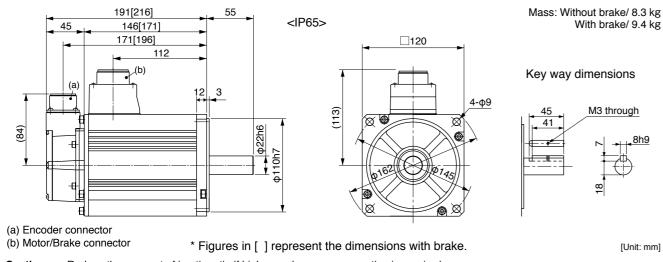
\*1 Motor specifications:

\*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.>)



#### **Dimensions**



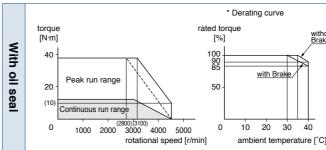
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

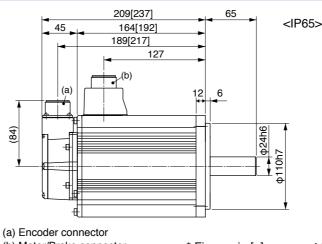
## 200 V MSME 4.0 kW [Low inertia, Middle capacity]

#### Specifications

-							
					AC2	00 V	
			IP65		MSME402GC M	MSME402	
Motor mod	101 *1		IP67		-	-	
		Model	A5I series		MFDKTB3A2		
Applicable driver	*2	No.	A5IIE serie	es	MFDKTB3A2E	_	
unver		Fr	ame symt	ool	F-fra	ame	
Power sup	ply	capacit	у	(kVA)	6	.0	
Rated outp	out			(W)	40	00	
Rated torq	lne			(N·m)	12.7		
Momentar	y Ma	ax. peal	k torque	(N·m)	38.2		
Rated curr	rent		(4	A(rms))	19	9.6	
Max. current		(A(o-p))		83			
Regenerati	ive b	orake	Without option		No limit Note)2		
frequency (t	imes/r	nin) Note)1	DV0P4285×2		No limit Note)2		
Rated rota	tion	al spee	d	(r/min)	3000		
Max. rotati	iona	l speed		(r/min)	4500		
Moment of	f ine	rtia	Without brake		12.9		
of rotor (×	10-4	kg∙m²)	With brake		14.2		
Recommended mome ratio of the load and the				ia Note)3	15 times	s or less	
Rotary encoder specif		ifications Note)5		20-bit Incremental	17-t Absol		
Resolution			n per singl	e turn	1048576	1310	



#### Dimensions



(b) Motor/Brake connector

<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.

A5 Family **Motor Specifications** 

Please contact us for more information

• 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 fri	ction torque (N·m)	16.2 or more						
Engagin	g time (ms)	110 or less						
Releasir	Releasing time (ms) Note)4							
Exciting	Exciting current (DC) (A)							
Releasir	Releasing voltage (DC) (V)							
Exciting	voltage (DC) (V)	24±2.4						
• Permi	Permissible load (For details, refer to P.183)							
_	Radial load P-direction (N)	980						
During assembly	Thrust load A-direction (N)	588						
assembly	Thrust load B-direction (N)	686						
During	Radial load P-direction (N)	784						
operation	Thrust load A, B-direction (N)	343						

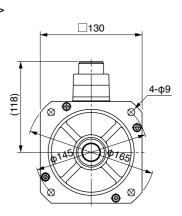
or details of Note 1 to Note 5, refer to P.182, P.183.

Dimensions of Driver, refer to P.45.

Motor specifications:

The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

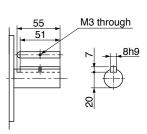
Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



\* Figures in [ ] represent the dimensions with brake.

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

Key way dimensions



A5 Family

**Motor Specifications** 

#### **Special Order Product**

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

## **Specifications**

					00 V
Motor model		IP65		MSME502GC	MSME502SC M
		IP67		-	-
Annlinghia	Model	A5I series		MFDK	TB3A2
Applicable driver *2	No.	A5IIE serie	s	MFDKTB3A2E	-
GIVEI	Fr	ame symb	ol	F-fra	ame
Power supply	capacit	у	(kVA)	7.	.5
Rated output			(W)	50	00
Rated torque			(N·m)	15	5.9
Momentary N	lax. peal	k torque	(N·m)	47.7	
Rated curren	t	(A	(rms))	24.0	
Max. current		(A	A(o-p))	1(	)2
Regenerative	brake	Without option		357	
frequency (times	s/min) Note)1	DV0P4285×2		No limit Note)2	
Rated rotatio	nal spee	d	(r/min)	3000	
Max. rotation	al speed		(r/min)	4500	
Moment of in	ertia	Without b	orake	17.4	
of rotor (×10	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With			18.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less		
Rotary encod	Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute
Resolution pe		n per single	e turn	1048576	131072

- Please contact us for more information.
- 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)

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

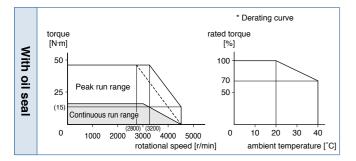
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.45.

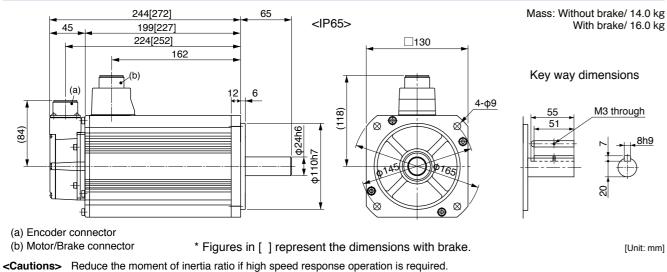
\*1 Motor specifications:

\*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



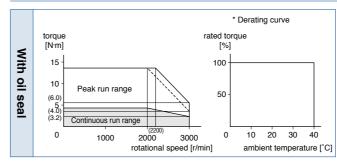
Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

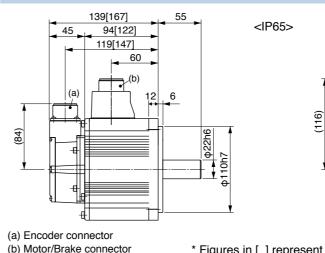
## 200 V MDME 1.0 kW [Middle inertia, Middle capacity]

#### Specifications

-							
		AC2		Brake specifications (For details, refer to (This brake will be released when it is energized		energized.	
Motor model		IP65	MDME102GC	MDME102SC M	Do not use this for braking the motor in moti		
*1		IP67			Static fri	Static friction torque (N·m)	
Annlinghia	Model	A5I series	MDDK	MDDKT3530 Engaging time (ms)		g time (ms)	80 or less
Applicable driver *2	No.	A5IIE series	MDDKT3530E	-	Releasir	ng time (ms) Note)4	70 or less
unver	Fr	ame symbol	D-fra	ame	Exciting	current (DC) (A)	0.59±10 %
Power supply	capacit	y (kVA)	1.	.8	Releasir	ng voltage (DC) (V)	2 or more
Rated output		(W)	10	00	Exciting	voltage (DC) (V)	24+2.4
Rated torque		(N·m)	4.77		Exoturig		- 1 1
Momentary N	lax. peal	k torque (N·m)	14.3		• Permissible load (For details, refer to P.183)		
Rated current	ed current (A(rms)) 5.7		.7		Radial load P-direction (N)	980	
Max. current		(A(o-p))	2	4	During	Thrust load A-direction (N)	588
Regenerative		ake Without option No limit Note		t Note)2	assembly	Thrust load B-direction (N)	686
frequency (times	/min) Note)1	DV0P4284	No limit Note)2				490
Rated rotation	nal spee	d (r/min)	2000 3000		During	Radial load P-direction (N)	
Max. rotation	al speed	(r/min)			operation	Thrust load A, B-direction (N)	196
Moment of in	ertia	Without brake	4.60 5.90		<ul> <li>For details of Note 1 to Note 5, refer to P.182, P.183</li> <li>Dimensions of Driver, refer to P.43.</li> </ul>		
of rotor (×10-	¹ kg∙m²)	With brake					
Recommended moment of inertia ratio of the load and the rotor Note)3		*1 Motor specifications: 10 times or less *2 The product that the end of driver		oduct that the end of driver m			
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	<ul> <li>designation has "E" is "Position control type".</li> <li>Detail of model designation, refer to P.152.</li> </ul>		<i></i>	
Resolution per single turn			1048576	131072			



#### Dimensions

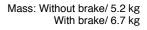


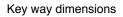
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

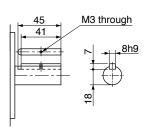
## A5 Family **Motor Specifications**

Please contact us for more information

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







**130** 4-Φ

\* Figures in [ ] represent the dimensions with brake.

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A5 Family

**Motor Specifications** 

#### **Special Order Product**

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

#### **Specifications**

			AC2	00 V	
		IP65	MDME152GC M	MDME152SC M	
Motor model *1		IP67	-	-	
Annlinghia	Model	A5I series	MDDK	T5540	
Applicable driver *2	No.	A5IIE series	MDDKT5540E	-	
unver	Fr	ame symbol	D-fr	ame	
Power supply	capacit	y (kVA)	2	.3	
Rated output		(W)	15	00	
Rated torque		(N·m)	7.	7.16	
Momentary M	ax. peal	k torque (N·m)	21.5		
Rated current		(A(rms))	9.4		
Max. current		(A(o-p))	4	40	
Regenerative I	orake	Without option	No limit Note)2		
frequency (times/	min) Note)1	DV0P4284	No limit Note)2		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	30	00	
Moment of ine	ertia	Without brake	6.70		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With brake	7.99		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encoder specifications		fications Note)5	20-bit Incremental	17-bit Absolute	
Resolutio		n per single turn	1048576	131072	

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

Please contact us for more information.

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

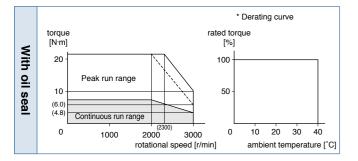
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· Dimensions of Driver, refer to P.43.

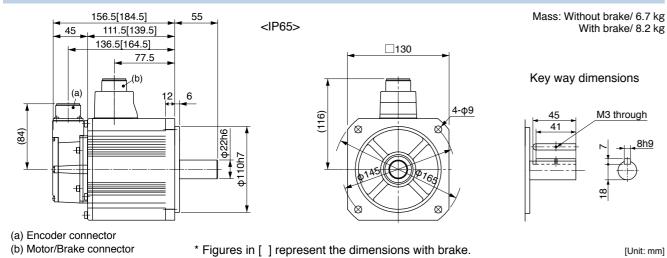
\*1 Motor specifications:

\*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**



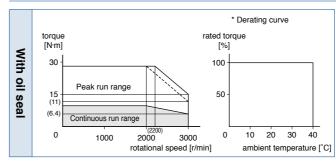
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

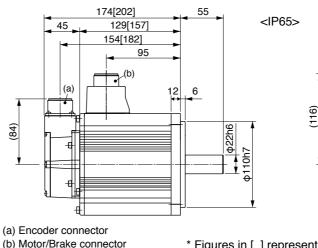
## 200 V MDME 2.0 kW [Middle inertia, Middle capacity]

#### Specifications

-							
					AC2	00 V	
Matanasadal			IP65		MDME202GC	MDME202	
Motor mod	101 *1		IP67		-	-	
		Model	A5I series		MEDK	T7364	
Applicable driver	*2	No.	A5IIE serie	s	MEDKT7364E	-	
unver		Fr	ame symb	ol	E-fra	ame	
Power sup	ply	capacit	y	(kVA)	3	.3	
Rated out	out			(W)	20	00	
Rated toro	lne			(N·m)	9.	55	
Momentar	y Ma	ax. peal	< torque	(N·m)	28.6		
Rated curr	rent		(A	(rms))	11		
Max. current (A(o-p))			A(o-p))	4	9		
Regenerat	ive b	orake	Without c	ption	No limit Note)2		
frequency (t	imes/r	nin) Note)1	DV0P4	285	No limi	t Note)2	
Rated rota	tion	al spee	d (	(r/min)	20	00	
Max. rotat	iona	l speed	(	(r/min)	30	00	
Moment of	f ine	rtia	Without k	orake	8.72		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )		With br	ake	10.0			
Recommended moment of inertia ratio of the load and the rotor Note)3				a Note)3	10 times	s or less	
Rotary encoder specif		fications	Note)5	20-bit Incremental	17-ł Abso		
Resolution per single turn					1048576	1310	



#### Dimensions



<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.

## A5 Family **Motor Specifications**

Please contact us for more information

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bit lute	
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• 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				

• **Permissible load** (For details, refer to P.183) Radial load P-direction (N) 980 During Thrust load A-direction (N) 588 assembly Thrust load B-direction (N) 686 Radial load P-direction (N) 490 During

• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.43.

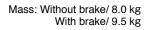
operation Thrust load A, B-direction (N)

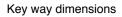
\*1 Motor specifications:

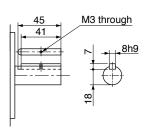
Exciting voltage (DC) (V)

\*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.>)







**130** 

\* Figures in [ ] represent the dimensions with brake.

166

[Unit: mm]

24±2.4

196

**Motor Specifications** 

#### **Special Order Product**

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

#### **Specifications**

			AC2	00 V	
		IP65	MDME302GC M	MDME302SC M	
Motor model *1		IP67	-	-	
Angliaghte	Model	A5I series	MFDK	MFDKTA390	
Applicable driver *2	No.	A5IIE series	MFDKTA390E	-	
anver	Fr	ame symbol	F-fra	ame	
Power supply	capacit	y (kVA)	4	.5	
Rated output		(W)	30	00	
Rated torque		(N·m)	14	1.3	
Momentary M	ax. peal	k torque (N·m)	43.0		
Rated current		(A(rms))	17.4		
Max. current		(A(o-p))	7	74	
Regenerative t	orake	Without option	Without option No limi		
frequency (times/	min) Note)1	DV0P4285×2	No limit Note)2		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	ertia	Without brake	12.9		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With brake	14.2		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per sing		1048576	131072	

- Please contact us for more information.
- 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 During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

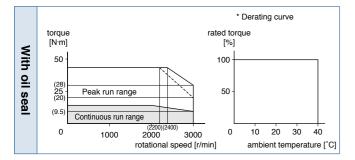
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.45.

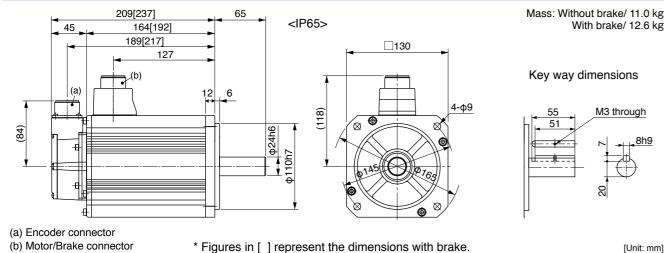
\*1 Motor specifications:

\*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**



<sup>\*</sup> Figures in [ ] represent the dimensions with brake.

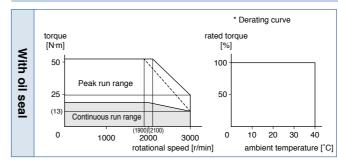
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

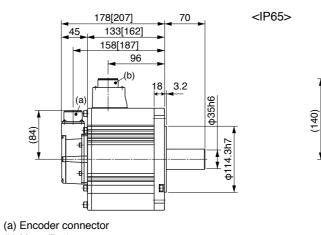
## 200 V MDME 4.0 kW [Middle inertia, Middle capacity]

#### Specifications

		AC2	00 V	Brake specifications (For details, refer to P.183 (This brake will be released when it is energized.)			
Motor model		IP65	MDME402GC M	MDME402SC M	(Do not use this for braking the motor in motio		
*1		IP67	-	-	Static fri	ction torque (N·m)	24.5 or more
Annlinghle	Model	A5I series	MFDK	TB3A2	Engagin	g time (ms)	80 or less
Applicable driver *2	No.	A5IE series	MFDKTB3A2E	_	Releasir	ng time (ms) Note)4	25 or less
	Fr	ame symbol	F-fra	ame	Exciting	current (DC) (A)	1.3±10 %
Power supply	capacity	· · · · ·	6	-	Releasir	ng voltage (DC) (V)	2 or more
Rated output		(W)	40		Exciting	voltage (DC) (V)	24±2.4
Rated torque		(N·m)	19	).1			
Momentary Max. peak torque (N·m)		57	<sup>7</sup> .3	Permissible load (For details, refer to P.183)			
Rated current		(A(rms))	21.0		During	Radial load P-direction (N)	1666
Max. current		(A(o-p))	8	89		Thrust load A-direction (N)	784
Regenerative b		Without option	No limi	t Note)2	assembly	Thrust load B-direction (N)	980
frequency (times/r	nin) Note)1	DV0P4285×2	No limi	t Note)2		( )	
Rated rotation	al spee	d (r/min)	20	00	During	Radial load P-direction (N)	784
Max. rotationa	l speed	(r/min)	30	00	operation	Thrust load A, B-direction (N)	343
Moment of ine	rtia	Without brake	37	<sup>7</sup> .6	For details of Note 1 to Note 5, refer to P.1		o P.182, P.183.
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		42	2.9		nensions of Driver, refer to P.45.		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model</li> </ul>			
Rotary encode	Rotary encoder specificationsNote)520-bit17-bitdesignation has "E" is "Position control iIncrementalAbsoluteDetail of model designation, refer to P.1		• •				
Resolution per single turn 1048576 131072							



#### Dimensions



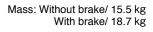
(b) Motor/Brake connector

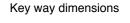
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

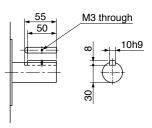
## A5 Family **Motor Specifications**

Please contact us for more information

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







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\* Figures in [ ] represent the dimensions with brake.

Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

**Motor Specifications** 

#### Special Order Product

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

Please contact us for more information.

#### **Specifications**

				AC2	00 V
Motor model		IP65		MDME502GC M MDME502SC	
*1		IP67		-	-
Appliaghla	Model A5I series		s	MFDK	TB3A2
Applicable driver *2	No.	A5IIE ser	ries	MFDKTB3A2E	-
diver	Fi	ame sym	bol	F-fra	ame
Power supply	capacit	у	(kVA)	7.	.5
Rated output			(W)	50	00
Rated torque			(N·m)	23	3.9
Momentary Ma	ax. pea	k torque	(N·m)	71.6	
Rated current		(	A(rms))	25.9	
Max. current			(A(o-p))	110	
Regenerative b	orake	Without	option	12	20
frequency (times/r	nin) Note)1	DV0P4	285×2	No limit Note)2	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia	Without	t brake	48.0	
of rotor (×10 <sup>-4</sup>	kg∙m²)	With t	orake	53.3	
	Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn				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.
(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 During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

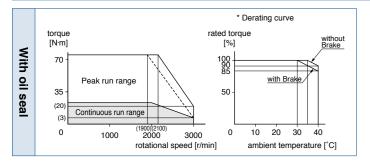
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.45.

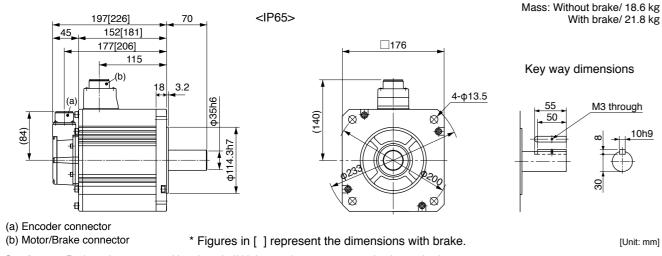
\*1 Motor specifications:

\*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**



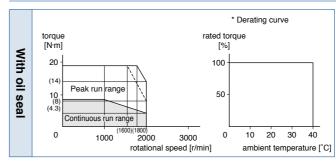
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

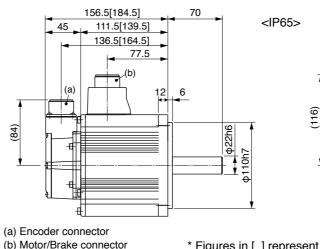
## 200 V MGME 0.9 kW [Middle inertia, Middle capacity]

#### Specifications

			AC2	00 V		specifications (For details		
Matar	IP65		MGME092GC M	MGME092SC M	(This brake will be released when it is energized.) Do not use this for braking the motor in motion.			
Motor model *1	15.45				Static fri	Static friction torque (N·m)		
	Model	A5I series	MDDK	T5540	Engagin	g time (ms)	100 or less	
Applicable driver *2	No.	A5IIE series	MDDKT5540E	-	Releasir	Releasing time (ms) Note)4		
	Fr	ame symbol	D-fra	ame	Exciting	current (DC) (A)	0.79±10 %	
Power supply	capacit	y (kVA)	1.	.8	Releasir	ng voltage (DC) (V)	2 or more	
Rated output		(W)	90		Exciting	voltage (DC) (V)	24±2.4	
Rated torque		(N·m)						
Momentary Ma	ax. peal	ctorque (N·m)	19.3		• Permissible load (For details, refer to P.183)			
Rated current		(A(rms))	7.6			Radial load P-direction (N)	980	
Max. current		(A(o-p))	2	4	During	Thrust load A-direction (N)	588	
Regenerative b	orake	Without option	No limit Note)2		assembly	Thrust load B-direction (N)	686	
frequency (times/r	nin) Note)1	DV0P4284	No limit Note)2					
Rated rotation	al spee	d (r/min)	1000		During	Radial load P-direction (N)	686	
Max. rotationa	l speed	(r/min)	2000		operation	Thrust load A, B-direction (N)	196	
Moment of ine	rtia	Without brake	6.70		For details of Note 1 to Note 5, refer to P.182, P.183.			
of rotor (×10 <sup>-4</sup>	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		7.99		Dimensions of Driver, refer to P.43.			
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		*1 Motor specifications: *2 The product that the end of driver model				
Rotary encoder specifications Note)5		20-bit Incremental	Detail of model designation refer to P1			• •		
R	esolutio	n per single turn	1048576	131072				



#### Dimensions

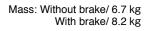


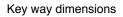
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

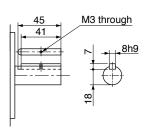
# A5 Family **Motor Specifications**

· Please contact us for more information

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







**130** 4-Φ

\* Figures in [ ] represent the dimensions with brake.

#### **Special Order Product**

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

## **Specifications**

**Motor Specifications** 

				AC2	00 V	
Motor model		IP65		MGME202GC	MGME202SC M	
*1		IP67		-	-	
Annlinghla	Model	A5I serie	s	MFDK	TA390	
Applicable driver *2	No.	A5IIE ser	ries	MFDKTA390E	-	
diver	Fr	ame sym	bol	F-fra	ame	
Power supply	capacit	y	(kVA)	3	.8	
Rated output			(W)	20	00	
Rated torque			(N·m)	19	9.1	
Momentary M	ax. peal	< torque	(N·m)	47.7		
Rated current		(	A(rms))	17.0		
Max. current			(A(o-p))	60		
Regenerative	orake	Without option		No limit Note)2		
frequency (times	min) Note)1	DV0P4285×2		No limit Note)2		
Rated rotation	nal spee	d	(r/min)	1000		
Max. rotationa	al speed		(r/min)	2000		
Moment of ine	ertia	Without brake		30.3		
of rotor (×10 <sup>-2</sup>	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )		orake	35.6		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less			
Rotary encoder specifications Note)			Note)5	20-bit Incremental	17-bit Absolute	
F	lesolutio	n per sing	le turn	1048576	131072	

- · Please contact us for more information.
- 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 During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	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.

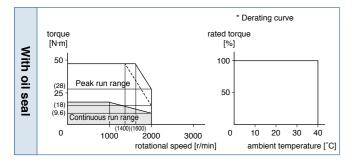
10h9

· Dimensions of Driver, refer to P.45.

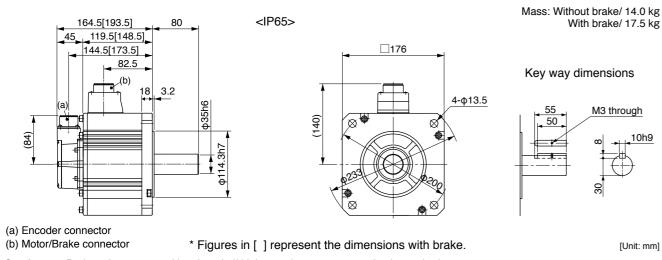
\*1 Motor specifications:

\*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



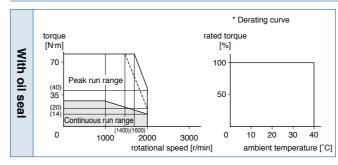
Reduce the moment of inertia ratio if high speed response operation is required. <Cautions> Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

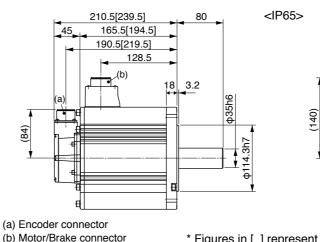
## 200 V MGME 3.0 kW [Middle inertia, Middle capacity]

#### Specifications

•							
					AC2	00 V	
			IP65		MGME302GC M	MGME302	
Motor mod	101 *1		IP67		-	-	
		Model	A5I series	6	MFDK	TB3A2	
Applicable driver	*2	No.	A5IIE seri	es	MFDKTB3A2E	-	
unver		Fr	rame syml	bol	F-fr	ame	
Power supply capacity (kVA)					4	.5	
Rated output (W)					30	00	
Rated torq	lne			(N·m)	28.7		
Momentar	y Ma	ax. peal	k torque	(N·m)	71.7		
Rated curr	rent		(/	A(rms))	22.6		
Max. curre	ent		(	A(o-p))	80		
Regenerati	ive b	orake	Without option		No limit Note)2		
frequency (t					No limit Note)2		
Rated rota	tion	al spee	d	(r/min)	10	00	
Max. rotati	iona	l speed		(r/min)	2000		
Moment of	f ine	rtia	Without brake		48.4		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )			With brake		53.7		
Recommended momen ratio of the load and th				tia Note)3	10 times	s or less	
Rotary encoder speci			ifications Note)5		20-bit Incremental	17-ł Abso	
	R	esolutio	n per sing	le turn	1048576	1310	



#### Dimensions



<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.

## A5 Family **Motor Specifications**

Please contact us for more information

2SC M	
bit lute	
)72	

• 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 fri	ction torque (N·m)	58.8 or more				
Engagin	g time (ms)	150 or less				
Releasir	ng time (ms) Note)4	50 or less				
Exciting current (DC) (A) 1.4±10 %						
Releasir	ng voltage (DC) (V)	2 or more				
Exciting	voltage (DC) (V)	24±2.4				
• Permi	ssible load (For details, ref	er to P.183)				
	Radial load P-direction (N)	2058				
During assembly	Thrust load A-direction (N)	980				
	Thrust load B-direction (N)	1176				
During Radial load P-direction (N) 1470						

• For details of Note 1 to Note 5, refer to P.182, P.183.

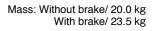
· Dimensions of Driver, refer to P.45.

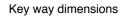
operation Thrust load A, B-direction (N)

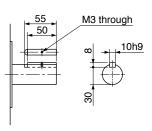
\*1 Motor specifications:

\*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.>)







**176** 4-φ13.5 هØ

\* Figures in [ ] represent the dimensions with brake.

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A5 Family

490

**Motor Specifications** 

#### Special Order Product

# 200 V MHMJ 200 W [High inertia, Small capacity]

# **Specifications**

						00 V	
Motor mod	Motor model		IP65		MHMJ022G1	MHMJ022S1	
	*1		IP67		-	-	
Annlinghia		Model	A5I series	3	MADK	T1507	
Applicable driver	*2	No.	A5IIE seri	es	MADKT1507E	-	
diver		Fr	ame syml	bol	A-fra	ame	
Power sup	ply c	capacity	y	(kVA)	0	.5	
Rated outp	out			(W)	20	00	
Rated torq	ue			(N·m)	0.	64	
Momentary	/ Ma	ıx. peal	< torque	(N·m)	1.91		
Rated curre	ent		(/	A(rms))	1.6		
Max. curre	nt		(	A(o-p))	6.9		
Regenerativ	ve bi	rake	Without option		No limit Note)2		
frequency (ti	mes/m	nin) Note)1	DV0P4283		No limit Note)2		
Rated rotat	tiona	al spee	d	(r/min)	30	00	
Max. rotati	onal	speed		(r/min)	50	00	
Moment of	iner	tia	Without brake		0.42		
of rotor (×1	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )			rake	0.45		
Recommended moment of inertia ratio of the load and the rotor Note)3					30 times or less		
Rotary encoder specifica			fications	Note)5	20-bit Incremental	17-bit Absolute	
Resolution p			n per sing	le turn	1048576	131072	

- Please contact us for more information.
- 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 During operation	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

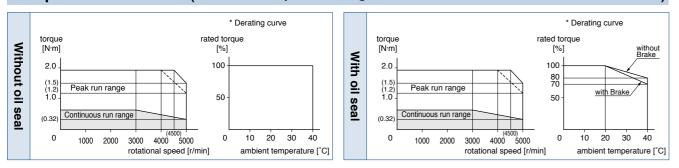
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.42.

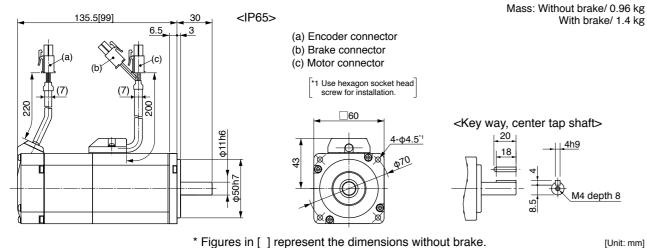
\*1 Motor specifications:

\*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.>)



#### **Dimensions**



\* 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. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

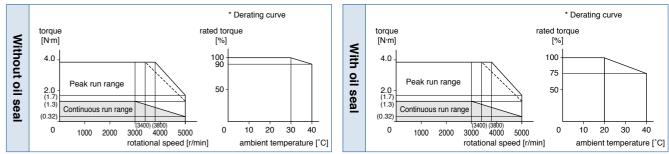
#### **Special Order Product**

## 200 V MHMJ 400 W [High inertia, Small capacity]

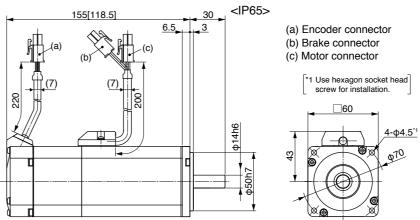
#### Specifications

Specifica	alion	5					
			AC200 V		• Brake specifications (For details, refer to P.183)		
IP65		MHMJ042G1 MHMJ042S1		(This brake will be released when it is energized. Do not use this for braking the motor in motion. )			
Motor model *1					Static friction torque (N·m)		1.27 or more
	Model	A5I series	MBDK	T2510	Engagin	g time (ms)	50 or less
Applicable driver *2	No.	A5IIE series	MBDKT2510E	-	Releasir	ng time (ms) Note)4	15 or less
unver	Fi	ame symbol	B-fra	ame	Exciting	current (DC) (A)	0.36
Power supply	capacit	y (kVA)	0.	.9	Releasir	ig voltage (DC) (V)	1 or more
Rated output		(W)	40	00	Excitina	voltage (DC) (V)	24±1.2
Rated torque		(N·m)	1.3		g		
Momentary M	ax. pea	k torque (N·m)	3.8		• Permissible load (For details, refer to P.183)		
Rated current		(A(rms))	2.6			Radial load P-direction (N)	392
Max. current		(A(o-p))	11	.0	During	Thrust load A-direction (N)	147
Regenerative t		Without option	No limit Note)2		assembly	Thrust load B-direction (N)	196
frequency (times/	min) Note)1	DV0P4283	No limit Note)2		During operation	Radial load P-direction (N)	245
Rated rotation	al spee	d (r/min)	3000				98
Max. rotationa	l speed	(r/min)	5000			Thrust load A, B-direction (N)	
Moment of ine	rtia	Without brake	0.67		For details of Note 1 to Note 5, refer to P.182, P.183.		
of rotor (×10 <sup>-4</sup>	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		0.70		• Dimensions of Driver, refer to P.42.		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		<ul> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model designation has "E" is "Position control type".</li> <li>Detail of model designation, refer to P.152.</li> </ul>			
Rotary encoder specifications Note)5		20-bit 17-bit Incremental Absolute					
R	esolutio	n per single turn	1048576	131072			

#### Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>) \* Derating curv \* Derating curve



#### Dimensions



<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.

A5 Family **Motor Specifications** 

Please contact us for more information

Mass: Without brake/ 1.4 kg With brake/ 1.8 kg

[Unit: mm]

M5 depth 10

<Key way, center tap shaft>

\* Figures in [] represent the dimensions without brake.

**Motor Specifications** 

#### Special Order Product

# 200 V MHMJ 750 W [High inertia, Small capacity]

#### **Specifications**

				AC2	00 V	
		IP65		MHMJ082G1	MHMJ082S1	
Motor model *1		IP67		-	-	
A secolities a la la	Model	A5I serie	s	MCDK	T3520	
Applicable driver *2	No.	A5IIE ser	ries	MCDKT3520E	-	
unver	Fi	rame sym	bol	C-fr	ame	
Power supply	capacit	у	(kVA)	1	.3	
Rated output			(W)	75	50	
Rated torque			(N·m)	2.4		
Momentary M	ax. pea	k torque	(N·m)	7.1		
Rated current		(	A(rms))	4.0		
Max. current			(A(o-p))	17.0		
Regenerative	brake	Without option		No limit Note)2		
frequency (times	/min) Note)1	DV0P4283		No limit Note)2		
Rated rotation	nal spee	d	(r/min)	3000		
Max. rotationa	al speed		(r/min)	45	4500	
Moment of ine	ertia	Without brake		1.51		
of rotor (×10-	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )			1.61		
	Recommended moment of inertia ratio of the load and the rotor Note)3			20 times or less		
Rotary encod	Rotary encoder specifications		Note)5	20-bit Incremental	17-bit Absolute	
Resolutio		n per sing	le turn	1048576	131072	

- Please contact us for more information.
- 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)

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

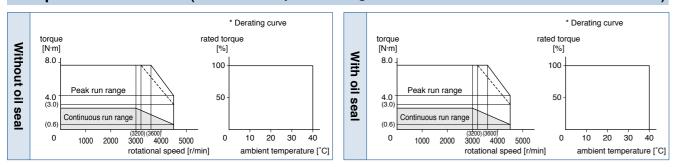
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.43.

