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





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



Features.....

- Motor Line-up/ D
- Model Designati
- Peripheral equip
- List of recomme
- Table of Part Nu

Driver

Common Specifi A5 series (Star A5E series (Po Wiring example Wiring to the C Safety function Wiring to the C Control circuit w Wiring to the C Wiring to the C Wiring to the C Dimensions of D

Motor

Specifications o Motor specificat Describes moto

OPTION

Conformance to I Cable part number Specifications of Junction Cable for Junction Cable for Junction Cable for Connector kit..... Battery for absolu Mounting bracket Reactor External regenera Surge absorber for List of manufactu

Information.....

Index Sales office

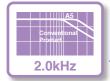


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Features



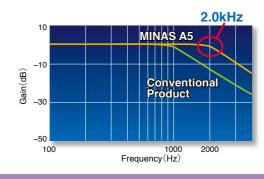


2.0 kHz frequency response

Example application Semiconductor production equipment, packaging, etc.

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

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



Conventional

A4 Series

131,072 p/r

130,000 pulses



Low cogging

20 bits/revolution, 1.04 million pulses

Example application Machine tools, textile machinery, etc.

Ensures smoother operation and reduced vibration at stopping.

Ensures accurate positioning in a short time.

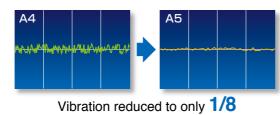
New proprietary signal processing technology achieves 1.04 million pulses with a 20-bit encoder.



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.



A5 Series

1,048,576 p/r

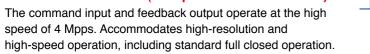
[1.04 million pulses]

The input/output pulse 4 Mpps

4 Mpps

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









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

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

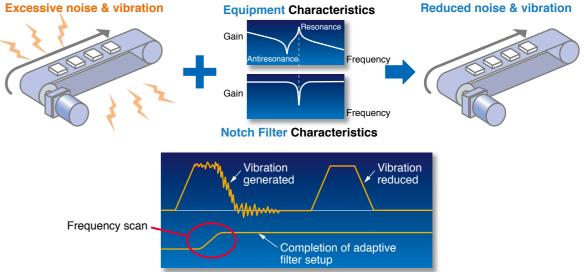
This makes it possible to perform simple optimal adjustments simply by selecting the mode and stiffness.

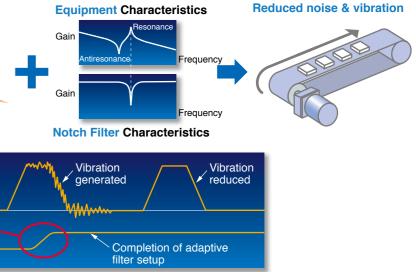


Manual/Auto Notch Filters

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





Smart

Highly Functional Real-time Auto-Gain Tuning

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



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

during operation. The A5 Series features an industry-largest total of four notch filters with setup frequencies of 50 to 5,000 Hz. This approach enables depth adjustment within this frequency range. (Two of the filters share the auto set-up.)

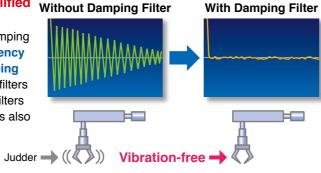


Manual/Auto Damping Filter

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 to 200 Hz.





Motion Simulation

Example application General production machinery, etc.

Equipped with a simplified machine simulation function.

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

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light



New Structure/ Innovative Core/ Innovative Encoder (Excluding MSMD, MHMD ty

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





Featuring significantly reduced weight and a more compact motor We've developed new designs for both compact motors and large motors. The

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



-	[LXamples for Mistin or Mibini]						
		A4 Series	A5 Series	Weight Reduction			
2	MSM 1kW	4.5kg	3.5kg	▲1kg			
-	MSM 2kW	6.5kg	5.3kg	▲1.2kg			
	MDM 1kW	6.8kg	5.2kg	▲1.6kg			
	MDM 2kW	10.6kg	8.0kg	▲2.6kg			





Complies with the latest European safety standards.

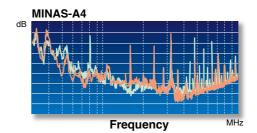
Features non-software-based (hardware-based?) independent redundant circuitry for motor power isolation. This obviates the need for magnetic contactors to isolate the required motor in order to



Low noise Example application

Complies with the European EMC Directive

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



IP67

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

IP67 enclosure rating for increased environmental resistance

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



Adoption of direct-mount connector

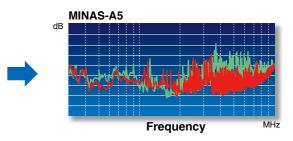


Complies with European Safety Standards. (A5E series doesn't correspon

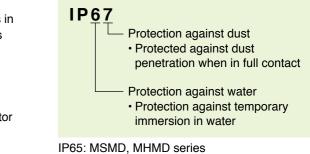
Example application Semiconductor and LCD production equipment, etc.

accommodate low-voltage machinery commands. (The final safety compliance must be applied as machine.)

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



IP67 Enclosure Rating (Excluding MSMD, MHMD type)



Features





Life prediction

ncoder temp. monito

i=℃

PANATERM Set-up Support Software

Introducing the new PANATERM Set-up Support Software, now with many added features.

Localized in 4 languages

- Choose either English, Japanese,
- Chinese, or Korean*-language display.
- * The Korean-language version is scheduled for release in December.

Service Life Prediction

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

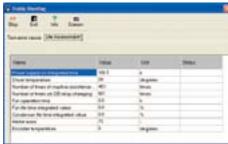
Encoder Temperature Monitor

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

Other New Function

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

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



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

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Command Control Mode (Excluding A5E Series)

- · Command control mode is available for Position, Speed (including eight internal gears) and Torque.
- · Using parameter settings, you can set up one optional command control mode or two command control modes by switching.
- · With a suitable application utility, you can choose an optional command control mode.

Full closed Control (Excluding A5E Series)

You can use the AB-phase linear scale (for general all-purpose products) or the serial scale (for products with Panasonic's exclusive format) for supported scales (see table below).

SEMI F47

- Includes a function in compliance with the SEMI F47 standard for voltage sag immunity under no load or light load.
- Ideal for the semiconductor and LCD industries. Notes:
- 1) Excluding the single-phase 100-V type.
- 2) Please verify the actual compliance of your machine with the F47 standard for voltage sag immunity.

Table 1 (A5Eseries does not correspond.)

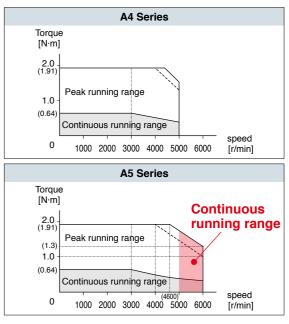
Applicable Linear Scale	Manufacturer	Model No.	Resolution [µs]	Maximum Speed (m/s) *
Parallel Type (AB-phase)	General	-	Maximum s 4 × multiplica	
		SR75	0.01	3.3
Serial Type (Incremental)	Conv Monufacturing Customs Corporation	SR85	0.01	3.3
	Sony Manufacturing Systems Corporation	SL700/PL101-RP	0.1	10
		SL710/PL101-RP	0.1	10
		AT573A	0.05	2
o	Mitutoyo Corporation	ST771A(L)	0.5	5
Serial Type (Absolute)		ST773A(L)	0.1	4
(1.0001010)	Conv Monufacturing Systems Corporation	SR77	0.01	3.3
	Sony Manufacturing Systems Corporation	SR87	0.01	3.3

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

6,000-rpm capability

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

[Comparison of new and conventional 200 W]



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.

MINASA5 Features

Regenerative Energy Discharge

- · 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 and Frame B model drivers do not contain a regenerative resistor. We recommend that you connect an optional regenerative resistor.
- Frame C to Frame F model drivers contain one regenerative resistor; however, adding an optional regenerative resistor provides additional regeneration capability.

Dynamic Braking

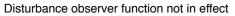
- With parameter settings, you can select dynamic braking, which shorts servomotor windings U, V and W at Servo-OFF, during positive direction/ negative direction over-travel inhibition, and during power shutdown and tripping of the circuit breaker.
- The desired action sequence can be set up to accommodate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

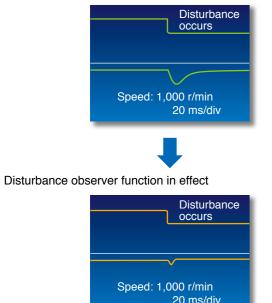
Parameter Initialization

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

Disturbance Observer

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





Torque Feed Forward

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

Friction Torque Compensation

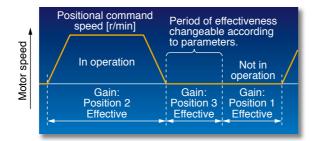
This function reduces the effect of machine-related friction and improves responsiveness. Two kinds of friction compensation can be set up: unbalanced load compensation, which compensates with a constant operational offset torque: and kinetic friction, which changes direction in response to the direction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

3-Step Gain

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

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.

Torque Limiter Switching

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

Applicable overseas safety standards



		Driver
	EMC Directives	EN55011 EN61000-6-2 IEC61800-3
	Low-Voltage Directives	EN61800-5-1
EC Directives	Functional safety	EN954-1(CAT3) ISO13849-1(PL-D) EN61508(SIL2) EN62061(SIL2) EN61800-5-2(STO) IEC61326-3-1
UL Standards		UL508C (E164620)
CSA Standard	S	C22.2 No.14

IEC : International Electrotechnical Commission

EN : Europaischen Normen

EMC : Electromagnetic Compatibility

UL : Underwriters Laboratories

CSA : Canadian Standards Association

Pursuant to the directive 2004/108/EC, article 9(2) Panasonic Testing Centre

Panasonic Service Europe, a division of

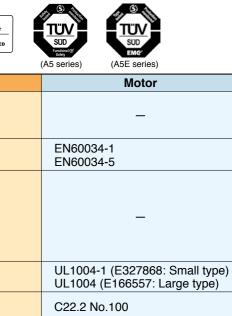
Panasonic Marketing Europe GmbH

Winsbergring 15, 22525 Hamburg, F.R. Germany

* When export this product, follow statutory provisions of the destination country.

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





MO	

MINASA5

Motor Line-up/ Driver and Motor Combination

Motor Line-up

			Low inertia		Middle	inertia	High	inertia
		MSMD (Small type)	MSME (Small type)	MSME (Large type)	MDME	MGME (Low speed/ (High torque type)	MHMD	МНМЕ
Motor		S	5	0	0	0	<u>م</u>	1
Rated o	output (kW)	0.05 0.1 0.2 0.4 0.75	0.05 0.1 0.2 0.4 0.75	1.01.52.03.04.05.0	1.01.52.03.04.05.0	0.9 2.0 3.0	0.2 0.4 0.75	1.01.52.03.04.05.0
	otational Max. speed)	3000 (5000) For 750W 3000 (4500)	3000 (6000)	3000 (5000) For 4.0kW and 5.0kW 3000 (4500)	2000 (3000)	1000 (2000)	3000 (5000) For 750W 3000 (4500)	2000 (3000)
Rotary	20-bit incremental	0	0	0	0	0	0	0
encoder	17-bit absolute	0	0	0	0	0	0	0
Enclosu	ire	IP65 (*)	IP67 (*)	IP67 (*)	IP67 (*)	IP67 (*)	IP65 (*)	IP67 (*)
Feature	S	 Leadwire type Small capacity Suitable for high speed application Suitable for all applications 	Small capacity Suitable for high speed application Suitable for all applications	 Middle capacity Suitable for the machines di- rectly coupled with ball screw and high stiffness and high repetitive application 	Middle capacity Suitable for low stiffness machines with belt driven	 Middle capacity Flat type and suitable for machines with space limitation 	Leadwire type Small capacity Suitable for low stiffness machines with belt driven	Middle capacity Suitable for low stiffness machines with belt driven, and large load moment of inertia
Applicat	tions	Bonder Semiconductor equipment Packing machinetc		SMT machines Food machines LCD production equipment	Conveyors Robots Machine tool etc	Conveyors Robots Textile machines etc	Conveyors Robots	Conveyors Robots LCD manufacturing equipment etc

(*) Except for output shaft, and connector.