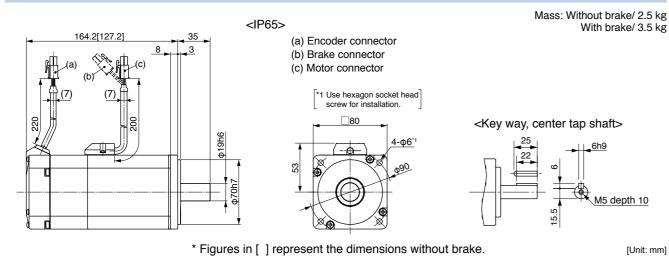
\*1 Motor specifications:

\*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**



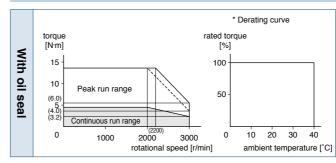
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

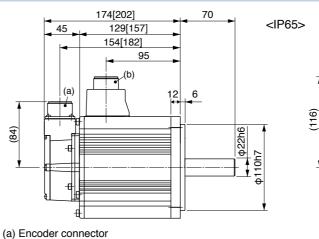
## 200 V MHME 1.0 kW [High inertia, Middle capacity]

#### Specifications

			AC2	00 V		
Motor model		IP65			MHME102GC M	MHME102
wotor mod	101 *1		IP67		-	-
		Model	A5I series		MDDKT3530	
Applicable driver	*2	No.	A5IIE series		MDDKT3530E	-
unver		Fr	rame syml	ool	D-fr	ame
Power sup	ply	capacit	у	(kVA)	1	.8
Rated out	out			(W)	10	00
Rated toro	lne			(N·m)	4.77	
Momentar	y Ma	ax. peal	k torque	(N·m)	14.3	
Rated curr	rent		(/	A(rms))	5.7	
Max. curre	Max. current (A(o-p))			A(o-p))	2	4
Regenerat	ive b	orake	Without option		83	
frequency (i	imes/r	min) Note)1	DV0P4284		No limit Note)2	
Rated rota	tion	al spee	d	(r/min)	20	00
Max. rotat	iona	l speed		(r/min)	3000	
Moment of	f ine	rtia	Without brake		24.7	
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )		With brake		26.0		
Recommended mome ratio of the load and the				t <b>ia</b> Note)3	5 times	or less
Rotary end	code	er speci	fications	Note)5	20-bit Incremental	17-t Abso
	esolutio	n per singl	e turn	1048576	1310	



#### Dimensions



(b) Motor/Brake connector

<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.

A5 Family **Motor Specifications** 

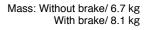
Please contact us for more information

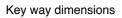
2SC M	
bit lute	
)72	

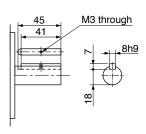
	specifications (For details	. ,		
	ake will be released when it is e use this for braking the motor ir			
Static fri	ction torque (N·m)	4.9 or more		
Engagin	g time (ms)	80 or less		
Releasir	ng time (ms) Note)4	70 or less		
Exciting	current (DC) (A)	0.59±10 %		
Releasir	ig voltage (DC) (V)	2 or more		
Exciting	Exciting voltage (DC) (V)			
• Permi	ssible load (For details, refe	er to P.183)		
<b>.</b> .	Radial load P-direction (N)	980		
During assembly	Thrust load A-direction (N)	588		
accombry	Thrust load B-direction (N)	686		
During	Radial load P-direction (N)	490		
operation	Thrust load A, B-direction (N)	196		
<ul> <li>For details of Note 1 to Note 5, refer to P.182, P.183.</li> <li>Dimensions of Driver, refer to P.43.</li> <li>*1 Motor specifications:  *2 The product that the end of driver model</li> </ul>				

\*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.>)







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\* Figures in [ ] represent the dimensions with brake.

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A5 Family

**Motor Specifications** 

#### **Special Order Product**

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

#### **Specifications**

				AC200 V		
	IP65		MHME152GC	MHME152SC M		
Motor model *1		IP67		-	-	
A	Model	A5I series	6	MDDK	T5540	
Applicable driver *2	No.	A5IIE seri	es	MDDKT5540E	-	
anver	Fr	ame syml	bol	D-fra	ame	
Power supply	capacit	у	(kVA)	2	.3	
Rated output			(W)	15	00	
Rated torque			(N·m)	7.	16	
Momentary M	ax. peal	k torque	(N·m)	21.5		
Rated current		(/	A(rms))	9.4		
Max. current		(	A(o-p))	40		
Regenerative b	orake	Without option		22		
frequency (times/	min) Note)1	DV0P4284		130		
Rated rotation	al spee	d	(r/min)	2000		
Max. rotationa	l speed		(r/min)	3000		
Moment of ine	rtia	Without	brake	37.1		
of rotor (×10 <sup>-4</sup>	kg∙m²)	With b	rake	38.4		
	Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less		
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
Resolutio		n per singl	le turn	1048576	131072	

- Please contact us for more information.
- 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.

1 0	/
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)

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

• For details of Note 1 to Note 5, refer to P.182, P.183.

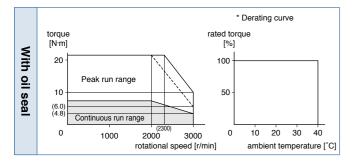
8h9

· Dimensions of Driver, refer to P.43.

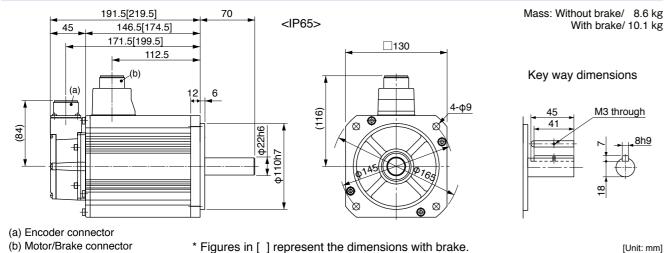
\*1 Motor specifications:

\*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**



(b) Motor/Brake connector

\* Figures in [ ] represent the dimensions with brake.

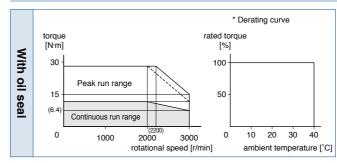
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

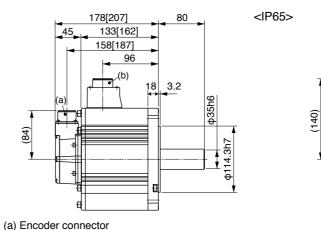
## 200 V MHME 2.0 kW [High inertia, Middle capacity]

#### Specifications

				00 V	• Brake	specifications (For details	s refer to P 183)
		AC2	• Brake specifications (For detail (This brake will be released when it is				
Motor model	IP65		MHME202GC M	MHME202SC M	(Do not use this for braking the motor in motion.)		
*1		IP67	-	-	Static fri	Static friction torque (N·m)	
	Model	A5I series	MEDK	T7364	Engagin	g time (ms)	80 or less
Applicable driver *2	No.	A5IIE series	MEDKT7364E	-	Releasir	ng time (ms) Note)4	25 or less
unver	Fr	ame symbol	E-fra	ame	Exciting	current (DC) (A)	1.3±10 %
Power supply	capacit	y (kVA)	3.	.3	Releasir	ng voltage (DC) (V)	2 or more
Rated output		(W)	2000		Exciting	voltage (DC) (V)	24±2.4
Rated torque		(N·m)	9.	9.55		0 ( )( )	
Momentary Ma	ax. peal	k torque (N·m)	28.6		Permissible load (For details, refer to P.183)		
Rated current		(A(rms))	11	.1		Radial load P-direction (N)	1666
Max. current		(A(o-p))	4	47		Thrust load A-direction (N)	784
Regenerative b	rake	Without option	4	5	assembly	Thrust load B-direction (N)	980
frequency (times/r	nin) Note)1	DV0P4285	14	12		( )	
Rated rotation	al spee	d (r/min)	20	00	During	Radial load P-direction (N)	784
Max. rotationa	l speed	(r/min)	30	00	operation	Thrust load A, B-direction (N)	343
Moment of ine	rtia	Without brake	57.8		For details of Note 1 to Note 5, refer to P.182, P.183		
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )     With brake       Recommended moment of inertia ratio of the load and the rotor     Note)3       Rotary encoder specifications     Note)5		59.6		<ul> <li>Dimensions of Driver, refer to P.43.</li> <li>*1 Motor specifications: </li> <li>*2 The product that the end of driver model</li> </ul>			
		5 times or less					
		20-bit Incremental	17-bit Absolute	designation has "E" is "Position control type". Detail of model designation, refer to P.152.			
Resolution per single turn			1048576				131072



#### Dimensions



(b) Motor/Brake connector

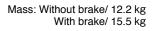
\* Figures in [ ] represent the dimensions with brake.

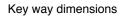
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

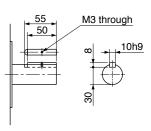
A5 Family **Motor Specifications** 

· Please contact us for more information

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







[Unit: mm]

**176** 4-φ13.5 ¢ Ø

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**Motor Specifications** 

#### **Special Order Product**

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

#### **Specifications**

			AC2	00 V	
		IP65	MHME302GC M	MHME302SC M	
Motor model *1		IP67	-	-	
A	Model	A5I series	MFDK	TA390	
Applicable driver *2	No.	A5IIE series	MFDKTA390E	-	
diver	Fr	ame symbol	F-fra	ame	
Power supply	capacit	y (kVA)	4	.5	
Rated output		(W)	30	00	
Rated torque		(N·m)	14	14.3	
Momentary M	ax. peal	k torque (N·m)	43.0		
Rated current		(A(rms))	16.0		
Max. current		(A(o-p))	68		
Regenerative I	orake	Without option	19		
frequency (times/	min) Note)1	DV0P4285×2	142		
Rated rotation	nal spee	d (r/min)	2000		
Max. rotationa	al speed	(r/min)	30	00	
Moment of ine	ertia	Without brake	90	90.5	
of rotor (×10 <sup>-4</sup>	of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> )		92	2.1	
	Recommended moment of inertia ratio of the load and the rotor Note)3			or less	
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute	
Resolutio		n per single turn	1048576	131072	

- Please contact us for more information.
- 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
accontroly	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

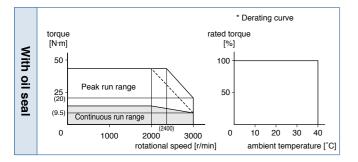
• For details of Note 1 to Note 5, refer to P.182, P.183.

· Dimensions of Driver, refer to P.45.

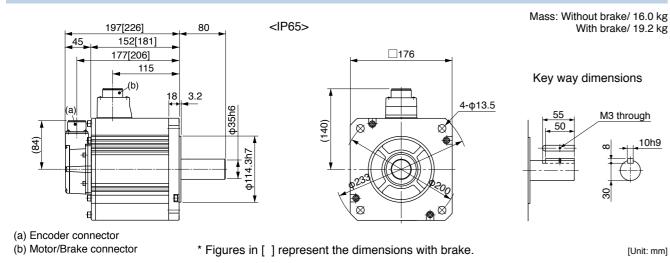
\*1 Motor specifications:

\*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



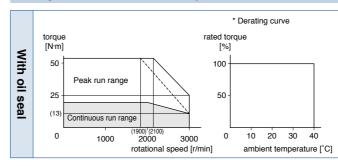
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

#### **Special Order Product**

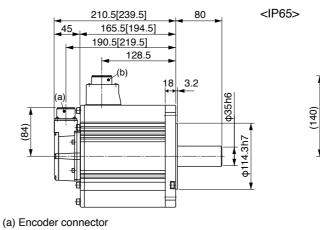
## 200 V MHME 4.0 kW [High inertia, Middle capacity]

#### Specifications

-									
			AC2	00 V		specifications (For details ake will be released when it is			
IP65		MHME402GC	MHME402SC M	(Do not use this for braking the motor in motion. )					
*1		IP67			Static fri	ction torque (N·m)	24.5 or more		
Annlinghle	Model	A5I series	MFDK	TB3A2	Engagin	g time (ms)	80 or less		
Applicable driver *2	No.	A5IE series	MFDKTB3A2E	-	Releasir	ng time (ms) Note)4	25 or less		
	Fr	ame symbol	F-fra	ame	Exciting	current (DC) (A)	1.3±10 %		
Power supply	capacit	y (kVA)	6.	.0	Releasir	ng voltage (DC) (V)	2 or more		
Rated output		(W)	40	00	Exciting	voltage (DC) (V)	24±2.4		
Rated torque		(N·m)	19.1		<b>J</b>				
Momentary Ma	ax. peal	k torque (N·m)	57.3		<ul> <li>Permi</li> </ul>	• Permissible load (For details, refer to P.183)			
Rated current		(A(rms))	21.0			Radial load P-direction (N)	1666		
Max. current		(A(o-p))	89		During	Thrust load A-direction (N)	784		
Regenerative b		Without option	1	7	assembly	Thrust load B-direction (N)	980		
frequency (times/r	nin) Note)1	DV0P4285×2	12	25		Radial load P-direction (N)	784		
Rated rotation	al spee	d (r/min)	2000		During	( )			
Max. rotationa	l speed	(r/min)	30	00	operation	Thrust load A, B-direction (N)	343		
Moment of ine	rtia	Without brake	11	2	• For details of Note 1 to Note 5, refer to P.182, P.183.				
of rotor (×10 <sup>-4</sup> kg·m <sup>2</sup> ) With brake		With brake	11	4	• Dimensions of Driver, refer to P.45.				
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		*2 The pr	*1 Motor specifications: *2 The product that the end of driver model				
Rotary encoder specifications Note)		fications Note)5	20-bit 17-bit Incremental Absolute		designation has "E" is "Position control type". Detail of model designation, refer to P.152.				
R	esolutio	n per single turn	1048576	131072					



#### Dimensions



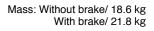
(b) Motor/Brake connector

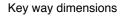
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

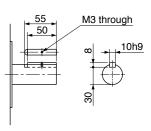
A5 Family **Motor Specifications** 

· Please contact us for more information

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







**176** 4-φ13.5 ¢ Ø

\* Figures in [ ] represent the dimensions with brake.

**Motor Specifications** 

**Special Order Product** 

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

#### **Specifications**

			AC200 V						
Motor model		IP65		MHME502GC	MHME502SC M				
Motor model *1		IP67							
A	Model	A5I series		MFDK	TB3A2				
Applicable driver *2	No.	A5IE series		MFDKTB3A2E	-				
diver	Fr	ame symbol		F-fra	ame				
Power supply	capacit	y (kV/	A)	7.	.5				
Rated output		(V	V)	50	00				
Rated torque		(N·r	n)	23	3.9				
Momentary M	ax. peal	k torque (N·r	n)	71.6					
Rated current		(A(rms	;))	25.9					
Max. current		(A(o-p	))	110					
Regenerative b	orake	Without optio	n	10					
frequency (times/	min) Note)1	DV0P4285×2	2	76					
Rated rotation	al spee	d (r/mi	n)	20	00				
Max. rotationa	l speed	(r/mi	n)	30	00				
Moment of ine	ertia	Without brake	Э	16	62				
of rotor (×10 <sup>-4</sup>	kg∙m²)	With brake	16	64					
Recommende ratio of the loa			5 times or less						
Rotary encode	Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute				
R	esolutio	n per single turr	1048576 131072						

· Please contact us for more information.

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

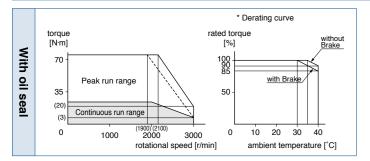
For details of Note 1 to Note 5, refer to P.182, P.183.

Dimensions of Driver, refer to P.45.

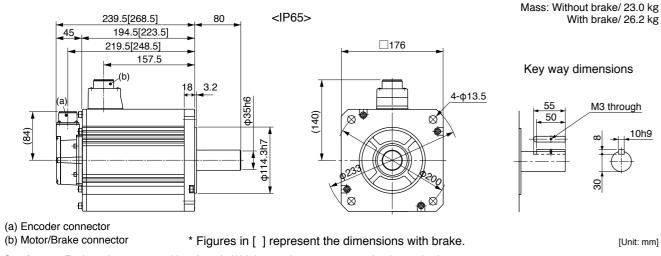
\*1 Motor specifications:

\*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**



<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**

lte	em	Conditions					
Ambient ter	nperature *1	0 °C to 40 °C (free from freezing)					
Ambient hu	midity	20 % to 85 % RH (free from condensation)					
Storage ten	nperature *2	-20 °C to 65 °C (Max.temperature guarantee: 80 °C for 72 hours free from condensation <sup>*5</sup> )					
Storage hui	midity	20 % to 85 % RH (free from condensation <sup>*5</sup> )					
Vibration Motor only 5.0 kW or less, MGME 3.0 kW or less: Lower than 49 m/s <sup>2</sup> (5 G) at running, 24.5 m/s <sup>2</sup> (2.5 G) at 6.0 kW or more, MGME 4.5 kW or more: Lower than 24.5 m/s <sup>2</sup> (2.5 G) at running, 24.5 m/s <sup>2</sup> (2.5 G)							
Impact	Motor only	Lower than 98 m/s <sup>2</sup> (10 G)					
		MSMD, MHMD, MSMJ, MHMJ (except rotating portion of output shaft and readwire end.)					
Enclosure rating (Motor	IP65 *3	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)					
only)	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)					
Alti	tude	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.
- tion where water proof performance is required such as continuous wash-down operation.

#### <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]

- with deceleration without load.
- rotor moment of inertia.
- proportion to the square of (running speed/rated speed).
- Power supply voltage is AC115 V (at 100 V of the main voltage). voltage/115) relative to the value in the table.
- 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.

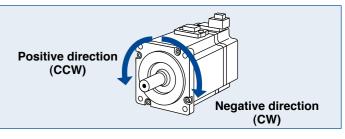
- rotor moment of inertia.
- proportion to the square of (running speed/rated speed).
- Power supply voltage is AC230 V (at 200 V of the main voltage). voltage/230) relative to the value in the table.
- vertical feeding, consult us or a dealer.

## A5 Family Motor Specification Description

\*3 These motors conform to the test conditions specified in EN standards (EN60529, EN60034-5). Do not use these motors in applica-

\*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.



Regenerative brake frequency represents the frequency of the motor's stops from the rated speed

If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/

• When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse

If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply

· When regeneration occurs continuously such cases as running speed frequently changes or

• If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/

· When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse

If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply

· When regeneration occurs continuously such cases as running speed frequently changes or

## A5 Family **Motor Specification** Description

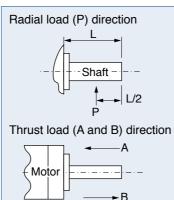
#### [At AC400 V of power voltage]

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 rightangle 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 × 10 <sup>-4</sup> kg·m <sup>2</sup>	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 × 10 <sup>3</sup> J	Permissible angular acceleration rad/s <sup>2</sup>		
	50 W, 100 W	0.29 or more	0.002	35 or less	20 or less	0.3	1 V or more	39.2	4.9			
MSMD	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36	24 ±1.2	137	44.1	30000		
	750 W	2.45 or more	0.075	70 or less	20 or less	0.42	24 ±1.2	196	147			
	50 W, 100 W	0.29 or more	0.002	35 or less	20 or less	0.3	1 V or more	39.2	4.9			
	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36	24 ±1.2	137	44.1	30000		
	750 W(200 V)	2.45 or more	0.075	70 or less	20 or less	0.42	24 ±1.2	196	147			
	750 W(400 V)	2.5 or more				0.7						
MSME	1.0 kW, 1.5 kW, 2.0 kW	7.8 or more	0.33	50 or less	15 or less (100)	0.81	2 V or more	392	490	10000		
	3.0 kW	11.8 or more		80 or less			24 ±2.4			10000		
	4.0 kW, 5.0 kW	16.2 or more	1.35	110 or less	50 or less (130)	0.9		1470	2200			
	400 W(400 V), 600 W(400 V)	2.5 or more		50 or less	15 or less	0.7		392	490			
	1.0 kW	4.9 or more	1.35	80 or less	70 or less (200)	0.59			588	780	10000	
	1.5 kW, 2.0 kW	13.7 or more		100 or less	50 or less	0.79	2 V or more	1176	1500			
MDME	3.0 kW	16.2 or more		110 or less	(130)	0.9	24 ±2.4	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		
	1.5 kW	7.8 or more	4.7	80 or less	35 or less	0.83	2 V or more	1372	2900			
MFME	2.5 kW	21.6 or more	8.75	150 or less	100 or less	0.75		21 +2 1	24 +2 4	24 +2 4	24 ±2.4 1470	1500
	4.5 kW	31.4 or more	0.70	100 01 1000		0.70	24 IZ.4	1470	2200			
	0.9 kW	13.7 or more	1.35	100 or less	50 or less (130)	0.79		1176	1500	10000		
MGME	2.0 kW	24.5 or more		80 or less	25 or less (200)	1.3	2 V or more			5440		
	3.0 kW	58.8 or more	4.7	150 or less	50 or less (130)	1.4	24 ±2.4	1372	2900			
	4.5 kW, 6.0 kW				50 or less					5000		
MHMD MSMJ	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36	1 V or more	137	44.1	30000		
MHMJ	750 W	2.45 or more	0.075	70 or less	20 or less	0.42	24 ±1.2	196	147			
	1.0 kW	4.9 or more	1.25	80 or less	70 or less (200)	0.59		588	780	10000		
MHME	1.5 kW	13.7 or more	1.35	100 or less	50 or less (130)	0.79	2 V or more	1176	1500	10000		
	2.0 kW~5.0 kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3	24 ±2.4	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.)

A5 Family

Series

tion

## **Options**

## **Cable part No. Designation**

Enco	der C	able	e · Fo	or ava	ilable o	ptiona	al items	s, plea	se refe	er to P.	.188	B to P	.190.								
1	2	3	4	5	6	7	8	9	10	11		12									
M	F	E	<b>C</b>		0	0	5	0	M	1		D									
	Г		C	A		U	5			J	1										
									Т	Т		T_									
Ту	/pe cla	ssifica	tion			_															
	MF	ECA:	Enco	ler cal	ole																7
		Ca	ble len	ath —																 ٦	
			0030	<u>J</u> .	3 m	7															
			0050		5 m	-															
			0100		10 m	1															
			0200		20 m	1															
		Cal	ble typ	e —																	
					le with	shiel	d by Ol	ki Flec	tric Ca	ble Co	0. (	0.20 r	nm <sup>2</sup> :	× 4P	9(8-w	ire)	3P(6	iw-6	re)		
		N					Highly b				o., (	0.201		~ 11	(0 11	n 0),			(0)		
		٦					Standa														
		Cal	hle en	d (Enc	oder s	(ab															
				•		,	nnecto														_
			,				ronics I		v. Ltd.	conn	nect	tor (Di	rectio	n of r	notor	shaft)					
							onics I											haft)			
		S			ed car						-	(-1			-	-	-	-7			
		٦	г Ја	, pan A	viation	Electr	ronics I	ndustr	y, Ltd.	plug	CO	nnect	or								
		Cal	ble en	d (Driv	er side	e) —															
				•	or (Inc		ntal)														
		E			or (Ab																
		Ν	/ Co	onnect	or (MS	MD, N	/HMD)														

#### 3 4 6 7 8 9 10 11 12 1 2 5 F Μ 0 Μ С Α 0 Ν J D AC servo motor cable Cable end at driver side Type classification A Standard D Rod terminal B Special T Clamp terminal ÷ Design order Cable end at motor side Cable length C S type cannon plug 003 3 m Е Tyco Electronics connector 005 5 m Japan Aviation Electronics Industry, Ltd. connector J 010 10 m (Direction of motor shaft) 020 20 m Japan Aviation Electronics Industry, Ltd. connector Κ (Opposite direction of motor shaft) Sectional area of cable core-0 0.75 mm<sup>2</sup> Cable type 1 1.25 mm<sup>2</sup> E ROBO-TOP® 4-wire by DYDEN CORPORATION 2 2.0 mm<sup>2</sup> F ROBO-TOP<sub>®</sub> 6-wire by DYDEN CORPORATION 3 3.5 mm<sup>2</sup> G ROBO-TOP<sub>®</sub> 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)

Motor Cable, Brake Cable . For available optional items, please refer to P.191 to P.196.

ROBO-TOP® is a trade mark of DYDEN CORPORATION

## **Specifications of Motor connector**

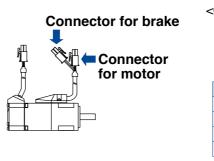
#### • When the motors of <MSMD, MHMD, MSMJ, MHMJ> are used, they are connected as shown below.

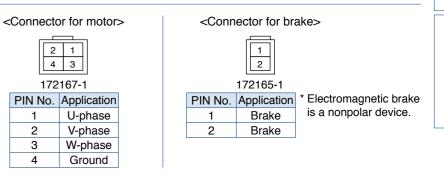
Connector: Made by Tyco Electronics (The figures below show connectors for the motor.)

#### Connector for encoder



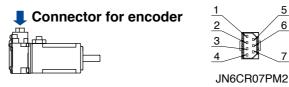


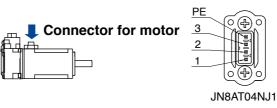


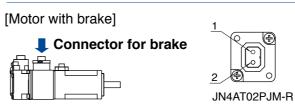


#### • When the motors of <MSME (50 W to 750 W (200 V))> are used, they are connected as shown below.

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.







## A5 Family **Options**

	PIN No.	Application	
	1	NC	3
	2	PS	6
	3	PS	9
. 1	4	E5V	
al	5	E0V	ı 17-b
	6	FG(SHIELD)	17-0

_			1	_
	3	2	1	
	6	5	4	
	9	8	7	
17		2169 Abs	9-1 solut	e

PIN No.	Application					
1	BAT+					
2	BAT–					
3	FG(SHIELD)					
4	PS					
5	PS					
6	NC					
7	E5V					
8	E0V					
9	NC					

<Remarks> Do not connect anything to NC.

20-bit In	cremental		17-bit A	Absolute
PIN No.	Application		PIN No.	Application
1	FG(SHIELD)		1	FG(SHIELD)
2	—		2	BAT–
3	E0V		3	E0V
4	PS		4	PS
5	—		5	BAT+
6	E5V		6	E5V
7	PS		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.

Application
U-phase
V-phase
W-phase
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.

PIN No.	Application	
1	Brake	* Electromagnetic brake is
2	Brake	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.

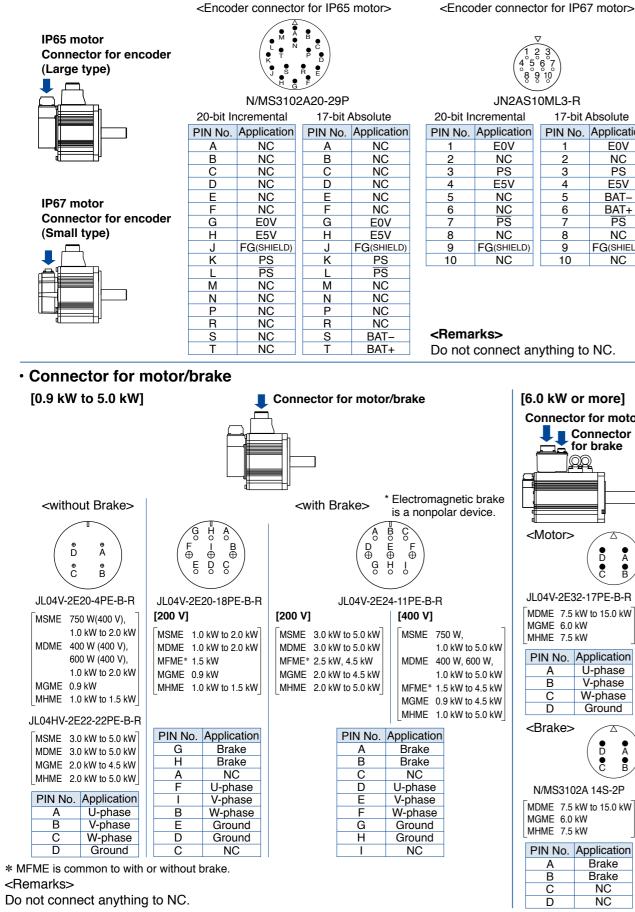
## **Options**

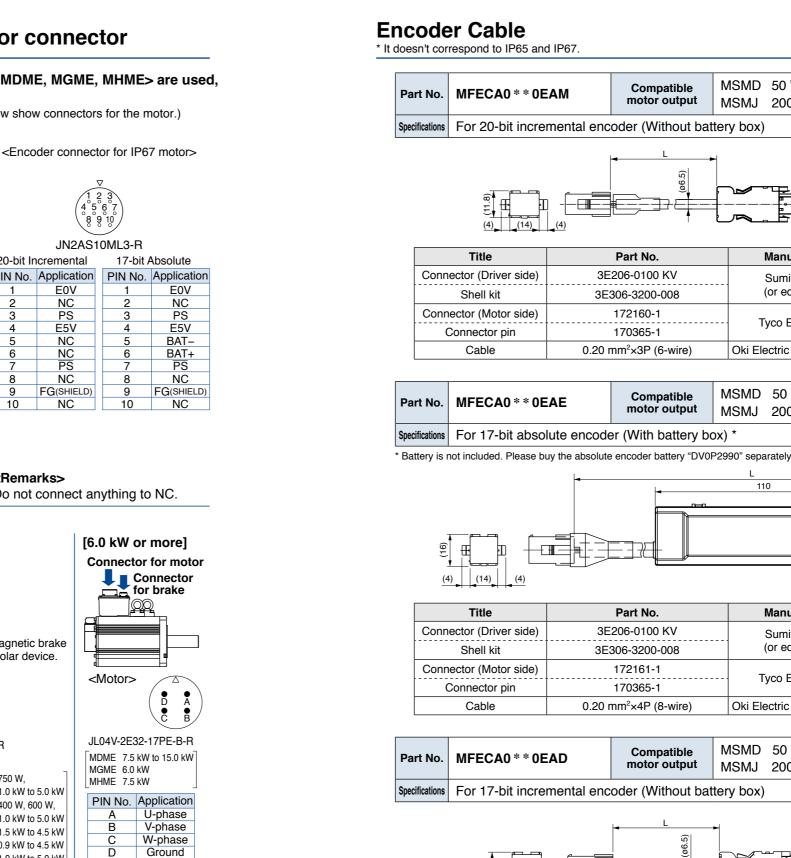
## **Specifications of Motor connector**

 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





Title Part No. Connector (Driver side) 3E206-0100 KV 3E306-3200-008 Shell kit 172161-1 Connector (Motor side) 170365-1 Connector pin Cable 0.20 mm<sup>2</sup>×3P (6-wire)

(14)

(4)

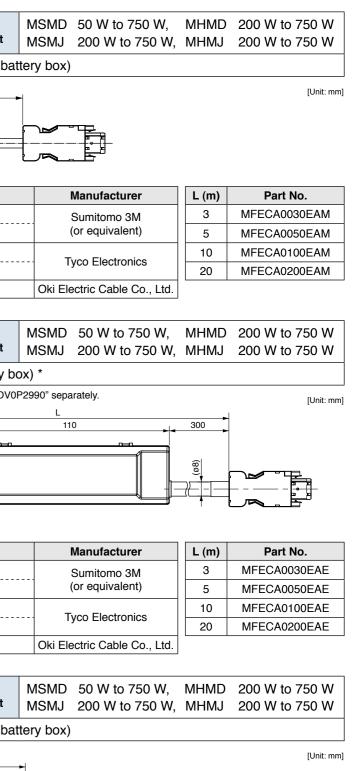
Brake

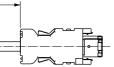
Brake

NC

NC







Manufacturer
 Sumitomo 3M (or equivalent)
 Tyco Electronics
Oki Electric Cable Co., Ltd.

Part No.
MFECA0030EAD
MFECA0050EAD
MFECA0100EAD
MFECA0200EAD

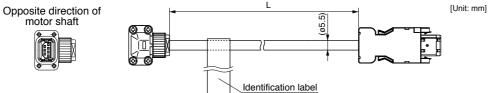
**Options** 

Direction of motor shaft

đ

**Encoder Cable** \* It doesn't correspond to IP65 and IP67.

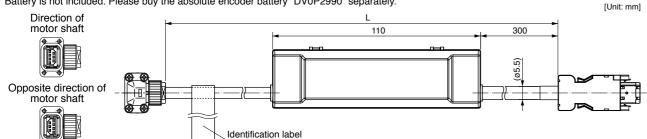
MFECA0 \* \* 0MJD (Highly bendable type, Direction of motor shaft) MSME MFECA0 \* \* 0MKD (Highly bendable type, Opposite direction of motor shaft) Compatible Part No. 50 W to 750 W motor output MFECA0 \* \* 0TJD (Standard bendable type, Direction of motor shaft) (200 V) **MFECA0** \* \* **0TKD** (Standard bendable type, Opposite direction of motor shaft) Specifications For 20-bit incremental encoder (Without battery box) \* 17bit-use is possible



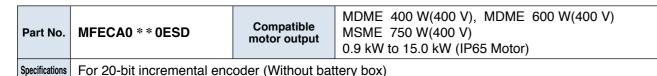
Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030MJD
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050MJD
Connector (Motor side)	JN6FR07SM1	Japan Aviation	10	MFECA0100MJD
Connector pin	LY10-C1-A1-10000	Electronics Ind.	20	MFECA0200MJD
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.		

	MFECA0 * * 0MJE (Highly bendable type, Direction of motor shaft)	Compatible	
Part No.	MFECA0 * * 0MKE (Highly bendable type, Opposite direction of motor shaft)		ft) Compatible MSME
Part NO.	MFECA0 * * 0TJE (Standard bendable type, Direction of motor shaft)	motor output	(200 V)
	MFECA0 * * 0TKE (Standard bendable type, Opposite direction of motor shaft)		(200 V)
Specifications	For 17-bit absolute encoder (With battery box) *		

\* Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.

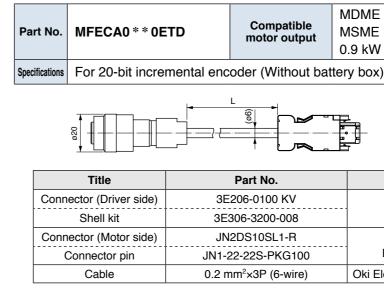


Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030MJE
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050MJE
Connector (Motor side)	JN6FR07SM1	Japan Aviation	10	MFECA0100MJE
Connector pin	LY10-C1-A1-10000	Electronics Ind.	20	MFECA0200MJE
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.		



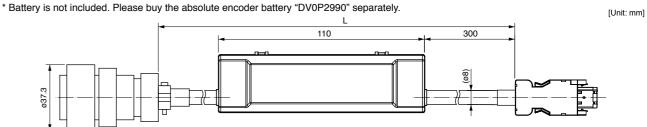
[Unit: mm]

Title	Part No.	Manufacturer	L (m)	Part No.
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030ESD
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050ESD
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation	10	MFECA0100ESD
Cable clamp	N/MS3057-12A	Electronics Ind.	20	MFECA0200ESD
Cable	0.2 mm <sup>2</sup> ×3P (6-wire)	Oki Electric Cable Co., Ltd.		





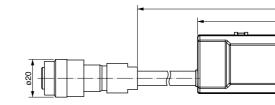
Specifications For 17-bit absolute encoder (With battery box) \*



Title	Part No.	Manufacturer	L (m)	Part No.
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030ESE
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050ESE
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation	10	MFECA0100ESE
Cable clamp	N/MS3057-12A	Electronics Ind.	20	MFECA0200ESE
Cable	0.2 mm <sup>2</sup> ×4P (8-wire)	Oki Electric Cable Co., Ltd.		



\* Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.



Title	Part No.	Manufacturer	L (m)	Part No.
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030ETE
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050ETE
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation	10	MFECA0100ETE
Connector pin	JN1-22-22S-PKG100	Electronics Ind.	20	MFECA0200ETE
Cable	0.2 mm <sup>2</sup> ×3P (6-wire)	Oki Electric Cable Co., Ltd.		

#### MDME 400 W(400 V), MDME 600 W(400 V), MSME 750 W(400 V) 0.9 kW to 15.0 kW (IP67 Motor)

[Unit: mm]

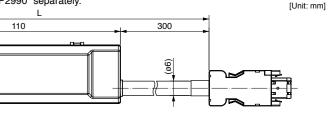
Manufacturer
 Sumitomo 3M (or equivalent)
 Japan Aviation Electronics Ind.
Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030ETD
5	MFECA0050ETD
10	MFECA0100ETD
20	MFECA0200ETD

A5 Fam

# 0.9 kW to 5.0 kW (IP65 Motor)

MDME 400 W(400 V), MDME 600 W(400 V) MSME 750 W(400 V) 0.9 kW to 15.0 kW (IP67 Motor)



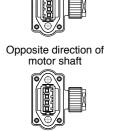
190

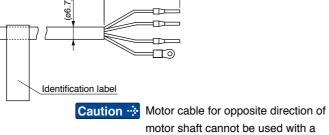
## Motor Cable (without Brake)

Options

#### \* It doesn't correspond to IP65 and IP67.

		model	MSMJ	200 W to 75	OW, MHN	VIJ 200	) W to 750 W	
	1	(50) L	<b>⊳∣</b> ∢	(50)			[Unit: mm	
			(411)					
	Title	Part No.		Manufa	cturer	L (m)	Part No.	
	Connector	172159-1			atropico	3	MFMCA0030EED	
(	Connector pin	170366-1		Tyco Ele	ctronics	5	5 MFMCA0050EED	
	Rod terminal	Al0.75-8GY		Phoenix	Contact	act 10 MFMCA0100		
Nylon ir	nsulated round terminal	N1.25-M4		J.S.T Mfg. Co., Ltd. 20 M		MFMCA0200EED		
	Cable	ROBO-TOP 600V 0.75m	DP 600V 0.75mm <sup>2</sup> 4-wire DYDEN COR		PORATION			
	MFMCA0 * * 0N	NJD (Highly bendable type, Dired	ction of motor	shaft)		MSME	50 W to 750 W(200V)	
	MFMCA0 * * 0N	<b>NKD</b> (Highly bendable type, Opp	oosite direction	of motor shaft) Applicable		MSME	200 W to 750 W(200V)	
Part No.	MFMCA0 * * 0F	)RJD (Standard bendable type, Direction of m		** <b>ORJD</b> (Standard bendable type, Direction of motor shaft) model	model	MSME	50 W to 750 W(200V)	
		RKD (Standard bendable type, C	Opposite direct	ion of motor shaft)		MSME	200 W to 750 W(200V)	
	MFMCAU * * 0F							





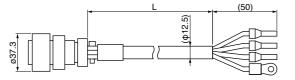
motor 50W and 100W.

[Unit: mm]

Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector	JN8FT04SJ1	Japan Aviation	3	MFMCA0030NJD
Connector pin	ST-TMH-S-C1B-3500	Electronics Ind.	5	MFMCA0050NJD
Rod terminal	AI0.75-8GY	Phoenix Contact	10	MFMCA0100NJD
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	20	MFMCA0200NJD
Cable	AWG18 4-wire (ø6.7)	Hitachi Cable, Ltd.		

Part No. MFMCA0 \* \* 2ECD

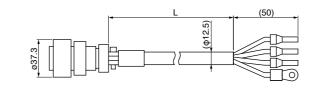
Applicable MFME 1.5 kW(200 V)



Q`\_\_\_

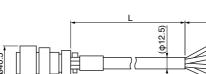
Title	Part No.	Manufacturer	L (m)	Part No.
Connector	JL04V-6A20-18SE-EB-R	Japan Aviation	3	MFMCA0032ECD
Cable clamp	JL04-2022CK(14)-R	K(14)-R Electronics Ind.		MFMCA0052ECD
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.	10	MFMCA0102ECD
Nylon insulated round terminal	N2-M4	J.S.T MIG. CO., Ltd.	20	MFMCA0202ECD
Cable	ROBO-TOP 600V 2.0mm <sup>2</sup> 4-wire	DYDEN CORPORATION		





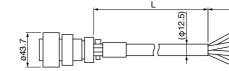
Title	Part No.	Manufacturer
Connector	JL04V-6A20-4SE-EB-R	Japan Aviation
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.
Rod terminal	NTUB-2	
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600 V 2.0 mm <sup>2</sup> 4-wire	DYDEN CORPORATION





Title	Part No.	Manufacturer	L (m)	Part No.
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation	3	MFMCE0032ECD
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.	5	MFMCE0052ECD
Rod terminal	NTUB-2		10	MFMCE0102ECD
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.	20	MFMCE0202ECD
Cable	ROBO-TOP 600 V 2.0 mm <sup>2</sup> 4-wire	DYDEN CORPORATION		

Part No.	MFMCF0 * * 2ECD	Applicable model	N



Title	Part No.	Manufacturer	L (m)	Part No.
Connector	JL04V-6A24-11SE-EB-R	JL04V-6A24-11SE-EB-R Japan Aviation		MFMCF0032ECD
Cable clamp	JL04-2428CK(17)-R	Electronics Ind.	5	MFMCF0052ECD
Rod terminal	NTUB-2		10	MFMCF0102ECD
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.	20	MFMCF0202ECD
Cable	ROBO-TOP 600 V 2.0 mm <sup>2</sup> 4-wire	DYDEN CORPORATION		

# 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) 0.0 kW

L (m)	Part No.
3	MFMCD0032ECD
5	MFMCD0052ECD
10	MFMCD0102ECD
20	MFMCD0202ECD

Applicable MHME 2.0 kW (200 V and 400 V commonness)

[Unit: mm]



#### MFME 1.5 kW(400 V), 2.5 kW(200 V and 400 V commonness)

[Unit: mm]



A5 Family

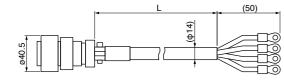
## Options

## Motor Cable (without Brake)

\* It doesn't correspond to IP65 and IP67.

Part No.	MFMCA0 * * 3ECT		MHME	3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW, MGME 200 V and 400 V commonness)	
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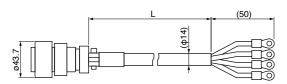
[Unit: mm]



Title	Part No.	Manufacturer	L (m)	Part No.
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation	3	MFMCA0033ECT
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.	5	MFMCA0053ECT
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.	10	MFMCA0103ECT
Cable	ROBO-TOP 600 V 3.5 mm <sup>2</sup> 4-wire	DYDEN CORPORATION	20	MFMCA0203ECT

Part No.     MFMCD0 * * 3ECT     Applicable model     MFME 4.5 kW (200 V and 400 V commonness)	
--	--

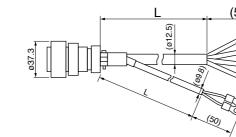
[Unit: mm]



Title	Part No.	Manufacturer	L (m)	Part No.
Connector	JL04V-6A24-11SE-EB-R	Japan Aviation	3	MFMCD0033ECT
Cable clamp	JL04-2428CK(17)-R	Electronics Ind.	5	MFMCD0053ECT
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.	10	MFMCD0103ECT
Cable	ROBO-TOP 600 V 3.5 mm <sup>2</sup> 4-wire	DYDEN CORPORATION	20	MFMCD0203ECT

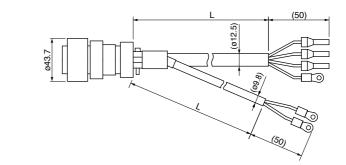
# Motor Cable (with Brake) \* It doesn't correspond to IP65 and IP67.





Title		Part No.	Manufacturer		
Connector		JL04V-6A20-18SE-EB-R	Japan Aviation		
Cable clamp		JL04-2022CK(14)-R	Electronics Ind.		
Rod terminal		NTUB-2	J.S.T Mfg. Co., Ltd.		
Nylon insulated	Earth	N2-M4			
round terminal	Brake	N1.25-M4	J.S.T Mfg. Co., Ltd.		
Cable		ROBO-TOP 600 V 0.75 $\rm mm^2{and}$ ROBO-TOP 600 V 2.0 $\rm mm^2$ 6-wire	DYDEN CORPORATION		





Title		Part No.	Manufacturer		
Connector		JL04V-6A24-11SE-EB-R	Japan Aviation		
Cable clamp		JL04-2428CK(17)-R	Electronics Ind.		
Rod termina	al	NTUB-2	J.S.T Mfg. Co., Ltd.		
Nylon insulated	Earth	N2-M4			
round terminal	Brake	N1.25-M4	J.S.T Mfg. Co., Ltd.		
Cable		ROBO-TOP 600 V 0.75 $\rm mm^2 and$ ROBO-TOP 600 V 2.0 $\rm mm^2$ 6-wire	DYDEN CORPORATION		

# A5 Family

## Options

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]



L (m)	Part No.
3	MFMCA0032FCD
5	MFMCA0052FCD
10	MFMCA0102FCD
20	MFMCA0202FCD

- 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)

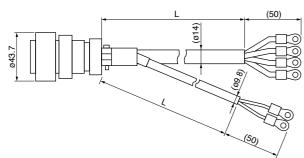


L (m)	Part No.
3	MFMCE0032FCD
5	MFMCE0052FCD
10	MFMCE0102FCD
20	MFMCE0202FCD

# Options

# Motor Cable (with Brake)

Part No.	MFMCA0 * * 3FCT	Applicable model	MFME MGME	,	MHME	3.0 kW to 5.0 kW 3.0 kW to 5.0 kW	
----------	-----------------	---------------------	--------------	---	------	--------------------------------------	--

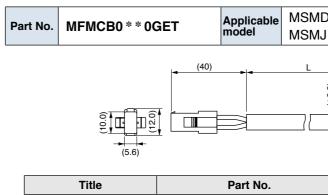


Title		Part No. Manufacturer		L (m)	Part No.
Connector		JL04V-6A24-11SE-EB-R	Japan Aviation	3	MFMCA0033FCT
Cable clam	p	JL04-2428CK(17)-R	Electronics Ind.	5	MFMCA0053FCT
Nylon insulated	Earth	N5.5-5	J.S.T Mfg. Co., Ltd.	10	MFMCA0103FCT
round terminal	Brake	N1.25-M4	5.5.1 Wilg. Co., Ltd.	20	MFMCA0203FCT
Cable		ROBO-TOP 600 V 0.75 $\rm mm^2 and$ ROBO-TOP 600 V 3.5 $\rm mm^2$ 6-wire	DYDEN CORPORATION		

## Brake Cable

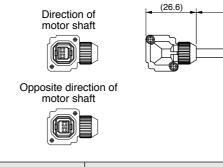
[Unit: mm]

\* It doesn't correspond to IP65 and IP67.



Title	Part No.
Connector	172157-1
Connector pin	170366-1, 170362-1
Nylon insulated round terminal	N1.25-M4
Cable	ROBO-TOP 600 V 0.75 mm <sup>2</sup> 2-w

Part No.	MFMCB0 * * 0PJT (Highly bendable type, Direction
	MFMCB0 * * 0PKT (Highly bendable type, Opposi
	MFMCB0 * * 0SJT (Standard bendable type, Direct
	MFMCB0 * * 0SKT (Standard bendable type, Oppo



Title	Part No.	Manufacturer	L (m)	Part No.
Connector	JN4FT02SJMR	Japan Aviation	3	MFMCB0030PJT
Connector pin	ST-TMH-S-C1B-3500	Electronics Ind.	5	MFMCB0050PJT
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	10	MFMCB0100PJT
Cable	AWG22 2-wire (ø4.3)	Hitachi Cable, Ltd.	20	MFMCB0200PJT

	A5 Family								
			Opt	io	ns				
	50 W to 750 V 200 W to 750	-		-	o 750 W o 750 W	ъ			
L (8.6¢)	(50)				[Unit: mm]	A5 Family			
		=				ES			
	Manufac	turer	L (m)		Part No.	Series			
	Tyco Elec	tropico	3	N	/FMCB0030GET	0			
		uonics	5	N	/FMCB0050GET				
	J.S.T Mfg. (	Co., Ltd.	10	N	/FMCB0100GET				
<sup>2</sup> 2-wire	DYDEN CORF	PORATION	20	N					
						Info			
rection of	motor shaft)					Information			
Opposite o	direction of motor	shaft)	Applies	bla	MSME	ion			
	mot motor shaft) model 50 W to 750 W								
	e direction of mo	tor shaft)	-		(200 V)				
L	(04.3)				[Unit: mm]				
	f								

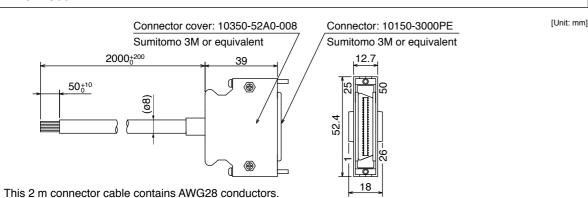
Identification label
Manufacturer
Japan Aviation

## **Options**

## **Interface Cable**

#### Cable for Interface

#### Part No. DV0P4360



#### 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

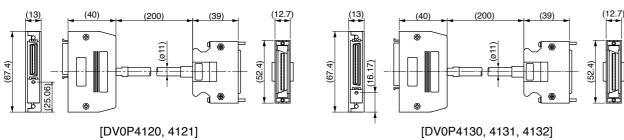
#### Part No. DV0P4120, 4121, 4130, 4131, 4132

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 → A5I, 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 $\rightarrow$ A5I, A5 series (A4, A series) for position control
DV0P4131	MINAS V $\rightarrow$ A5I, A5 series (A4, A series) for velocity control
DV0P4132	MINAS V $\rightarrow$ A5I, A5 series (A4, A series) for torque control

\* For details of wiring, contact our sales department.

#### Converts 36-pin configuration to 50-pin.



## **Connector Kit**

#### Connector Kit for Communication Cable (for RS485, RS232) (Excluding A5IE, A5E Series)

Part No.	Part No. DV0PM20102						
• Con	nponents						
	Title	Part No.					
	Connector	CIF-PCNS08KK-072R					
• Pin	disposition of con	nector, connector X2					
48	5+ RXD						
<u>48</u> <u>48</u> 48	5- 7531 GND	Shell: FG					
	/iewed from cable)	<remarks> Do not connect anything to NC.</remarks>					
nnec	tor Kit for Saf	etv (Excluding ASIE ASE Seri					

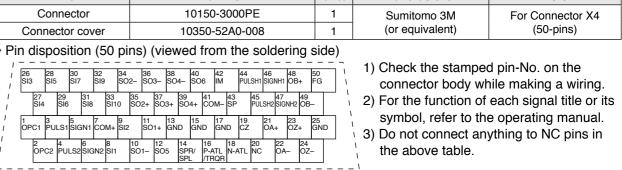
## Connector Kit for Safety (Excluding A5IIE, A5E Series)

#### Part No. DV0PM20103 Components Title Part No. CIF-PCNS08KK-071R Connector Pin disposition of connector, connector X3 SF2+ EDM+ NC Shell: FG EDM-NC SF2-SF1-<Remarks> (Viewed from cable) Do not connect anything to NC.

#### Safety bypass plug (Excluding A5IIE, A5E Series)

	Ра	rt No.	DV0PM20094				
	Components						
			Title	Part No.			
			Connector	CIF-PB08AK-GF1R			
	Internal wiring (Wiring of the following has been applied inside the plug.) Pin No. 1 2 3 4 5 6 7 8						
С	Connector Kit for Interface						
	Part No. DV0P4350						
		• Con	ponents				
			Title	Part No.			

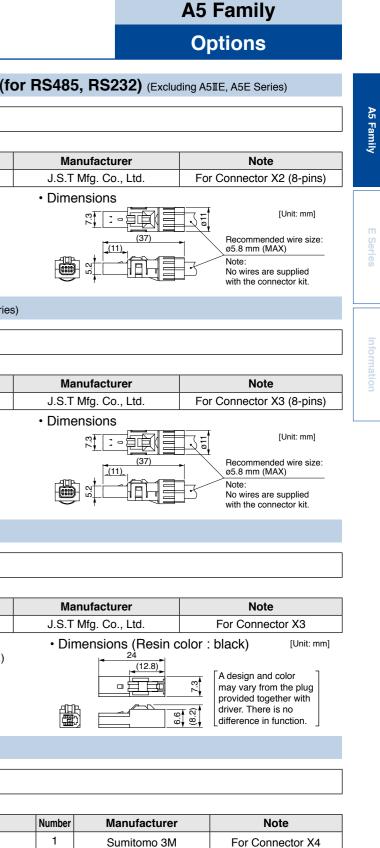
Title	Part No.		
Connector	10150-3000PE		
Connector cover	10350-52A0-008		
• Pin disposition (50 pins) (viewed from the so			



#### <Remarks>

[Unit: mm]

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.213 "Peripheral Device Manufacturer List".



## **Connector Kit**

## Connector Kit for External Scale (Excluding A5IIE, A5E Series)

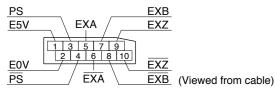
## Part No. DV0PM20026

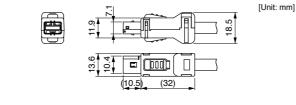
#### Components

Title	Part No.	Manufacturer	Note
Connector	MUF-PK10K-X	J.S.T Mfg. Co., Ltd.	For Connector X5 (10-pins)

Dimensions

• Pin disposition of connector, connector X5





#### **Connector Kit for Encoder**

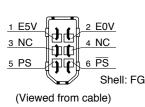
#### Part No. DV0PM20010

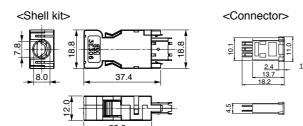
#### Components

Title	Part No.	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	For Connector X6
Shell kit	3E306-3200-008	(or equivalent)	

Dimensions

• Pin disposition of connector, connector X6





<u>5.4</u> 5.8

[Unit: mm]

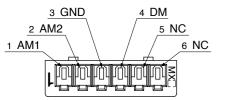
[Unit: mm]

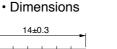
#### **Connector Kit for Analog Monitor Signal**

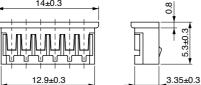
#### Part No. DV0PM20031 · Components Title Part No. Number

c For Connector X7 (6-pins)
c For Connector X7 (6-pins)

Pin disposition of connector, connector X7







#### <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

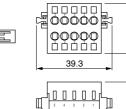
Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGF	1		For Connector XA
Handle lever	J-FAT-OT	2	J.S.T Mfg. Co., Ltd.	

#### Part No. DV0PM20033 (For A-frame to D-frame 200 V: Double row type)

#### Components

Components							
Title	Part No.	Number	Manufacturer	Manufacturer		ote	
Connector	05JFAT-SAXGSA-C	1		J.S.T Mfg. Co., Ltd. For Connec		For Connector XA	
Handle lever	J-FAT-OT	2	J.S. I Mig. Co., Li				
Dimensions			Driver part No.	Pow	ver supply	Rated input current	
		26	MADHT1105 *** MADKT1105 ***	Sin	gle phase 100 V	1.7 A	
	39.3	¥	MADHT1107 *** MADKT1107 ***	Sin	gle phase 100 V	2.6 A	
		<b>A</b>	MADHT1505 *** MADKT1505 ***	Single p	ohase/3-phase 200 V	1.6 A/0.9 A	
			MADHT1507 *** MADKT1507 ***	Single p	ohase/3-phase 200 V	2.4 A/1.3 A	
[Unit:		<del>\</del>	MBDHT2110 *** MBDKT2110 ***	Sin	gle phase 100 V	4.3 A	
* 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.			MBDHT2510 *** MBDKT2510 ***	Single p	phase/3-phase 200 V	4.1 A/2.4 A	
			MCDHT3120 *** MCDKT3120 ***	Sin	gle phase 100 V	7.6 A	
Remarks ···· When using drivers	MDDKT5540 *** or MDDHT	5540 **'	MCDHT3520 *** MCDKT3520 ***	Single p	phase/3-phase 200 V	6.6 A/3.6 A	
in single-phase power supply, do not use DV0PM20033.			MDDHT3530 *** MDDKT3530 ***	Single p	phase/3-phase 200 V	9.1 A/5.2 A	
			MDDHT5540 *** MDDKT5540 ***	Single p	phase/3-phase 200 V	14.2 A/8.1 A	
					•		

• D



#### Part No. DV0PM20044 (For E-frame 200 V)

#### Components

Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGSA-L	1		For Connector XA
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	

#### Part No. DV0PM20051 (For D-frame 400 V)

#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector	03JFAT-SAYGSA-M	1		For Connector VA	
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	For Connector XA	

#### Part No. DV0PM20052 (For E-frame 400 V)

#### Components

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAYGSA-L	1		For Connector XA
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	For Connector XA

## 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		For Connector VD
Handle lever	MJFAT-0T	1	J.S.T Mfg. Co., Ltd.	For Connector XD

#### **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		For Connector XC
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	* Jumper wire is included.

#### Part No. DV0PM20055 (For D-frame 400 V)

#### · Components

Title	Part No.	Number	Manufacturer	Note
Connector	04JFAT-SAXGSA-M	1		For Connector XC
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	

#### 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		For Connector XB
Handle lever	J-FAT-OT	2	J.S.T Mfg. Co., Ltd.	* Jumper wire is included.

Part No. DV0PM20046 (For E-frame 200 V/400 V)

#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector	03JFAT-SAXGSA-L	1		For Connector XB	
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.		

#### Part No. DV0PM20054 (For D-frame 400 V)

#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector	03JFAT-SAXGSA-M	1		For Connector XB	
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.		

## Connector Kit

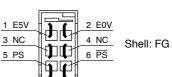
\* When IP65 or IP67 are necessary, the customer must give appropriate processing.

#### **Connector Kit for Motor/Encoder Connection**

Part N	۱o.	DV0P4290	Applicable model	MSN (abs
٠c	on	nponents		
		<b>T</b> <sup>111</sup>	Devil Ma	

Title	Part No.	Number	Manufacturer	Note		
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pipe)		
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)		
Connector	172161-1	1	Tyco Electronics	For Encoder cable		
Connector pin	170365-1	9		(9-pins)		
Connector	172159-1	1	Tyco Electronics	For Motor cable		
Connector pin	170366-1	4	TYCO Electronics	(4-pins)		

#### • Pin disposition of connector, connector X6



			_
1	7	8	9
	4	5	6
		~	J

1 2 2

<Remarks> Do not connect (Viewed from cable) anything to NC

(Viewed from cable)					
PIN No.	Application	PIN No.	Applicatior		
1	BAT+	6	NC		
2	BAT-	7	E5V		
3	FG(SHIELD)	8	E0V		
4	PS	9	NC		
5	PS	<remark< td=""><td>(S&gt;</td></remark<>	(S>		
Do not connect onuthin					

encoder"

Part No.	DV0P4380	Applicable model	MSM MSM (incre		

#### Components

1 E5V

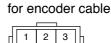
3 NC

5 PS

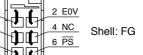
(Viewed from cable)

•					
Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pipe)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Connector	172160-1	1	Tugo Flastranica	For Encoder cable	
Connector pin	170365-1	6	Tyco Electronics	(6-pins)	
Connector	172159-1	1	Tugo Flastronico	For Motor cable	
Connector pin	170366-1	4	Tyco Electronics	(4-pins)	

• Pin disposition of connector, connector X6



4 5 6



<Remarks>

Do not connect

anything to NC.

## A5 Family

**Options** 

MD 50 W to 750 W, MHMD 200 W to 750 W solute encoder type)

#### · Pin disposition of connector for encoder cable

 Pin disposition of connector for motor cable

PIN No. Application

 $\sum$ (Viewed from cable)

U-phase

V-phase

W-phase

Ground



Do not connect anything to NC.

\* When you connect the battery for absolute encoder, refer to P.207, "When you make your own cable for 17-bit absolute

1 2 3 4

1

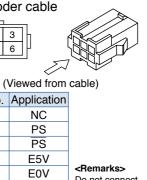
2

3

4

#### MD 50 W to 750 W, MHMD 200 W to 750 W MJ 200 W to 750 W, MHMJ 200 W to 750 W remental encoder type)

## Pin disposition of connector



EOVDo not connect<br/>anything to NC.

#### Pin disposition of connector for motor cable

1	24		
	()	/iewed from (	cable)
DIN	No	Application	

PIN No.	Application
1	U-phase
2	V-phase
3	W-phase
4	Ground

_
_
3
_
_
_

A5 Family	

Options

**Connector Kit** \* When IP65 or IP67 are necessary, the customer must give appropriate processing.

Part No. DV0PM20035

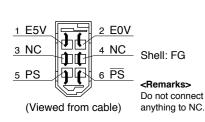
Applicable model MSME 50 W to 400 W(100 V), 50 W to 750 W(200 V)

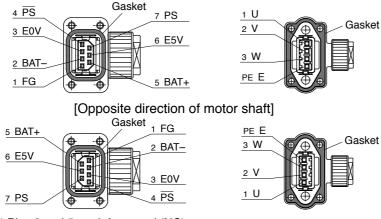
#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pine)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Encoder connector	JN6FR07SM1	1	Japan Aviation	For Encoder cable	
Socket contact	LY10-C1-A1-10000	7	Electronics Ind.	(7-pins)	
Motor connector	JN8FT04SJ1	1	Japan Aviation	For Motor cable	
Socket contact	ST-TMH-S-C1B-3500	4	Electronics Ind.	(4-pins)	

• Pin disposition of connector, • Pin disposition of connector connector X6 for encoder cable

· Pin disposition of connector for motor cable





[Direction of motor shaft]

\* Pins 2 and 5 are left unused (NC) with an incremental encoder.

Remarks 🔅 Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.

Part No.	DV0PM20036 App mod	plicable odel	<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)</ip67>	Without brake	
----------	-----------------------	------------------	--	------------------	--

#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pipe)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Freedor coble	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable	
Motor connector	JL04V-6A-20-4SE-EB-R	1	Japan Aviation	For Motor coblo	
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	For Motor cable	

#### <Remarks>

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.213 "Peripheral Device Manufacturer List".

			<ip65 m<="" th=""><th>noto</th></ip65>	noto
Dout No.	DV0P4310	Applicable	MSME	75
Part NO.	DV0P4310	model	MDME	
			MHME	1.0

#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)		
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.		
Motor connector	N/MS3106B20-4S	1	Japan Aviation		
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Motor cable	

			<ip67 moto<="" th=""></ip67>
Part No.	DV0PM20037		MSME 3.0
	2	model	MHME 2.
			(All model 200

#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pipe)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Freedor coble	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable	
Motor connector	JL04V-6A22-22SE-EB-R	1	Japan Aviation	For Motor coblo	
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	For Motor cable	

Part No. DV0P432	) Applicable model	<ip65 n<br="">MSME MHME</ip65>	3.0
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#### Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pipe)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Freedor coble
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Encoder cable
Motor connector	N/MS3106B22-22S	1	Japan Aviation	For Motor coblo
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Motor cable

Part No.	DV0PM20038	Applicable model	<ip67 moto<br="">MSME 1.0 MFME 1.5 MHME 1.0 (All model 200</ip67>
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#### Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Freedor coble
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable
Motor connector	JL04V-6A20-18SE-EB-R	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	

#### tor> '50 W (400 V), 1.0 kW to 2.0 kW 400 W (400 V), 600 W (400 V), 1.0 kW to 2.0 kW .0 kW to 1.5 kW, MGME 0.9 kW

#### tor>

Without 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW 2.0 kW to 5.0 kW, MGME 2.0 kW to 4.5 kW brake 00 V and 400 V commonness)

#### or>

.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW .0 kW to 5.0 kW, MGME 2.0 kW to 3.0 k

kW	brake

#### or>

.0 kW to 2.0 kW, MDME 1.0 kW to 2.0 kW With 5 kW (Common to with/ without brake), brake .0 kW to 1.5 kW, MGME 0.9 kW 00 V)

A5 Family

Without

brake

Without

Options

**Connector Kit** \* When IP65 or IP67 are necessary, the customer must give appropriate processing.

Part No.	DV0P4330 Applical 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)</ip65>	With brake
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#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pipe)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Encoder cable	
Motor connector	N/MS3106B20-18S	1	Japan Aviation	For Motor coblo	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Motor cable	

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</ip67>	brake
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#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins	
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable	
Motor connector	JL04V-6A24-11SE-EB-R	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2428CK(17)-R	1	Electronics Ind.	FOI WOLOF CADIE	

Part No.		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</ip65>	With brake
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#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)		
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Encoder cable	
Motor connector	N/MS3106B24-11S	1	Japan Aviation	For Motor coble	
Cable clamp	N/MS3057-16A	1	Electronics Ind.	For Motor cable	

#### <Remarks>

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.213 "Peripheral Device Manufacturer List".

Part No.	DV0PM20056	Applicable model	<ip67 m<br="">MDME MGME</ip67>	7.5
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#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pipe)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.		
Motor connector	JL04V-6A32-17SE-EB-R	1	Japan Aviation	For Motor coblo	
Cable clamp	JL04-32CK(24)-R *	1	Electronics Ind.	For Motor cable	

\* 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. When manufacturing the motor extension cable, refer to "Driver and List of Applicable Penipheral Equipment" on pages 19 and 20 for thickness of the electric wire used and the size of the crimp terminal.

Part No.	DV0PM20057	Applicable model	<ip67 m<br="">MDME MGME</ip67>	7.
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#### Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable	
Motor connector	JL04V-6A32-17SE-EB-R	1	Japan Aviation	For Motor coble	
Cable clamp	JL04-32CK(24)-R *	1	Electronics Ind.	For Motor cable	
Brake connector	N/MS3106B14S-2S	1	Japan Aviation		
Cable clamp	N/MS3057-6A	1	Electronics Ind.	For Brake cable	

\* 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. • When manufacturing the motor extension cable, refer to "Driver and List of Applicable Penipheral Equipment" on pages 19 and 20 for thickness of the electric wire used and the size of the crimp terminal.

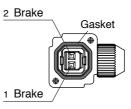
#### **Connector Kit for Motor/Brake Connection**

|--|

Components

Title	Part No.	Number	Manufacturer	Note
Connector	JN4FT02SJM-R	1	Japan Aviation	For broke poble
Socket contact	ST-TMH-S-C1B-3500	2	Electronics Ind.	For brake cable

· Pin disposition of connector for brake cable [Direction of motor shaft]



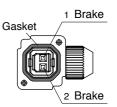
<Remarks>

Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.

#### tor> '.5 kW to 15.0 kW .0 kW, MHME 7.5 kW

#### 0 W to 750 W

#### [Opposite direction of motor shaft]



Without

With

brake

**Options** 

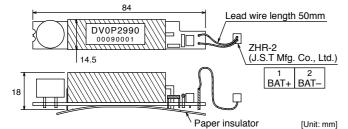
# Battery for Absolute Encoder

\* A5IIE, A5E series does not support to absolute encoder.

#### **Battery for Absolute Encoder**

#### Part No. DV0P2990

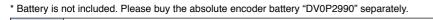
#### Lithium battery: 3.6 V 2000 mAh

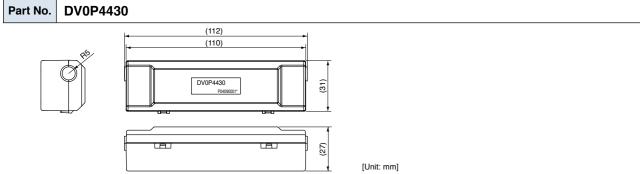


#### <Caution>

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 \*





#### 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.

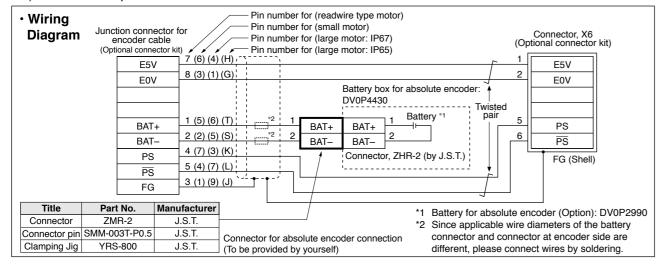
#### <Caution>

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.

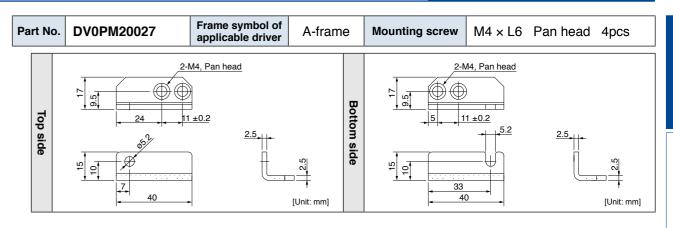
Refer to the instruction manual of the battery for handling the battery.