Driver and Motor Combination

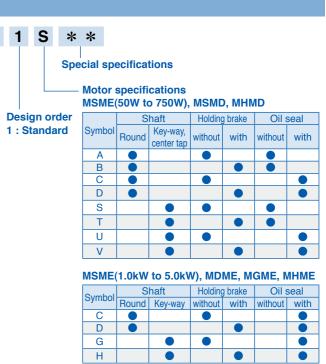
	Driver	Motor								
Frame	Part No.	MSMD	MSME	N	ISME	MDME	MGME		MHMD	MHME
	MADHT1105	MSMD5AZ ***	MSME5AZ ***							
	MADHT1107	MSMD011 ***	MSME011 ***		Motor (S	cheduled to be i	released.)			
A-Frame	MADHT1505	MSMD5AZ ***	MSME5AZ***		 MDME 	7.5kW, 11kW, 15	kW			
	MADHT1505	MSMD012***	MSME012***		• MHME	7.5kW				
	MADHT1507	MSMD022 ***	MSME022 ***		 MGME 	4.5kW, 6.0kW			MHMD022***	
B-Frame	MBDHT2110	MSMD021 ***	MSME021 ***		• MFME	1.5kW, 2.5kW, 4.	5kW		MHMD021 ***	
D-Frame	MBDHT2510	MSMD042 ***	MSME042 ***		 Motor w 	ith Gear Reduce	:		MHMD042***	
C-Frame	MCDHT3120	MSMD041 ***	MSME041 ***		100V	W, 200W, 400W, 750W			MHMD041 ***	
C-Frame	MCDHT3520	MSMD082 ***	MSME082 ***		·			,	MHMD082***	
	MDDHT3530					MDME102***				MHME102***
	MDDHT2412					MDME104 ***				MHME104 ***
Dr	MDDHT5540			MSME102***		MDME152 ***	MGME092***			MHME152***
D-Frame	MDDH15540			MSME152 ***						
	MDDHT3420			MSME	104***	MDME154 ***	MGME094	***		MHME154 ***
	MDDH13420			MSME	154***					
F -	MEDHT7364			MSME	202***	MDME202 ***				MHME202 ***
E-Frame	MEDHT4430			MSME	204 ***	MDME204 ***				MHME204 ***
	MFDHTA390			MSME	302***	MDME302 ***	MGME202	***		MHME302***
	MFDHT5440			MSME	304 ***	MDME304 ***	MGME204	***		MHME304 ***
Erm	MFDHTB3A2			MSME	402***	MDME402***	MGME302	***		MHME402***
►-Frame	WIFDH I BSA2			MSME	502***	MDME502 ***				MHME502***
				MSME	404 ***	MDME404 ***	MGME304	***		MHME404 ***
	MFDHTA464			MSME	504 ***	MDME504 ***				MHME504 ***

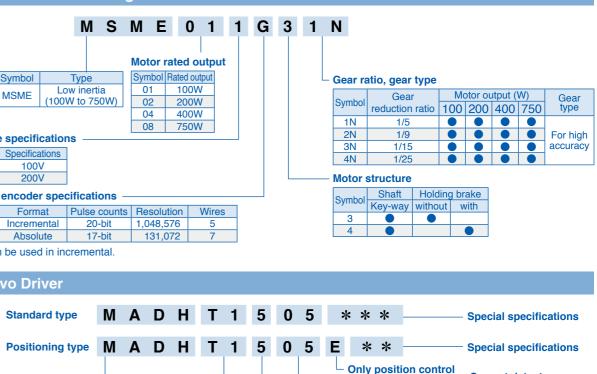
* Because A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination with motors shown above.

MINASA5

Symbol Rated output Symbol Rated output 5A 50W 10 1.0kW 01 100W 15 1.5kW 02 200W 20 2.0kW 04 400W 30 3.0kW 08 750W 40 4.0kW 09 0.9kW 50 5.0kW Rotary encoder specifications Symbol Format Pulse counts Resolution Wires G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Motor with reduction gear Motor rated output Motor rated output MSME Low inertia 1 100W 02 200W Voltage specifications Symbol Rated output 0 2 200W Voltage specifications 1 100W 02 200W 04 400W 08 750W Voltage sp	Se	rvo	Mc	otor									
Symbol Low inertia (SOW to 750W) MSME Middle inertia (0.9kW to 5.0kW) MIME Middle inertia (0.9kW to 5.0kW) MIME Value MGME Middle inertia (0.9kW to 5.0kW) MIME Middle inertia (0.9kW to 5.0kW) Note Morr red output Middle inertia (0.9kW to 5.0kW) Note MIMD (200W to 750W) Middle inertia (0.9kW to 5.0kW) Note Symbol Rated output Symbol Symbol Symbol Symbol Rated output Symbol Symbol Symbol Symbol 02 200W 20 2.0kW 0 0.0kW Symbol					N	IS	М	Е	5	Α	Z	(
MSMD Low inertia (SOW to 750W) MSME Low inertia (SOW to 5.0kW) MIME Middle inertia (1.0kW to 5.0kW) MIME Middle inertia (200W to 750W) MIME Middle inertia (200W	1	Symb			Type						Т		
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MSME (50W to 5.0kW) MIDME Middle inertia (1.0kW to 5.0kW) MIMD Middle inertia (0.9kW to 3.0kW) MIMD Middle inertia (200W to 750W) MIMD Middle inertia (200W to 750W) MIME Middle inertia (200W to 750W) MIME Middle inertia (200W to 750W) MIME Voltage specifications Symbol Rated output Symbol Rated output Symbol Rated output Symbol Specifications Symbol Rated output Symbol 10.1.0kW 02 200W 20 2.0kW Symbol Specifications 01 100W 15 1.5kW 02 200W 20 2.0kW Symbol Specifications 04 400W 30 3.0kW 08 750W 40 4.0kW 09 0.9kW 50 5.0kW Symbol Xetage specifications 100V/200V 09 0.9kW 50 5.0kW Symbol Xetage specifications Symbol Format Pulse counts Resolution Wires G Incremental 20-bit 1.048,576 5 S Symbol Ketage specifications Notor rated output Symbol Type MISME Low inertia (100W to 750W) Symbol Rated output Symbol Specifications 1 100W 02 200W Symbol Rated output Symbol Specifications 1 100W 0 2 200W Symbol Rated output Symbol Specifications 1 100W 0 2 200W Symbol Rated output Symbol Specifications 1 00W 0 2 200W Symbol Rated output Symbol Specifications 1 00W 0 2 200W Symbol Rated output Symbol Specifications 1 00W 0 2 200W S <t< td=""><td></td><td>IVISIV</td><td>U</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		IVISIV	U										
MUME (1.0kW to 5.0kW) MGME (0.9kW to 3.0kW) MHMD High inertia (0.0kW to 5.0kW) MHME (1.0kW to 5.0kW) Motor rated output Symbol Rated output Symbol Rated output Symbol Specifications 01 100W 15 1.0kW 02 200W 20 2.0kW 04 400W 30 3.0kW 02 200W 40 4.0kW 03 0.9kW 50 5.0kW Netarencoder specifications 1 1 100V/200V 2 200V 2 200V 3 Absolute 1 1.048,576 3 Absolute 1 1.048,576 4 400V 2 200V * Stanbard type		MSM	IE	(50V	V to 5	.0kW)							
MIMME (0.9kW to 3.0kW) MHMD (200W to 750W) MHME (1.0kW to 5.0kW) Motor rated output Voltage specifications Symbol Rated output Symbol Rated output Symbol Specifications 01 100W 15 1.5kW 02 200W 20 2.0kW 04 400W 30 3.0kW 02 200W 20 2.0kW 04 400W 30 3.0kW 09 0.9kW 50 5.0kW Symbol Format Pulse counts Resolution Wires 0 100V/200V 2 200V 2 200V 4.0 4.0kW 30 3.0kW 09 0.9kW 50 5.0kW 3 400V 01 00V/200V 2 100V/20V 2 2 200V 1.048,576 5 5 3 Absolute 17-bit 131,072 7 * S: can be used in incremental. Symbol Rated output Motor rated output Symbol Low inertia Symbol Rated output Symbol Rated output MSME Low		MDM	IE										
MHMD High inertia (200W to 750W) MHME Voltage specifications Symbol Rated output Symbol Rated output Symbol Rated output Symbol Rated output Symbol Rated output Symbol Rated output Symbol Rated output Symbol Rated output Symbol Rated output Symbol Rated output Symbol Rated output Symbol Specifications 02 200W 20 2.0kW 04 400W 30 3.0kW 03 750W 40 4.0kW 02 200W 200W 04 400W 30 3.0kW 0.0kW 02 200W 05 0.0kW 50 5.0kW Symbol Rated output Symbol Format Pulse counts Resolution Wires 0 05 0.0kW 100V/200Y 2 00W 2 100V 2 Symbol Format Pulse counts Resolution Wires 0 100V 100V 0 1 1048,576 1 100V 100V 0 100V 100V 0 100V 100V 0 100V 0 1 100V 100V 2 200V Symbol Rated output Notor rated output Symbol Rated output Symbol Specifications 100V		MGN	1E										
MHME High inertia (1.0kW to 5.0kW) Motor rated output Symbol Rated output 50 Voltage specifications 1 000/ 2 200W 20 2.0kW 04 400W 30 3.0kW 08 750W 40 4.0kW 09 0.9kW 50 5.0kW Voltage specifications 1 000/ 2 200V Method Symbol Rated output 04 400W 30 3.0kW 09 0.9kW 50 5.0kW Symbol Specifications 1 00V/ 2 00W Symbol Specifications 1 00V/ 2 00W Sotary encoder specifications G Incremental Pulse counts Resolution Wires G Incremental Minestantian (0.000 month) Symbol Tormat Pulse counts Resolution Vires G Incremental Motor rated output 0 1 00V/ 02 200W Minestantian (0.000 month) Motor vith reduction gear Motor rated output 0 1 100W Symbol Rated output 0 2 200W Motor rated output 0 1 100W Symbol Specifications 1 100V Type NSME Symbol Rated output 0 1 100W Motor rated output 0 2 200W Notage specifications 1 100V Symbol Rated output 0 3 750W Motor rated output 0 3 750W Symbol Specifications 1 100V Symbol Rated output 0 3 750W Motor rated output 0 3 750W Symbol Specifications 1 2 00V Motor rated output 0 3 750W Motor rated output 0 3 750W Symbol Specifications 1 2 00V Motor rated output 0 3 750W Motor rated output 0 3 750W Symbol Specifications 1 00V Motor rated output 0 3 750W Motor rated output 0 4 400W Sy		МНМ	ID										
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04 400W 30 3.0kW 08 750W 40 4.0kW 09 0.9kW 50 5.0kW Image: construction of the second secon		_		_									
08 750W 40 4.0kW 09 0.9kW 50 5.0kW Z 100V/200V Common (50W only) Rotary encoder specifications Symbol Format Pulse counts Resolution Wires G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Motor with reduction gear Motor rated output Symbol N M 0 1 0 MSME Low inertia 00W to 750W) Symbol Rated output 0 1 0 MSME Low inertia 100W to 750W) Symbol Rated output 0 2 200W Notarge specifications 1 100V 2 200W 04 400W 08 750W Symbol Specifications 1 100V 2 200V 7 * Symbol Format Pulse counts Resolution Wires 5 5 Absolute </td <td></td> <td>_</td> <td></td> <td>_</td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td>		_		_	-							1	
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Symbol Type MSME Low inertia (100W to 750W) Symbol Rated output 01 100W 02 200W 04 400W 08 750W Voltage specifications 1 100V 2 200V Rotary encoder specifications Symbol Format Pulse counts Resolution Wires G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Servo Driver					N		М	F	0	1	1	(
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1 100V 2 200V Rotary encoder specifications Symbol Format Pulse counts Resolution Wires G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Servo Driver Standard type	Voltag	ge spe	cifi	icatio	ns –								
2 200V Rotary encoder specifications Symbol Format Pulse counts Resolution Wires G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Servo Driver Standard type M A D H T 1 Standard type	Symbo	ol Spe	cifica	ations									
Rotary encoder specifications Symbol Format Pulse counts Resolution Wires G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Servo Driver Standard type M A D H T 1 Standard type	1												
Symbol Format Pulse counts Resolution Wires G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Servo Driver Standard type M A D H T 1 L	2												
G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Servo Driver Standard type M A D H T 1 4	Rotar	y enco	ode	r spe	cifica	ations							
G Incremental 20-bit 1,048,576 5 S Absolute 17-bit 131,072 7 * S: can be used in incremental. Servo Driver Standard type M A D H T 1 5		-		-			ts R	esoluti	on	Wire	S		
S Absolute 17-bit 131,072 7 * S: can be used in incremental. Servo Driver Standard type M A D H T 1 \$		_											
Servo Driver Standard type M A D H T 1 S	S	Al	osol	ute	1	17-bit	_			7			
Standard type M A D H T 1	* S: ca	an be i	use	d in in	crem	ental.							
				_									
	Se	rvo	Dr	iver									
	Se				ре	М	Α	D	н	Т	1	Ę	

Frame sy	mbol ———	Power de current r	evice Max. ┘ ating		
Symbol	Frame	Symbol	Current rating		
MADH	Frame A	T1	10A		I
MBDH	Frame B	T2	15A		upp
MCDH	Frame C	T3	30A	S	pec
MDDH	Frame D	T4	35A		Sym
MEDH	Frame E	T5	50A		1
MFDH	Frame F	T7	75A		3
		TA	100A		4
		TB	150A		5





Current detector current rating

Symbol	Current rating
05	5A
07	7.5A
10	10A
12	12A
20	20A
30	30A
40	40A
64	64A
90	90A
A2	120A