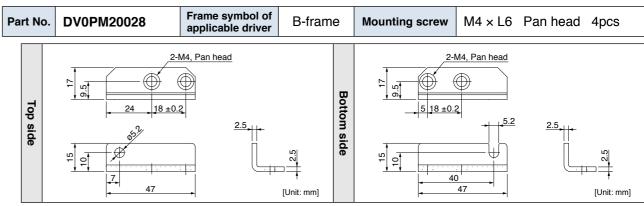
#### Installation Place of Battery

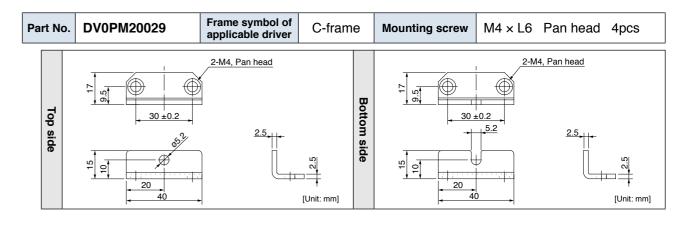
- 1) Indoors, where the products are not subjected to rain or direct sun beam.
- 2) Where the products are not subjected to corrosive atmospheres such as hydrogen sulfide, sulfurous acid, chlorine, ammonia, chloric gas, sulfuric gas, acid, alkaline and salt and so on, and are free from splash of inflammable gas, grinding oil, oil mist, iron powder or chips and etc.
- 3) Well-ventilated and humid and dust-free place.
- 4) Vibration-free place

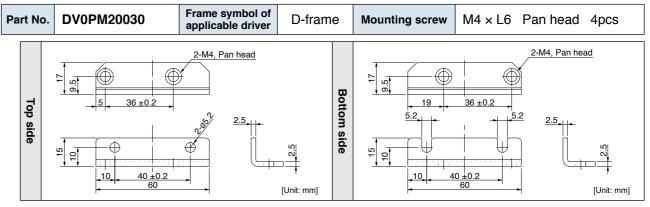


## **Mounting Bracket**





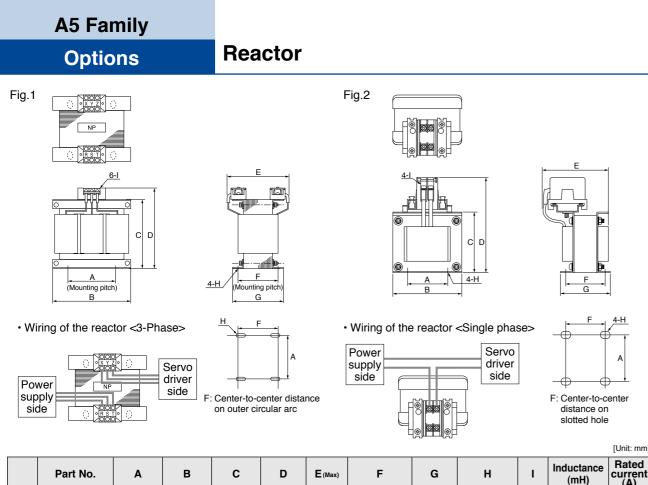




#### <Caution>

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).

# A5 Family Options



	Part No.	Α	В	с	D	E (Max)	F	G	н	I	Inductance (mH)	Rated current (A)
	DV0P220	65±1	125±1	(93)	136мах	155	70+3/-0	85±2	4-7φ×12	M4	6.81	3
	DV0P221	60±1	150±1	(113)	155Max	130	60+3/-0	75±2	4-7φ×12	M4	4.02	5
	DV0P222	60±1	150±1	(113)	155мах	140	70+3/-0	85±2	4-7φ×12	M4	2	8
Fig.1	DV0P223	60±1	150±1	(113)	155мах	150	79+3/–0	95±2	4-7φ×12	M4	1.39	11
	DV0P224	60±1	150±1	(113)	160 <sub>Max</sub>	155	84+3/-0	100±2	4-7φ×12	M5	0.848	16
	DV0P225	60±1	150±1	(113)	160 <sub>Max</sub>	170	100+3/-0	115±2	4-7φ×12	M5	0.557	25
	DV0P227	55±0.7	80±1	66.5±1	110 <sub>Max</sub>	90	41±2	55±2	4-5φ×10	M4	4.02	5
Fig.2	DV0P228	55±0.7	80±1	66.5±1	110мах	95	46±2	60±2	4-5φ×10	M4	2	8
	DV0PM20047	55±0.7	80±1	66.5±1	110мах	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**

			Spec	ifications			
Part No.	Manufacturer's		cable core	Weischt	Rated power (reference) <sup>*1</sup>		Activation
Part NO.	part No.	Resistance	outside Weight diameter F		- with for		temperature of built-in thermal protector
		Ω	mm	kg	W	W	
DV0P4280	RF70M	50		0.1	10	25	
DV0P4281	RF70M	100		0.1	10	25	
DV0P4282	RF180B	25			17	50	140±5 °C B-contact
DV0P4283	RF180B	50	φ1.27 / AWG18 \	0.2	17	50	Open/Close capacity
DV0P4284	RF240	30	stranded	0.5	40	100	(resistance load)
DV0P4285	RH450F	20		1.2	52	130	1 A 125 VAC 6000 times 0.5 A 250 VAC 10000 times
DV0PM20048	RF240	120		0.5	35	80	
DV0PM20049	RH450F	80		1.2	65	190	

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. 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).

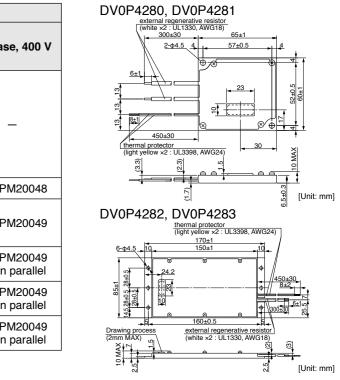
#### \*3 With built-in fan which should always be operated with the power supply connected across 24 V and 0 V.

		Power supply	
Frame	Single phase, 100 V	Single phase, 200 V 3-phase, 200 V	3-phas
A	DV0P4280	DV0P4281 (50 W, 100 W) DV0P4283 (200 W)	
В	DV0P4283	DV0P4283	
С	DV0P4282	DV0F4203	
D		DV0P4284	DV0P
E		DV0P4284 × 2 in parallel or DV0P4285	DV0P
F	-	DV0P4285 × 2 in parallel	DV0P × 2 in
G		DV0P4285 × 3 in parallel	DV0P × 3 in
Н		DV0P4285 × 6 in parallel	DV0P × 6 in

# A5 Family **Options**

The circuit should be so designed that the power supply will be turned off as the thermal protector operates.

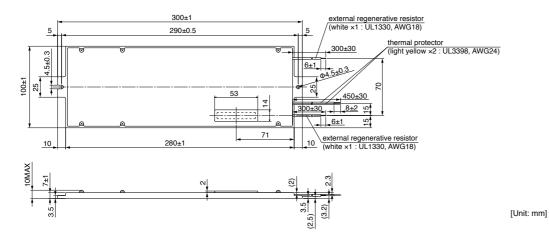
The built-in thermal fuse blows depending on changes in heat dissipation condition, operating temperature limit,



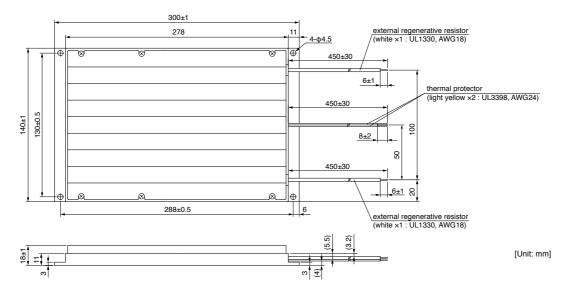
## Options

## **External Regenerative Resistor**

#### DV0P4284, DV0PM20048



#### DV0P4285, DV0PM20049



#### <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		
MSMJ	200 W to 750 W	TND14V271K	NIPPON CHEMI-CON CORPORATION
	50 W to 750 W		
MSME	750 W (400 V) 1.0 kW to 5.0 kW	Z15D151	SEMITEC Corporation
	4.0 kW to 5.0 kW	NVD07SCD082	KOA Corporation
	400 W (400 V), 600 W (400 V)	Z15D151	SEMITEC Corporation
	1.0 kW to 3.0 kW	NVD07SCD082	KOA Corporation
MDME	4.0 kW to 7.5 kW	Z15D151	SEMITEC Corporation
	11 kW, 15 kW	NVD07SCD082	KOA Corporation
	1.5 kW	Z15D151	SEMITEC Corporation
MFME	2.5 kW, 4.5 kW		
MONE	0.9 kW	NVD07SCD082	KOA Corporation
MGME	2.0 kW to 6.0 kW	Z15D151	SEMITEC Corporation
MHMD MHMJ	200 W to 750 W	TND14V271K	NIPPON CHEMI-CON CORPORATION
	1.0 kW, 1.5 kW	NVD07SCD082	KOA Corporation
MHME	2.0 kW to 7.5 kW	Z15D151	SEMITEC Corporation
	- I I		

## A5 Family

## Options

Options

# **List of Peripheral Devices**

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	
NIPPON CHEMI-CON CORPORATION	+81-3-5436-7711 http://www.chemi-con.co.jp/e/index.html	Surge absorber for holding brake
SEMITEC Corporation	+81-3-3621-2703 http://www.semitec.co.jp/english2/	
KK-CORP.CO.JP	+81-184-53-2307 http://www.kk-corp.co.jp/	
MICROMETALS (Nisshin Electric Co., Ltd.)	+81-4-2934-4151 http://www.nisshin-electric.com/	Ferrite core
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	
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	Connector
Sumitomo 3M	+81-3-5716-7290 http:/solutions.3m.com/wps/portal/3M/ja_JP/ WW2/Country/	
Tyco Electronics	+81-44-844-8052 http://www.te.com/ja/home.html	
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/	
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/	External scale
Mitutoyo Corporation	+81-44-813-8234 http://www.mitutoyo.co.jp/eng/	External Scale
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


A5 Family

nformation

# **Compact Servo Only for Position Control.**

# Ultra compact position control type

# MINAS E Series



## **Best Fit to Small Drives**

Further evolution in down-sizing, by 47 % in size. (Note)
 Exclusively designed for position control.

(Note) Compared to MUDS043A1

## 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.



## 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.

## Smoother operation for Low Stiffness Machine

• Damping control function suppresses vibration during acceleration/deceleration

Motor Line-up...... Model Designation.... Overall Wiring ..... Driver and List of Ap Driver Specifications Standard Wiring Exa Encorder Wiring Dia Control Circuit Stand Dimensions of Drive

Features ..

Specifications/Mode Dimensions of Mote Motors with Gear Re

## Options .....

Setup Support Softw Cable part No. Desi Cable Set ...... Encoder Cable ...... Motor Cable ...... Brake Cable ..... Connector Kit ..... Interface Cable ..... Communication Cat Console ..... DIN Rail Mounting U External Regenerati Reactor ..... Surge Absorber for List of Peripheral Do

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#### **Features**

# 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.

# **2**. Further Reduction of Vibration

#### Adaptive filter (Note1)

#### Notch filter (Note1)

1-channel notch filter is equipped in the driver indepen-

of the machine which has multiple resonance points can

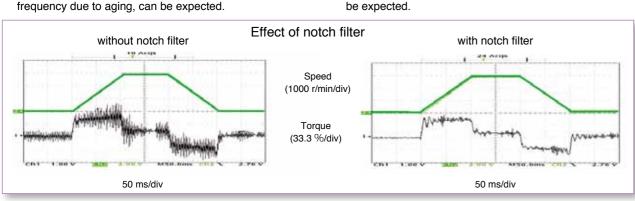
**DIN-rail mounting unit (option)** 

DIN-rail mounting unit allows parallel mounting with small

control devices such as PLC.

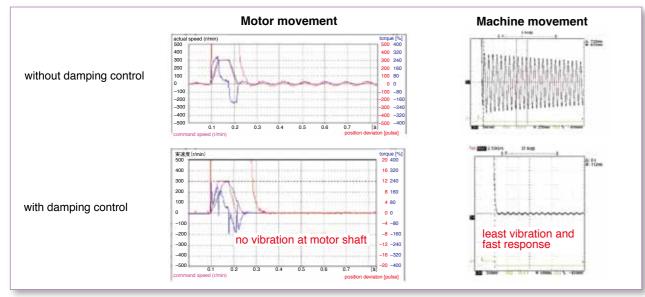
Easy to mount and easy to dismount.

- 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.
- dent from adaptive filter.
   Each of 2 filters can set up frequency and notch width, and frequency in 1Hz unit. Suppression of "Judder" noise



#### 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.

# E Series

#### 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	
	EN50178	UL508C CSA22.2 No.14	Directives	
	EN55011	Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment		
	EN61000-6-2	Immunity for Industrial Environments		
	EC61000-4-2	Electrostatic Discharge Immunity Test		
Motor and driver	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	Conforms to references	
unver	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test	by EMC Directives	
	IEC61000-4-5	Lightening Surge Immunity Test	]	
	IEC61000-4-6	High Frequency Conduction Immunity Test		
	IEC61000-4-11	Instantaneous Outage Immunity Test	1	
EN : E EMC : E UL : U	nternational Elec Europaischen No Electromagnetic ( Inderwriters Lab Canadian Standa	Compatibility oratories		
Pursuar	nt to at the directi	ve 2004/108/EC,article 9(2)		
	nic Testing Centr			

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.

# MINAS E series

## Motor Line-up

		Rated rotational	Rotary	encoder	Brake	Gear				
Motor series	Rated output (kW)	speed (Max. (speed) (r/min)	2500 P/r incremental	17bit absolute/ incremental	Holding	High precision	UL/ CSA	Enclosure	Features	Applications
MUMA										
	0.05 to 0.4 0.05 0.1 0.2 0.4	3000 (5000)	0	_	0	0	0	IP65 Except shaft throughhole and connector	Small capacity Ultra low inertia	SMT machines Inserters High repetitive positioning application

# MINAS E Series

## **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 Voltage specifications 5A 50 W Specifications 01 100 W Symbol 02 200 W 1 100 V 04 400 W 2 200 V 100 V/200 V common Ζ (50 W only)

#### **Rotary encoder specifications**

Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

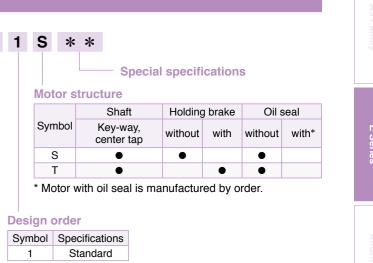
#### Motor with gear reducer

## M U M A 0 1 1 P 3 1 N

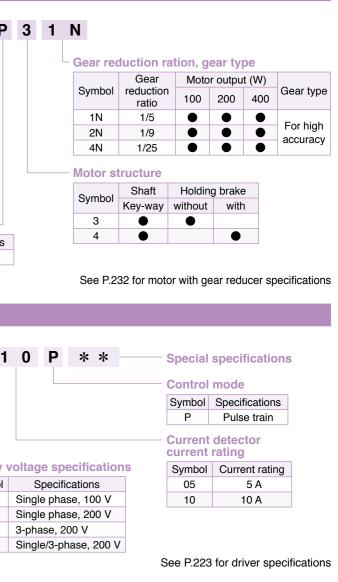
				Motor r	ated o	output	
Symbol	Туре			Symbol	Rated	d output	
	Ultra low in	ertia		01	10	W 0	
MUMA	(100 W to 40	(W 00		02	20	W 0	
			_	04	40	0 W	1
	Symbol						
		_	Specific				
		1		100	V		
	-	2		200	V		
Rotary encoder specifications							
Symbol	Format	Pulse counts		s Res	solution	Wir	
Р	Incrementa	al	1	2500 P/r	1	0000	5

#### Servo Driver

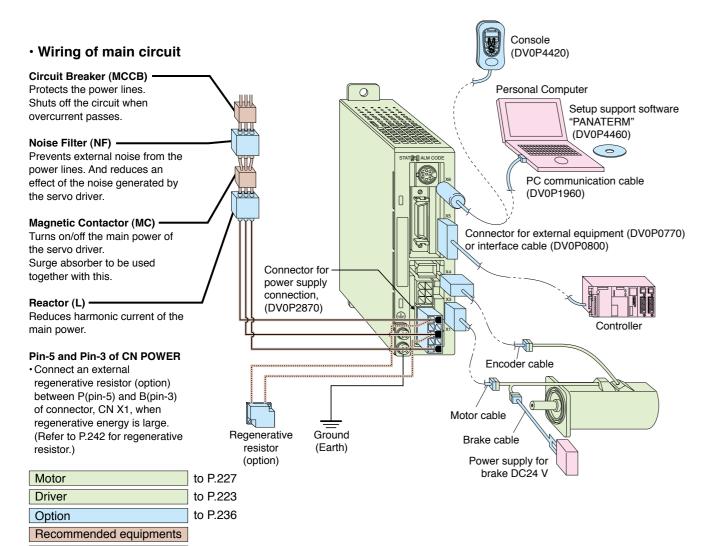
		Μ	K	D	Ε	Т	1	3	1
Frame s	ymbol —								
Symbol	Fra	me							
MKDE	E series,	K-fran	ne						
MLDE	E series,	L-fran	ne						
	P							Supp	oly v
		wer d ax. cu			ina			Sym	loc
		vmbol			rating			1	
	5	T1	0	10		-		2	
		••						3	
		T2		15	A			5	



#### See P.227 for motor specifications



## **Overall Wiring/ Driver and List of Applicable Peripheral Devices**



Parts customer to prepare

## Table of Part Numbers and Options

#### 2500P/r, Incremental Option Power Output Dimensions External Noise Rating/Spec. **Encoder Cable** Motor Cable Brake Cable supply Motor Note) 1 (W) Regenerative Reactor Driver (Frame) (page) Filter Note) 2 Note) 2 Note) 2 (symbol) Resistor MUMA5AZP1 MKDET1105P 227 226 (K) 50 Single DV0P227 MUMA011P1 MKDET1110P 226 (K) DV0P2890 100 227 phase 100 V 200 MUMA021P1 🗌 226 (L) DV0P228 227 MLDET2110P 50 MUMA5AZP1 229 MKDET1505P 226 (K) Single 100 MUMA012P1 MKDET1505P 226 (K) 229 phase 200 MUMA022P1 229 226 (L) MLDET2210P 200 V MFECA0 \* \* 0EAM MFMCA0 \* \* 0AEB DV0P4160 MFMCB0 \* \* 0GET 400 MUMA042P1 226 (L) 229 MLDET2510P 50 MUMA5AZP1 229 MKDET1505P 226 (K) DV0P2891 DV0P220 226 (K) 100 MUMA012P1 229 MKDET1505P 3-phase 200 MUMA022P1 229 MKDET1310P 226 (K) 200 V MLDET2510P MUMA042P1 400 229 226 (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.

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#### List of recommended peripheral devices

_	Мо	otor	Power			Magnetic													
Power supply	Series	Output	capacity (at rated) output )	Circuit Breaker (Rated current)	Noise Filter	Contactor (Contact (Composition)	Wire diameter (L1, L2, L3, U, V and W)												
Single		50 W	0.3 kVA	(5.4)		10.4													
phase,		100 W	0.4 kVA	(5 A)		10 A (3P+1a)													
100 V		200 W	0.5 kVA	(10 A)		(SF+1a)													
	1	50 W	0.3 kVA	(5 A)     15 A     0.       A     DV0P4160     (3P+1a)     0.       A     (10 A)     10 A     10 A															
Single		100 W	0.3 KVA		(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	0.75		
phase, 200 V	MUMA	200 W	0.5 kVA			(3P+1a)	0.75 mm <sup>2</sup> to 0.85 mm <sup>2</sup> AWG18												
200 1		400 W	0.9 kVA						A	/		AWGIO							
	1	50 W 0.3 kVA	0.0 14/4																
3-phase		100 W	0.3 KVA		(5 A) 10 A		(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	(5 A)	10 A	10 A	
200 V		200 W	0.5 kVA							(3P+1a)	(3P+1a)								
		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, (1)) marked) between

- To conform to EC Directives, install a circuit breaker whic 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 mm<sup>2</sup> (AWG14) or larger.

#### Fastening torque list

Groun	d terminal screw		nector to host ontroller[X5]
Nominal size	Fastening torque (N·m)(Note 3)	Nominal size	Fastening torque (N·m)(Note 3)
M4	0.7~0.8	M2.6	0.2±0.05

(Note 3) <Caution>

 Applying fastening torque larger than the maximum value may result in damage to the product.

#### <Remarks>

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

#### Carrying page

	Options	5	Part No.	Carrying page	
Console			DV0P4420	241	
Setup Support Software,		Japanese	DV0P4460	236	
PANATERM		English	D V 01 4400	230	
RS232 Commu (for Connection			DV0P1960	241	
Interface Cable	)		DV0P0800	241	
Connector Kit f	or Exter	nal Equipment	DV0P0770	240	
Connector Kit f	or Moto	r and Encoder	DV0P3670	239	
Connector Kit f	or Drive	r Power Supply	DV0P2870	239	
Encoder Cable		MFECA0 * *	0EAM	238	
Motor Cable		MFMCA0 * *	MFMCA0 * * 0AEB		
Brake Cable		MFMCB0 * *	238		
Cable Set (3 m	) (Note 4)	DV0P37300	238		
Cable Set (5 m	) (Note 4)	DV0P39200		238	
DIN Rail Moun	t Unit	DV0P3811		242	
External	100 V	50 Ω 10 W	DV0P2890	242	
Regenerative Resistor	200 V	100 Ω 10 W	DV0P2891	242	
		100 V	DV0P227		
Reactor		100 V	DV0P228	243	
		200 V	DV0P220		
Noise Filter			DV0P4160	256	
Surge Absorbe		ngle phase 0 V, 200 V	DV0P4190	256	
	3-p	hase 200 V	DV0P1450		
Ferrite core			DV0P1460	256	

(Note 4) 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

Family

E Series

Information

## **E** Series

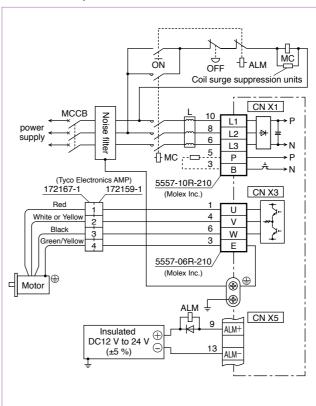
## **Driver Specifications**

	lnp	Sing	gle phase, 100 V	Single phase, 100 V to 115 V +10 % -15 % 50 Hz/60 Hz					
	Input power	Sing	gle phase, 200 V	Single phase, 200 V to 240 V +10 % -15 % 50 Hz/60 Hz					
	ver	3-pł	nase, 200 V	3-phase, 200 V to 240 V +10 % -15 % 50 Hz/60 Hz					
	Ē	Tem	perature	Operating : 0 °C to 55 °C, Storage : -20 °C to 65 °C (Max.temperature guarantee 80 °C for 72 hours <nomal temperature="">)</nomal>					
	Environment	Hun	nidity	Both operating and storage : 90 %RH or less (free from condensation)					
	nme	Altit	· ·	1000 m or lower					
	nŧ	Vibr	ation	5.88 m/s <sup>2</sup> or less, 10 Hz to 60 Hz (No continuous use at resonance frequency)					
	With	nstand	voltage	Should be 1500 VAC (Sensed current: 20 mA) for 1 minute between Primary and Ground.					
ľ	Con	trol m	ethod	IGBT PWM Sinusoidal wave drive					
Ī	Enc	oder f	eedback	2500 P/r (10000 resolution) incremental encoder					
	ംറ	Inpu	ıt	7 inputs (1) Servo-ON, (2) Alarm clear and other inputs vary depending on the control mode.					
1	Control signal	Out	put	<ul><li>4 outputs (1) Servo alarm, (2) Alarm,</li><li>(3) Release signal of external brake and other outputs vary depending on the control mode.</li></ul>					
ľ	<u>м</u> т	Inpu	ıt	2 inputs Supports both line driver I/F and open collector I/F.					
1	Pulse signal	Out	put	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.					
	Con	nmuni	cation function RS232	1 : 1 communication to a host with RS232 interface is enabled.					
		olay LE		(1) Status LED (STATUS), (2) Alarm code LED (ALM-CODE)					
ł		jenera		No built-in regenerative resistor (external resistor only)					
ł		ynamic brake Built-in							
	-	itrol m		3 modes of (1) High-speed position control, (2) Internal velocity control and (3) High-functionality positioning control are selectable with parameter.					
	Control input		trol input	<ul> <li>(1) CW over-travel inhibition, (2) CCW over-travel inhibition, (3) Deviation counter clear,</li> <li>(4) Gain switching, (5) Electronic gear switching</li> </ul>					
		Con	trol output	(1) Positioning complete (In-position)					
	Positic		Max. command pulse frequency	Line driver : 500 kpps, Open collector : 200 kpps					
	Position control	Pulse	Type of input pulse train	Differential input. Selectable with parameter, ((1) CW/CCW, (2) A and B-phase, (3) Command and Direction)					
	<u>0</u>	input	Electronic gear (Division/Multiplication) of command pulse	Setup of electronic gear ratio Setup range of $(1-10000) \times 2^{(0-17)}/(1-10000)$					
			Smoothing filter	Primary delay filter or FIR type filter is selectable to the command input.					
	Inter	Con	trol input	<ol> <li>(1) CW over-travel inhibition, (2) CCW over-travel inhibition, (3) Selection 1 of internal command speed,</li> <li>(4) Selection 2 of internal command speed, (5) Speed zero clamp</li> </ol>					
	rnal	Con	trol output	(1) Speed arrival (at-speed)					
	spee	Inte	rnal speed command	Internal 4-speed is selectable with control input.					
	Internal speed control		-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.					
	rol	Zero	o-speed clamp	0-clamp of internal speed command with speed zero clamp input is enabled.					
		Auto-g	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.					
		Mas inpu	king of unnecessary	Masking of the following input signal is enabled. (1) Over-travel inhibition, (2) Speed zero clamp, (3) Torque limit switching					
Comm	Common	puls	sion of encoder feedback e	1 P/r to 2500 P/r (encoder pulses count is the max.).					
	on	Protective function	Hardware error	Over-voltage, under-voltage, over-speed over-load, over-heat, over-current and encoder error etc.					
		on tive	Software error	Excess position deviation, command pulse division error, EEPROM error etc.					
		Trac	eability of alarm data	Traceable up to past 14 alarms including the present one.					
T		Dan	nping control function	Manual setup with parameter					
				Quantum					
		Setup	Manual	Console					

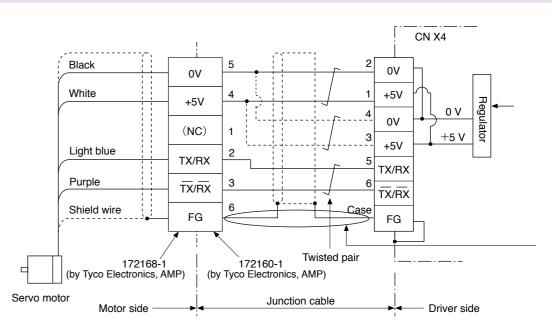
## Standard Wiring Example of Main Circuit/ **Encorder Wiring Diagram**

#### Standard Wiring Example of Main Circuit

3-Phase, 200 V



#### **Encorder Wiring Diagram**

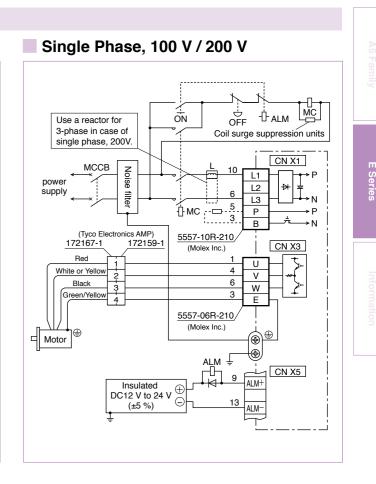


1) Refer the wiring diagram.

- 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.

# **E** Series Wiring Diagram



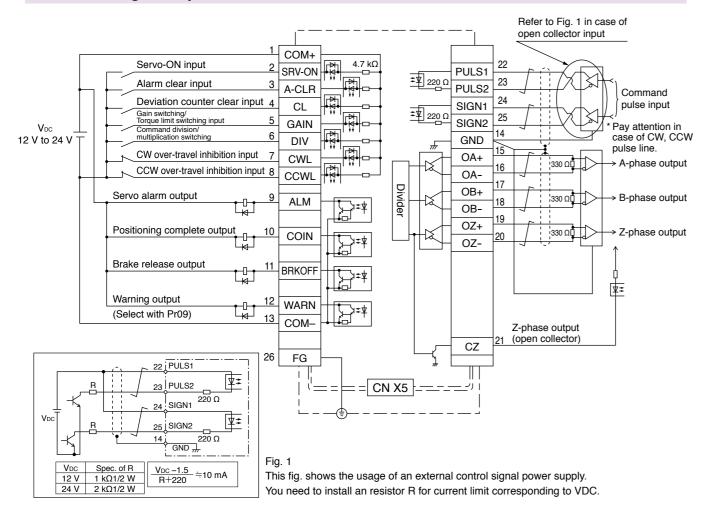
#### When you make your own junction cable for encoder (Refer to P.239, P.240 "Options" for connector.)

2) Use the twisted pair wire with shield, with core diameter of 0.18 mm<sup>2</sup> (AWG24) or larger, with higher

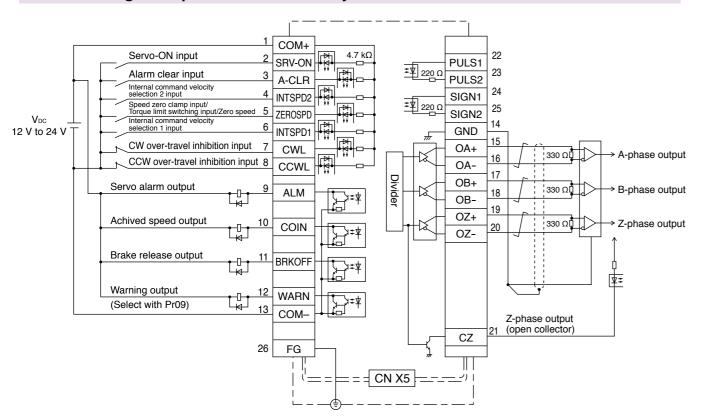
**Wiring Diagram** 

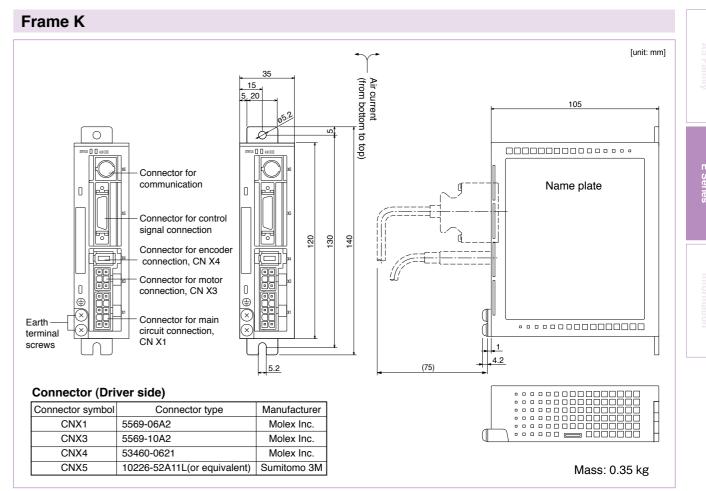
## **Control Circuit Standard Wiring Example**

#### CN X 5 Wiring Example at Position Control Mode



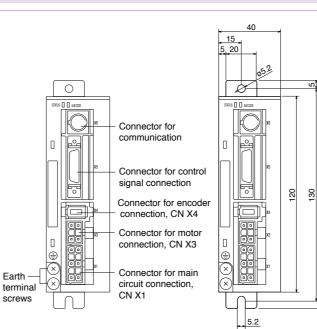
#### **CN X 5 Wiring Example at Internal Velocity Control Mode**





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

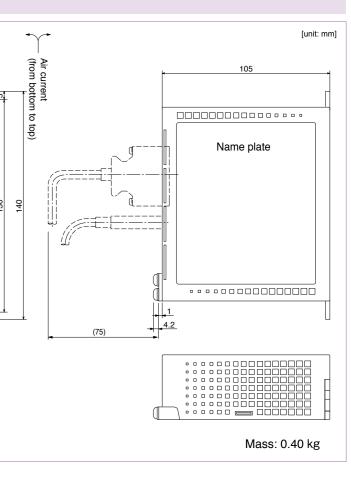
#### Frame L



#### 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

# **E** Series **Dimensions of Driver**



## **E** Series

**Motor Specifications** 

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	KDET1105P MKDET1110P					
Applicable driver Frame symbol		Fran	ne 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	Without option		No limit Note)2					
frequency (times/min) Note)1	DV0P2890	No limit Note)2						
Rated rotational speed (r/min)		3000						
Max. rotational speed (r/min)		5000						
Moment of inertia	Without brake	0.021	0.032	0.10				
of rotor (×10 <sup>-4</sup> kg⋅m <sup>2</sup> )	With brake	0.026	0.036	0.13				
Recommended momen of the load and the roto		30 times or less						
			2500 P/r					
Rotary encoder specifie	cations	Incremental						
Resolutio	on per single turn		10000					
Protective enclosure ra	iting	IP65 (except ro	tating portion of output shaft and	lead wire end)				
Ambien	t 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="">)</nomal>						
Ambien	t humidity	85 %	6RH or lower (free from condensi	ing)				
Environment Installat	ion location	Indoors (no direct sunlight),	, free from corrosive gas, inflamm	able gas, oil mist and dust				
Altitude			1000 m or lower					
Vibratio	n resistance		49 m/s <sup>2</sup> 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 b	e released when it is energize	d. Do not use this for braking t	the motor in motion.)				

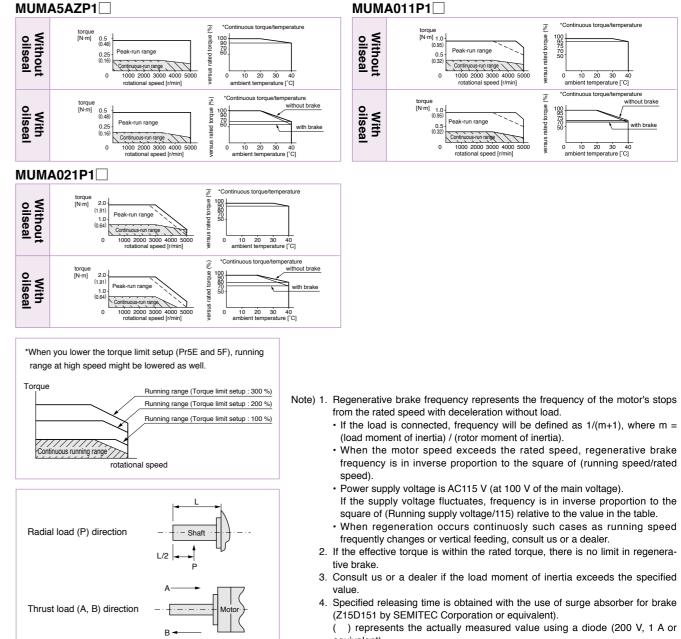
			,				
Static frictio	n torque (N·m)	0.29	1.27				
Engaging tir	me (ms)	25	50				
Releasing ti	me (ms) Note)4	20 (30)	15 (100)				
Exciting cur	rent (DC) (A)	0.26	0.36				
Releasing v	oltage	DC 1 V or more					
Exciting volt	tage	DV 24 V ±10 %					
Permissible	load						
<b>D</b> .	Radial load P-direction (N)	147	392				
During assembly	Thrust load A-direction (N)	88	147				
	Thrust load B-direction (N)	117	196				
<b>_</b> .	Radial load P-direction (N)	68	245				
During operation	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.

.) N		M	A <u>5</u>	AZ	P -					
Symbol	Туре					sign order Standard				
MUMA	Ultra low ine (50 W to 200					Motor stru	cture			
							Shaft H	olding brake	Oil se	al
Notor rate	ed output		Voltage s	pecifications		Symbol	Key-way, center tap	ithout with	without	with
Symbol	Rated output		Symbol	Specifications		S		•		
5A	50 W		1	100 V		T	•	•	•	
01	100 W		Z	100/200 V						
02	200 W		2	(50 W only)						
					Rotary er	ncoder specifica	tions			
					Symbol	Format	Pulse counts	Resolution	Wires	
					Р	Incremental	2500 P/r	10000	5	

#### Torque Characteristics [at AC100 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]





- equivalent)

## **E** Series

**Motor Specifications** 

200 V MUMA 50 W to 400 W [Low inertia Small drives]

				AC2	00 V				
Motor model MU		MUMA	5AZP1	012P1	022P1	042P1			
Applicable driver					MKDET1310P	MLDET2310P			
		Model No.	MKDE	T1505P	MKDET2210P	MLDET2510P			
		Frame symbol	Frame K		Frame K	Frame L			
		Frame symbol	Frame K		Frame L	Frame L			
Power supply capacity (kVA)		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 Ma	ix. peak to	orque (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 Without option			No limit	Note)2				
trequency (tin	frequency (times/min) Note)1 DV0P2891		No limit Note)2						
Rated rotationa	Rated rotational speed (r/min)		3000						
Max. rotational	speed (r/	/min)	5000						
Moment of ine	rtia	Without brake	0.021	0.032	0.10	0.17			
of rotor (×10 <sup>-4</sup> kg⋅m <sup>2</sup> )		With brake	0.026	0.036	0.13	0.20			
Recommended of the load and			30 times or less						
				250	0 P/r				
Rotary encode	r specifica	ations			mental				
	<b>D</b> 1 1								
Ducto ativo anal		ion per single turn		-	000				
Protective encl	osure rati	ing		except rotating portion of	•	,			
	Ambier	nt 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="">)</nomal>						
	Ambier	nt humidity		85 %RH or lower (fre	ee from condensing)				
Environment	Installa	tion location	Indoors (no direct	sunlight), free from corro	sive gas, inflammable gas	s, oil mist and dust			
	Altitude	9		1000 m	or lower				
	Vibratio	on resistance		49 m/s <sup>2</sup>	or less				
Mass (kg), ( ) re	epresents l	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			
	Radial load P-direction (N)	147	392
During assembly	Thrust load A-direction (N)	88	147
·····	Thrust load B-direction (N)	117	196
	Radial load P-direction (N)	68	245
During operation	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.

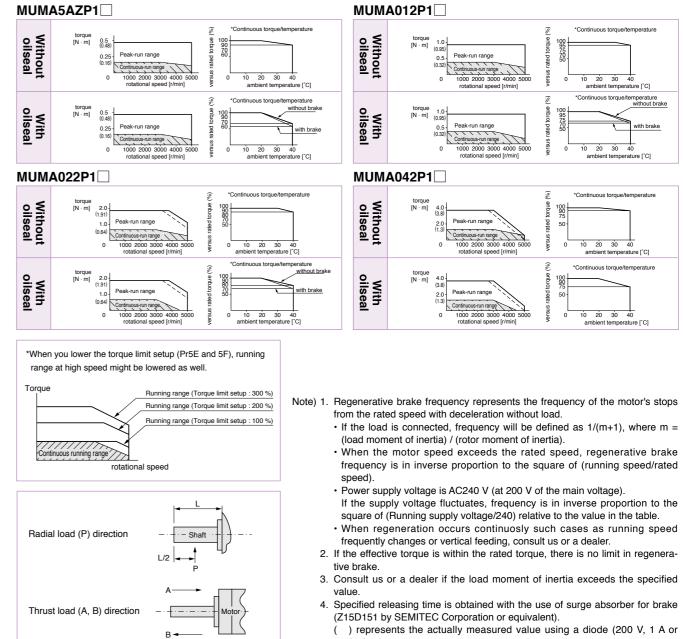
Driver for 200 W, the upper row is the power supply of 3-phase 200 V, and lower is the power supply of single-phase 200 V.

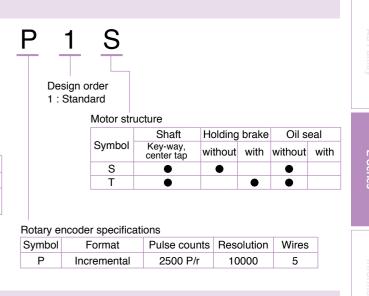
Driver for 400 W, the upper row is the power supply of 3-phase 200 V, and lower is the common power supply of single-phase and 3-phase 200 V.

N	lod	el I	Design	ati	ion					
e.	g.)	N	1 U		Μ	Α	ļ	5	Α	Ζ
	Syn	nbol	Ту	pe						
	MU	MA	Ultra lov (50 W to							
	Moto	r rate	ed output				Voltage	e spe	cification	s
	Sym	bol	Rated out	put			Symb	ol	Specifica	tions
	5/	۹.	50 W	50 W			2		200 \	/
	01	1	100 W				7		100/200	
	02	2	200 W						(50 W o	nly)
	04	1	400 W							

### Torque Characteristics [at AC200 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]

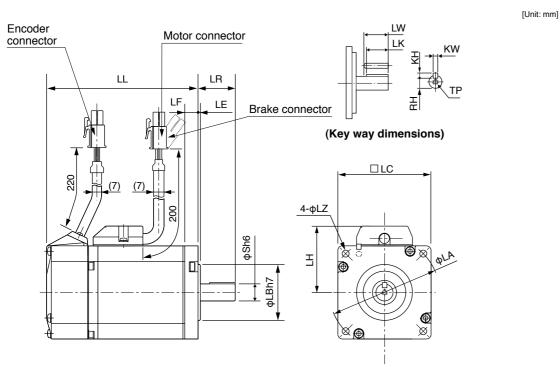






- equivalent)

#### MUMA 50 W to 400 W **Dimensions of Motor**



\* Dimensions are subject to change without notice. Contact us or a dealer for the latest information

		_				[Unit				
				MUMA series	(Ultra low inertia)					
Motor output			50 W	100 W	200 W	400 W				
Motor mode	el .	MUMA	5A 🗆 P 1 🗌	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				
LL		With brake	107	124	129	156.5				
	LR		24	24	30	30				
	S		8	8	11	14				
LA LB			48	48	70	70				
		LB 22	22	50	50					
	LC LE LF LH				LC		42	42	60	60
					2	2	3	3		
			7	7	7	7				
			34	34	43	43				
	LZ		3.4	3.4	4.5	4.5				
	LW		14	14	20	25				
-	LK		12.5	12.5	18	22.5				
K	ΚW		3h9	3h9	4h9	5h9				
Key way	КH		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)				
Mana (luci)		Without brake	0.40	0.50	0.96	1.5				
Mass (kg)		With brake	0.60	0.70	1.36	1.9				
Connector/F	Plug spec	cifications		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.

## Motor Types with Gear Reducer

Reduction	Мо	tor output (	Type of	
ratio	100	200	400	reducer
1/5	•	•		
1/9	•	•		For high precision
1/25				precision

Mode	l No. I	Desi	gnatio	n					
e.g.)	Μ	U	Μ	ŀ	<u> </u>	)	1	1	
	Symbol		Туре						
	MUMA		ow inertia to 400 V	-					
	Motor rate	ed outp	out —						
	Symbol	Rated	output		Mallana		10 1 <sup>1</sup>		
	01	10	0 W 0		Voltage s				
	02	20	0 W 0		Symbol	S	pecificati	ions	
	04	40	0 W 0		1		100 V		
					2		200 V		
Rot	ary encod	der spe	cification	s —					
S	ymbol	Fo	rmat	F	ulse coun	ts	Pulse co	ounts	Γ

#### Specifications of Motor with Gear Reducer

Incremental

2500 P/r

Ρ

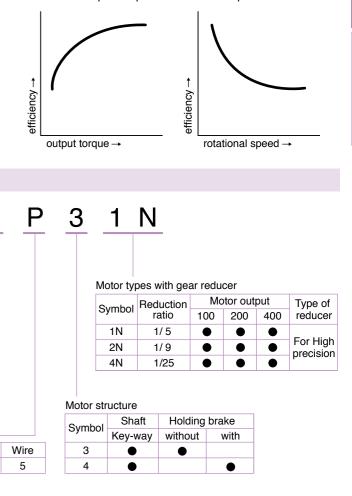
-				
	Motor type	MUMA		
	Backlash	3 minutes or smaller (initial value) at output shaft of the reducer		
	Composition of gear	Planetary gear		
	Gear efficiency	65 % to 85 %		
0	Rotational direction at output shaft (of reducer)	Same direction as the motor output shaft		
Gear	Composition of gear	Planetary gear		
reducer	Mounting method	Flange mounting		
	Permissible moment of inertia of the load	10 times or smaller than rotor moment of inertia of the motor		
	(conversion to the motor shaft)			
	Protective structure	IP44 (at gear reducer)		
	Ambient temperature	0 °C to 40 °C		
<b>_</b>	Ambient humidity	85 %RH (free from condensation) or less		
Environment	Vibration resistance	49 m/s <sup>2</sup> or less (at motor frame)		
_	Impact resistance	98 m/s <sup>2</sup> or less		

## **E** Series

Motors with Gear Reducer

# **MINAS E Series Motors with Gear Reducer**

Efficiency of the gear reducer shows the following inclination in relation to output torque and rotational speed.



#### **E** Series Table of Motor Specifications/ Motors with Gear Reducer The Combination of the Driver and the Motor

#### Table of Motor with Gear Reducer Specifications

	Motor		MUMA with gear reducer											
Model	Output	Output Reduction		Rated			Peak max.	Moment of inertia (motor + reducer/converted to motor shaft)					Permissible	
		ratio		speed	speed	torque		w/o brake	w/ brake	w/o brake	w/ brake	radial load	thrust load	
	(W)		(W)	(r/min)	(r/min)	(N·m)	(N·m)	J ( × 10	J ( × 10 <sup>-4</sup> kg·m²)		(kg)		(N)	
MUMA01 P 1N		1/5	75	600	1000	1.18	3.72	0.072	0.076	1.05	1.25	490	245	
MUMA01 P 2N	100	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		1/5	170	600	1000	2.65	8.04	0.218	0.248	1.68	2.08	490	245	
MUMA02 P 2N	200	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		1/5	340	600	1000	5.39	16.2	0.533	0.563	3.2	3.6	980	490	
MUMA042P 2N	400	1/9	332	333	555	9.51	28.5	0.438	0.468	3.2	3.6	1180	588	
MUMA042P 4N	1	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.

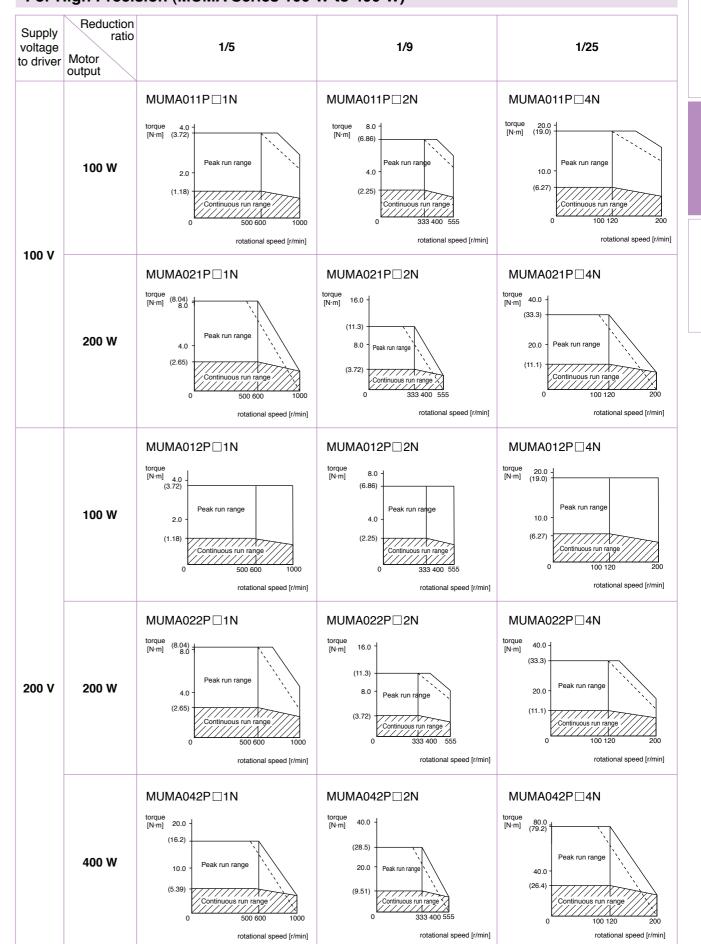
### The Combination of the Driver and the Motor with Gear Reducer

Combination with driver		10	0 V	200 V			
Encoder	Motor	Part No. of motor	Single phase, 100 V	Part No. of motor	3-phase, 200 V	Single phase, 200 V	
Elicodei	output	with gear reducer	Part No. of driver	with gear reducer	Part No. of driver	Part No. of driver	
	100 W	MUMA011P	MKDET1110P	MUMA012P	MKDET1505P	MKDET1505P	
2500 P/r	200 W	MUMA021P	MLDET2110P	MUMA022P	MKDET1310P	MLDET2210P	
Incremental	400 W				MLDET2510P	MLDET2510P	
	400 W	-	_	MUMA042P	MLDET2310P	MLDE12510P	

For dimensions, refer to P.235.

# **Torque Characteristics**

## For High Precision (MUMA Series 100 W to 400 W)



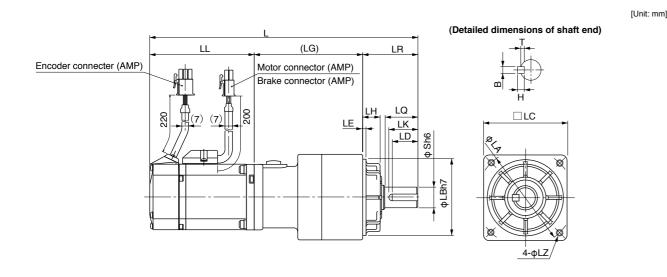
Dotted line represents the torque at 10 % less supply voltage.

## **E** Series

## Motors with Gear Reducer

#### **Motor Dimensions Motors with Gear Reduce**

### **MUMA** series with Gear Reducer



#### 2500 P/r Encoder

																[L	Jnit: mm			
Model	Motor output	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	s	LH	LZ	LK	(LG)	LE	Key way B×H×LD	т			
MUMA01 P 1N		1/5	192	92.5												4×4×16	2.5			
		175	223.5	124	32	20		52 50	60	12	10	M5	18	67.5						
MUMA01 P 2N	100 W	1/9	192	92.5	32	20	52		00	12	10	(Depth: 12)	10	07.5						
	100 00	1/5	223.5	124																
MUMA01 P 4N					1/25	234.5	92.5	50	30	78	70	90	19	17	M6	26	92	3	6×6×22	3.5
		1/25	266	124	50	30	70	70	90	19	17	(Depth: 20)	20	52	3	0x0x22	5.5			
MUMA02 P 1N		1/5	200.5	96	32	20	20	32 20	20 52	50	60	60 12	12 10	M5	18	72.5		4×4×16	2.5	
		175	233.5	129		52 20		50		12	10	(Depth: 12)	10	12.5		424210	2.5			
MUMA02 P 2N	200 W	200 W 1/9	235.5	96										89.5						
	200 VV	175	268.5	129												09.5				
MUMA02 P 4N		1/25	246	96										100		6×6×22	3.5			
		1/25	279	129	50	30	78	70	90	19	17	M6	26	100						
MUMA042P 1N		1/5	263	123.5	50	50	70	70	90	19	17	(Depth: 20)	20			0X0X22	3.5			
		175	296         156.5           263         123.5				89.5													
MUMA042P 2N	400 W	1/9						09.0												
	400 W 179 296	156.5																		
MUMA042P 4N		1/25	288.5	123.5	61	40	98	90	115	5 24	18	M8	35	104	5	8×7×30	4			
WUWAU424L4N		1/20	321.5	156.5	01	40	90	90	115	24	10	(Depth: 20)	30	104	э	0x/x30	4			

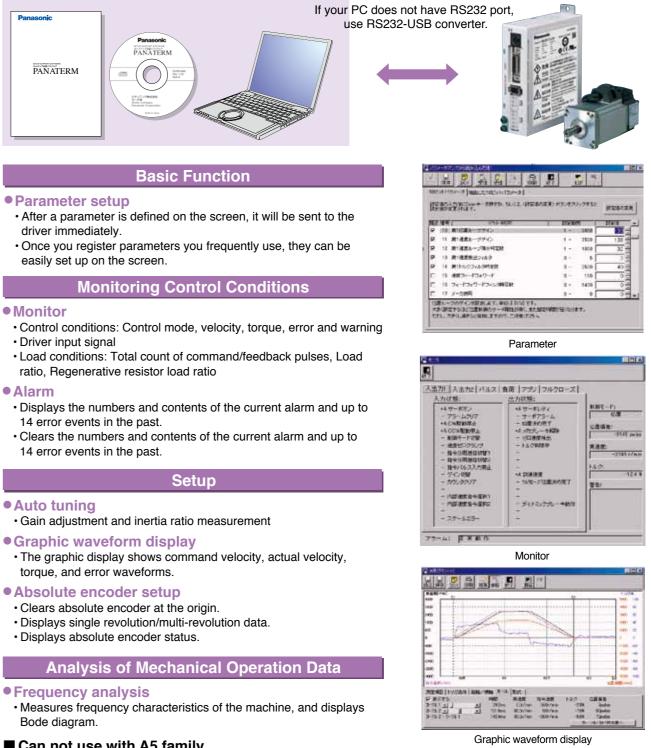
Upper column : without brake Lower column · with brake

# **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.



#### Parameter setup

#### • Alarm

#### Absolute encoder setup

#### ■ Can not use with A5 family.

#### Hardware configuration

- [Personal computer] CPU : Pentium 100MHz or more Memory : 16 MB or more (32 MB recommended)
- [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

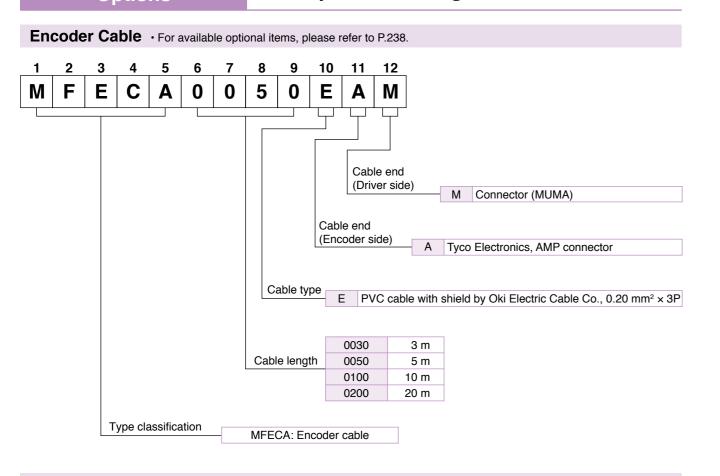
# **E** Series

Options

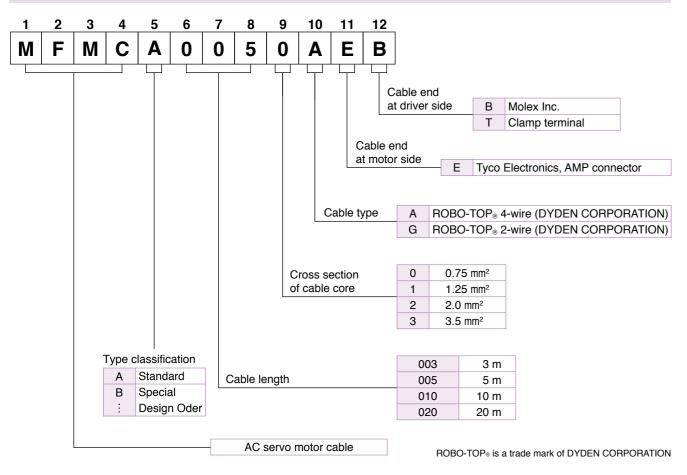
• Hard disk capacity (vacancy of 25 MB or more recommended) • OS : Windows® 98, Windows® Me, Windows® 2000, Windows® XP (US version) · Communication speed of serial communication port : 2400 bps or more (The software may not operate normally using USB-to-Serial adapter.)

Options

## Cable part No. Designation



#### Motor Cable, Brake Cable · For available optional items, please refer to P.238.



## Cable

Cable Set (3 m)								
Part No.	DV0P37300							
<ol> <li>Interface cable : DV0P0800</li> <li>Encoder cable (3 m) : MFECA0030EAM</li> <li>Motor cable (3 m) : MFMCA0030AEB</li> <li>Connector kit for driver power supply connection : DV0P2870</li> </ol>								
ncoder	Cable							
Part No.	MFECA0 * * 0E	AM						
Title Part No.								
Con	nector (Driver side)	3E206-0100KV						
	Shell kit	3E306-3200-008						
	Connector Connector Pin	172160-1 170365-1						
	Cable	0.20 mm <sup>2</sup> × 3P						

### Motor Cable (ROBO-TOP<sub>®</sub> 105 °C 600 V . DP)

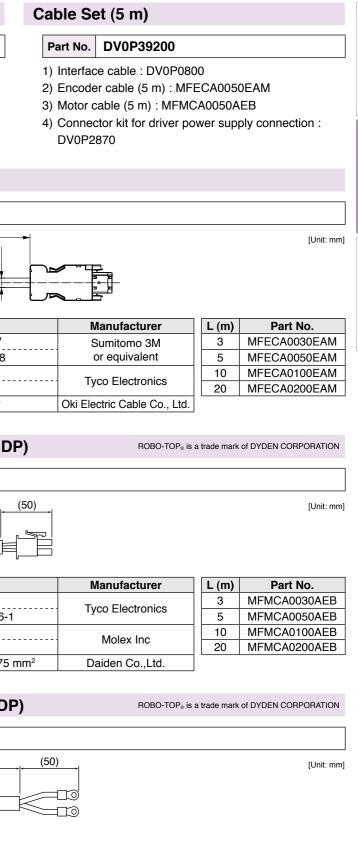
Part No.	MFMCA0 * * 0A	EB
	(	50) L
	Title	Part No.
	Connector	172159-1
	Connector Pin	170362-1, 170366-
	Connector	5557-06R-210
[	Connector Pin	5556T
		00001
	Cable	ROBO-TOP 600 V 0.75

## Brake Cable (ROBO-TOP<sub>®</sub> 105 °C 600V . DP)

art No.	No. MFMCB0 * * 0GET								
	Title	Part No.	Manufacturer	L (m)	Part No.				
	Connector	172157-1	Tura Electronica	3	MFMCB0030GET				
	Connector Pin	170362-1, 170366-1	Tyco Electronics	5	MFMCB0050GET				
Nylon i	nsulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	10	MFMCB0100GET				
	Cable	ROBO-TOP 600 V 0.75 mm <sup>2</sup>	Daiden Co.,Ltd.	20	MFMCB0200GET				

## **E** Series

## Options



## **Connector Kit**

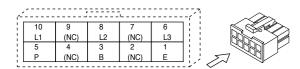
#### **Connector Kit for Power Supply Connection**

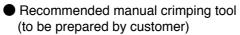
#### Part No. DV0P2870

#### Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector (10 pins)	5557-10R-210	1	Moley Inc	For connector, CN X1
Connector pin	5556PBTL	6 Molex Inc.		(10 pins)

#### Pin configuration of connector CN X1





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.)

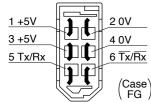
#### Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV			For connector, CN X4
Shell kit	3E306-3200-008			(6 pins)
Connector (6 pins)	172160-1	1	Tyco Electronics	For junction to encoder cable
Connector pin	170365-1	6	Tyco Electronics	(6 pins)
Connector (4 pins)	172159-1	1	Tyco Electronics	For junction to motor power cable
Connector pin	170366-1	4	Tyco Electronics	(4 pins)
Connector (6 pins)	5557-06R-210	1	Molex Inc.	For connector, CN X3
Connector pin	5556PBTL	4	WOIEX INC.	(6 pins)

#### <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	Tyco Electronics		
For Connector CN X3	57026-5000	Malay Inc	UL1007	
	57027-5000	Molex Inc.	UL1015	

#### <Remarks>

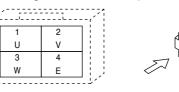
- 1. The above pin configuration is shown when viewed from the pin-soldering direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Connect the shield of the wire to the case (FG) without fail.
- 3. For wiring and connection, refer to P.224.

#### Pin configuration of encoder cable junction

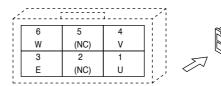
_	i			
	1	2	3	
	NC	TX/RX	TX/RX	
	4	5	6	
	+5V	0V	FG	j
1				11



#### Pin configuration of motor power cable junction



Pin configuration of mating connector to CN X3 connector



#### <Cautions>

- checking the stamped pin numbers on the connector itself.
- 2. Refer to P.224 for wiring and connection.

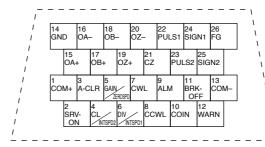
#### **Connector Kit for External Peripheral Equipment**

#### Part No. DV0P0770

Parts composition	Parts compo	sition
-------------------	-------------	--------

Title	Part No.	Number	Manufacturer	Note
Connector	10126-3000PE	1	Sumitomo 3M	For connector, CN X5
Connector cover	10326-52A0-008	1	or equivalent	(26 pins)

#### 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.



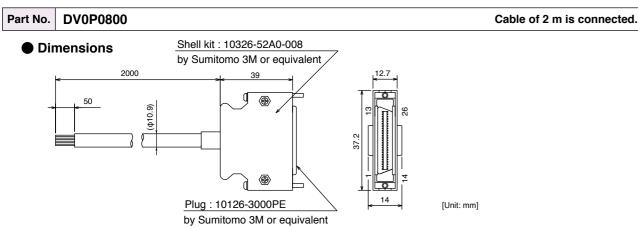
1. The above pin configuration is shown when viewed from the terminal inserting direction. Make a correct wiring by

## **E** Series

Options

## Interface Cable/ Communication Cable/ Console

#### Interface Cable



#### • 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>

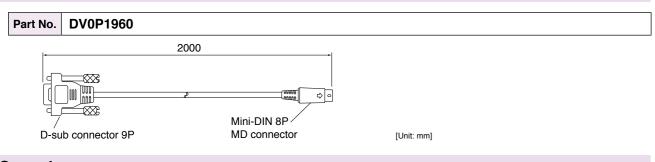
e. g. of Pin No. designation : Pin No. 1 ..... Wire color is orange, and one red dot.

Pin No. 12 ... Wire color is orange, and two black dot.

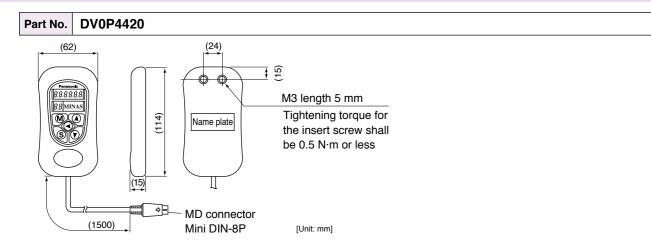
#### <Remarks>

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)

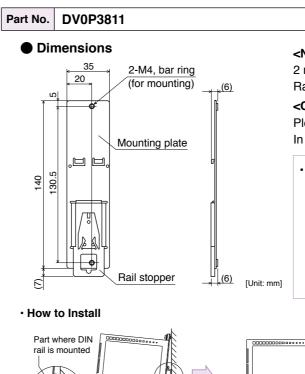


#### Console



## DIN Rail Mounting Unit/ External Regenerative Resistor





DIN rail Used the unper side of DIN

Hook the upper side of DIN rail mounting part on the DIN rail.

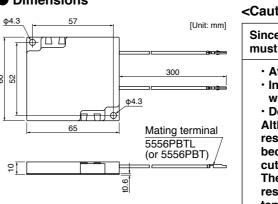
Ensure that the rail stop has been pushed in. Press lightly the lower of the main body of dri

liahtly

#### **External Regenerative Resistor**

			Specif	ications		
Part No.	Manufacturer's Part No.	Resistance	Rated power	Activation temperature of built-in fuse	Note (Input Power of drive)	
		Ω	W	°C		
DV0P2890	45M03	50	10	<b>137</b> <sup>+3</sup> <sub>-2</sub>	Single phase, 100 V	
DV0P2891	45M03	100	10	<b>137</b> <sup>+3</sup> <sub>-2</sub>	Single/3-phase, 200 V	
	•			Monufactured by hus	ki Musan Kankuuusha Ca Itd	

#### Dimensions



<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.

## E Series Options

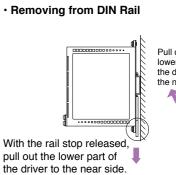
### <Notes>

2 mounting screws (M4 X L8, Pan head) are attached. Rail stopper can be extended to max. 10 mm.

#### <Cautions>

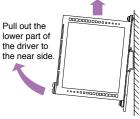
Please read carefully operation manual before using this product. In addition, please do not apply excessive stress to the product.

 • Driver mounted to DIN rail





remove it from the DIN rail.



part	
iver.	

Manufactured by Iwaki Musen Kenkyuusho Co., Ltd

#### <Caution of when using external regeneration resistor>

Since it becomes high temperature, external regeneration resistor must be installed according to the contents shown below.

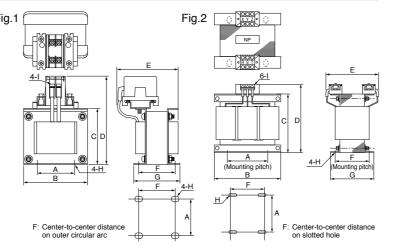
- Attach to incombustibles, such as metal.
- Install in the place which cannot touch directly by covering with incombustibles etc.
- · Do not install near the combustibles.

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 driver failure. The thermal cutoff is for preventing ignition of the regeneration resistor in driver failure, and is not for controlling the skin temperature of resistor.

# E SeriesReactor/OptionsSurge Absorber for Motor Brake

#### Reactor

Frame symbol of driver	Power supply specifications	Rated output	Part No.	Fig.	F
	Single phase, 100 V	50 W to 100 W	DV0P227	1	
MKDE	Single phase, 200 V	50 W to 100 W	DV0P220	2	
	3-phase, 200 V	50 W to 200 W	DV0P220	2	
	Single phase, 100 V	200 W	DV0P228	1	
MLDE	Single phase, 200 V	200 W to 400 W	DV0P220	2	
	3-phase, 200 V	400 W			



[Unit: mm]

	Part No.	А	в	с	D	E(Max)	F	G	н	I	Inductance (mH)	Rated current (A)
	DV0P227	55±0.7	80±1	66.5±1	110 Max	90	41±2	55±2	4-5φ×10	M4	4.02	5
Fig.1	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 generalpurpose 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.

- 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 devices

#### Surge Absorber for Motor Brake

Motor	Surge absorber for motor brake				
Wotor	Part No. (Manufacturer's)	Manufacturer			
MUMA 50 W to 400 W	Z15D151	SEMITEC Corporation			

## **List of Peripheral Devices**

#### List of Peripheral Devices

Manufacturer	Tel No. / Home Page	Peripheral Devices
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/	Ferrite core
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/	
Tyco Electronics	+81-44-844-8052 http://www.te.com/ja/home.html	Connector
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.

E Series Options

MEMO

# Information

-	nte	ents
60	IIIC	1113

A5 Family EC Directives / Conformity to UL Standards / KC Composition of Peripheral Devices E Series Compliance to EC and EMC Directives Composition of Peripheral Components Conformity to UL Standards Motor capacity selection software AC Servo Motor Capacity Selection Software Option Selection Software for AC Servo Motor Guide to the International System of Units (SI) Selecting Motor Capacity Request Sheet for Motor Selection Connection Between Driver and Controller Connection Between A5 Family Driver and Controller. Replacing Old Model Servo Driver with MINAS A5II and A5 Series Connection Between E Series Driver and Controller	
Composition of Peripheral Devices	247
E Series	247
Compliance to EC and EMC Directives Composition of Peripheral Components Conformity to UL Standards Motor capacity selection software AC Servo Motor Capacity Selection Software Option Selection Software for AC Servo Motor Guide to the International System of Units (SI) Selecting Motor Capacity Request Sheet for Motor Selection Connection Between Driver and Controller Connection Between A5 Family Driver and Controller. Replacing Old Model Servo Driver with MINAS A5II and A5 Series Connection Between E Series Driver and Controller.	249
Composition of Peripheral Components Conformity to UL Standards	255
Conformity to UL Standards Motor capacity selection software	255
Motor capacity selection software         AC Servo Motor Capacity Selection Software         Option Selection Software for AC Servo Motor         Guide to the International System of Units (SI)         Selecting Motor Capacity         Request Sheet for Motor Selection         Connection Between Driver and Controller         Connection Between A5 Family Driver and Controller.         Replacing Old Model Servo Driver with MINAS A5II and A5 Series         Connection Between E Series Driver and Controller.	255
AC Servo Motor Capacity Selection Software	256
Option Selection Software for AC Servo Motor	257
Guide to the International System of Units (SI)         Selecting Motor Capacity         Request Sheet for Motor Selection         Connection Between Driver and Controller         Connection Between A5 Family Driver and Controller.         Replacing Old Model Servo Driver with MINAS A5II and A5 Series         Connection Between E Series Driver and Controller.	257
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A5 Family Conformance to International Standards

#### **EC Directives**

The EC Directives apply to all such electronic products as those having specific functions and have been exported to EU and directly sold to general consumers. Those products are required to conform to the EU unified standards and to furnish the CE marking on the products.