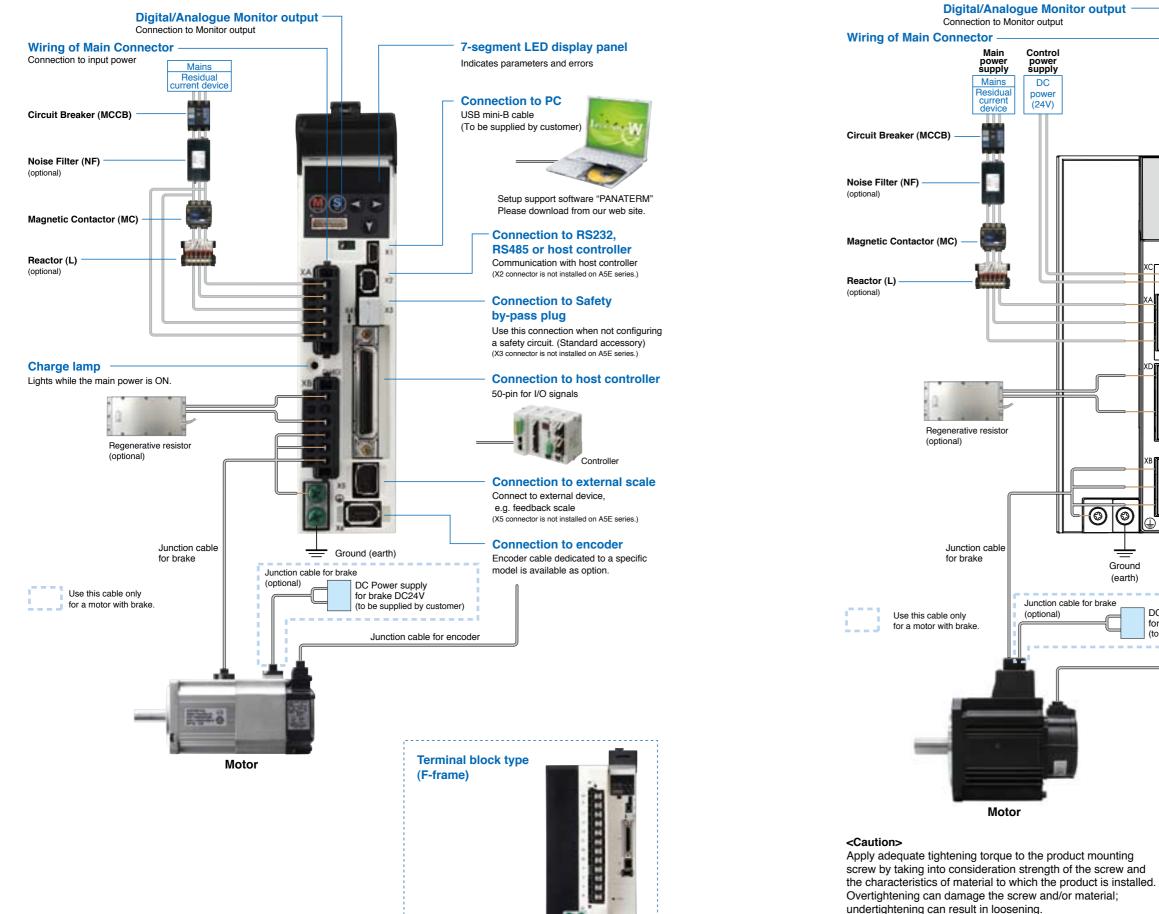
upply voltage pecifications

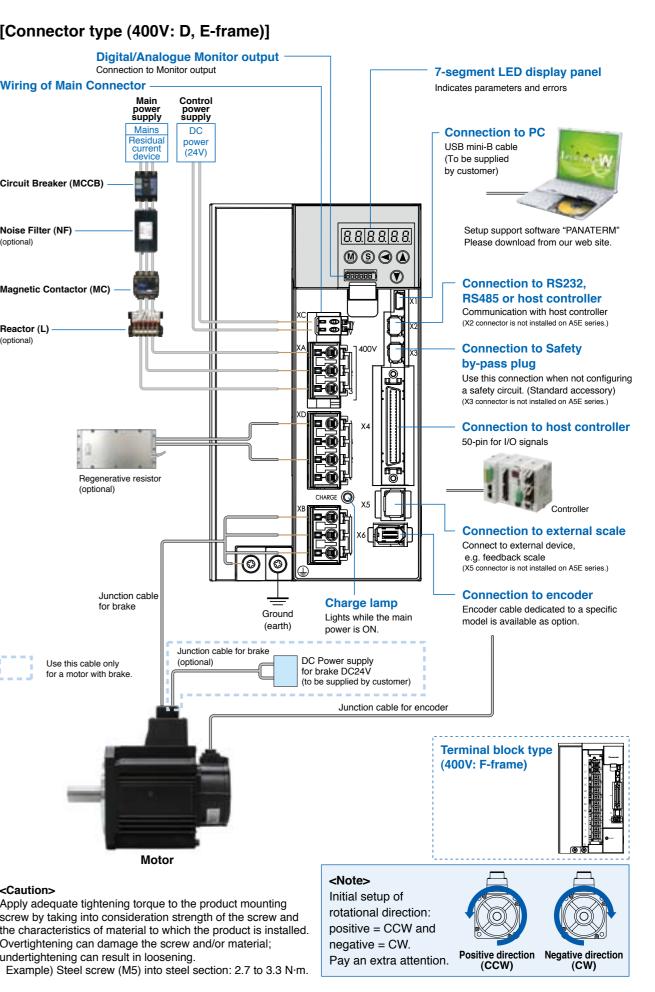
mbol	Specifications
1	Single phase, 100V
3	3-phase, 200V
4	3-phase, 400V
5	Single/3-phase, 200V

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

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







Driver and List of Applicable Peripheral Equipments

Driver	Applicable motor	Voltage	Rated output	Required Power (at the rated load)	Circuit breaker (rated current)	Surge absorber	Noise filter for signal	Magnetic contactor	Cable diameter (main (circuit)	Cable diameter (control circuit)	Connectio
	MSMD	Single phase, 100V	50W to 100W	approx. 0.4kVA		DV0P4190					
MADH	MSME MHMD	Single/3-phase, 200V	50W to 200W	approx. 0.5kVA		DV0P4190 DV0P1450					
	MSMD	Single phase, 100V	200W	approx. 0.5kVA	10A	DV0P4190		00.4	0.75mm ² / AWG18		
MBDH	MSME MHMD	Single/3-phase, 200V	400W	approx. 0.9kVA		DV0P4190 DV0P1450		20A	to 2.0mm²/ AWG14		
MCDH	MSMD MSME	Single phase, 100V	400W	approx. 0.9kVA		DV0P4190					
MCDH	MHMD	Single/3-phase, 200V	750W	approx. 1.3kVA						0.75mm ² / AWG18	
	MDME MHME		1.0kW	approx. 1.8kVA	15A						Conne
	MGME	Single/3-phase, 200V	900W	approx. 1.8kVA		DV0P4190					oction
	MSME		1.0kW	approx. 1.8kVA		DV0P1450		30A			to exc
	MHME MDME		1.5kW	approx.	20A						lusive c
MDDH	MSME		1.5KVV	2.3kVA							Connection to exclusive connector
	MSME								2.0mm²/ AWG14		
	MDME		1.0kW	approx.							
-	MHME			1.8kVA						0.5mm21	
	MGME	3-phase,	0.9kW 10A		10A	DV0PM20050		20A		0.5mm²/ AWG	
	MSME	400V					20/1		20~24		
	MDME		1.5kW	approx. 2.3kVA						0.75mm²/ AWG18	-
	MHME		1.5KVV								
	MDME MSME MHME	3-phase, 200V	2.0kW	approx. 3.3kVA	30A	DV0P1450	DV0P1460	60A			
MEDH	MSME MDME MHME	3-phase, 400V	2.0kW	approx. 3.3kVA	15A	DV0PM20050	-	30A		0.5mm²/ AWG 20~24	
	MGME		2.0kW	approx. 3.8kVA						20 24	11mm or smaller
	MDME										
	MHME			approx.				60A			
	MSME		3.0kW	4.5kVA					3.5mm ² /		
	MGME	3-phase,							AWG12		
	MDME	200V			50A	DV0P1450					
	MHME		4.0kW	approx.							
	MSME			6kVA							
	MDME							100A			
	MHME		5.0kW	approx.					5.3mm ² /		11mm or smaller
	MSME			7.5kVA					AWG10	0.75mm ² /	1 /1 1
MFDH	MGME		2.0kW	approx. 3.8kVA						AWG18	Terminal block
	MSME										M5
	MDME			approx.							
	MGME		3.0kW	4.5kVA							
	MHME	0 shar							0.5 21		
	MSME	3-phase, 400V			30A	DV0PM20050		60A	3.5mm ² / AWG12		
	MDME	-100 V	4.0kW	approx.					70012		
	MHME		UKVV	6.8kVA							
	MSME		E OLAN	approx.							
	MDME		5.0kW	7.5kVA							
	MHME										1

- source.
- About circuit breaker and magnetic contactor (Listed and (Listed).

Suitable for use on a circuit capable of delivering not more than 5,000 rms 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>

- load condition).
- Terminal block and protective earth terminals
- Use a copper conductor cables with temperature rating of 75°C or higher. and M5 (Fastening torque: 1.4 to 1.6N·m) for Frame E, F. Fastening torque of earth screws.
- the screw securing terminal block cover is 0.19 to 0.21 N·m.
- The cable diameter of an earth cable.
- Use an earth cable with the same diameter or larger as that of the main circuit cable. 2.0mm² (AWG14).
- 9mm.
- N∙m.
- Larger torque than 0.35N·m may damage the connector at the driver side.

<Caution>

Do not turn on power without tightening all terminal block screws properly, otherwise, loose contacts may generate heat (smoking, firing).

· Select peripheral equipments for single/3phase common specification according to the power

To comply to EC Directives, install a circuit breaker between the power and the noise filter without fail, and the circuit breaker should conform to IEC Standards and UL recognized

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

The screws of protective earth terminals for Frame A to D are M4 (Fastening torque: 0.7 to 0.8N·m)

Tighten the terminal block screw on frame F with a torque between 1.0 and 2.0 N·m. Application of overtorque (more than 2.0 N·m) will cause damage to terminal block. Maximum allowable torque to

If the diameter of the main circuit cable is 1.6mm² or less, use an earth cable with a diameter of

• Use the attached exclusive connector for A to E-frame, and maintain the peeled off length of 8 to

Tighten the screws of the connector, Connector X4 for the host controller with the torque of 0.3 to 0.35

Table of Part Numbers
and OptionsTable of Part Numbers and Options

	Motor					Driver		Power	Frank		Mater		onal parts				Options																								
	Power	Output	Part No.	Rating/		Part No.		capacity		ler cable 17-bit	Motor without	cable with	Brake	Regenerative		Noise	1	Title	Part No.																						
or series	supply	(W)	Note) 1	Spec.	(Standard type)		Frame	(atrated load)		Absolute		brake	cable	resistor	Reactor	filter	Interface cable)	DV0P4360																						
		``'		(page)		Note) 2		(Note) 3	Note) 3	Note) 3	Note) 3				Interface Conn	ector	DV0P435																						
		50	MSMD5AZ[]1 *	66	MADHT1105	MADHT1105E	A-frame	Approx. 0.4kVA						DV0P4280	DV0P227			A to Single	DV0PM2																						
	Single phase 100V	100	MSMD011 1 *	68	MADHT1107	MADHT1107E	A-II allie	Approx. 0.4kVA						DV0F4200	DVUFZZI	DV0P4170	Connector	D-frame row type	-																						
MSMD		200	MSMD021[]1*	70	MBDHT2110	MBDHT2110E	B-frame	Approx. 0.5kVA						DV0P4283	DV0P228		for Power	(100V/ 200V) Double row type	DV0PM2																						
		400	MSMD041 1 *	72	MCDHT3120	MCDHT3120E	C-frame	Approx. 0.9kVA						DV0P4282	DVUF220	DV0PM20042	Supply Input	E-frame (200V)																							
(Leadwir type	e	50	MSMD5AZ 1 *	• 67	MADHT1505	MADHT1505E		Approx. 0.5kVA		MFECA	MFMCA	-	MFMCB 0**0GET	DV0P4281			Connection	D-frame (400V)																							
		100	MSMD012[]1*	69	MADHT1505	MADHT1505E	A-frame	Approx. 0.5kVA	0 02/11		0 OLLD		0 00L1	DV0F4201	DV0P220			E-frame (400V)																							
3000r/m	in Single phase/ 3-phase 200V	200	MSMD022[]1*	71	MADHT1507	MADHT1507E		Approx. 0.5kVA								DV0PM20042	Connector for		B t t i i																						
	2007	400	MSMD042[]1*	73	MBDHT2510	MBDHT2510E	B-frame	Approx. 0.9kVA						DV0P4283			Control Power		DV0PM																						
		750	MSMD082 1 *	74	MCDHT3520	MCDHT3520E	C-frame	Approx. 1.3kVA							DV0P221		Supply Input	(400V)	DVUFIV																						
		50	MSME5AZ 1 *	36	MADHT1105	MADHT1105E		Approx. 0.4kVA						D)/0D/000			Connection	A to D-frame																							
		100	MSME011 1 *	38	MADHT1107	MADHT1107E	A-frame	Approx. 0.4kVA						DV0P4280	DV0P227	DV0P4170	Connector		DV0PN																						
	Single phase 100V	200	MSME021 1 *	40	MBDHT2110	MBDHT2110E	B-frame	Approx. 0.5kVA						DV0P4283			for Motor Connection	E-frame (200V) D-frame (400V)																							
MSME		400	MSME041 1 *		MCDHT3120	MCDHT3120E								DV0P4282	DV0P228	DV0PM20042	Connector for	E-frame	DV0PM																						
		50	MSME5AZ_1*		MADHT1505	MADHT1505E		Approx. 0.5kVA	-	MFECA	MFMCA	_	MFMCB				Regenerative																								
3000r/m		100	MSME012_1*		MADHT1505	MADHT1505E	A-frame	Approx. 0.5kVA	0~^0MJL	0**0MJE	00NJD		0**0PJT	DV0P4281	DV0P220		Resistor	D-frame (400V)	DV0PN																						
	Single phase/ 3-phase	200	MSME022_1*	_	MADHT1507	MADHT1507E		Approx. 0.5kVA								DV0PM20042			DV0P42																						
	200V	400	MSME042_1*		MBDHT2510	MBDHT2510E	B-frame							DV0P4283		2.01 ML0072	11		DV0P43																						
		750	MSME082 1*		MCDHT3520	MCDHT3520E								2.01 /200	DV0P221		Connector 1/1	for	DV0PN																						
	Single phase/ 3-phase		MSME102_1 *		MDDHT5540	MDDHT5540E	e name	Approx. 1.8kVA									Connector Kit Motor/Encoder		DV0PN																						
	200V	1500	MSME102_1*		MDDHT5540	MDDHT5540E	D-frame	Approx. 2.3kVA			MFMCD	MFMCA		DV0P4284	DV0P222	DV0P4220	Incloir Encoder		DV0PN																						
		2000	MSME132_1*	_	MEDHT7364	MEDHT7364E	F-frame				0**2ECD	0**2FCD		DV0P4285	DV0P223	DV0PM20043	11		DV0PN																						
		3000	MSME302_1*		MFDHTA390	MFDHTA390E		Approx. 4.5kVA						D V 01 720J	DV0P223	2 7 01 IVI20040	1		DV0PN																						
	3-phase 200V	4000	MSME302_1*		MFDHTA390 MFDHTB3A2	MFDHTB3A2E	E-frame	Approx. 6.0kVA			MFMCA	MFMCA		DV0P4285		DV0P3410	Connector Kit		DV0PN																						
MSME		5000	MSME402 1 *	_	MFDHTB3A2	MFDHTB3A2E	i -irailie	Approx. 7.5kVA	NEECO	MEEOA	0**3ECT	0**3FCT		× 2 in parallel	DV0F223	DV0F3410	Motor/Brake C																								
		1000	MSME502_1*		MDDHTB3A2 MDDHT3420	MDDHTB3A2E MDDHT3420E				MFECA 0**0ETE			-		_			RS485, RS232																							
3000r/m	in			_	MDDH13420 MDDHT3420	MDDHT3420E	D-frame	Approx. 1.8kVA	0 OETE	, o olic		MFMCE		DV0PM20048				Safety	DVOPN																						
		1500	MSME154 1 *				F (Approx. 2.3kVA			0**2ECD	0**2FCD		D\/0D\/000.40	-		Connector		DV0PN																						
	3-phase 400V	2000	MSME204 1 *	_	MEDHT4430	MEDHT4430E	E-frame							DV0PM20049	-	_	Ar	Encoder	DV0PM																						
		3000	MSME304 1 *		MFDHT5440	MFDHT5440E	-	Approx. 4.5kVA			MFMCA	MCA MFMCA		DV0PM20049				Analog Monitor Signal	DV0PN																						
		4000	MSME404 1 *		MFDHTA464	-	F-frame	Approx. 6.0kVA						× 2 in parallel				- J	DV0P2																						
		5000	MSME504_1 *		MFDHTA464	MFDHTA464E		Approx. 7.5kVA									Battery Box		DV0P4																						
	Single phase/ 3-phase	1000	MDME102_1*	_	MDDHT3530	MDDHT3530E	D-frame	Approx. 1.8kVA			MFMCD	MFMCA		DV0P4284	DV0P222	DV0P4220	Dattery Dox	A-frame	DV0PN																						
	200V	1500	MDME152[]1*		MDDHT5540	MDDHT5540E		Approx. 2.3kVA									Mounting	B-frame	DVOP																						
		2000	MDME202[1*	53	MEDHT7364	MEDHT7364E	E-frame	Approx. 3.3kVA				IFMCA MFMCA **3ECT 0**3FCT			DV0P223	DV0PM20043	3 Mounting bracket	C-frame	DVOPN																						
	3-phase 200V	3000	MDME302 1*	54	MFDHTA390	MFDHTA390E		Approx. 4.5kVA							DV0P224			D-frame	DVOPN																						
		4000	MDME402 1*	55	MFDHTB3A2	-	F-frame	Approx. 6.0kVA						DV0P4285 × 2 in parallel	DV0P225	DV0P3410		Biname	MFECA																						
MDME		5000	MDME502[]1*	56	MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA	MFECA	MFECA	0 0201				' –			without	MFECA																						
2000r/m	in	1000	MDME104 1 *	88	MDDHT2412	MDDHT2412E	D from a	Approx. 1.8kVA	0**0ETD	0**0ETE			2FCD		DV0PM	1 - 1					Junction Cable	Battery Box	MFECA																		
		1500	MDME154[]1*	89	MDDHT3420	MDDHT3420E	D-frame	Approx. 2.3kVA			MFMCD	MFMCE				DV0PM20048			for Encoder	·	MFECA																				
	0	2000	MDME204 1 *	90	MEDHT4430	MEDHT4430E	E-frame	Approx. 3.3kVA			0 2000	0 2100		DV0PM20049				with	MFECA																						
	3-phase 400V	3000	MDME304 1 *	91	MFDHT5440	MFDHT5440E		Approx. 4.5kVA						DV0PM20049 × 2 in parallel	- 1	_		Battery Box	MFECA																						
		4000	MDME404 1 *	92	MFDHTA464	MFDHTA464E	F-frame	Approx. 6.0kVA			MFMCA								MFMCA																						
		5000	MDME504 1 *		MFDHTA464	MFDHTA464E		Approx. 7.5kVA			0**3ECT	03FC1			n parallel				MFMCA																						
	Single phase/ 3-phase 200V		MGME092_1 *		MDDHT5540	MDDHT5540E	D-frame				MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	FMCD0**2ECD MFMCA0**2FCD	MFMCA0**2FCD	2ECD MFMCA0**2FCD	MCD0**2ECD MFMCA0**2FCD	IFMCD0**2ECD MFMCA0**2FCD	IFMCD0**2ECD MFMCA0**2FCD	FMCD0**2ECD MFMCA0**2FCD	MFMCD0**2ECD MFMCA0**2FCD	IFMCD0**2ECD MFMCA0**2FCD	2ECD MFMCA0**2FCD	DV0P4284 DV0		MFMCA0**2FCD		DV0P222	DV0P4220	11	without Brake	MFMCE
		2000	MGME202 1 *		MFDHTA390	MFDHTA390E		Approx. 3.8kVA					1		DV0P223		Junction Cable		MFMCE																						
MGME	3-phase 200V	3000	MGME302_1 *		MFDHTB3A2	MFDHTB3A2E	F-frame	Approx. 4.5kVA	MEECA	MFECA	0**3ECT	0**3FCT	1	× 2 in parallel		DV0P3410	for Motor		MFMCA																						
1000r/m	in	900	MGME094_1 *		MDDHT3420	MDDHT3420E	D-frame		0**0ETD	0**0ETE	MFMCD0**2ECD		—	DV0PM20048					MFMC																						
10001/11	3-phase 400V	2000	MGME204_1*		MFDHT5440	MFDHT5440E		Approx. 3.8kVA				MFMCA	1	DV0PM20049 - x 2 in parallel	_		_	_	,	with Brake	MFMC																				
	- p	3000	MGME304_1 *		MFDHTA464	MFDHTA464E	F-frame	Approx. 4.5kVA			0**3ECT	0**3FCT						-	MFMCA																						
		200	MHMD021 1 *		MBDHT2110	MBDHT2110E	B-frame							DV0P4283		DV0P4170	hurst of the		MFMC																						
MHMD	Single phase 100V	400	MHMD041 1 *		MCDHT3120	MCDHT3120E								DV0P4282	DV0P228	DV0PM20042	Junction Cable	e tor Brake	MFMC																						
Leadwir	e	200	MHMD022 1 *		MADHT1507	MADHT1507E				MFECA		_	MFMCB	D V 01 7202	DV0P220	D TOT WILDUNZ	1	50Ω 25W	DV0P4																						
(type	/ Single phase/ 3-phase	400	MHMD022_1*		MBDHT2510	MBDHT2510E			0**0EAN	1 0**0EAE	0**0EED	_	0**0GET	DV0P4283		DV0PM20042		100Ω 25W	DV0P4																						
3000r/m	in 200V	750	MHMD042_1*		MCDHT2510	MCDHT3520E								DV0F4203	DV0P221	D V 0F IVI20042		25Ω 50W	DV0P4																						
			MHME102_1*		MDDHT3520	MDDHT3530E	U-manne	Approx. 1.3KVA									External	50Ω 50W	DV0P4																						
	Single phase/ 3-phase 200V					MDDHT3530E MDDHT5540E	D-frame					MFMCA 0**2FCD		DV0P4284	DV0P222	DV0P4220	Regenerative	30Ω 100W	DV0P4																						
	2007		MHME152 1 *	_	MDDHT5540		E Au	Approx. 2.3kVA									Resistor	20Ω 130W	DV0P4																						
		2000	MHME202 1 *		MEDHT7364	MEDHT7364E	∟-trame				MFMCE0**2ECD	MFMCEU*2FCD	-	DV0P4285		DV0PM20043	41		DV0PM																						
	3-phase 200V	3000	MHME302 1 *		MFDHTA390		F .	Approx. 4.5kVA			MEMCA	MFMCA		DV0P4285	DV0P224	DVODO			DV0PM																						
MALINAT		4000 MF	MHME402 1 *		MFDHTB3A2	MFDHTB3A2E	⊢-frame				0**3ECT			× 2 in parallel		DV0P3410		DV0P220, DV0P																							
MHME		5000	MHME502 1 *		MFDHTB3A2	MFDHTB3A2E		Approx. 7.5kVA	MFECA	MFECA			_		-		Reactor	DV0P223, DV0F	224, DV																						
2000r/m	in	1000	MHME104_1*		MDDHT2412	MDDHT2412E	D-frame	Approx. 1.8kVA	0**0ETD	0**0ETE	MFMCD	MFMCE		DV0PM20048				DV0P227, DV0P																							
		1500	MHME154_1*		MDDHT3420	MDDHT3420E		Approx. 2.3kVA			0 2000	0**2FCD					Noise Filter	DV0P4170, DV0																							
	3-phase 400V	2000	MHME204[]1*		MEDHT4430	MEDHT4430E	E-frame				MFMCE0**2ECD			DV0PM20048	_	_	NUISE FILLEI	DV0P4220, DV0 DV0P3410	vi⁻ivi∠004																						
	5-phase 400 v	3000	MHME304[]1*		MFDHT5440	MFDHT5440E		Approx. 4.5kVA								_		Single phase	DV0P41																						
1		4000	MHME404 1 *	102	MFDHTA464	MFDHTA464E	F-frame	Approx. 6.0kVA				MFMCA 0**3FCT		DV0PM20049 × 2 in parallel			Surge	3-phase (200V)																							
1		5000	MHME504 1 *	103	MFDHTA464	MFDHTA464E		Approx. 7.5kVA			U ULUI	0 0101					absorber	3-phase (200V)																							
			pecification: * (r						note)3 C								- 1	pilado (+00 V)	DV0P14																						

position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.

Driver Specifications A5 series (Standard type)

		4001/	Main	circuit	Single phase, 100 to 120V +10% -15% 50/60Hz				
		100V	Contro	I circuit	Single phase, 100 to 120V +10% -15% 50/60Hz				
			Main	A to D-frame	Single/3-phase, 200 to 240V +10% -15% 50/60Hz				
	Input power	200V	circuit	E to F-frame	3-phase, 200 to 230V +10% -15% 50/60Hz				
	ower	200 V	200 V	Control	A to D-frame	Single phase, 200 to 240V +10% -15% 50/60Hz			
			circuit	E to F-frame	Single phase, 200 to 230V +10% -15% 50/60Hz				
		400V	Main circuit	D to F-frame	3-phase, 380 to 480V +10% -15% 50/60Hz				
			Control circuit	D to F-frame	DC 24V ± 15%				
			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)				
	Env	rironment	hum	nidity	Both operating and storage : 20 to 85%RH or less (free from condensation)				
			Alti	tude	Lower than 1000m				
			Vibr	ation	5.88m/s ² or less, 10 to 60Hz (No continuous use at resonance frequency)				
	Control method				IGBT PWM Sinusoidal wave drive				
Basic	Encoder feedback				17-bit (131072 resolution) absolute encoder, 7-wire serial 20-bit (1048576 resolution) incremental encoder, 5-wire serial				
Basic Specifications	Feedback scale feedback			ack	 A/B phase, initialization signal defferential input. Manufacturers that support serial communication scale: Mitsutoyo Corp. Sony Manufacturing Systems Corp. 				
ง	Control signal		Input		General purpose 10 inputs The function of general-purpose input is selected by parameters.				
			Output		General purpose 6 outputs The function of general-purpose input is selected by parameters.				
		alog gital	In	put	3 inputs (16Bit A/D : 1 input, 12Bit A/D : 2 inputs)				
	sigr	-	Ou	tput	3 outputs (Analog monitor: 2 output, Digital monitor: 1 output)				
	Pul	se	In	put	2 inputs (Photo-coupler input, Line receiver input)				
	sigr	nal	Ou	tput	4 outputs (Line driver: 3 output, open collector: 1 output)				
	•		U	SB	Connection with PC etc.				
	Com funct	munication ion	RS	232	1 : 1 communication				
			RS	485	1 : n communication up to 31 axes to a host.				
	Safety function Front panel Regeneration				Used for functional safety.				
					(1) 5 keys (2) LED (6-digit) (3) Analog monitor output (2ch) (4) Digital monitor output (1ch)				
					A, B-frame: no built-in regenerative resistor (external resistor only) C to F-frame: Built-in regenerative resistor (external resistor is also enabled.)				
	Dyr	namic bra	ke		Built-in				
	Control mode				Switching among the following 7 mode is enabled, (1) Position control (2) Velocity control (3) Toque control (4) Position/Velocity control (5) Position/Torque control (6) Velocity/Torque control (7) Full-closed control				