However, our AC servos meet the relevant EC Directives for Low Voltage Equipment so that the machine or equipment comprising our AC servos can meet EC Directives.

#### **EMC Directives**

MINAS Servo System conforms to relevant standard under EMC Directives setting up certain model (condition) with certain locating distance and wiring of the servo motor and the driver. And actual working condition often differs from this model condition especially in wiring and grounding. Therefore, in order for the machine to conform to the EMC Directives, especially for noise emission and noise terminal voltage, it is necessary to examine the machine incorporating our servos.

#### **Conformity to UL Standards**

Observe the following conditions of (1) and (2) to make the system conform to UL508C (E164620).

- (1) Use the driver in an environment of Pollution Degree 2 or 1 prescribed in IEC60664-1.
- (e.g. Install in the control box with IP54 enclosure.)
- (2) Make sure to install a circuit breaker or fuse which are UL recognized (Listed (1) marked) between the power supply and the noise filter.

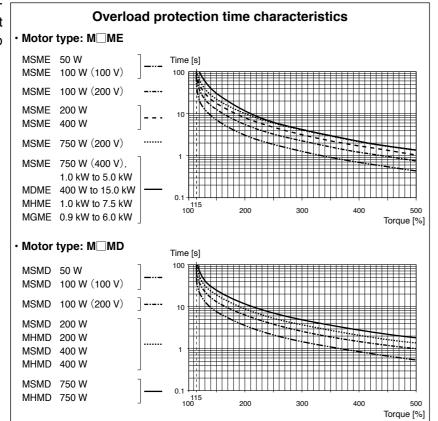
For rated current of circuit breaker and fuse, refer to P.19 "Driver and List of Applicable Peripheral Devices".

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).



#### **Conformed Standards**

		Driver
	EMC	EN55011
	Directives	EN61000-6-2
		EN61800-3
EC	Low-Voltage Directives	EN61800-5-1
Directives	Machinery Directives Functional safety <sup>*1</sup>	ISO13849-1(PL d)(Cat.3
		EN61508(SIL2)
		EN62061(SILCL 2)
		EN61800-5-2(STO)
		IEC61326-3-1
UL Standard	S	UL508C (E164620)
CSA Standards Radio Waves Act		C22.2 No.14
		KN11
(South Korea	a) (KC) <sup>*2</sup>	KN61000-4-2, 3, 4, 5, 6,

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.

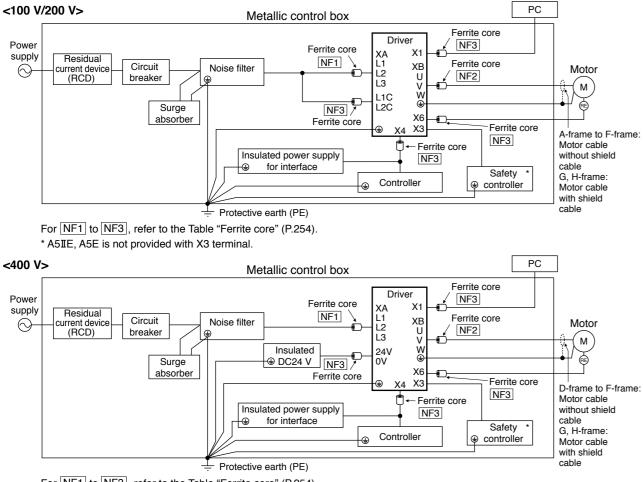
(대상기종 : Servo Driver)

	Motor	A5 F
		A5 Family
	—	
	EN60034-1	
	EN60034-5	
3)		E Series
		es
	_	
	UL1004-1, UL1004-6 (E327868)	Inform
	C22.2 No.100	Information
0.44	_	
, 8, 11		

International Standards

#### 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.)



For NF1 to NF3, refer to the Table "Ferrite core" (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) II 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**

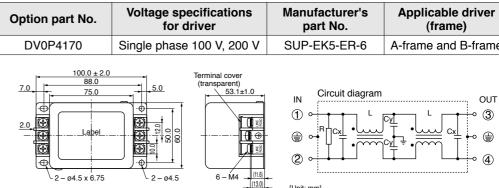
Install a circuit breaker which complies with IEC Standards and UL recognized (Listed and marked) between power supply and noise filter.

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
	3-phase 200 V		A-frame and B-frame	
DV0PM20042	Single phase 100 V, 200 V 3-phase 200 V	3SUP-HU10-ER-6	C-frame	Okaya Electric Ind.
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]

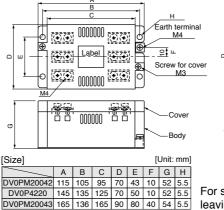
[DV0PM20043]

-001

協会

認識

<u>B</u>

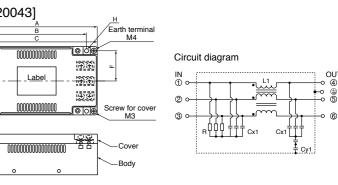


For single phase application, use 2 terminals among 3 terminals, leaving the remaining terminal unconnected.

Inform

Manufacturer's	Applicable driver	
part No.	(frame) Manufacturer	
SUP-EK5-ER-6	A-frame and B-frame	Okaya Electric Ind.

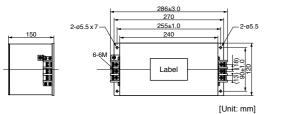
[Unit: mm]

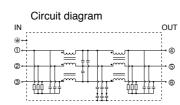


## A5 Family Conformance to **International Standards**

## **Composition of Peripheral Devices**

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.





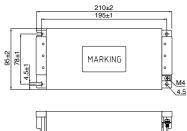
#### Recommended components

Part No.	Voltage specifications for driver	Current rating (A)	ting Applicable driver (frame) Manufactu	
RTHN-5010		10	A-frame to C-frame	
RTHN-5030	3-phase 200 V	30	D-frame	TDK-Lambda Corp.
RTHN-5050		50	E-frame and F-frame	

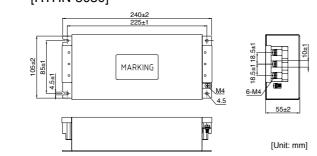
50+2

[Unit: mm]

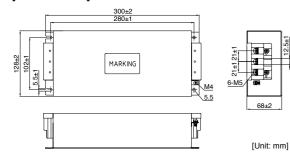
#### [RTHN-5010]







#### [RTHN-5050]

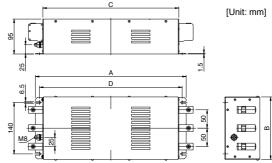


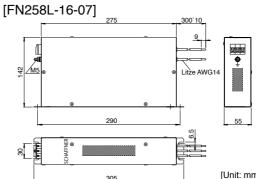
#### <Remarks>

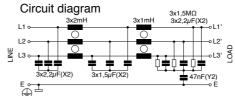
- · Select a noise filter of capacity that exceeds the capacity of the power source (also check for load condition).
- · For detailed specification of the filter, contact the manufacturer.
- When two or more servo drivers are used with a single noise filter at the common power source, consult with the noise filter manufacturer.

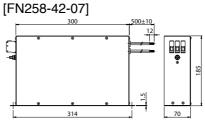
Part No.	Voltage specifications for driver	
FS5559-60-34	2 phase 200 V	
FS5559-80-34	- 3-phase 200 V	
FN258L-16-07		
FN258L-30-07	2 phase 400 V	
FN258-42-07	- 3-phase 400 V	
FN258-42-33		

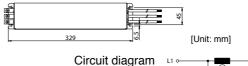
#### [FS5559-60-34, FS5559-80-34]

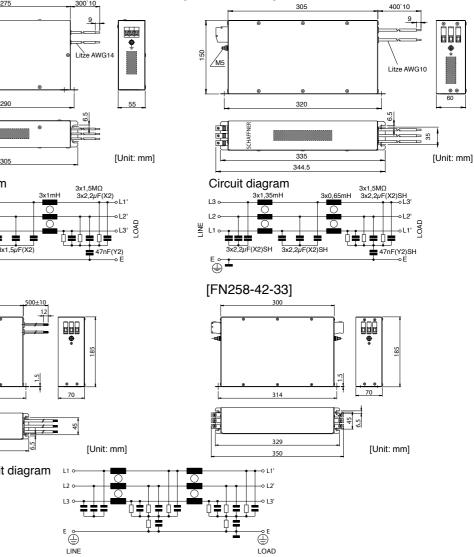






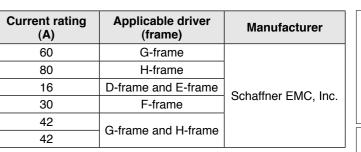


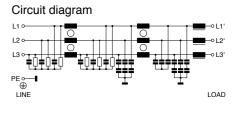


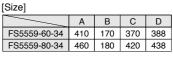


#### <Remarks>

- · For detailed specification of the filter, contact the manufacturer.
- the noise filter manufacturer.









• Select a noise filter of capacity that exceeds the capacity of the power source (also check for load condition).

· When two or more servo drivers are used with a single noise filter at the common power source, consult with

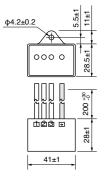
#### Surge Absorber

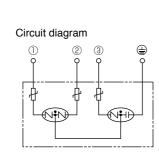
Provide a surge absorber for the primary side of noise filter.

[Unit: mm]

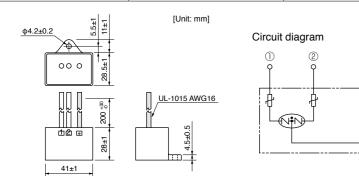
UL-1015 AWG16

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	Okaya Electric Ind.





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.



#### Ferrite core

Install ferrite core to all cables (power cable, motor cable, encoder cable and interface cable)

Symbol <sup>⁺1</sup>	Cable Name	100 V/200 V Amp. frame symbol	400 V Amp. frame symbol	Option part No.	Manufacturer's part No.	Manufacturer	Qty
		A, B, C, D	D, E, F	DV0P1460	ZCAT3035-1330	TDK Corp.	4
NF1	Power cable	E, F	-	Recommended components	RJ8035	KK-CORP.CO.JP	1
		G, H	G, H	Recommended components	RJ8095	KK-CORP.CO.JP	1
	Motor cable	A, B, C, D, E, F	D, E, F	DV0P1460	ZCAT3035-1330	TDK Corp.	4
NF2		G, H	G, H	Recommended components	T400-61D	MICROMETALS	1
NF3	<ul> <li>24 V Power cable</li> <li>Encoder cable</li> <li>Interface cable</li> <li>USB cable</li> <li>Control power cable</li> </ul>	Comm (to all fra		DV0P1460	ZCAT3035-1330	TDK Corp.	4

\*1 For symbols, refer to the Block Diagram "Installation Environment" (P.249). <Remarks>

cable, as required.

#### <Caution>

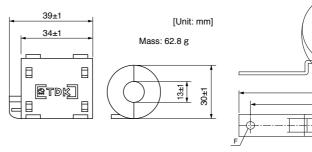
Fix the ferrite core in order to prevent excessive stress to the cables. <Fig.2: Dimensions>

rig.2. Dimensions						
Part No	Current	100 kHz				

5										
Dort No. Curre	Current	100 kHz				Siz	e [Unit: I	mm]		
Fait NO.	νο. Current (μΗ)		А	В	С	D1	D2	Core thickness	Е	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
	Part No. RJ8035	RJ8035 35 A	Part No.         Current         100 kHz (μH)           RJ8035         35 A         9.9±3	Part No.         Current         100 kHz (μH)            RJ8035         35 A         9.9±3         170	Part No.         Current         (μH)         A         B           RJ8035         35 A         9.9±3         170         150	Part No.         Current         (μH)         A         B         C           RJ8035         35 A         9.9±3         170         150         23	Part No.         Current         100 kHz (μH)         Siz           RJ8035         35 A         9.9±3         170         150         23         80	Part No.         Current         100 kHz (μH)         Size [Unit: 1           RJ8035         35 A         9.9±3         170         150         23         80         53	Part No.         Current         100 kHz (μH)         Size [Unit: mm]           RJ8035         35 A         9.9±3         170         150         23         80         53         24	Part No.Current100 kHz ( $\mu$ H)Size [Unit: mm]RJ803535 A9.9±317015023805324R3.5

Fig.1: DV0P1460(Option)

Fig.2: RJ8035, RJ8095 (Recommended components)



#### **Residual Current Device**

Install a type B Residual current device (RCD) at primary side of the power supply. Type B: Residual current device which detects a direct-current ingredient.

#### Grounding

- trol box without fail to prevent electrical shocks.
- tive earth.

<Note>

For driver and applicable peripheral devices, refer to P.19 "Driver and List of Applicable Peripheral Devices".

#### To connect the ferrite core to the connector XB connection cable, adjust the sheath length at the tip of the

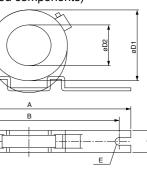
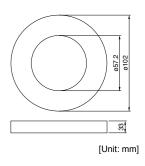


Fig.3: T400-61D (Recommended components)



(1) Connect the protective earth terminal  $(\textcircled{\pm})$  of the driver and the protective earth terminal (PE) of the con-

(2) Do not make a joint connection to the protective earth terminals ((1)). 2 terminals are provided for protec-

## **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		IEC : International Electrotechnical Commission	
	IEC60034-1	IEC60034-5 UL1004 CSA22.2 No.100	Conforms to	EN : Europaischen Normen	
Motor	EN50178	UL508C CSA22.2 No.14	Low- Voltage Directives	EMC: Electromagnetic Compatibility UL : Underwriters Laboratories	
	EN55011	Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment		CSA : Canadian Standards Association	
	EN61000-6-2	Immunity for Industrial Environments	1	Pursuant to at the directive 2004/108/EC.article 9(2)	
	IEC61000-4-2	Electrostatic Discharge Immunity Test	Conforms to	$\begin{bmatrix} -2004/100/EC, at the directive 2004/100/EC, at the 9(2) \\ \end{bmatrix}$	
Motor	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	references	Panasonic Testing Centre Panasonic Service Europe, a division of Panasonic Marketing Europe GmbH	
and driver	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test	by EMC Directives		
	IEC61000-4-5	Lightening Surge Immunity Test	]	Winsbergring 15,22525 Hamburg, F.R.Germany	
	IEC61000-4-6	High Frequency Conduction Immunity Test	]		
	IEC61000-4-11	Instantaneous Outage Immunity Test			

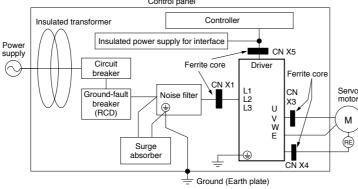
# Composition of Peripheral Components

#### <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. Control pane

#### 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, (h) marked), between the power supply and the noise filter.

## **Composition of Peripheral Components Conformity to UL Standards**

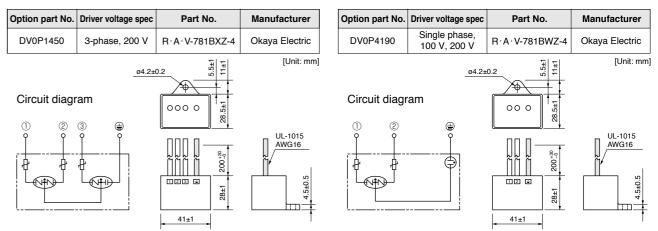
#### Noise Filter

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.	Manufad
DV0P4160	3SUP-HU10-ER-6	Okaya Electric I

#### Surge Absorber

Install a surge absorber at primary side of the noise filter.



#### <Remarks>

Remove this surge absorber when you perform dielectric test on the machine, or surge absorber might be damaged.

#### Ferrite Core

Install ferrite core to all cables (Power line, motor cable, encoder cable, interface cable)

#### <Caution>

- Please fix a ferrite core 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 ferrite core between driver and motor wires (U, V, W but grounding).

(Please refer to P.255 "Composition of Peripheral Components".)

#### Grounding

fail to prevent electrical shocks.

(2) Do not co-clamp to the ground terminals ( $(\perp)$ ). Two ground terminals are provided.

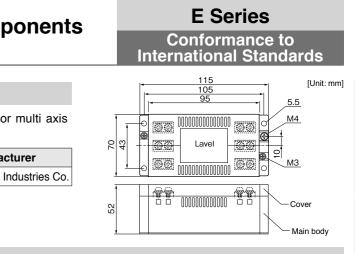
#### Ground-Fault Breaker

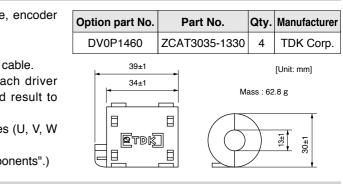
Install a ground fault curcuit braker (RCD) to the primary side of the power supply. Please use B-type (DC sensitive) ground fault circuit breakers defined in IEC60947-2, JISC8201-2-2.

# Conformity to UL Standards

Observe the following conditions of (1) and (2) to make the system conform to UL508C (File No. E164620). with IP54 enclosure.)

noise filter without fail.





(1) Connect the protective earth terminal of the driver ((-)) and protective earth terminal of the control panel (PE) without

```
(1) Use the driver in an environment of Pollution Degree 2 or 1 prescribed in IEC60664-1. (e.g. Install in the control box
```

(2) Install a circuit breaker or fuse which are UL recognized (LISTED (9) marked) between the power supply and the

## 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.

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#### 2. Enter operation pattern

Input the planned operation pattern that will contain [speed and rotation

standard] with optional settings such as S-acceleration/de celeration.

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#### 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 driver, and details of reason for

determination are displayed and may be printed out.

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#### **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.

<ul> <li>Two procedures for option selection</li> </ul>		Tall Gale II agint		En
1. Selection according to driver series and motor type Suitable option can be selected by selecting driver	Driver series -		Andrew of some states	MINAS A.S.
series, motor type and motor specification through pulldown menu.	Motor type –			
	Motor specification –	Norman below Service Sales	2 000 N 2 00	an management ( ) and a statement ( ) and ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (
Mode	l number input area –	Aur 10 Million 1	Day for Jacoby	_ hearing and the same of
<ul> <li>2. Entry of model number         If you know the model number based on the servo motor and driver currently used, enter the model number.     </li> <li>Result of selection         Tab sheet specific to each of option model number is used for easier identification of the desired option     </li> </ul>			40 (1995) (1996)	Kanardan Kat
* When you are using the motor capacity selection software, simply press [Option Selection] tab and the screen as shown right will appear.		The same in the last of the same	**** <sup>**</sup>	2

#### 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

# SI unit — Table1: Basic unit Table 2: Auxiliary unit

Table 4 : Unit combined with SI unit

### Table1: Basic unit

			_			
Quantity	Name of unit	Symbol of unit		Quantity	Name of unit	Symbol of unit
Length	meter	m		Plane angle	radian	rad
Weight	kilogram	kg		Flatte aligie	Taulan	Tau
Time	second	s	1	Solid angle	steradian	sr
Current	ampere	А				
Thermodynamic temperature	kelvin	К				
Amount of substance	mol	mol				
Luminous intensity	candela	cd				

## Table 3: Major derived unit with proper name

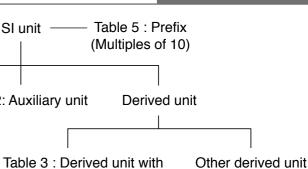
Quantity	Name	Symbol of unit	Derivation from basic unit, auxiliary unit or other derived unit
Frequency	hertz	Hz	1 Hz = 1 s <sup>-1</sup>
Force	newton	N	1 N = 1 kg·m/s <sup>2</sup>
Pressure, Stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>
Energy, Work, Amount of heat	joule	J	1 J = 1 N·m
Amount of work, Work efficiency, Power, Electric power	watt	W	1 W = 1 J/s
Electric charge, Amount of electricity	coulomb	С	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 <sup>-1</sup>
Magnetic flux	weber	Wb	1 Wb = 1 V·s
Magnetic flux density, Magnetic induction	tesla	Т	1 T = 1 Wb/m <sup>2</sup>
Inductance	henry	Н	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 <sup>2</sup>

## Table 4: Unit combined with SI unit

Quantity	Name	Symbol of unit	Multiples powered	Prefix		
Quantity		-	to unit	Name	Symbol	
	minute	min	10 <sup>18</sup>	exa	E	
Time	hour	h	10 <sup>15</sup>	peta	Р	
TITIC	nour		10 <sup>12</sup>	tera	Т	
	day	d	10 <sup>9</sup>	giga	G	
		•	10 <sup>6</sup>	mega	М	
	degree		10 <sup>3</sup>	kilo	k	
Plana angla	minute second	, ,	10 <sup>2</sup>	hecto	h	
Plane angle			10	deca	da	
			10 <sup>-1</sup>	deci	d	
			10 <sup>-2</sup>	centi	С	
Volume	liter	I, L	10 <sup>-3</sup>	milli	m	
M/siskt			10-6	micro	μ	
Weight	ton	t	10 <sup>-9</sup>	nano	n	
		I	10 <sup>-12</sup>	pico	р	
			10 <sup>-15</sup>	femto	f	
			10 <sup>-18</sup>	atto	а	



## Guide to the International System of Units (SI)



proper name

## Table 2: Auxiliary unit

## Table 5: Prefix

#### Guide to the International **Major Compatible Unit** System of Units (SI)

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 <sup>2</sup>	1 Gal = $10^{-2}$ m/s <sup>2</sup>
	G	m/s <sup>2</sup>	1 G = 9.80665 m/s <sup>2</sup>
Frequency	c/s, c	Hz	1 c/s = Hz
Revolving speed, Number of revolutions	rpm	s <sup>-1</sup> or min <sup>-1</sup> , r/min	1 rpm = 1 min <sup>-1</sup>
Weight	kgf	_	Same value
Mass	-	kg	
Weight flow rate	kgf/s	-	Same value
Mass flow rate	-	kg/s	
Specific weight	kgf/m <sup>3</sup>	-	Same value
Density	-	kg/m <sup>3</sup>	
Specific volume	m <sup>3</sup> /kgf	m <sup>3</sup> /kg	Same value
Load	kgf	Ν	1 kgf = 9.80665 N
Force	kgf	Ν	1 kgf = 9.80665 N
	dyn	Ν	1 dyn = 10 <sup>-5</sup> N
Moment of force	kgf∙m	N∙m	1 kgf·m = 9.806 N·m
Pressure	kgf/cm <sup>2</sup>	Pa, bar <sup>(1)</sup> or kgf/cm <sup>2</sup>	1 kgf/cm <sup>2</sup> = 9.80665 x 10 <sup>4</sup> Pa
			= 0.980665 bar
	at (Engineering atmospheric pressure)	Pa	1 at = 9.80665 x 10 <sup>4</sup> Pa
	atm (Atmospheric pressure)	Pa	1 atm = 1.01325 x 10 <sup>5</sup> Pa
	mH₂O, mAq	Ра	1 mH₂O = 9.80665 x 10 <sup>3</sup> Pa
	mmHg	Pa or mmHg (2)	1 mmHg = 133.322 Pa
	Torr	Pa	
Stress	kgf/mm <sup>2</sup>	Pa or N/m <sup>2</sup>	1 kgf/mm <sup>2</sup> = 9.80665 x 10 <sup>6</sup> Pa
			=9.80665 x 10 <sup>6</sup> N/m <sup>2</sup>
	kgf/cm <sup>2</sup>	Pa or N/m <sup>2</sup>	1 kgf/cm <sup>2</sup> = 9.80665 x 10 <sup>4</sup> Pa
			= 9.80665 x 10 <sup>4</sup> N/m <sup>2</sup>
Elastic modulus	kgf/m <sup>2</sup>	Pa or N/m <sup>2</sup>	1 kgf/m <sup>2</sup> = 9.80665 Pa = 9.80665 N/m
	-		$1 \text{ kgf/cm}^2 = 9.80665 \text{ x } 10^4 \text{ N/m}^2$
Energy, Work	kgf∙m	J (joule)	1 kgf⋅m = 9.80665 J
	erg	J	$1 \text{ erg} = 10^{-7} \text{ J}$
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	mm²/s	$10^{-2}$ St = 1 mm <sup>2</sup> /s
Thermodynamic temperature	к	K (kelvin)	1 K = 1 K
Temperature interval	deg	K <sup>(3)</sup>	1 deg = 1 K
Amount of heat	cal	J	1 cal = 4.18605 J
Heat capacity	cal/°C	J/K <sup>(3)</sup>	1 cal/°C = 4.18605 J/K
Specific heat, Specific heat capacity	cal/ (kgf⋅°C)	cal/ (kgf·K) <sup>(3)</sup>	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 <sup>2</sup> )	W/m <sup>2</sup>	$1 \text{ kcal/}(\text{h}\cdot\text{m}^2) = 1.16279 \text{ W/m}^2$
Thermal conductivity	cal/ (h·m·°C)	W/ (m·K) <sup>(3)</sup>	1  kcal/ (h·m·°C) = 1.16279  W/ (m·K)
Coefficient of thermal conductivity	cal/ (h·m²·°C)	W/ (m <sup>2</sup> ·K) <sup>(3)</sup>	1  kcal/ (h·m2·°C) = 1.16279  W/ (m2·K)
Intensity of magnetic field	Oe	A/m	$1 \text{ Oe} = 10^3 / (4\pi) \text{ A/m}$
Magnetic flux	Mx	Wb (weber)	$1 \text{ Mx} = 10^{-8} \text{ Wb}$
Magnetic flux density	Gs,G	T (tesla)	$1 \text{ Gs} = 10^{-4} \text{ T}$
magnetic nux density	us,u	i (icsia)	

#### 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.

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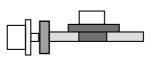
(3) "°C" can be substituted for "K".

#### Flow of Motor Selection

1. Definition of mechanism to be driven by motor.

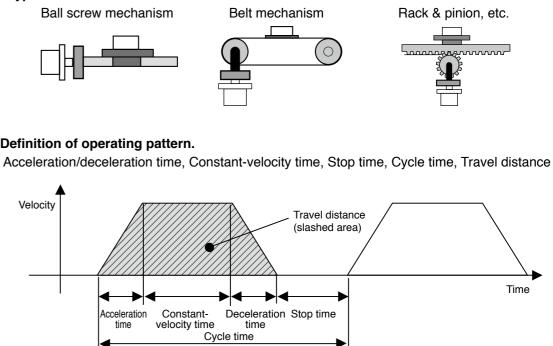
#### <Typical mechanism>

Ball screw mechanism





#### 2. Definition of operating pattern.



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<sup>-4</sup> kg·m<sup>2</sup>".

#### 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.

Define details of individual mechanical components (ball screw length, lead and pulley diameters, etc.)

Information

#### **Description on the Items Related to Motor Selection**

#### 1. Torque

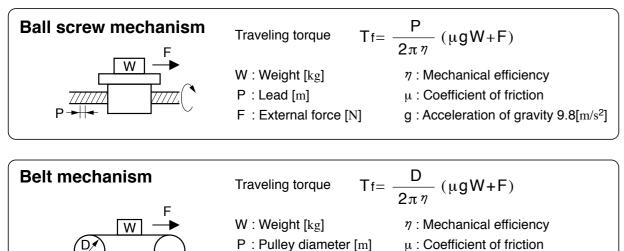
#### (1) Peak torque

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



#### (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.

F : External force [N]

g : Acceleration of gravity 9.8[m/s<sup>2</sup>]

time [s]

$$Trms = \sqrt{\begin{array}{c} Ta^{2} x \ ta \ + \ Tf^{2} x \ tb \ + \ Td^{2} x \ td}{tc}}$$

$$Ta: Acceleration torque [N·m] ta: Acceleration time [s] tc: Cycle time [s] tc: Cycle time [s] (Run time \ + \ Stop time) Td: Deceleration torque [N·m] td: Deceleration time [s] td: Deceleration time [$$

#### 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 torgue and temperature rise. For actual calculation of motor velocity, see "Example of motor selection" described later.

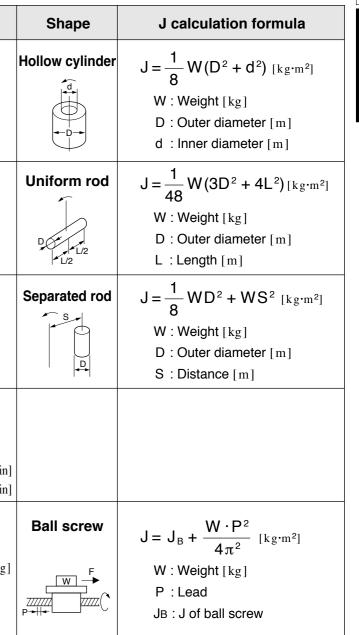
#### 3. Inertia and inertia ratio

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.

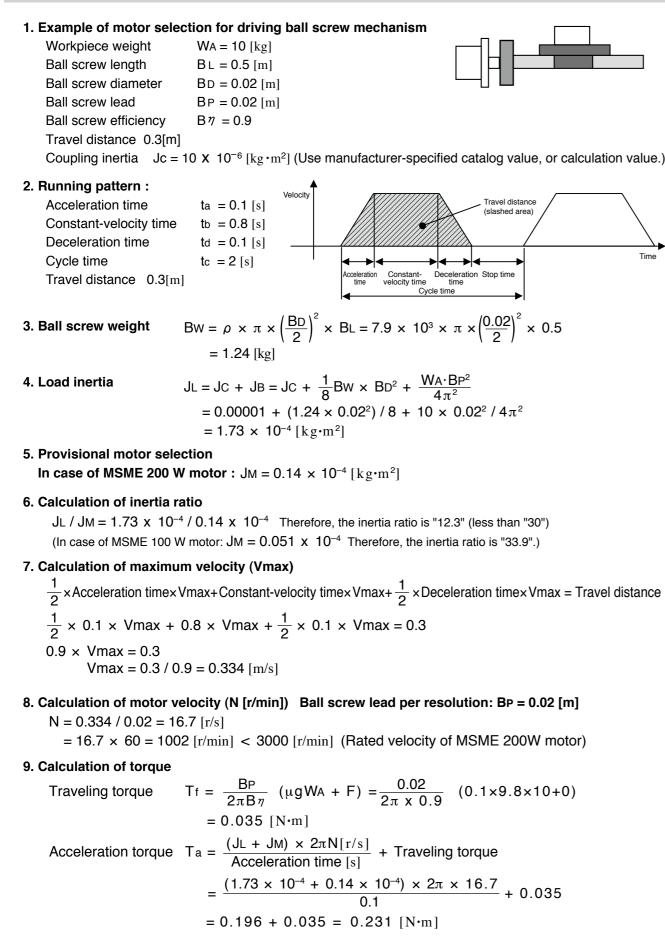
#### General inertia calculation method

Shape	J calculation formula
Disk	$J = \frac{1}{8} W D^2 [kg \cdot m^2]$
	W:Weight[kg]
	D : Outer diameter [m]
Prism	$J = \frac{1}{12} W (a^2 + b^2) [kg \cdot m^2]$
	W : Weight [kg]
ab	a, b, c : Side length [m]
Straight rod	$J = \frac{1}{3} WL^2 [kg \cdot m^2]$
C L	W : Weight [kg]
	L : Length [m]
Reduction gear	Inertia on shaft "a"
J 1 n1	$J = J_{1} + (\frac{n_{2}}{n_{1}})^{2} J_{2}[kg \cdot m^{2}]$
$ \begin{array}{c c} J 1 \\ \hline  n_2 \\ \hline  b \\ \hline  J 2 \end{array} $	$n_1$ : A rotational speed of a shaft [r/min $n_2$ : A rotational speed of b shaft [r/min
Conveyor	$J = \frac{1}{4} W D^2 [kg \cdot m^2]$
	W : Workpiece weight on conveyor [kg
	D : Drum diameter [m]
$\mathbf{\mathcal{O}}$	* Excluding drum J

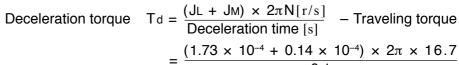
If weight (W [kg]) is unknown, calculate it with the following formula: Weight W[kg]=Density p [kg/m<sup>3</sup>] x Volume V[m<sup>3</sup>] Density of each material Iron  $\rho = 7.9 \times 10^3 \, [\text{kg/m}^3]$ Aluminum  $\rho = 2.8 \times 10^3 \, [kg/m^3]$ Brass  $\rho = 8.5 \times 10^3 \, [\text{kg/m}^3]$ 



#### **To Drive Ball Screw Mechanism**



## To Drive Ball Screw Mechanism **Example of Motor Selection**



#### 10. Verification of maximum torque

#### 11. Verification of effective torque

$$Trms = \sqrt{\frac{Ta^2 \times ta + Tf^2 \times tb + Td^2 \times tc}{tc}}$$
$$= \sqrt{\frac{0.231^2 \times 0.1 + 0.035^2 \times 0.8}{2}}$$
$$= 0.067 [N:m] < 0.64 [N:m] (Bat$$

#### 12. Judging from the inertia ratio calculated above, selection of 200 W motor is preferable, although the torgue margin is significantly large.