Velocity von Control input (1) Deviation co (3) Command di (4) Damping com (6) Pulse frequency Pulse input Max. command pulse frequency Exclusive interfation frequency Pulse input Input pulse signal format Differential input ((1) Positive and ((1) P	dividing ontrol sw nplete (I ace for ace for at d Negat times ilter or F ie limit for interna etc. nd input e used for tional sp ue limit for nternal & p of acc ration/d
Point Max. command pulse frequency Exclusive interface Exclusive interface Pulse input Pulse frequency Differential input ((1) Positive and format Differential input ((1) Positive and ((1) Positive and (Individual torque (Individual torque (Individual torque (Individual torque (I) Selection of (I) Selection of (I) Selection of (I) Selection of (I) Selection of (I) Selection of (I) Selection of Parameters are (6V/Rated rotation input Velocity command input Velocity command input Speed arrival e Speed command Parameters are (6V/Rated rotation input Velocity command input Individual torque Sigmoid acceler Sigmoid acceler Sigmoid acceler Zero-speed clamp Speed zero clar	ace for ace for at d Negati times ilter or F e limit for interna etc. nd input e used for tional sp ue limit for nternal & p of acc ration/d
Poilse pulse frequency Exclusive interfation Pulse Input pulse signal format Differential input ((1) Positive and (1)	ace for it d Negati times ilter or F ie limit for interna etc. ind input a used for tional sp ie limit for hternal & p of acc ration/d
Pulse Input pulse signal format Differential input ((1) Positive and format Pulse input Input pulse signal format Differential input ((1) Positive and format Pulse input Electronic gear (Division/ Multiplication of command pulse) 1/1000 to 1000 Smoothing filter Primary delay filter Analog input Torque limit command input Individual torque Instantaneous Speed Available Damping Control Available Control output Speed arrival e Analog input Velocity command input Speed comman Analog input Velocity command input Individual torque Internal velocity command input Individual torque Soft-start/down function Speed zero clamp Speed zero clamp Speed zero clamp	times ilter or F e limit fo interna etc. nd input e used fo tional s e used fo nternal & p of acc ration/d
Simon Pulse input format ((1) Positive and Electronic gear (Division/ Multiplication of command pulse) Image: Simon Primary delay filter Primary delay filter Primary delay filter Analog input Torque limit command input Individual torque Instantaneous Speed Available Observer Available Damping Control Available Control output Speed arrival end input Analog input Velocity command input Internal velocity command input Individual torque Analog input Velocity command input Internal velocity command input Speed command Parameters are (6V/Rated rotat input Internal velocity command input Individual torque Soft-start/down function Individual setup Sigmoid acceler Zero-speed clamp Speed zero clamp	d Nega times ilter or F le limit fo interna etc. nd input e used fo tional s le limit fo nternal & p of acc ration/d
Yelocity Smoothing filter Primary delay filter Analog input Torque limit command input Individual torque Instantaneous Speed Observer Available Damping Control Available Control input (1) Selection of (3) Selection of Control output Speed arrival e Analog input Velocity command input Speed comman Parameters are (6V/Rated rotat Internal velocity command input Individual torque Soft-start/down function Individual setup Sigmoid acceler Zero-speed clamp Speed zero clar	ilter or F interna interna etc. nd input used for tional s e limit for nternal & p of acc ration/d
Analog input Torque limit command input Individual torque Available Instantaneous Speed Observer Available Damping Control Available Control input (1) Selection of (3) Selection of (3) Selection of Control output Analog input Velocity command input Velocity command input Speed arrival e Speed comman Parameters are (6V/Rated rotat command input Internal velocity command Soft-start/down function Individual torque Sigmoid acceler Sigmoid acceler Zero-speed clamp Speed zero clar	interna interna etc. d input used for tional s e limit for nternal & p of accorration/d
input command input Individual torque Instantaneous Speed Available Observer Available Damping Control Available Control input (1) Selection of (3) Selection of Control output Speed arrival e Analog input Velocity command input Speed comman Parameters are (6V/Rated rotat Internal velocity command Individual torque Soft-start/down function Individual torque Zero-speed clamp Speed zero clar Instantaneous Speed Speed zero clar	interna interna etc. nd input used fo tional s use limit fo nternal 8 p of accorration/d
Instantaneous Speed Observer Available Damping Control Available Control input (1) Selection of (3) Selection of (6V/Rated rotation (6V/Rated rotation) Individual torque Sigmoid acceler Sigmoid	interna etc. nd input used fo tional s le limit fo nternal & p of acc ration/d
Velocity command input Available Analog input Velocity command input Speed arrival error (6V/Rated rotation) Internal velocity command input Individual torque Soft-start/down function Switching the input Zero-speed clamp Speed zero clamp	interna etc. nd input used fo tional s le limit fo nternal & p of acc ration/d
Control input (1) Selection of (3) Selection of (3) Selection of (3) Selection of (3) Selection of Speed arrival e Control output Speed arrival e Analog input Velocity command input Speed comman Parameters are (6V/Rated rotat) Torque limit command input Individual torque Internal velocity command Switching the in Soft-start/down function Individual setup Zero-speed clamp Speed zero clar Instantaneous Speed Speed zero clar	interna etc. nd input used fo tional s le limit fo nternal & p of acc ration/d
Control output Speed arrival e Analog input Velocity command input Speed comman Parameters are (6V/Rated rotat Torque limit command input Individual torque Internal velocity command Switching the in Soft-start/down function Individual setup Sigmoid acceler Zero-speed clamp Speed zero clar	etc. nd input e used fo tional s le limit fo nternal & p of acc eration/d
Analog input Analog input Velocity command input Torque limit command input Individual torque Soft-start/down function Zero-speed clamp Instantaneous Speed	nd input a used for tional sp le limit for nternal & p of acco ration/d
Analog input Analog input Analog input Velocity command input Parameters are (6V/Rated rotat Torque limit command input Individual torque Internal velocity command Soft-start/down function Individual setup Sigmoid acceler Zero-speed clamp Speed	e used fo itional s le limit fo nternal & p of acc eration/d
Zero-speed clamp Speed zero clar	nternal 8 p of acc eration/d
Zero-speed clamp Speed zero clar	p of acc eration/d
Zero-speed clamp Speed zero clar	ration/d
Instantaneous Speed	mp inpu
Instantaneous Speed	
Observer Available Observer Velocity Control filter Available Image: Control input	
S J Control input Speed zero clar	mp, Tor
은 Control output Speed arrival e	
Control input Speed Zero clar Control output Speed arrival e Analog Torque command input input Parameters are Speed limit function Speed limit value	
Speed limit function Speed limit value	ue with
Control input (1) Deviation co (3) Command d	
Control output Full-closed posi	-
Max. command Exclusive interfa	
다. Input pulse signal format Differential inpu	ut
Pulse input Correct Co	times
O Smoothing filter Primary delay fi	ilter or F
Analog Torque limit input command input Individual torque	e limit f
Setup range of division/ multiplication of 1/40 to 160 time feedback scale	es
Auto tuning The load inertia according to the "PANATERM". The gain is set a	e comm
Division of encoder feedback Set up of any va	alue is e
Protective Hard error over-heat, over-	-current
Soft error Excess position	1 deviati
Traceability of alarm data The alarm data	history

clear (2) Command pulse inhibition g gradual increase switching switching etc.	
(In-position) etc.	
or Photo-coupler: 500kpps or line driver : 4Mpps	2
ative direction, (2) A and B-phase, (3) Command and direction)	
r FIR type filter is adaptable to the command input	9
t for both positive and negative direction is enabled.	
nal velocity setup 1 (2) Selection of internal velocity setup 2 nal velocity setup 3 (4) Speed zero clamp etc.	
	-
ut can be provided by means of analog voltage. for scale setting and command polarity. speed Default)	
t for both positive and negative direction is enabled.	
l 8speed is enabled by command input.	
cceleration and deceleration is enabled, with 0 to 10s/1000r/min. /deceleration is also enabled.	
put is enabled.	
orque command sign input etc.	
ut can be provided by means of analog voltage. I for scale setting and command polarity. (3V/rated torque Default)	

n parameter t is enabled.

clear (2) Command pulse inhibition

g gradual increase switching (4) Damping control switching etc. g complete etc.

r Photo-coupler: 500kpps

r line driver : 4Mpps

FIR type filter is adaptable to the command input

for both positive and negative direction is enabled.

entified in real time by the driving state of the motor operating mand given by the controlling device and set up support software

natically in accordance with the rigidity setting.

s enabled (encoder pulses count is the max.).

voltage, over-speed, over-load,

nt and encoder error etc. ation, command pulse division error, EEPROM error etc. ry can be referred to.

Driver Specifications A5E series (Positioning type)

		100V	Main	circuit	Single phase, 100 to 120V +10% -15% 50/60Hz				
		100 V	Control circuit		Single phase, 100 to 120V +10% -15% 50/60Hz				
			Main	A to D-frame	Single/3-phase, 200 to 240V +10% -15% 50/60Hz				
	Input power	200V	circuit	E to F-frame	3-phase, 200 to 230V +10% -15% 50/60Hz				
	ower	200 V	Control	A to D-frame	Single phase, 200 to 240V +10% -15% 50/60Hz				
			circuit	E to F-frame	Single phase, 200 to 230V +10% -15% 50/60Hz				
		400V	Main circuit	D to F-frame	3-phase, 380 to 480V +10% -15% 50/60Hz				
			Control circuit	D to F-frame	DC 24V ± 15%				
B			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)				
asic (Env	rironment	humidity		Both operating and storage : 20 to 85%RH or less (free from condensation)				
Basic Specifications			Altitude		Lower than 1000m				
licatic			Vibration		5.88m/s ² or less, 10 to 60Hz (No continuous use at resonance frequency)				
ons	Cor	ntrol method			IGBT PWM Sinusoidal wave drive				
	Enc	coder feedback			20-bit (1048576 resolution) incremental encoder, 5-wire serial				
	Cor	ntrol	Input		General purpose 10 inputs The function of general-purpose input is selected by parameters.				
	sigr	nal	Output		General purpose 6 outputs The function of general-purpose input is selected by parameters.				
		alog		put	none				
	sigr	lai		tput	2 outputs (Analog monitor: 2 output)				
	Pul: sigr			put	2 inputs (Photo-coupler input, Line receiver input)				
	Communication function			tput SB	4 outputs (Line driver: 3 output、open collector: 1 output) Connection with PC etc.				
	Fro	nt panel			(1) 5 keys (2) LED (6-digit) (3) Analog monitor output (2ch)				
	Regeneration				A, B-frame: no built-in regenerative resistor (external resistor only) C to F-frame: Built-in regenerative resistor (external resistor is also enabled.)				
	Dyr	namic bra	ke		Built-in				
	Cor	ntrol mod	e		Position control				

		Control inp	but	(1) Deviation counter(3) Command dividing(4) Damping control s			
		Control ou	tput	Positioning complete			
			Max. command pulse frequency	Exclusive interface for Exclusive interface for			
	Positior	Dulas	Input pulse signal format	Differential input ((1) Positive and Neg			
	Position control	Pulse input	Electronic gear (Division/ Multiplication of command pulse)	1/1000 to 1000 times			
Ē			Smoothing filter	Primary delay filter or			
Function		Instantane Observer	ous Speed	Available			
		Damping (Control	Available			
		Auto tunin	g	The load inertia is ide according to the com "PANATERM". The gain is set autom			
	Common	Division of pulse	encoder feedback	Set up of any value is			
	non	Protective	Hard error	Over-voltage, under-v over-heat, over-currer			
		function	Soft error	Excess position devia			
		Traceabilit	y of alarm data	The alarm data histor			

clear (2)) Command pulse inhibition
g gradual	increase switching
witching	etc.

e (In-position) etc.

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

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

FIR type filter is adaptable to the command input

entified in real time by the driving state of the motor operating mand given by the controlling device and set up support software

natically in accordance with the rigidity setting.

s enabled (encoder pulses count is the max.).

voltage, over-speed, over-load, ent and encoder error etc.

ation, command pulse division error, EEPROM error etc.

bry can be referred to.

Driver

otor

otions

nformation

• MSME

MCCB

Remove the short wire when

External regenerative resistor

you connect the external

Motor

DC12 to 24V

(±5%)

regenerative resistor.

Built-in thermosta

of an external

regenerative

resistor (light

vellow)

For single phase

wiring, L2 is not

<CAUTION>

[A-frame and

Open between

[C-frame and

Short between

B2 and B3.

D-frame]

B2 and B3.

B-frame]

used

ЩС

Ġ OFF

L1

L2 \

L3

L1C

L2C

B1

B3

B2

U

V

W

⊕⊕⊕

37 ALM+

36 AI M-

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-ΩM-

-Ġ _{ALM}

Coil surge suppression units

Main power supply

Control power

XA

supply

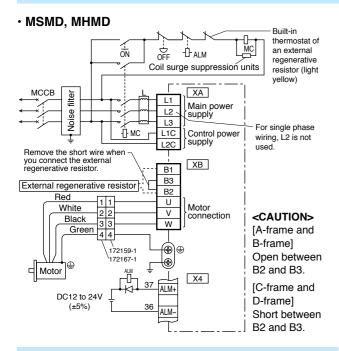
XB

Motor

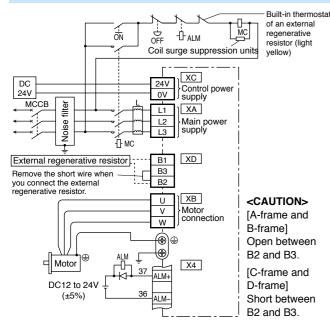
X4

connection

In Case of Single Phase, A to D-frame, 100 V / 200 V type and 3-Phase, A to D-frame, 200 V type

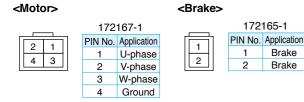


In Case of 3-Phase, D-frame, 400 V type

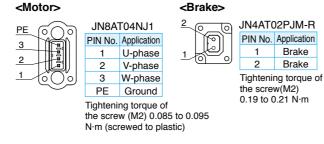


Specifications of Motor connector (The figures show connectors for the motor.)

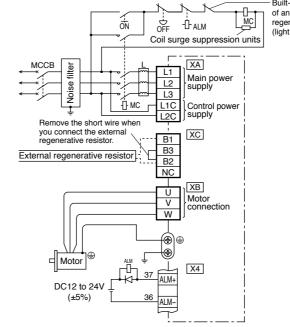
• When the motors of <MSMD, MHMD> are used, they are connected as shown below. Connector: Made by Tyco Electronics AMP

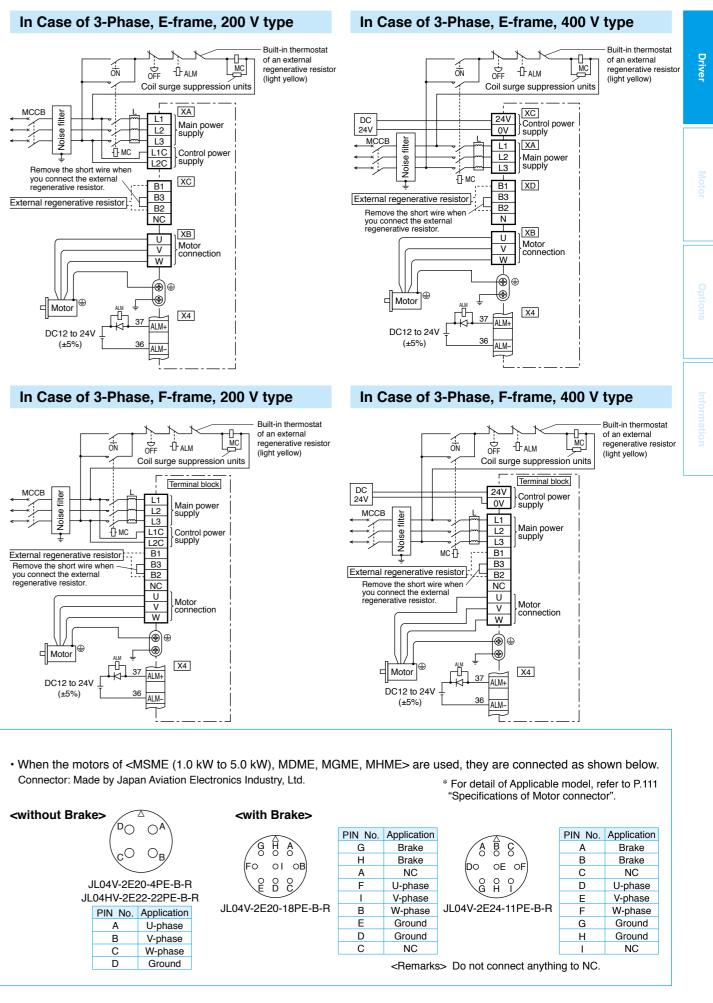


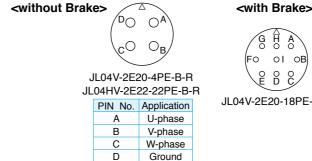
 When the motors of <MSME (50 W to 750 W)> are used, they are connected as shown below. Connector: Made by Japan Aviation Electronics Industry, Ltd.



* Be sure to use only the screw supplied with the connector, to avoid damage.







Safety function Wiring to the connector, X3 (Excluding A5E Series)

Connecting the host controller can configure a safety circuit that controls the safety functions. When not constructing the safety circuit, use the supplied safety bypass plug.

Outline description of safe torgue off (STO)

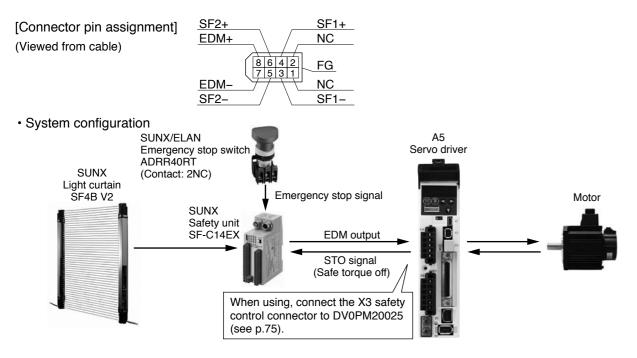
The safe torque off (STO) function is a safety function that shuts the motor current and turns off motor output torque by forcibly turning off the driving signal of the servo driver internal power transistor. For this purpose, the STO uses safety input signal and hardware (circuit).

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

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

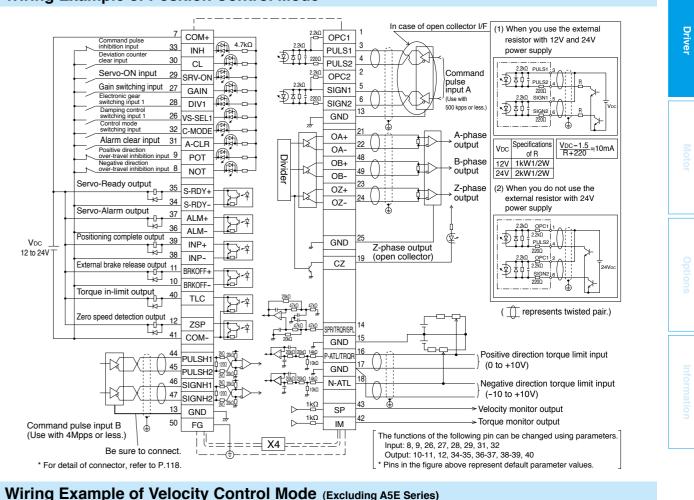
Safety precautions

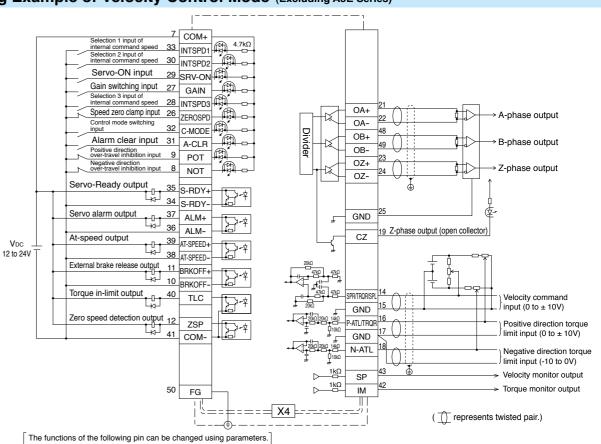
- When using the STO function, be sure to perform equipment risk assessment to ensure that the system conforms to the safety requirements.
- · Even while the STO function is working, the following potential safety hazards exist. Check safety in risk assessment.
- The motor may move when eternal force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



Control Circuit Diagram Wiring to the connector, X4

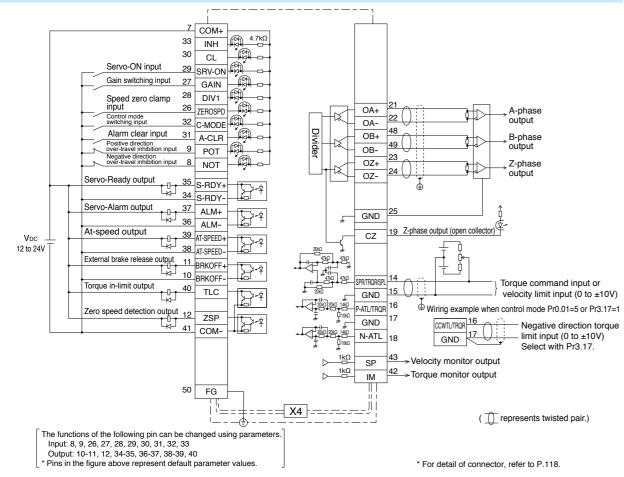
Wiring Example of Position Control Mode



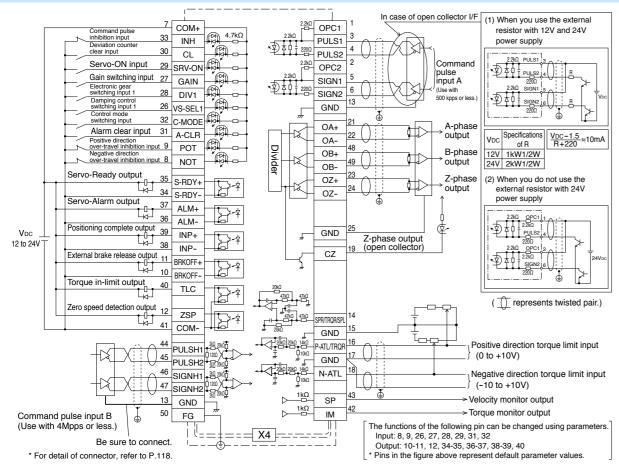


Input: 8, 9, 26, 27, 28, 29, 30, 31, 32, 33 Output: 10-11 12 34-35 36-37 38-39 40 Pins in the figure above represent default parameter values





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

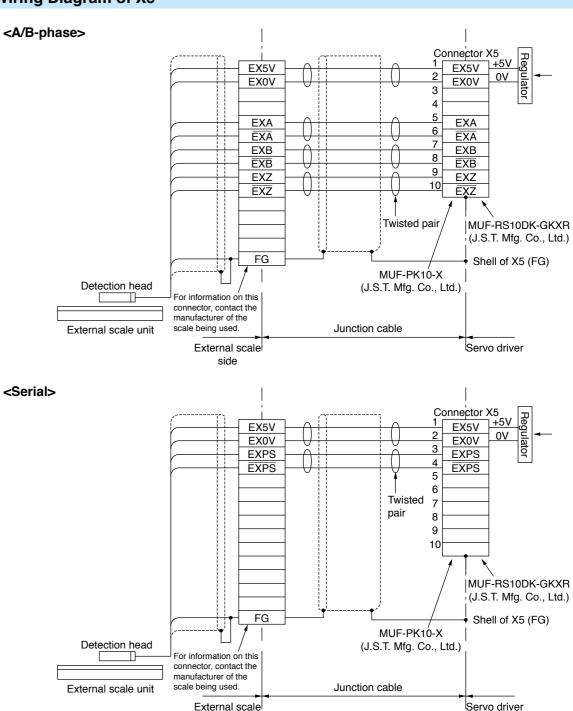


Control Circuit Diagram Wiring to the connector, X5 (Excluding A5E Series)

Applicable external scale

- The manufacturers applicable external scales for this product are as follows.
- · Mitutoyo Corp.
 - ST771A(L), ST773A(L), AT573A
- · Sony Manufacturing Systems Corp.
- SR75, SR85, SR77, SR87, SL700 · PL101-RP, SL710 · PL101-RP
- * For the details of the external scale product, contact each company.

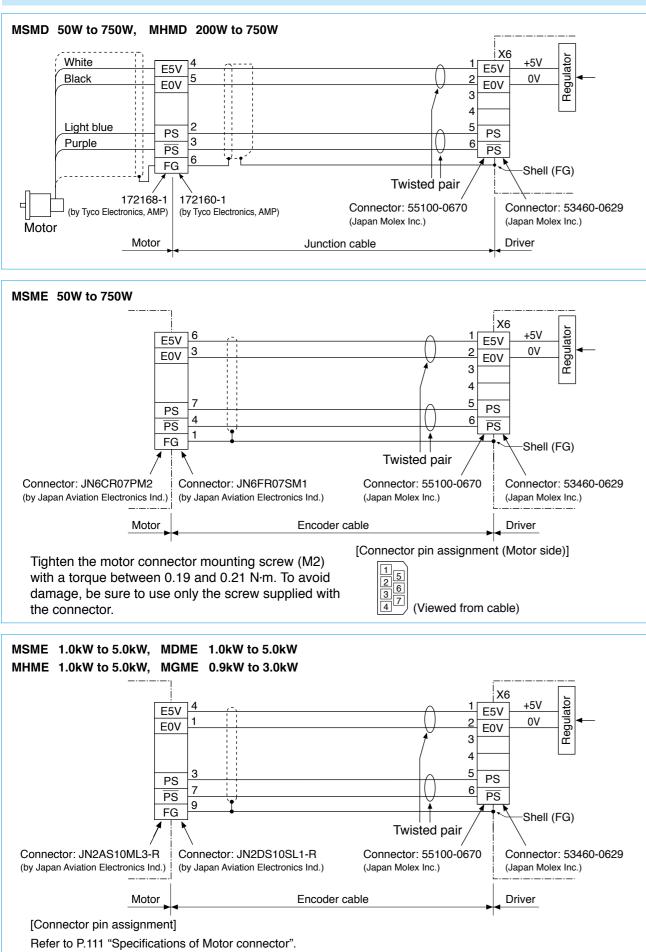
Wiring Diagram of X5



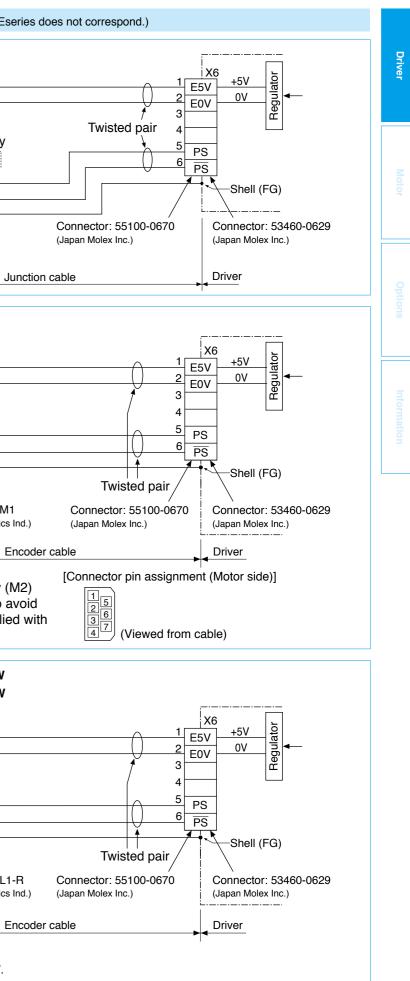
External scale side

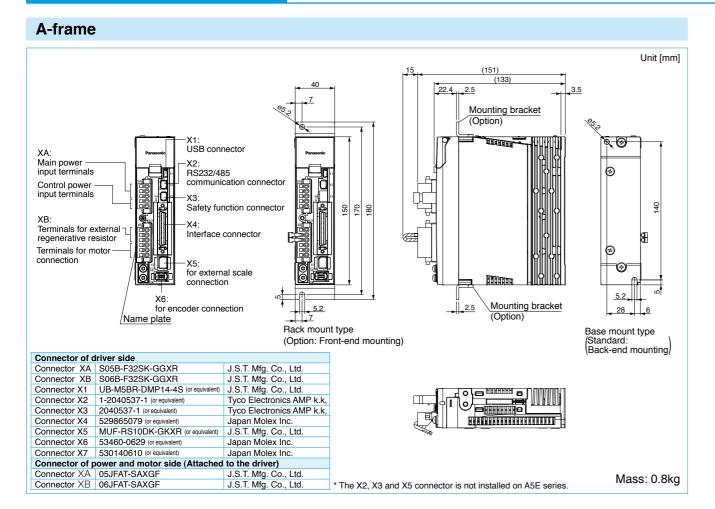
Control Circuit Diagram Wiring to the connector, X6