#### Example of Motor Selection

Example of motor selection for timing belt mechanism 1.Mechanism Workpiece weight Pulley diameter PD = 0.05[m]Pulley weight Mechanical efficiency  $B\eta = 0.8$ Coupling inertia Belt mechanism inertia JB Pulley inertia JP

#### 2. Running pattern

		Velocity
Acceleration time	ta = 0.1[s]	VEIOCILY
Constant-velocity time	tb = 0.8[s]	
Deceleration time	td = 0.1[s]	
Cycle time	tc = 2[s]	
Travel distance 1[m]		

3. Load inertia 
$$JL = JC + JB + JP$$
  
=  $JC + \frac{1}{4}WA \times PD^{2} + \frac{1}{8}WP \times PD^{2} \times$   
=  $0 + \frac{1}{4} \times 2 \times 0.05^{2} + \frac{1}{8} \times 0.5 \times 0.$   
=  $0.00156 = 15.6 \times 10^{-4} [kg \cdot m^{2}]$ 

4. Provisional motor selection In case of MSME 750 W motor :  $JM = 0.87 \times 10^{-4} [kg \cdot m^2]$ 

5. Calculation of inertia ratio

## Selecting Motor Capacity

 $=\frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} - 0.035$  $0.35 = 0.161 [N \cdot m]$ 

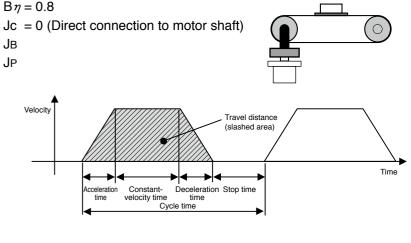
Acceleration torque =  $T_a = 0.231 [N \cdot m] < 1.91 [N \cdot m]$  (Maximum torque of MSME 200 W motor)

 $8 + 0.161^2 \times 0.1$ 

=  $0.067 [N \cdot m] < 0.64 [N \cdot m]$  (Rated torque of MSME 200 W motor)

 $W_A = 2[kg]$  (including belt)

WP= 0.5[kg] (Use manufacturer-specified catalog value, or calculation value.)



2

 $.05^2 \times 2$ 

JL / JM =  $15.6 \times 10^{-4}$  /  $0.87 \times 10^{-4}$  Therefore, the inertia ratio is "17.9" (less than "20")

#### 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 :  $\pi \times PD = 0.157[m]$ 

$$N = 1.111 / 0.157 = 7.08[r/s]$$

= 7.08 × 60 = 424.8[r/min] < 3000[r/min] (Rated velocity of MSME 750 W motor)

#### 8. Calculation of torque

Traveling torque	$Tf = \frac{PD}{2\eta} (\mu gWA + F) = \frac{0.05}{2 \times 0.8} (0.1 \times 9.8 \times 3 + 0)$
	= 0.061[N·m]
Acceleration torque	$T_{a} = \frac{(JL + JM) \times 2\pi N[r/s]}{Acceleration time[s]} + Traveling torque$

$$= \frac{(15.6 \times 10^{-4} + 0.87 \times 10^{-4}) \times 2\pi \times 7.08}{0.1} + 0.061$$
$$= 0.751 + 0.061 = 0.812[N \cdot m]$$

Deceleration torque 
$$T_{d} = \frac{(JL + JM) \times 2\pi N[r/s]}{Deceleration time[s]} - Traveling torque$$
$$= \frac{(15.6 \times 10^{-4} + 0.87 \times 10^{-4}) \times 2\pi \times 7.08}{0.1} - 0.061$$
$$= 0.751 - 0.061 = 0.69[N \cdot m]$$

#### 9. Verification of maximum torque

 $Ta = 0.812[N \cdot m] < 7.1[N \cdot m]$  (Maximum torque of MSME 750 W motor) Acceleration torque

#### 10. Verification of effective torque

$$Trms = \sqrt{\frac{Ta^2 \times ta + Tf^2 \times tb + Td^2 \times td}{tc}}$$
$$= \sqrt{\frac{0.812^2 \times 0.1 + 0.061^2 \times 0.8 + 0.69^2 \times 0.1}{2}}$$
$$= 0.241 [N \cdot m] < 2.4 [N \cdot m] \text{ (Rated torque of MSME 750 W motor)}$$

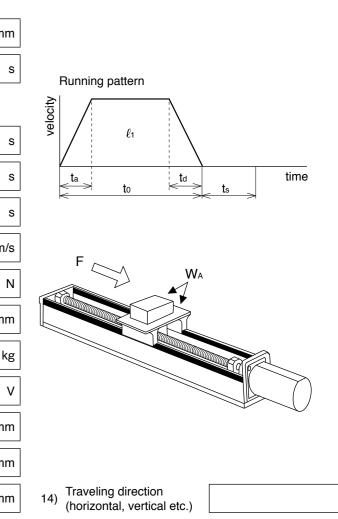
11. Judging from the above calculation result, selection of MSME 750W motor is acceptable.

## **Request Sheet for Motor Selection**

Reques	st for m	otor selec
1. Driven mechanism and ru	unning	data
<ol> <li>Travel distance of the work load per one cycle</li> </ol>	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
<ul><li>8) Positioning accuracy of the work load</li></ul>	±	mm
<ul><li>9) Total weight of the work load and the table</li></ul>	WA:	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

2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

## ction I : Ball screw drive



Þ5

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

## Request for motor selection II: Timing pulley + Ball screw drive

### 1. Driven mechanism and running data

1.1	Driven mechanism and	d 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	D1: mm	D <sub>2</sub> : mm
2)	Cycle time	to: s	16) Weight of the pulley	W1: kg	W2: kg
	(Fill in items 3) and 4) if require	ed.)	(or item 17) and 18))		
3)	Acceleration time	ta: s	17) Width of the pulley	L1:	mm
4)	Deceleration time	td: s	18) Material of the pulley		
5)	Stopping time	ts: S	19) Weight of the belt	W <sub>M</sub> :	kg
6)	Max. velocity	V: mm/s	Running pattern		
7)	External force	F: N		$\setminus$	
8)	Positioning accuracy of the work load	± mm	l l l l l l l l l l l l l l l l l l l	$\backslash$	
9)	Total weight of the work load and the table	WA: kg	ta to	td ts	time
10)	Power supply voltage	V	F	WA	
11)	Diameter of the ball screw	mm			
12)	Total length of the ball screw	mm			
13)	Lead of the ball screw	mm			D2(W2)
14)	Traveling direction (horizontal, vertical etc.)				₩м
				D1(W1)	

#### 2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

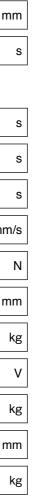
Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

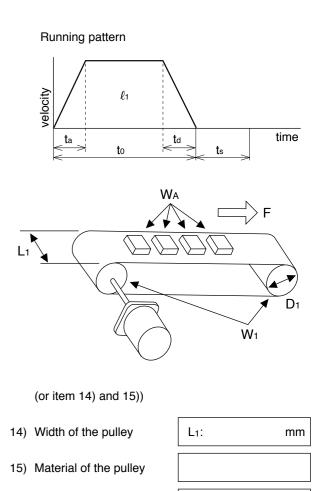
	Requ	est for motor s
1. Driven mecha	anism and ru	inning data
1) Travel distance of per one cycle	f the work load	ℓ1: m
2) Cycle time		to:
(Fill in items 3) ar	nd 4) if required.)	
3) Acceleration time		ta:
4) Deceleration time	,	td:
5) Stopping time	[	ts:
6) Max. velocity	[	V: mm
7) External force	[	F:
8) Positioning accur work load	acy of the	± m
9) Total weight of the	e work load	Wa:
10) Power supply vol	tage	
11) Weight of the belt	: [۲	WM:
12) Diameter of the d	riving pulley	D1: m
13) Total weight of the	e pulley	W1:

2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

# **Request Sheet for Motor Selection**

## selection III : Belt drive





16) Traveling direction (horizontal, vertical etc.)

L1.	11111
[	

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

B

## Request for motor selection $\mathbb{IV}$ : Timing pulley + Belt drive

### 1. Driven mechanism and running data

		Sin an	aru	innig	uuu			I	Motor si	de	Belt	side
1)	Travel distance of the load per one cycle	e work	ℓ 1:		mm	16)	Diameter of the pulley	D	3:	mm	D4:	mm
2)	Cycle time		to:		S	17)	Weight of the pulley	W	3:	kg	W4:	kg
	(Fill in items 3) and 4)	) if requi	red.)				(or item 18) and 19))					
3)	Acceleration time		ta:		S	18)	Width of the pulley		L2:		r	ım
4)	Deceleration time		td:		S	19)	Material of the pulley					
5)	Stopping time		ts:		S	20)	Weight of the belt		W∟:			kg
6)	Max. velocity		V:		mm/s	21)	Traveling direction (horizontal, vertical etc	c.)				
7)	External force		F:		Ν	F	Running pattern					
8)	Positioning accuracy work load	of the	±		mm			$\setminus$				
9)	Total weight of the wo	ork	WA:		kg		دelocity ر		$\setminus$			
10)	Power supply voltage	)			V		ta<	td	≥ ts	->	time	
11)	Weight of motor side	belt	WM:		kg							א <sup>י</sup> ∠ L2
		Motor s	ide	Belt	t side					W	. /	
12)	Diameter of the Drawley		mm	D <sub>2</sub> :	mm			WA			$\mathcal{F}$	$\bigcirc$
13)	Weight of the pulley	1:	kg	W2:	kg		D2(W2)			S	,	• 04(W4)
	(or item 14) and 15))						WM	Q				
14)	Width of the Lt belt	1:		mm		(~		•	$\sim$	D3	(W3)	
15)	Material of the pulley						D1(W1)					

T. Driven mechanism and running data						
1)	Travel distance of the work load per one cycle	d1:	deg			
2)	Cycle time	to:	s			
	(Fill in items 3) and 4) if requi	ired.)				
3)	Acceleration time	ta:	S			
4)	Deceleration time	td:	S			
5)	Stopping time	ts:	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	WA:	kg			
9)	Driving radius of the center of gravity of the work	R <sub>1</sub> :	mm			
10)	Diameter of the table	D1:	mm			
11)	Mass of the table	W1:	kg			

12) Diameter of the table support

13) Power supply voltage

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:

2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

T1:



# Request for motor selection V : Turntable drive

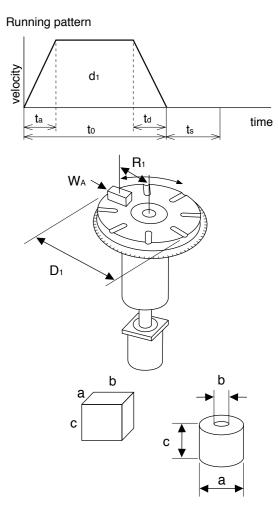
mm

V

## 1. Driven mechanism and running data

## **Request Sheet for Motor Selection**

Prism Cylinder Dimensions of the 14) a: mm a: mm work load b: mm b: mm c: mm c: mm 15) Number of work loads pcs



Company name :	
Department/Section :	
Name :	
Address :	
Tel :	
Fax :	
E-mail address:	
<u> </u>	

## Request for motor selection VI : Timing pulley + Turntable drive

#### 1. Driven mechanism and running data

1.1	Driven mechan	ism an	id rur	nning data			Moto	or side	Turnt	able side
1)	Travel distance of th load per one cycle	ne work	d1:	deg	16)	Diameter of the pulley	D2:	mm	D3:	mm
2)	Cycle time		to:	S	] 17)	Weight of the pulley	W2:	kg	W3:	kg
	(Fill in items 3) and	4) if requi	ired.)			(or item 18) and 19))				
3)	Acceleration time		ta:	S	18)	Width of the pulley		L1:		mm
4)	Deceleration time		td:	S	19)	Material of the pulley				
5)	Stopping time		ts:	S	20)	Weight of the belt		WM:		kg
6)	Max. rotational spee table	ed of the	v:	deg/s	]	Running pattern				
		(or)	V:	r/s	]					
7)	Positioning accuracy work load	y of the	±	deg		d1		$\backslash$		
8)	Weight of one work	load	WA:	kg	]	ta to	td	⇒ ts		time
9)	Driving radius of the of gravity of the work		R1:	mm	]			<b>R</b> 1	21	
10)	Diameter of the table	e	D1:	mm	]	V	NA L			
11)	Mass of the table		W1:	kg		Ύ[	D1			
12)	Diameter of the table support	e	T1:	mm	]					
13)	Power supply voltag	je		V		D2(W2)		$\mathbb{C}$	◀~	
	_	(Prisr	m)	(Cylinder)	-		<u> </u>		L	D3(W3)
14)	Dimension of the work load	a:	mm	a: mm		<b></b>	`v	Νм		b
	t	b:	mm	b: mm	]	a /	b	_	<b>→</b>	<b>↓</b>
		C:	mm	c: mm		c		a		
15)	Number of work load	ds		pcs			_			<mark>c →</mark>

#### 2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

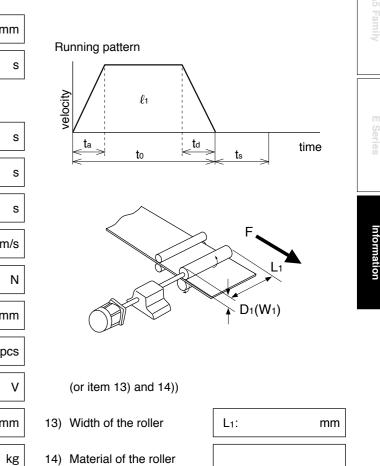
Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

	Request	t for motor selee	ct
1. I	Driven mechanism and ru	unning data	
1)	Travel distance of the work load per one cycle	ℓ1: m	n
2)	Cycle time	to:	Ş
	(Fill in items 3) and 4) if required.)		
3)	Acceleration time	ta:	Ş
4)	Deceleration time	td:	ę
5)	Stopping time	ts:	ş
6)	Max. velocity	v: mn	า/เ
7)	External pulling force	F:	Ν
8)	Positioning accuracy of the work load	± m	n
9)	Number of rollers	р	CS
10)	Power supply voltage		١
11)	Diameter of the roller	D1: m	۱n
12)	Mass of the roller	W1:	k

## 2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

# **Request Sheet for Motor Selection**

## ction VII : Roller feed drive



Company name :	
Department/Section :	
Name :	
Address :	
Tel :	
Fax :	
E-mail address:	

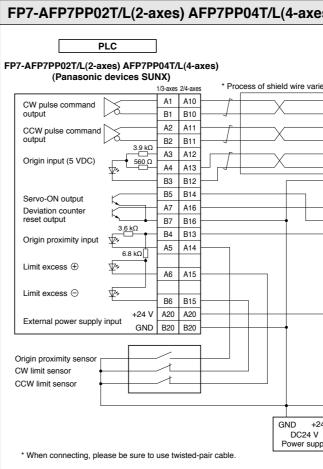
Request for motor selection VIII : Driving with Rack & Pinion

#### 1. Driven mechanism and running data 1) Travel distance of the work load per one cycle ℓ1: mm 2) Cycle time to: s (Fill in items 3) and 4) if required.) Running pattern 3) Acceleration time ta: S 4) Deceleration time td: velocity ℓ1 5) Stopping time ts: S ta td time to ts V: 6) Max. velocity mm/s F: 7) External force Ν WA v 8) Positioning accuracy of the work load ± mm WA: 9) Total weight of the work load kg 10) Power supply voltage V Wз 11) Diameter of the pinion D3: mm Dз W3: 12) Mass of the pinion kg Traveling direction 13) (horizontal, vertical, etc.)

2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:
 •

## **Connection Between Driver and Controller**



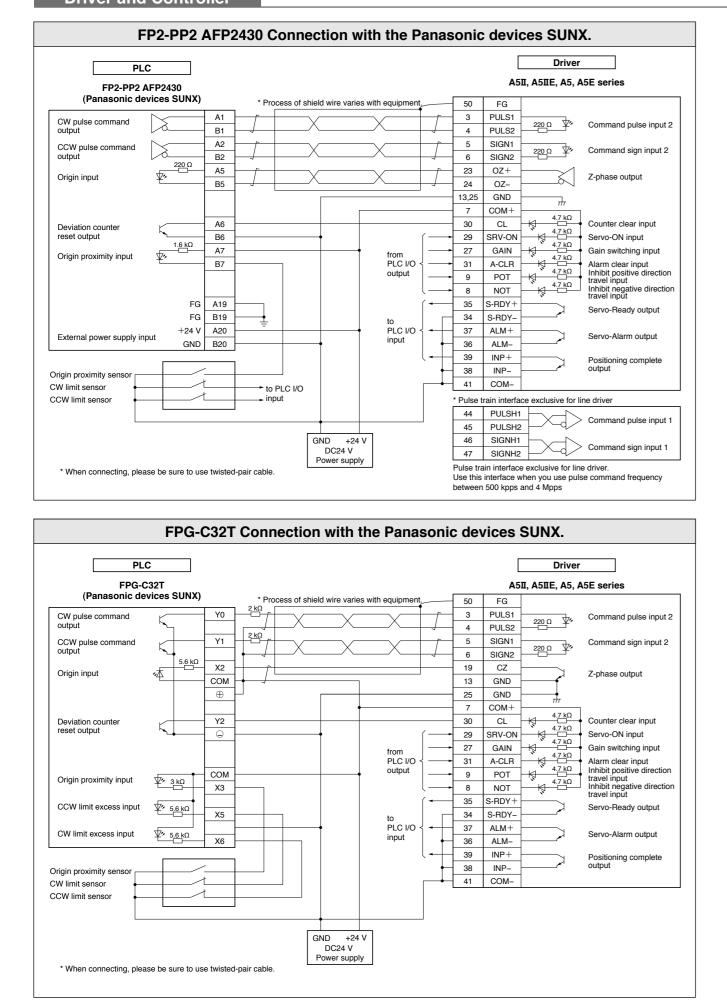
FPG-PP12	AFP	G432	Conne	ction
PLC				
FPG-PP12 AFPG432 (Panasonic devices SUNX)		* Proc	ess of shiel	d wire varie
CW pulse command output	A1 B1			
CCW pulse command output	A2 B2		X	
Origin input	A4 B3		X	
Deviation counter	A7 B7			
6.8 kΩ Origin proximity input	B7 B4 A5			
FG FG	A19 B19			
External power supply input +24 V GND	A20 B20			•
Origin proximity sensor CW limit sensor CCW limit sensor	- 	to I	PLC I/O ut	
				ND +2 DC24 V Power supp
* When connecting, please be sure to use	twisted-	pair cable.		

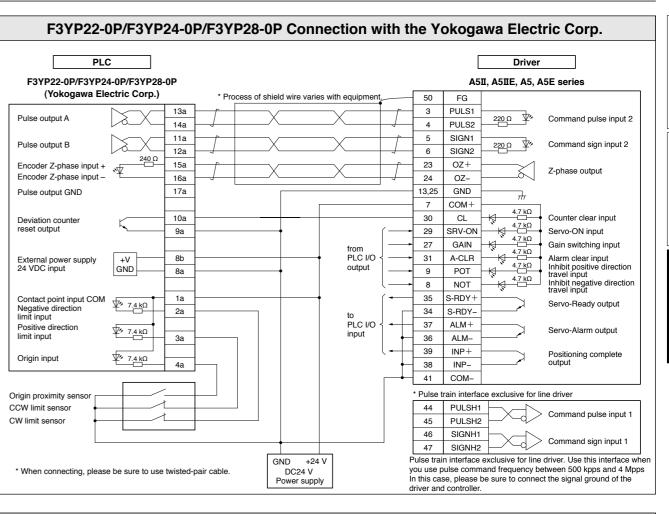
## A5 Family **Connection Between Driver and Controller**

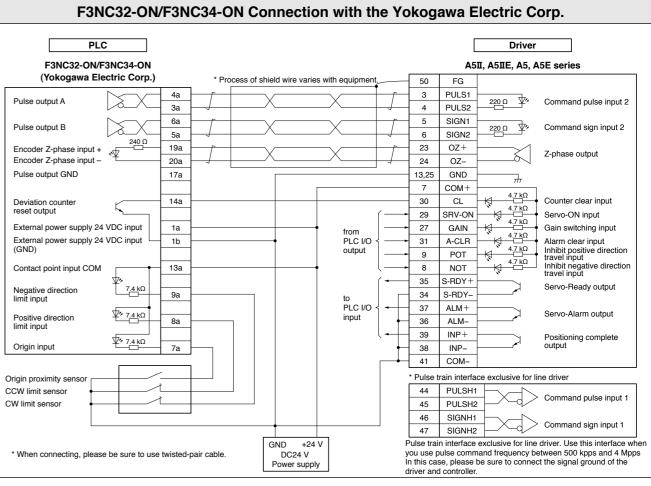
50 3 4 5 6 23 24 13.25	A5 FG PULS1 PULS2 SIGN1 SIGN2 OZ+ OZ-	Driver II, A5IIE, A5, A 220Ω ¥ 220Ω ¥	
3 4 5 6 23 24	FG PULS1 PULS2 SIGN1 SIGN2 OZ+	220 Ω ¥*	Command pulse input 2
3 4 5 6 23 24	PULS1 PULS2 SIGN1 SIGN2 OZ+		
4 5 6 23 24	PULS2 SIGN1 SIGN2 OZ+		
5 6 23 24	SIGN1 SIGN2 OZ+		
6 23 24	SIGN2 OZ+	220 Ω ¥*	Command sign input 2
23 24	OZ+	¥*	Command Sign input 2
24		1	
	07		Z-phase output
13 OF	02-	<u>&amp;</u>	z-pridse output
13,23	GND		
7	COM+		
30	CL		Counter clear input
29	SRV-ON	──₭────┥	Servo-ON input
27	GAIN		Gain switching input
31	A-CLR		Alarm clear input
9	POT		Inhibit positive direction travel input
8	NOT	- 4.7 KΩ	Inhibit negative direction travel input
35	S-RDY+		Servo-Ready output
34	S-RDY-		Servo-neady output
37	ALM+		Servo-Alarm output
36	ALM-		Joi vo-Alarin Julpul
39	INP+		Positioning complete
38	INP-		output
41	COM-		
Pulse t	rain interfa	ce exclusive for li	ne driver
44	PULSH1		
45	PULSH2	7-X-d>	Command pulse input 1
46	SIGNH1		<b>0</b>
47	SIGNH2	-	Command sign input 1
	30 29 27 31 9 8 35 34 37 36 39 38 41 Pulse th 44 45 46 47 Pulse this	30         CL           29         SRV-ON           27         GAIN           31         A-CLR           9         POT           8         NOT           35         S-RDY+           34         S-RDY-           37         ALM+           36         ALM-           39         INP+           38         INP-           41         COM-           Pulse train interface         YeusH1           44         PULSH1           45         PULSH2           46         SIGNH1           47         SIGNH2           Pulse train interface         Use this interface with the start of	30         CL         4.7 kΩ           29         SRV-ON         4.7 kΩ           27         GAIN         4.7 kΩ           31         A-CLR         4.7 kΩ           9         POT         4.7 kΩ           31         A-CLR         4.7 kΩ           9         POT         4.7 kΩ           31         A-CLR         4.7 kΩ           9         POT         4.7 kΩ           35         S-RDY+         4.7 kΩ           35         S-RDY+         4.7 kΩ           36         ALM+         35           36         ALM+         36           38         INP-         41           41         COM-         4.7 kΩ           Pulse train interface exclusive for lit         4.7 kΩ           44         PULSH1         4.7 kΩ           46         SIGNH1         4.7 kΩ

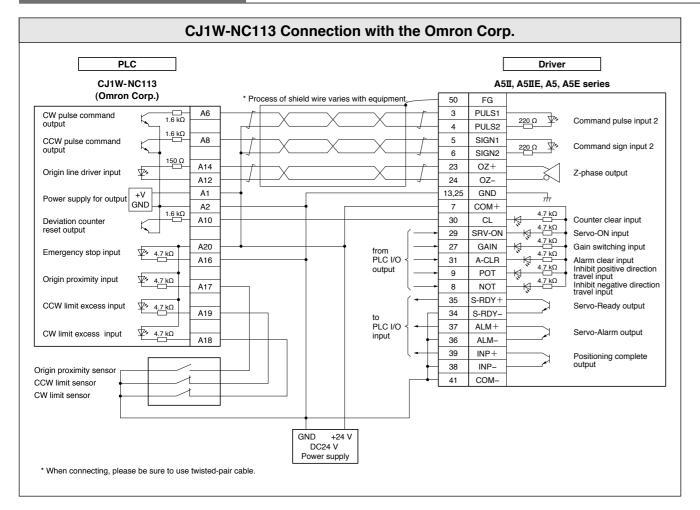
#### with the Panasonic devices SUNX.

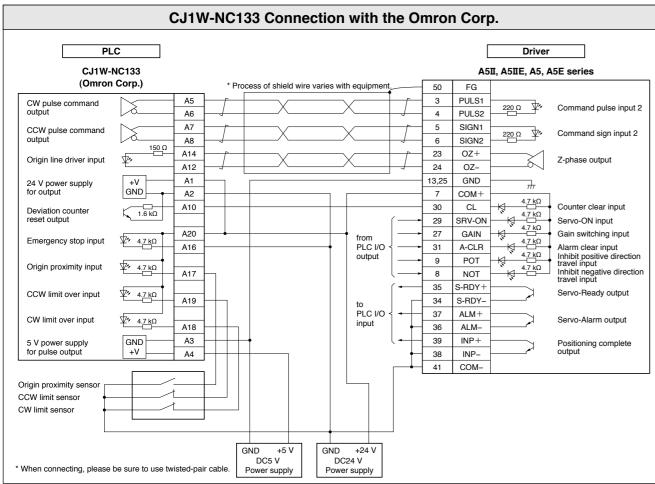
		[	Driver	
		A5	II, A5IIE, A5, A	5E series
ies with equipment.	50	FG		
	3	PULS1	220.0 7%	Command pulse input 2
	- 4	PULS2	220 Ω ¥*	Command pulse input 2
	- 5	SIGN1	220 Ω 🔽 🕫	Command sign input 2
	6	SIGN2	220 Ω ¥*	Command Sign input 2
	23	OZ+		Z-phase output
	- 24	OZ-	$  \longrightarrow \rangle$	2-priase output
	13,25	GND		
	- 7	COM+		
	- 30	CL	4.7 kΩ	Counter clear input
( —	→ 29	SRV-ON	4.7 kΩ	Servo-ON input
from	→ 27	GAIN	4.7 kΩ	Gain switching input
PLC I/O {	<b>→</b> 31	A-CLR	4.7 kΩ	Alarm clear input
output	<b>→</b> 9	POT	4.7 kΩ	Inhibit positive direction travel input
	→ 8	NOT	4.7 KΩ	Inhibit negative direction travel input
( •	35	S-RDY+		Servo-Ready output
to T	- 34	S-RDY-	^	Gervo-rieady output
● PLC I/O { ●	37	ALM+	<u> </u>	Servo-Alarm output
input	36	ALM-	<b>^</b>	Gervo-Alarin Galpar
	- 39	INP+	<u> </u>	Positioning complete
+	- 38	INP-	<b>^</b>	output
	41	COM-		
	* Pulse t	rain interfa	ce exclusive for li	ne driver
	44	PULSH1		Open and and a least d
	45	PULSH2	$\vdash \land \dashv \land$	Command pulse input 1
24 V	46	SIGNH1		
ply	47	SIGNH2	$\vdash \land \dashv \land$	Command sign input 1
<u> </u>	Use this	interface v	e exclusive for line when you use puls and 4 Mpps	e driver. e command frequency

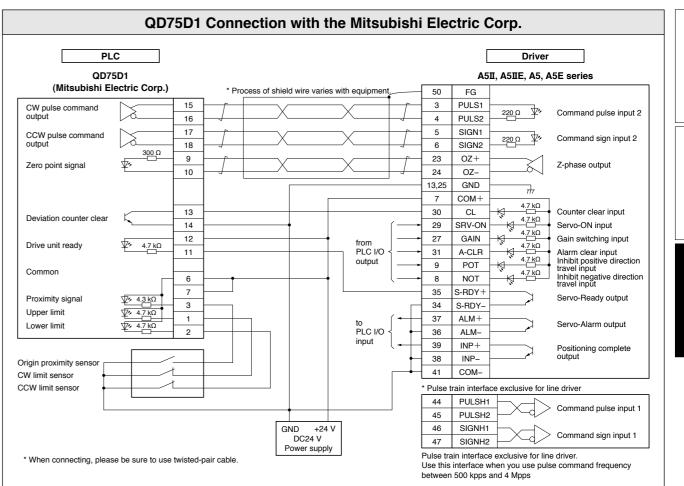


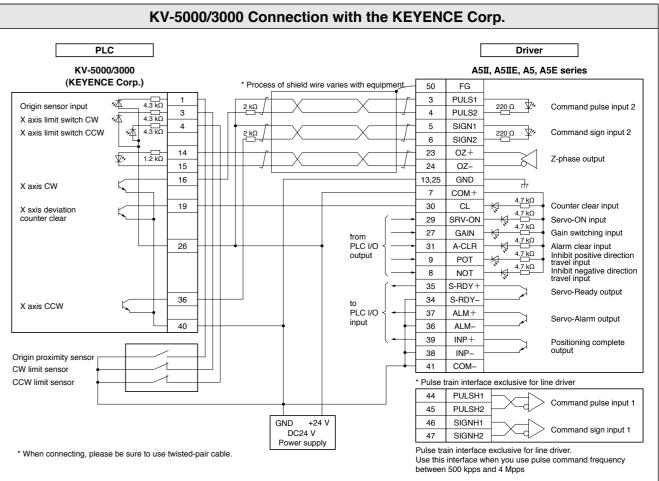






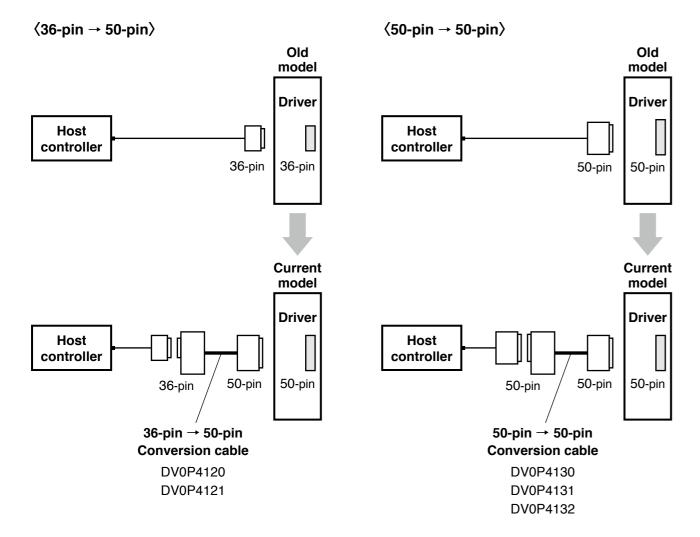






# Replacing Old Model Servo Driver with MINAS A5II, A5 series

For easier replacement of old driver (MINAS X/XX/V series) with A5II, A5 series, use the interface conversion connector.



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	Position/velocity control	DV0P4120	P.280
(36-pin)	Torque control	DV0P4121	F.20U
	Position control	DV0P4130	P.281
V series (50-pin)	Velocity control	DV0P4131	F.201
	Torque control	DV0P4132	P.282

\* For external dimensions, refer to P.197.

## **Conversion Wiring Table**

		DV0P4120		DV0P4121			
Pin No. on Old Model	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+	
	34	Positioning complete output (-) Speed arrival output (-)	COIN- AT-SPEED-	34	Positioning complete output (-) Speed arrival output (-)	COIN- AT-SPEED	
28	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.

A5 Family

E Series

Information

# A5 Family Connection Between Driver and Controller

# Replacing Old Model Servo Driver with MINAS A5II, A5 series

	DV0P4130				DV0P4131		
Pin No. on Old Model	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	<b>_</b>		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	Oran el ensued	010	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	A shace subsut	04	NC	A share subsut	04	
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	0Z+	23	Z-phase output	OZ+	
24 25	24	Z-phase output	OZ- FG	24	Z-phase output	OZ-	
-	50	Frame ground		50	Frame ground	-	
26 27	26 27	Speed zero clamp input	ZEROSPD GAIN	26 27	Speed zero clamp input	ZEROSPD GAIN	
27	NC NC	Gain switching input	GAIN	33	Gain switching input Selection 1 input of internal command speed	INTSPD1	
20	29	Servo-ON input	SRV-ON	29	Selection 1 input of internal command speed 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	Command pulse initiation input		NC			
35	35	Servo-Ready output	S-RDY+	35	Servo-Ready output	S-RDY+	
36	NC		011011	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	
	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-	
41	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	Frame ground	FG	50	Frame ground	FG	

	DV0P4132						
Pin No. on Old Model	Pin No. on Current Model	Signal Name	Symbo				
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	ZEROSPI				
27	27	Gain switching input	GAIN				
28	NC						
29	29	Servo-ON input	SRV-ON				
30	NC		311-01				
31	31	Alerm clear input	A-CLR				
-	-	Alarm clear input					
32	32 NC	Control mode switching input	C-MODE				
33							
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-SPEEI				
40	40	Torque in-limit signal output	TLC				
	10	External brake release signal (-)	BRK-OFF				
	34	Speed arrival output (-)	AT-SPEEI				
41	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				
		nnect.					

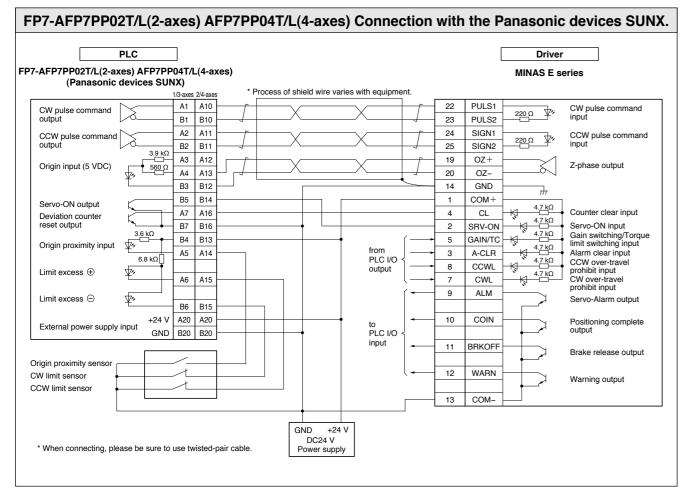
\* "NC" is no connect.