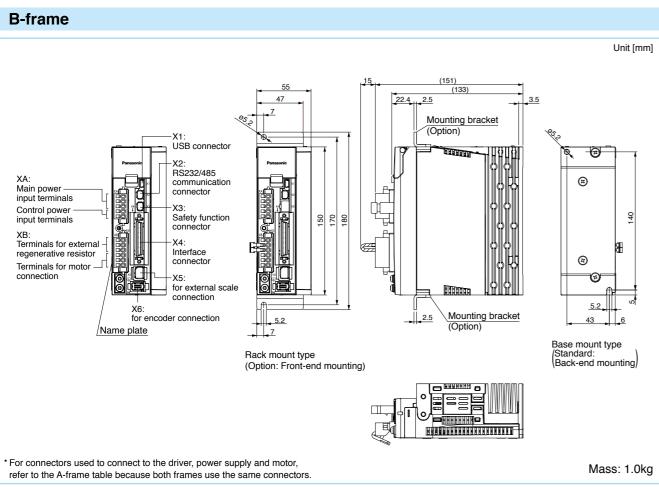
In case of 20-bit incremental encoder

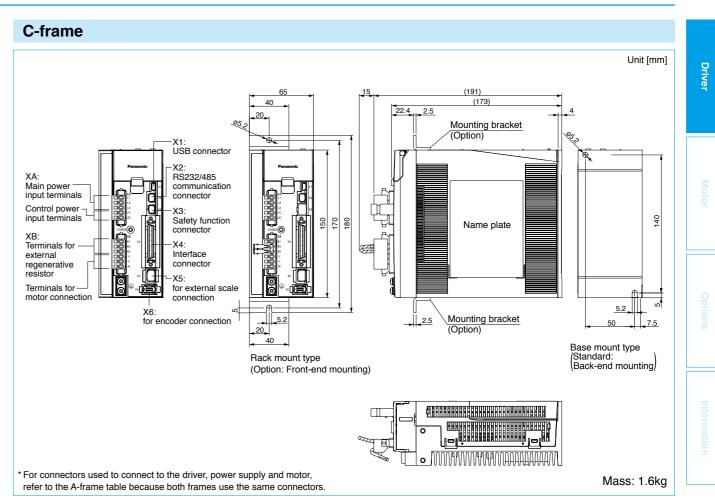


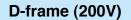
In case of 17-bit absolute encoder (A5Eseries does not correspond.) MSMD 50W to 750W, MHMD 200W to 750W White E5V Black E0V battery Red BAT+ Pink BAT-Light blue PS Purple PS Yellow/Green '**†**′-FG 172169-1 172161-1 (by Tyco Electronics, AMP) (by Tyco Electronics, AMP) Motor Motor MSME 50W to 750W E5V E0V battery BAT+ BAT-PS PS FG Connector: JN6CR07PM2 Connector: JN6FR07SM1 (by Japan Aviation Electronics Ind.) ! (by Japan Aviation Electronics Ind.) Motor Tighten the motor connector mounting screw (M2) with a torque between 0.19 and 0.21 N·m. To avoid damage, be sure to use only the screw supplied with the connector. MSME 1.0kW to 5.0kW, MDME 1.0kW to 5.0kW MHME 1.0kW to 5.0kW, MGME 0.9kW to 3.0kW E5V E0V battery BAT+ · - - - -|+ BAT-PS PS FG Connector: JN2AS10ML3-R Connector: JN2DS10SL1-R (by Japan Aviation Electronics Ind.) (by Japan Aviation Electronics Ind.) Motor [Connector pin assignment] Refer to P.111 "Specifications of Motor connector".

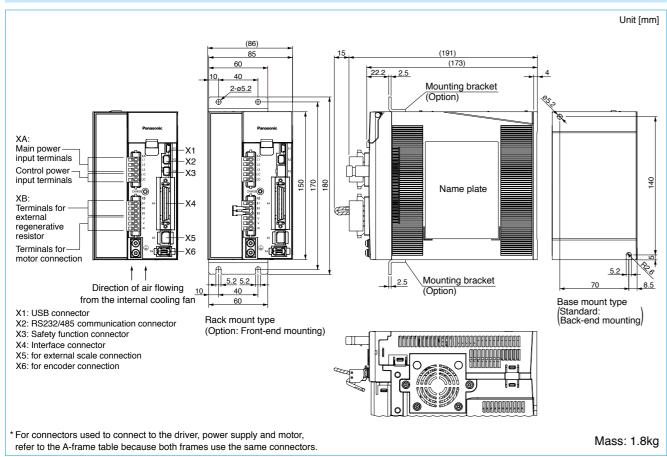


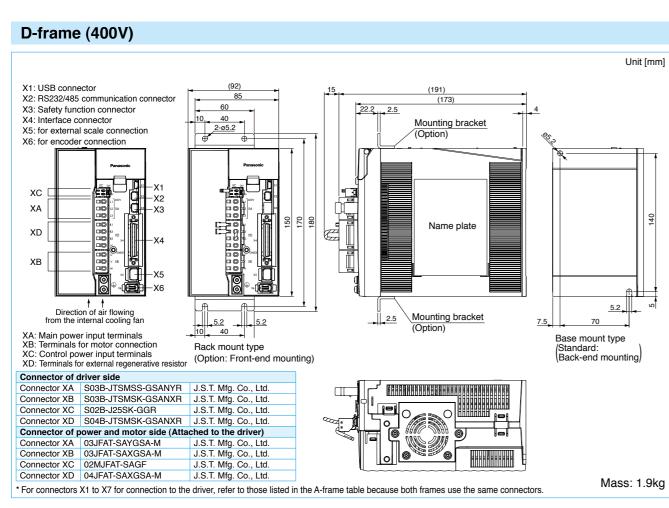


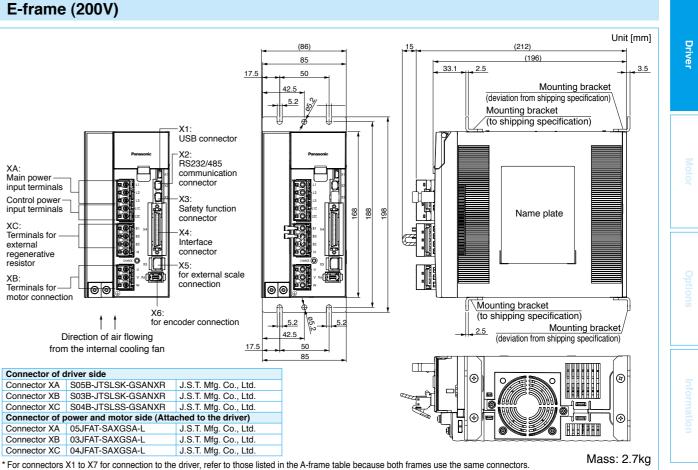


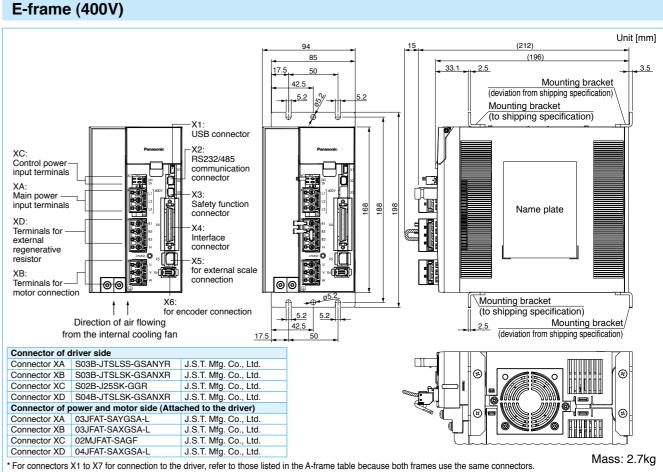




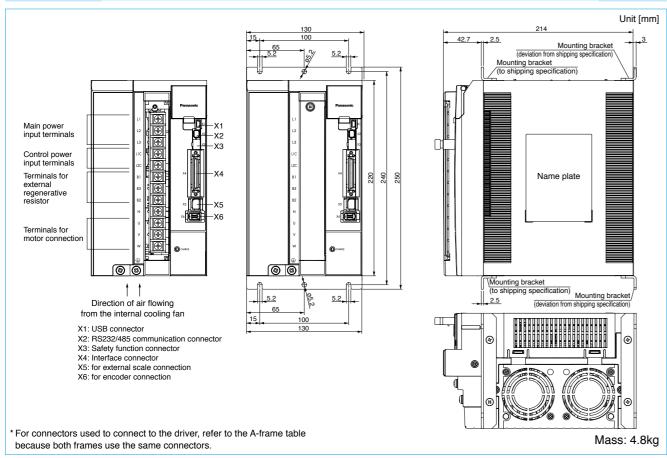




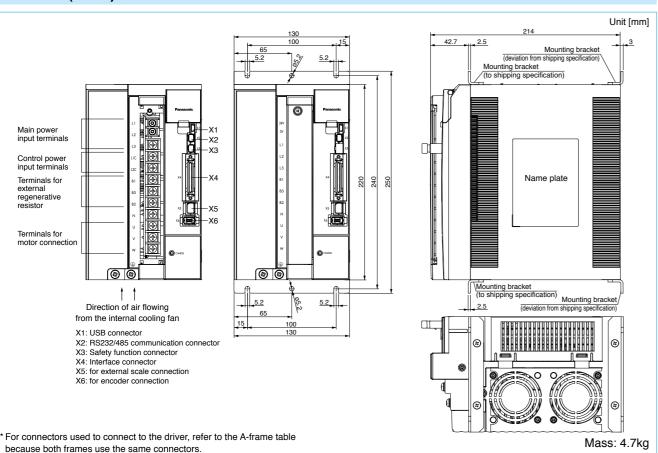








F-frame (400V)



Motor Specifications Common Specifications of Motor

Features

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

Middle capacity type





[MSME (50W to 750W)]
Motor (Scheduled to be released.)
• MDME 7.5kW, 11kW, 15kW

• MFME 1.5kW, 2.5kW, 4.5kW · Motor with Gear Reduce: 100W, 200W, 400W, 750W

Environmental Conditions

• MHME 7.5kW

• MGME 4.5kW, 6.0kW

lt	em	Conditions		
Ambient te	mperature *1	0°C to 40°C (free from freezing)		
Ambient hu	umidity	20% to 85% RH (free from condens		
Storage te	mperature *2	-20°C to 65°C (Max.temperature guarantee: 80°C		
Storage hu	imidity	20% to 85% RH (free from conden		
Vibration	Motor only	Lower than 49m/s ² (5G) at running,		
Impact	Motor only	Lower than 98m/s ² (10G)		
Enclosure	Leadwire type *3	IP65 (except rotating portion of ou end.)		
rating (Motor only)	Connector type ^{*3*4}	IP67 (except rotating portion of out pin part of the motor connector and		
Alt	itude	Lower than 1000m		

- *1 Ambient temperature to be measured at 5cm away from the motor.
- *2 Permissible temperature for short duration such as transportation.
- *3 These motors conform to the test conditions specified in EN standards (EN60529, EN60034-5). Do not use these motors in application where water proof performance is required such as continuous wash-down operation.
- *4 This condition is applied when the connector mounting screw in case of motor 750W or less are tightened to the recommended tightening torque (Refer to 1-16, 2-18, 2-00). Be sure to use mounting screw supplied with the connector.

<Note>

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





[MSME (1.0kW to 5.0kW)]

sation)

for 72 hours)

sation)

24.5m/s2 (2.5G) at stall

utput shaft and readwire

utput shaft and connecting d the encoder connector)



Motor Contents

MSME (100V/200V) 50W to 750W P.36 to 44

MSME (200V) 1.0kW to 5.0kW P.45 to 50

MDME (200V) 1.0kW to 5.0kW P.51 to 56

MGME (200V) 0.9kW to 3.0kW P.57 to 59

MHME (200V) 1.0kW to 5.0kW P.60 to 65

MSMD (100V/200V) 50W to 750W P.66 to 74

MHMD (100V/200V) 200W to 750W P.76 to 80

MSME (400V) 1.0kW to 5.0kW P.82 to 87

MDME (400V) 1.0kW to 5.0kW P.88 to 93

MGME (400V) 0.9kW to 3.0kW P.94 to 96

MHME (400V) 1.0kW to 5.0kW P.98 to 103

		AC100V				
Motor model *1		5AZG1	5AZS1			
	Model	A5 series	MADH	T1105		
Applicable driver *2	No.	A5E series	MADHT1105E	-		
	Fran	ne symbol	A-fr	ame		
Power supply capacit	у	(kVA)	0.	4		
Rated output		(W)	5	0		
Rated torque		(N·m)	0.	16		
Momentary Max. pea	k torqu	ie (N·m)	0.4	0.48		
Rated current		(A(rms))	1.1			
Max. current		(A(o-p))	4.7			
Regenerative brake	With	out option	No limit Note)2			
frequency (times/min) Note)1	DV	'0P4280	No limit Note)2			
Rated rotational spee	d	(r/min)	3000			
Max. rotational speed		(r/min)	6000			
Moment of inertia	With	out brake	0.025			
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	0.0	27		
Recommended mome ratio of the load and t		30 times or less				
Rotary encoder speci	ficatior	IS Note)5	20-bit 17-bit Incremental Absolute			
Resolut	ion per	r single turn	1,048,576	131,072		

• Brake specifications (For details, refer to P.105) (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