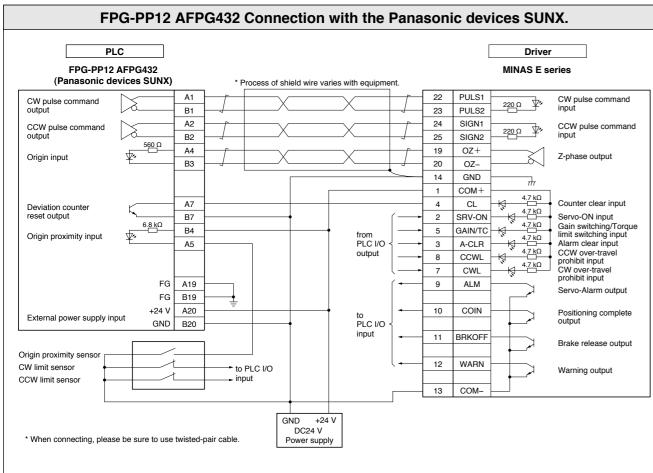


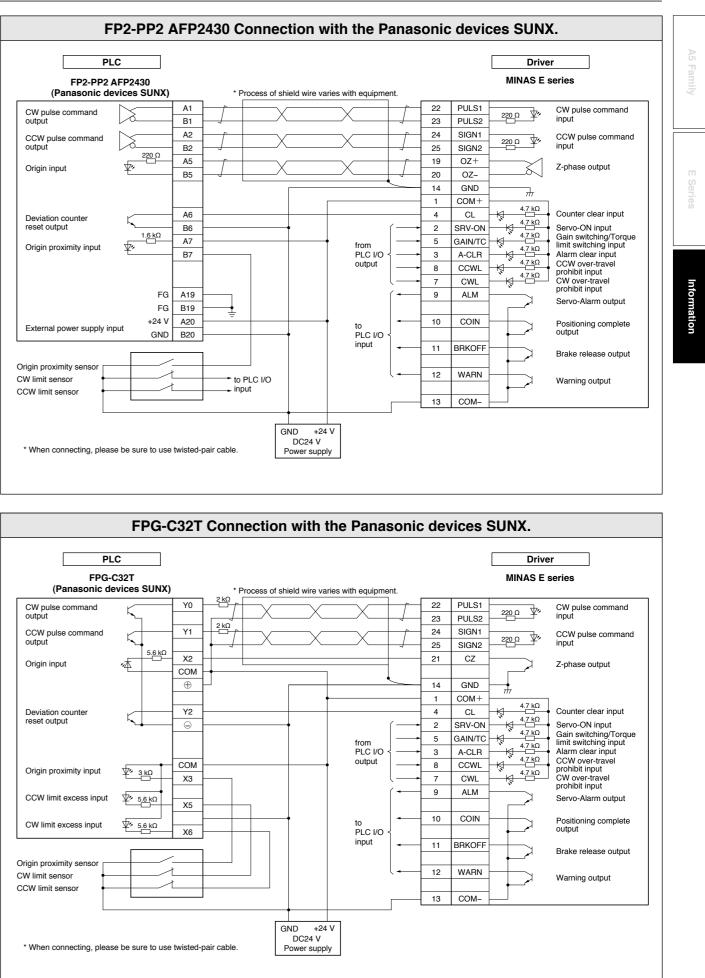
A5 Family

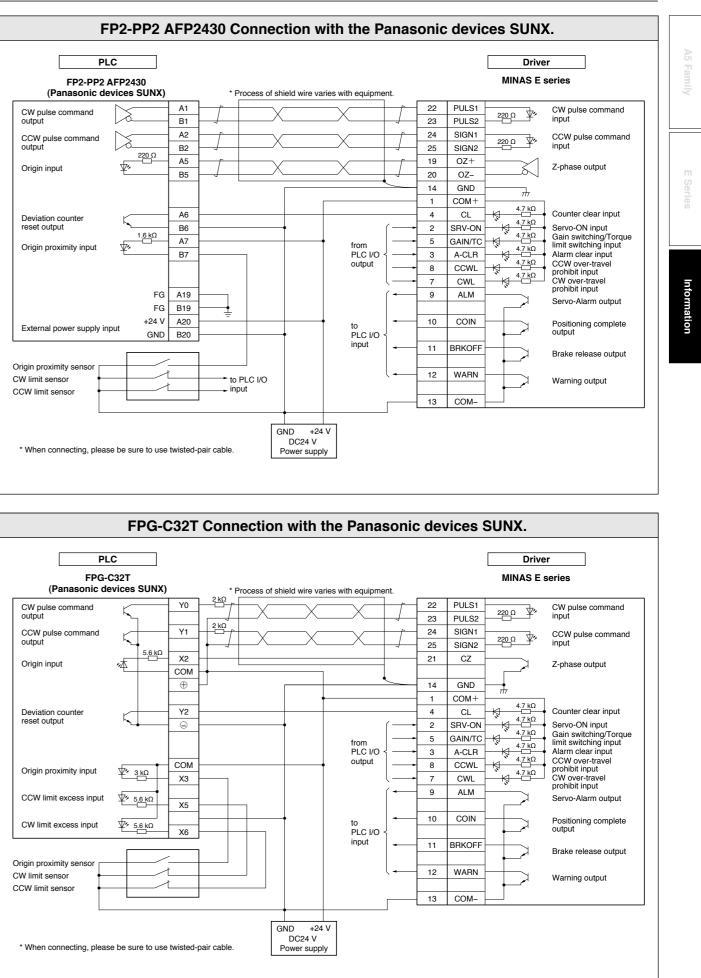
E Series

**Connection Between** Driver and Controller



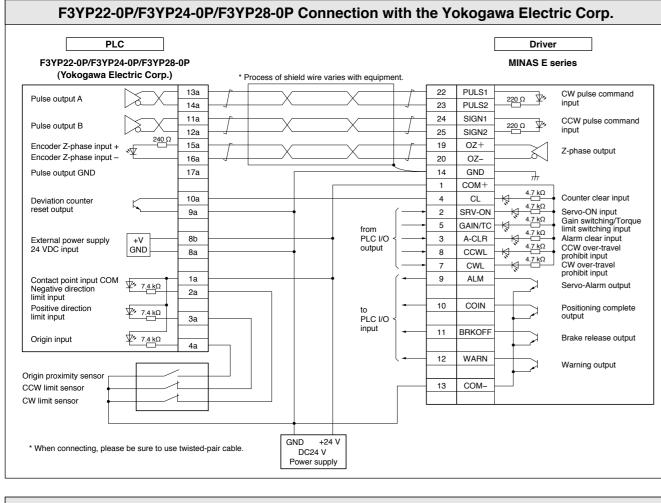


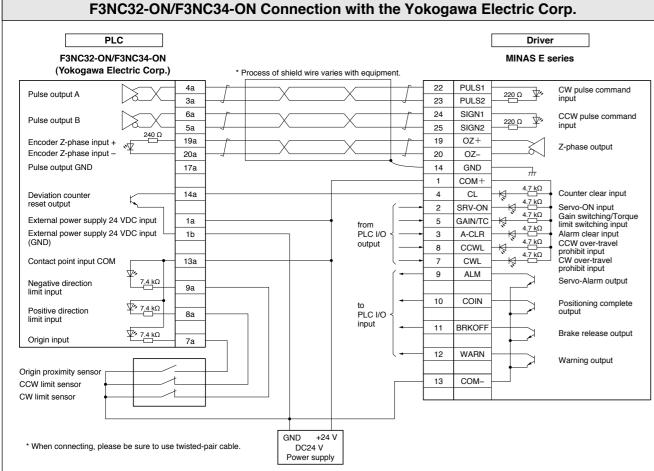


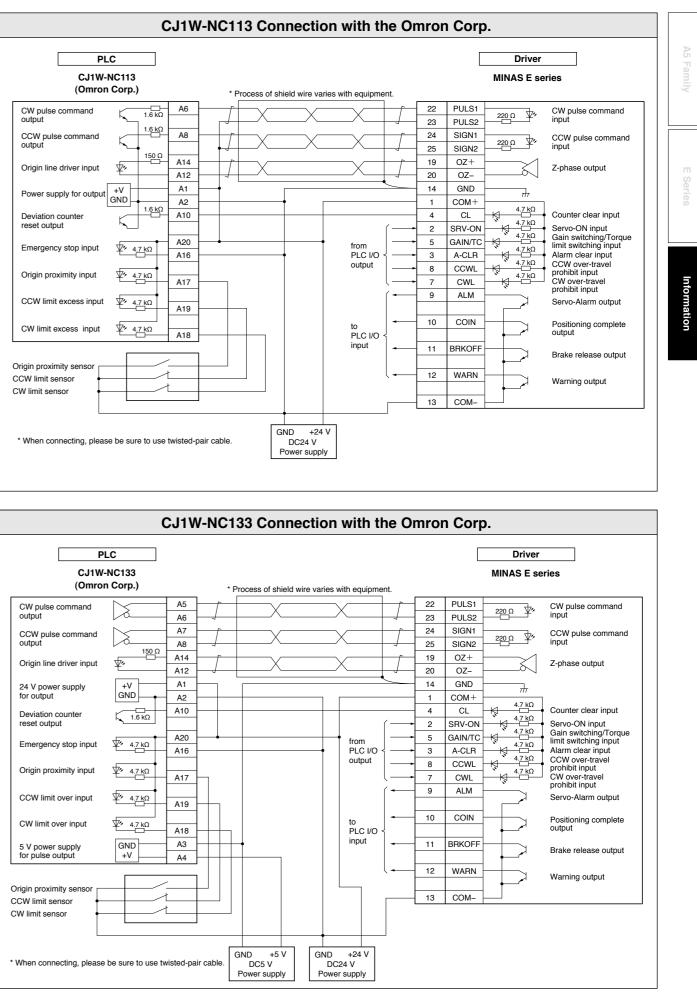


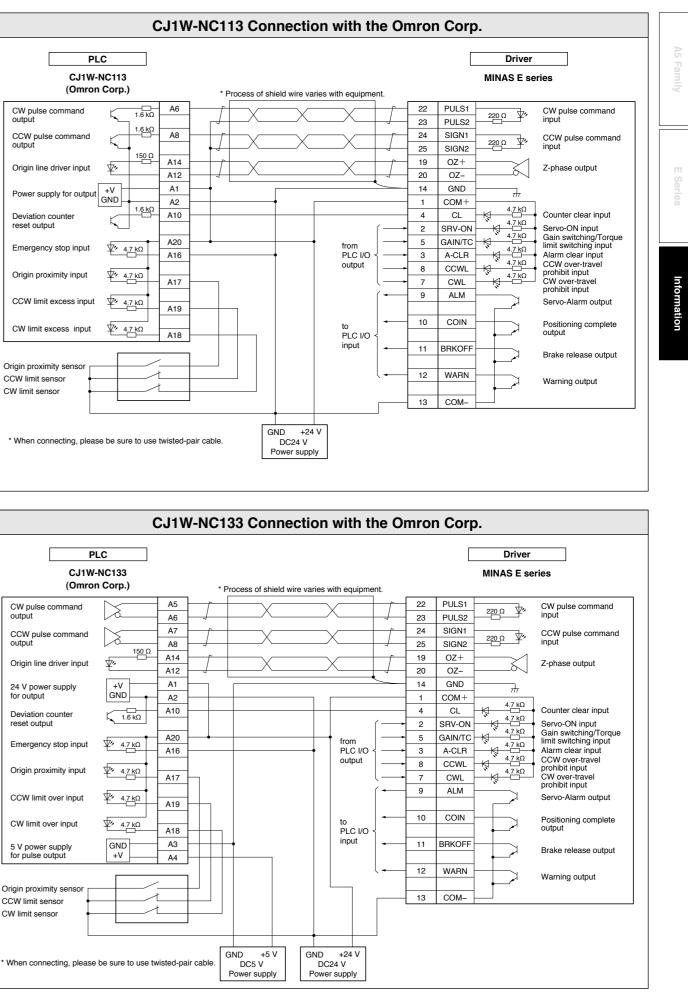
**Connection Between** Driver and Controller

## **Connection Between Driver and Controller**



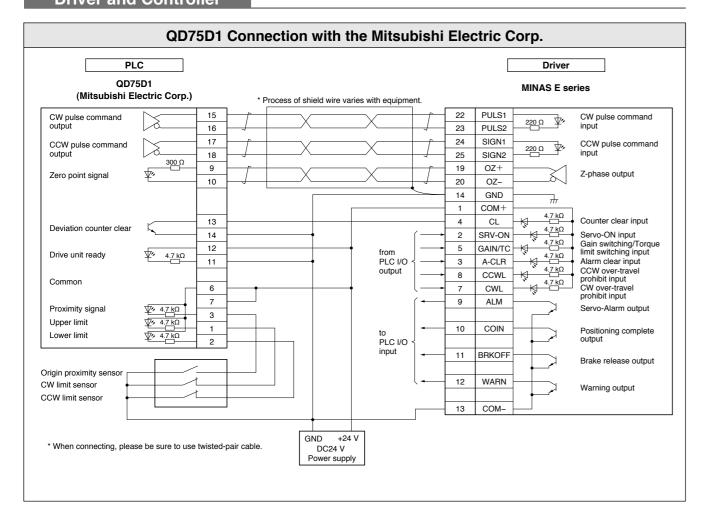






Connection Between Driver and Controller

# Connection Between Driver and Controller



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MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHMD (High ine Part No. MHMD021G1A MHMD021G1B MHMD021G1C	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame rtia) Title MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder	29,47 29,47 29,47 29,47 29,47 29,47 <b>Page</b> 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1T MHMD041S1U MHMD041S1V MHMD042G1A MHMD042G1B MHMD042G1D	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61 61 61 61 61 61 61 61 61 62 62 62 62 62
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MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHMD (High ine Part No. MHMD021G1A MHMD021G1B MHMD021G1C MHMD021G1D MHMD021G1N	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame Itia) Title MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder	29,47 29,47 29,47 29,47 29,47 29,47 <b>Page</b> 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1T MHMD041S1U MHMD041S1V MHMD042G1A MHMD042G1D MHMD042G1D MHMD042G1P	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61 61 61 61 61 61 61 61 61 62 62 62 62 62 62 62
MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHMD (High ine Part No. MHMD021G1A MHMD021G1B MHMD021G1D MHMD021G1D MHMD021G1N MHMD021G1P	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame Title MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder	29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1T MHMD041S1U MHMD041S1V MHMD042G1A MHMD042G1B MHMD042G1D MHMD042G1N	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61 61 61 61 61 61 61 61 61 62 62 62 62 62 62 62
MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHMD (High ine Part No. MHMD021G1A MHMD021G1A MHMD021G1D MHMD021G1D MHMD021G1P MHMD021G1P	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame Title MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder	29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1T MHMD041S1U MHMD041S1V MHMD042G1A MHMD042G1D MHMD042G1D MHMD042G1P	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61 61 61 61 61 61 61 61 61 62 62 62 62 62 62 62 62 62 62 62 62 62
MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHMD (High ine Part No. MHMD021G1A MHMD021G1A MHMD021G1D MHMD021G1D MHMD021G1P MHMD021G1Q MHMD021G1R	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame Title MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder	29,47 29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1S MHMD041S1U MHMD041S1U MHMD042G1A MHMD042G1B MHMD042G1D MHMD042G1P MHMD042G1Q	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61 61 61 61 61 61 61 61 61 62 62 62 62 62 62 62 62 62 62 62 62 62
MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHMD (High ine Part No. MHMD021G1A MHMD021G1A MHMD021G1D MHMD021G1D MHMD021G1P MHMD021G1R MHMD021G1R MHMD021G1R	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame Title MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder	29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1S MHMD041S1U MHMD041S1U MHMD042G1A MHMD042G1B MHMD042G1D MHMD042G1P MHMD042G1Q MHMD042G1R	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61 61 61 61 61 61 61 61 61 62 62 62 62 62 62 62 62 62 62 62 62 62
MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHMD (High ine Part No. MHMD021G1A MHMD021G1A MHMD021G1D MHMD021G1D MHMD021G1P MHMD021G1R MHMD021G1R MHMD021G1S MHMD021G1T	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame Title MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder	29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1Q MHMD041S1S MHMD041S1S MHMD041S1U MHMD041S1U MHMD042G1A MHMD042G1B MHMD042G1D MHMD042G1D MHMD042G1P MHMD042G1Q MHMD042G1R MHMD042G1S	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61 61 61 61 61 61 61 61 61 62 62 62 62 62 62 62 62 62 62 62 62 62
MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHDKTC3B4 MHMD021G1A MHMD021G1A MHMD021G1D MHMD021G1D MHMD021G1D MHMD021G1P MHMD021G1R MHMD021G1S MHMD021G1T MHMD021G1T	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame MHMD 200 W Incremental encoder MHMD 200 W Incremental encoder	29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1S MHMD041S1U MHMD041S1U MHMD042G1A MHMD042G1A MHMD042G1D MHMD042G1D MHMD042G1P MHMD042G1R MHMD042G1S MHMD042G1T	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61 61 61 61 61 61 61 61 61 62 62 62 62 62 62 62 62 62 62 62 62 62
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MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHMD (High ine Part No. MHMD021G1A MHMD021G1A MHMD021G1D MHMD021G1D MHMD021G1D MHMD021G1R MHMD021G1R MHMD021G1T MHMD021G1X MHMD021G1V MHMD021G1V MHMD021G1V MHMD021S1A MHMD021S1C	A5 series Driver: H-frame A5 series Driver: H-frame Title A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame MHMD 200 W Incremental encoder MHMD 200 W Absolute encoder MHMD 200 W Absolute encoder MHMD 200 W Absolute encoder	29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1Q MHMD041S1R MHMD041S1T MHMD041S1U MHMD041S1U MHMD042G1A MHMD042G1B MHMD042G1D MHMD042G1P MHMD042G1Q MHMD042G1T MHMD042G1U MHMD042G1U MHMD042G1U MHMD042G1V MHMD042G1V	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder	61           61           61           61           61           61           61           61           61           61           61           61           62
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MHDHTB4A2 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHDKTC3B4 MHMD021G1A MHMD021G1A MHMD021G1D MHMD021G1D MHMD021G1D MHMD021G1R MHMD021G1S MHMD021G1U MHMD021G1U MHMD021G1U MHMD021G1U MHMD021G1U MHMD021S1A MHMD021S1A MHMD021S1B MHMD021S1D MHMD021S1P	A5 series Driver: H-frame A5 series Driver: H-frame A5 series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame MHMD 200 W Incremental encoder MHMD 200 W Absolute encoder	29,47 29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1T MHMD041S1U MHMD042G1A MHMD042G1B MHMD042G1D MHMD042G1D MHMD042G1P MHMD042G1Q MHMD042G1R MHMD042G1S MHMD042G1U MHMD042G1U MHMD042G1U MHMD042G1U MHMD042S1A MHMD042S1A MHMD042S1B MHMD042S1D MHMD042S1P	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder         MHMD 400 W Absolute encoder	61           61           61           61           61           61           61           61           61           61           61           61           62
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MHDHTB4A2 MHDHTC3B4 MHDHTC3B4 MHDKT Part No. MHDKTC3B4 MHDKTC3B4 MHDKTC3B4 MHMD021G1A MHMD021G1B MHMD021G1D MHMD021G1D MHMD021G1D MHMD021G1R MHMD021G1T MHMD021G1T MHMD021G1V MHMD021G1V MHMD021S1A MHMD021S1B MHMD021S1D MHMD021S1D MHMD021S1P MHMD021S1P MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R	A5 series Driver: H-frame A5 series Driver: H-frame A5 series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame MHMD 200 W Incremental encoder MHMD 200 W Absolute encoder	29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1T MHMD041S1V MHMD042G1A MHMD042G1B MHMD042G1D MHMD042G1D MHMD042G1D MHMD042G1Q MHMD042G1S MHMD042G1T MHMD042G1U MHMD042G1U MHMD042G1U MHMD042G1U MHMD042S1A MHMD042S1A MHMD042S1B MHMD042S1P MHMD042S1P MHMD042S1Q MHMD042S1Q MHMD042S1Q MHMD042S1Q MHMD042S1Q MHMD042S1Q MHMD042S1R MHMD042S1R	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder         MHMD 400 W Absolute encoder	61           61           61           61           61           61           61           61           61           61           61           61           62
MHDHTB4A2 MHDHTC3B4 MHDHTC3B4 MHDKT Part No. MHDKTB4A2 MHDKTC3B4 MHDKTC3B4 MHMD021G1A MHMD021G1B MHMD021G1D MHMD021G1D MHMD021G1D MHMD021G1R MHMD021G1T MHMD021G1T MHMD021G1U MHMD021G1U MHMD021S1A MHMD021S1B MHMD021S1D MHMD021S1D MHMD021S1P MHMD021S1P MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R MHMD021S1R	A5 series Driver: H-frame A5 series Driver: H-frame A5 series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame A5I series Driver: H-frame MHMD 200 W Incremental encoder MHMD 200 W Absolute encoder	29,47 29,47 29,47 29,47 29,47 29,47 59 59 59 59 59 59 59 59 59 59 59 59 59	MHMD041S1C MHMD041S1D MHMD041S1N MHMD041S1P MHMD041S1Q MHMD041S1Q MHMD041S1R MHMD041S1S MHMD041S1T MHMD041S1V MHMD042G1A MHMD042G1B MHMD042G1D MHMD042G1D MHMD042G1D MHMD042G1Q MHMD042G1S MHMD042G1S MHMD042G1U MHMD042G1U MHMD042G1U MHMD042S1A MHMD042S1A MHMD042S1A MHMD042S1D MHMD042S1P MHMD042S1P MHMD042S1Q MHMD042S1R MHMD042S1R MHMD042S1R MHMD042S1S MHMD042S1S	MHMD 400 W Absolute encoder         MHMD 400 W Incremental encoder         MHMD 400 W Absolute encoder	61           61           61           61           61           61           61           61           61           61           61           61           62
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MSMD041S31N	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD041S32N	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD041S33N	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD041S34N	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD041S41N	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD041S42N	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD041S43N	MSMD with reduction gear 400 W Absolute encoder	141,148
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MSMD042G31N	MSMD with reduction gear 400 W Incremental encoder	141,148
MSMD042G32N	MSMD with reduction gear 400 W Incremental encoder	141,148
MSMD042G33N	MSMD with reduction gear 400 W Incremental encoder	141,148
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MSMD042G41N	MSMD with reduction gear 400 W Incremental encoder	141,148
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MSMD042S31N	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD042S32N	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD042S33N	MSMD with reduction gear 400 W Absolute encoder	141,148
	MSMD with reduction gear 400 W Absolute encoder	141,148
MSMD042S34N		

MSMD042S43N         MSMD with reduction gear 400 W Absolute encoder           MSMD042S44N         MSMD with reduction gear 400 W Absolute encoder           MSMD082G31N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G32N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G33N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G33N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G34N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G43N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G44N         MSMD with reduction gear 750 W Incremental encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute enc	Page           141,148           14
MSMD042S42N         MSMD with reduction gear 400 W Absolute encoder           MSMD042S43N         MSMD with reduction gear 400 W Absolute encoder           MSMD042S44N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G33N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G33N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G33N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082G31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder </th <th>141,148         <td< th=""></td<></th>	141,148         141,148 <td< th=""></td<>
MSMD042S43N         MSMD with reduction gear 400 W Absolute encoder           MSMD042S44N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G31N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G32N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G33N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G34N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G44N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S32N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder </td <td>141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148</td>	141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148
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MSMD082G32N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G33N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G34N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G43N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G43N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSME 00 W Incremental encoder	141,148 141,148
MSMD082G33N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G44N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S32N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD08101G1A         MSME 100 W Incremental encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1A	141,148 141,148
MSMD082G34N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G44N         MSMD with reduction gear 750 W Incremental encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S32N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD With reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSME 00 W Incremental encoder           MSMD082S44N         MSME 00 W Incremental encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1D         MSM	141,148 141,148
MSMD082G41N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G43N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S32N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD With reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD With reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1D	141,148 141,148
MSMD082G42N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G43N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S32N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD With reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD With reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD With reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1D	141,148 141,148
MSMD082G43N         MSMD with reduction gear 750 W Incremental encoder           MSMD082G44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S32N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1D	141,148 141,148
MSMD082G44N         MSMD with reduction gear 750 W Incremental encoder           MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S32N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W I	141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 <b>Page</b> 67 67 67
MSMD082S31N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S32N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1T         MSME 100 W Absolute encoder	141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 <b>Page</b> 67 67 67
MSMD082S33N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME01082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1C         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1W         MSME 100 W Incremental encoder           MSME011G1W         MSME 100 W Absolute encode	141,148 141,148 141,148 141,148 141,148 141,148 141,148 141,148 67 67 67 67
MSMD082S34N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME01082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1C         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1W         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Absolute encoder	141,148 141,148 141,148 141,148 141,148 141,148 141,148 67 67 67 67
MSMD082S41N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME01082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1T         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Absolute encoder           MSME011G1V         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolute encoder           MSME011S1A	141,148 141,148 141,148 141,148 141,148 <b>Page</b> 67 67 67
MSMD082S42N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1C         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1T         MSME 100 W Incremental encoder           MSME011G1T         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolute encoder	141,148 141,148 141,148 141,148 <b>Page</b> 67 67 67
MSMD082S43N         MSMD with reduction gear 750 W Absolute encoder           MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME (Low inertia)         Title           Part No.         Title           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1T         MSME 100 W Incremental encoder           MSME011G1U         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolu	141,148 141,148 Page 67 67 67
MSMD082S44N         MSMD with reduction gear 750 W Absolute encoder           MSME (Low inertia)         Title           Part No.         Title           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1T         MSME 100 W Incremental encoder           MSME011G1U         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolute encoder           MSME011S1B         MSME 100 W Absolute encoder           MSME011S1D         MSME 100 W Absolute encoder           MSME011S1D         MSME 100 W Absolute encoder           MSME011S1Q         MSME 100 W Absolute encoder <td>141,148 Page 67 67 67</td>	141,148 Page 67 67 67
MSME (Low inertia)           Part No.         Title           MSME011G1A         MSME 100 W Incremental encoder           MSME011G1B         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1D         MSME 100 W Incremental encoder           MSME011G1P         MSME 100 W Incremental encoder           MSME011G1Q         MSME 100 W Incremental encoder           MSME011G1R         MSME 100 W Incremental encoder           MSME011G1T         MSME 100 W Incremental encoder           MSME011G1U         MSME 100 W Incremental encoder           MSME011G1V         MSME 100 W Absolute encoder           MSME011S1A         MSME 100 W Absolute encoder           MSME011S1B         MSME 100 W Absolute encoder           MSME011S1D         MSME 100 W Absolute encoder           MSME011S1D         MSME 100 W Absolute encoder           MSME011S1D         MSME 100 W Absolute encoder           MSME011S1P         MSME 100 W Absolute encoder           MSME011S1Q	<b>Page</b> 67 67
Part No.TitleMSME011G1AMSME 100 W Incremental encoderMSME011G1BMSME 100 W Incremental encoderMSME011G1CMSME 100 W Incremental encoderMSME011G1DMSME 100 W Incremental encoderMSME011G1DMSME 100 W Incremental encoderMSME011G1PMSME 100 W Incremental encoderMSME011G1QMSME 100 W Incremental encoderMSME011G1RMSME 100 W Incremental encoderMSME011G1RMSME 100 W Incremental encoderMSME011G1RMSME 100 W Incremental encoderMSME011G1RMSME 100 W Incremental encoderMSME011G1TMSME 100 W Incremental encoderMSME011G1UMSME 100 W Incremental encoderMSME011G1UMSME 100 W Incremental encoderMSME011G1UMSME 100 W Incremental encoderMSME011S1AMSME 100 W Absolute encoderMSME011S1BMSME 100 W Absolute encoderMSME011S1DMSME 100 W Absolute encoderMSME011S1DMSME 100 W Absolute encoderMSME011S1DMSME 100 W Absolute encoderMSME011S1QMSME 100 W Absolute encoderMSME011S1RMSME 100 W Absolute encoderMSME011S1RMSME 100 W Absolute encoderMSME011S1SMSME 100 W Absolute encoderMSME011S1VMSME 100 W Absolute encoderMSME011S1VMSME 100 W Absolute encoderMSME011S1BMSME 1	67 67 67
Part No.TitleMSME011G1AMSME 100 W Incremental encoderMSME011G1BMSME 100 W Incremental encoderMSME011G1CMSME 100 W Incremental encoderMSME011G1DMSME 100 W Incremental encoderMSME011G1DMSME 100 W Incremental encoderMSME011G1PMSME 100 W Incremental encoderMSME011G1QMSME 100 W Incremental encoderMSME011G1RMSME 100 W Incremental encoderMSME011G1RMSME 100 W Incremental encoderMSME011G1RMSME 100 W Incremental encoderMSME011G1TMSME 100 W Incremental encoderMSME011G1TMSME 100 W Incremental encoderMSME011G1UMSME 100 W Incremental encoderMSME011G1UMSME 100 W Incremental encoderMSME011G1VMSME 100 W Incremental encoderMSME011S1AMSME 100 W Absolute encoderMSME011S1BMSME 100 W Absolute encoderMSME011S1DMSME 100 W Absolute encoderMSME011S1DMSME 100 W Absolute encoderMSME011S1DMSME 100 W Absolute encoderMSME011S1QMSME 100 W Absolute encoderMSME011S1RMSME 100 W Absolute encoderMSME011S1RMSME 100 W Absolute encoderMSME011S1SMSME 100 W Absolute encoderMSME011S1TMSME 100 W Absolute encoderMSME011S1VMSME 100 W Absolute encoderMSME011S1VMSME 100 W Absolute encoderMSME011S1BMSME 100 W Absolute encoderMSME011S1BMSME 100 W Absolute encoderMSME011S1BMSME 100 W Absolute encoderMSME011S1BMSME 1	67 67 67
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MUMA022P44N	MUMA with reduction gear 200 W Incremental encoder	232,235			
MUMA042P31N	MUMA with reduction gear 400 W Incremental encoder	232,235			
MUMA042P32N	MUMA with reduction gear 400 W Incremental encoder	232,235			
MUMA042P34N	MUMA with reduction gear 400 W Incremental encoder	232,235			
MUMA042P41N	MUMA with reduction gear 400 W Incremental encoder	232,235			
MUMA042P42N	MUMA with reduction gear 400 W Incremental encoder	232,235			
MUMA042P44N	MUMA with reduction gear 400 W Incremental encoder	232,235			

A5 Family

Sales Office

[Panasonic	asonic Sales Office of Motors	.1		(December.01.2020)
		· 4		TEL
Region	ion Company Name [Category]	City	Address	FAX
U.S.A Co	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	zil Panasonic do Brazil	Sao Paulo	Avenida do Cafe, 277 Torre A-8 Andar Jabaquara	+55-11-3889-4022
[5a	[Sales office]		ZIP Code: 04311-900 Sao Paulo SP Brazil	+55-11-3889-4103
[Sa	Panasonic Industry Europe GmbH [Sales office]	Munich	Robert-Koch-Strasse 100, 85521 Ottobrunn,       Germany         e-mail       https://eu.industrial.panasonic.com/a	+49 89-45354-0 +49-89-4535-41-550 pout-us/contact-us
[European Headquarter]	[European Headquarter]		Web site         https://eu.industrial.panasonic.com/p compressors-pumps           Robert-Koch-Strasse 100, 85521 Ottobrunn,	roducts/motors- +49 (0) 89 45354-1000
	Panasonic Electric Works Europe AG	Munit	Germany	+49 (0) 89 45354-2111
	[Sales office] [European Headquarter]	Munich	e-mail info.peweu@eu.panasonic.com	eu/servo-drives-and-
ermany	any		Web site motors.htm Robert-Koch-Strasse 100, 85521 Ottobrunn,	+49 (0) 89 45354-1000
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			Web site https://panasonic-electric-works.com. servomotoren.htm	•
Ű	ghv Vertriebs-GmbH [Distributors]	Munich	Am Schammacher Feld 47 D-85567 Grafing b. Munich e-mail info@ghv.de	+49(0)-80-92/81-89-0 +49(0)-80-92/81-89-99
			Web site https://www.ghv.de/	+33(0)160135757
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	es office]	Le-Buisson	e-mail info.pewswef@eu.panasonic.com Web site https://www.panasonic-electric-works et-servomoteurs.htm	.com/fr/servosystemes-
			Via del Commercio 3-5 (Z.I.Ferlina), 37012 Bussolengo (VR), Italy	+39-045-6752711 +39-045-6700444
	Panasonic Electric Works Italia srl [Subsidiary]	Verona	e-mail info.pewit@eu.panasonic.com	L
-			Viale Tibaldi, 7 20136 Milano	+39-02-270-98-1
	Lenze Italia S.r.I. [Distributors]	Milano	e-mail mail@LenzeItalia.it	+39-02-270-98-290
			Web site http://www.lenze.com/it-it Sunrise Parkway, Linford Wood Milton	+44(0)1908231 555
Pr	Panasonic Electric Works UK Ltd.	Milton	Keynes, MK14 6LF United Kingdom	+44(0)1908231 599
[Sa	[Sales office]	Keynes	e-mail infouk@eu.panasonic.com Web site https://www.panasonic-electric-works	.com/uk/servo-drives-
United Kingdom			Priory Business Park, Bedford, MK44 3WH.	+44-1234-7532-00
-	Lenze Limited [Distributors]	Bedford	e-mail uk.sales@lenze.com	+44-1234-7532-20
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[Sa	[Sales office]		Web site https://www.panasonic-electric-works	.com/at/servoantriebe-
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-+			Web site https://www.panasonic-electric-works De Rijn 4 (Postbus 211), 5684 PJ Best,	com/pl/serwonapedy.htm +31(0)499372727
	Panasonic Electric Works Sales Iand Western Europe B.V.	PJ Best	e-mail info.pewswe@eu.panasonic.com	+31(0)499372185
	[Sales office]		Web site https://panasonic-electric-works.com	be/servosystemes-et-
			servomoteurs.htm	

Inform ation

E Series

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Spain	Panasonic Electric Works Espana S.A.	Madrid	Spain e-mail info.pewes@eu.panasonic.com	+34-91-329-2976
Opani	[Subsidiary]	INIGUIU	https://www.papasonic-electric-works	com/es/
			Web site servoaccionamientos-y-motores.htm	
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Hungary	[Sales office]	Budapest	e-mail info.peweuh@eu.panasonic.com	ann/au/aanua drivaa
			Web site https://www.panasonic-electric-works and-motors.htm	.com/eu/servo-unves-
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			Web site https://www.panasonic-electric-works	.com/ch/fr/
			servosystemes-et-servomoteurs.htm	
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	[Distributors]		e-mail sales@bostek.com.tr Web site http://www.bostek.com.tr	
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	Lubi Electronics	Ahmedabad	382330	+91-79-3984-5599
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			Web site http://www.lunabearings.com	04.05.0000
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	[Distributors]		e-mail buyonline@vashielectricals.com	
			Web site http://www.vashielectricals.com	

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