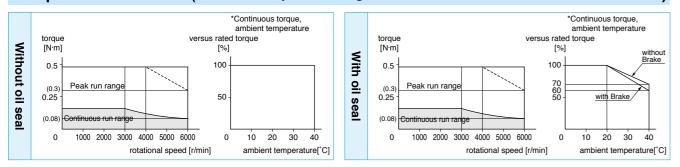
• Permissible load (For details, refer to P.104)

	_ .	Radial load P-direction (N)	147
During assembly During operation	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	

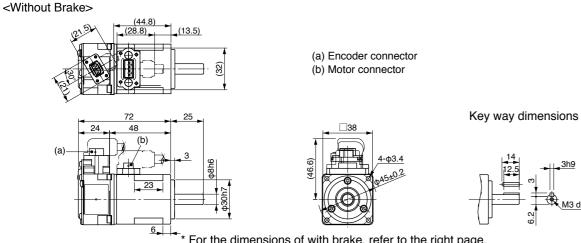
· For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions



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

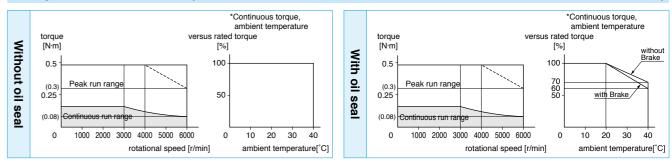
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Mass (kg)/ 0.32

Specifications

			AC2	V00
Motor model *1		5AZG1	5AZS1	
	Model A5 series		MADHT1505	
Applicable driver *2	No.	A5E series	MADHT1505E	-
	Frame symbol		A-fra	ame
Power supply capacit	у	(kVA)	0.	5
Rated output		(W)	5	0
Rated torque		(N·m)	0.1	16
Momentary Max. pea	k torqu	ie (N·m)	0.4	48
Rated current		(A(rms))	1.1	
Max. current (A(o-p))			4.7	
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0P4280		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	6000	
Moment of inertia	With	out brake	0.025	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		
Rotary encoder specifications		IS Note)5	20-bit Incremental	17-bit Absolute
Resolut	r single turn	1,048,576	131,072	

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



Dimensions

<With Brake> (74.8) (44.8) (28.8 (13.5) (b) (c (a) ÷∎ ... 23

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

• Brake specifications (For details, refer to P.1	05)
$\left(\begin{matrix} \text{This brake will be released when it is energized.} \\ \text{Do not use this for braking the motor in motion.} \end{matrix} \right)$	

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.104)

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

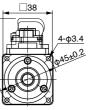
• For details of Note 1 to Note 5, refer to P.104.

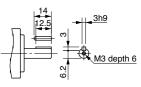
- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

Mass (kg)/ 0.53

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

Key way dimensions





 $\frac{6}{1}$ For the dimensions of without brake, refer to the left page.

		AC1	00V	
Motor model *1		011G1	011S1	
	Model	A5 series	MADH	T1107
Applicable driver *2	No.	A5E series	MADHT1107E	-
	Fran	Frame symbol A-frame		ame
Power supply capacit	у	(kVA)	0.	.4
Rated output		(W)	1(00
Rated torque		(N·m)	0.3	32
Momentary Max. peal	k torqu	ie (N·m)	0.9	95
Rated current		(A(rms))	1.6	
Max. current		(A(o-p))	6.9	
Regenerative brake	With	out option	n No limit Note)2	
frequency (times/min) Note)1	DV0P4280		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	6000	
Moment of inertia	With	out brake	0.051	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	0.054	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		
Rotary encoder speci	Rotary encoder specifications Not		20-bit Incremental	17-bit Absolute
Resolut	ion per	r single turn	1,048,576	131,072

• Brake specifications (For details, refer to P.105) (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)	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

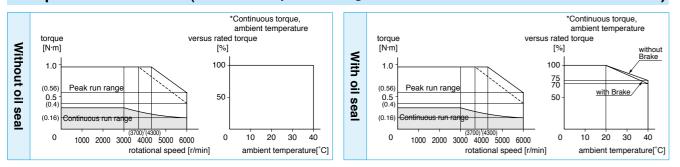
• Permissible load (For details, refer to P.104)

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

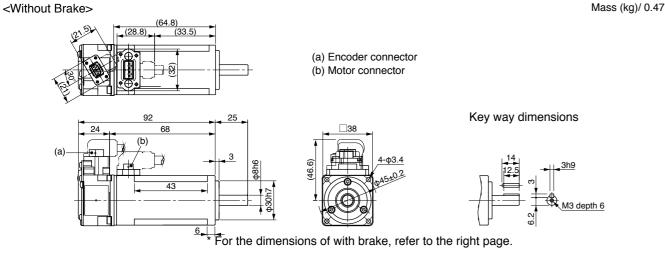
· For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions

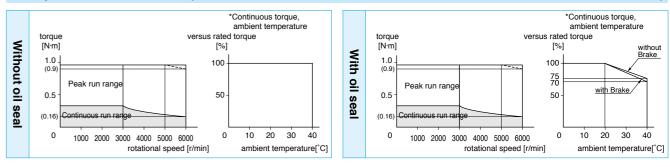


<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC2	00V		specifications (For details	
Motor model *1		MSME	012G1	012S1	(This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)		
	Mode	A5 series	MADHT1505		Static friction torque (N·m)		0.29 or more
Applicable driver *2	No.	A5E series	MADHT1505E	ADHT1505E – Er		g time (ms)	35 or less
	Fran	ne symbol	A-frame		Releasing time (ms) Note)4		20 or less
Power supply capa	city	(kVA)	0.	5	Exciting current (DC) (A)		0.3
Rated output		(W)	10	00	Releasir	ng voltage (DC) (V)	1 or more
Rated torque		(N·m)	0.3	32	Exciting	voltage (DC) (V)	24±1.2
Momentary Max. pe	ak torqu	ie (N·m)	0.9	95			
Rated current		(A(rms))	1.1		 Permissible load (For details, refer to P. 		er to P.104)
Max. current		(A(o-p))	4.	7	During	Radial load P-direction (N)	147
Regenerative brake	With	out option	No limit Note)2		During assembly	Thrust load A-direction (N)	88
frequency (times/min) Not	^{e)1} D\	/0P4280	No limit Note)2		assembly	Thrust load B-direction (N)	117.6
Rated rotational sp	ed	(r/min)	3000		During	Radial load P-direction (N)	68.6
Max. rotational spe	ed	(r/min)	60	00	operation Thrust load A, B-direction (N)		58.8
Moment of inertia	With	out brake	0.051 0.054		 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.30. 		
of rotor (×10 ⁻⁴ kg·m ²) Wi	th brake					
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designatio			
Rotary encoder spe	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	has "E" is "positioning type".		
Reso	ution pe	r single turn	1,048,576	131,072	Detail of model designation, refer to P.11.		

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



Dimensions

<With Brake>

(94.8) (64.8) (04.0) 122 98 (b) (c) (a)-÷₽₽

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



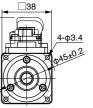
Motor Specifications 200V MSME 100W [Low inertia, Small capacity]

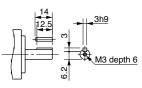
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

Mass (kg)/ 0.68

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

Key way dimensions





 $\frac{6}{1}$ For the dimensions of without brake, refer to the left page.

		AC1	00V	
Motor model *1		021G1	021S1	
	Model	A5 series	MBDH	T2110
Applicable driver *2	No.	A5E series	MBDHT2110E	-
	Fran	ne symbol	B-frame	
Power supply capacit	у	(kVA)	0.	.5
Rated output		(W)	20	00
Rated torque		(N·m)	0.0	64
Momentary Max. pea	k torqu	ie (N·m)	1.9	91
Rated current		(A(rms))	2.5	
Max. current		(A(o-p))	10.6	
Regenerative brake	With	hout option No limit Note)2		t Note)2
frequency (times/min) Note)1	DV0P4283		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	6000	
Moment of inertia	With	out brake	0.14	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times	s or less	
Rotary encoder speci	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
Resolut	ion per	r single turn	1,048,576	131,072

• Brake specifications (For details, refer to P.105) (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.104)

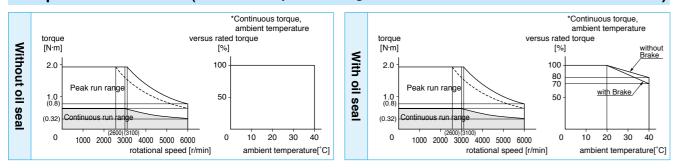
		Radial load P-direction (N)	392
During assembly During operation	Thrust load A-direction (N)	147	
	Thrust load B-direction (N)	196	
	Radial load P-direction (N)	245	
	Thrust load A, B-direction (N)	98	

· For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".

Detail of model designation, refer to P.11.

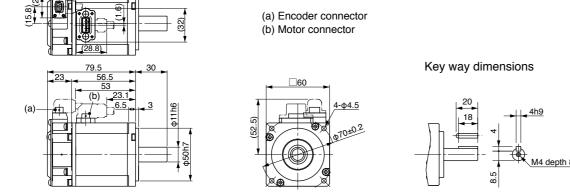
Torque characteristics (at AC100V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

<Without Brake>

Mass (kg)/ 0.82



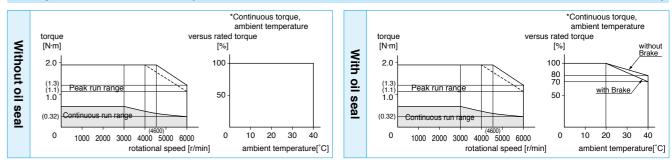
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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

Specifications

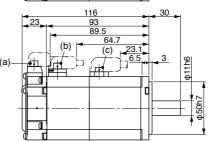
		AC2	00V	
Motor model *1	MSME	022G1	022S1	
	Model	A5 series	MADHT1507	
Applicable driver *2	No.	A5E series	MADHT1507E	-
	Fram	ne symbol	A-fra	ame
Power supply capacit	у	(kVA)	0.	5
Rated output		(W)	20	0
Rated torque		(N·m)	0.6	64
Momentary Max. pea	k torqu	e (N·m)	1.9	91
Rated current		(A(rms))	1.5	
Max. current (A(o-p))			6.5	
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0P4283		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	/min) 6000	
Moment of inertia	With	out brake	0.14	
of rotor (×10 ⁻⁴ kg·m ²)	With brake		0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times	or less
Rotary encoder specifications Note):		IS Note)5	20-bit Incremental	17-bit Absolute
Resolution per single			1,048,576	131,072

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



Dimensions

<With Brake>



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

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

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

• Brake specifications (For details, refer to P.105) /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.104)

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.104.

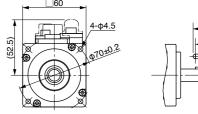
- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

Mass (kg)/ 1.30

(a) Encoder connector (b) Brake connector

(c) Motor connector

Key way dimensions



18 M4 depth 8

			AC1	00V
Motor model *1		041G1	041S1	
	Model	A5 series	MCDHT3120	
Applicable driver *2	No.	A5E series	MCDHT3120E	-
	Fran	ne symbol	C-fra	ame
Power supply capacit	у	(kVA)	0.	.9
Rated output		(W)	40	00
Rated torque		(N·m)	1.	.3
Momentary Max. pea	k torqu	ie (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 rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	6000	
Moment of inertia	With	out brake	0.26	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	0.28	
Recommended moment of ine ratio of the load and the rotor			30 times or less	
Rotary encoder speci	Rotary encoder specification		20-bit Incremental	17-bit Absolute
Resolut	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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

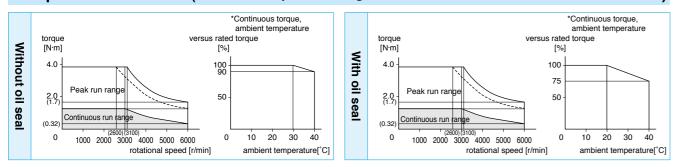
• Permissible load (For details, refer to P.104)

		Radial load P-direction (N)	392
During assembly During operation	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	

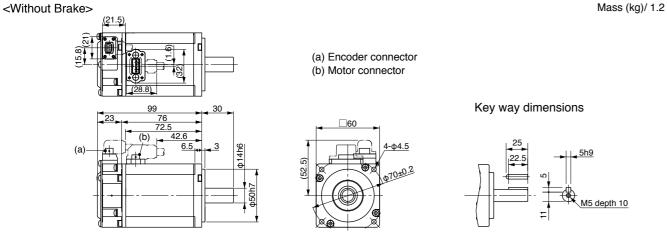
· For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.31.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions



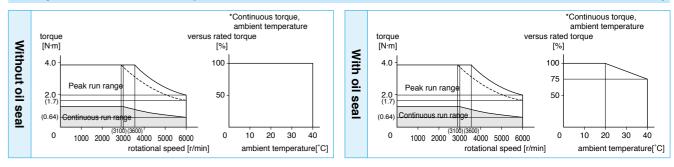
* For the dimensions of with brake, refer to the right page.

<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.

Specifications

			AC2	00V		specifications (For details ake will be released when it is e	. ,
Motor model *1		MSME	042G1	042S1		use this for braking the motor in	
Model A5 series		A5 series	MBDH	T2510	Static friction torque (N·m) 1.2		1.27 or more
Applicable driver *	No.	A5E series	MBDHT2510E	-	Engaging time (ms)		50 or less
	Fran	ne symbol	B-frame		Releasing time (ms) Note)4		15 or less
Power supply capa	city	(kVA)	0.	9	Exciting	current (DC) (A) 0.36	
Rated output		(W)	40	0	Releasir	ng voltage (DC) (V) 1 or more	
Rated torque		(N·m)	1.	3	Exciting	voltage (DC) (V)	24±1.2
Momentary Max. p	eak torq	ue (N·m)	3.	8			
Rated current (A(rms))		(A(rms))	2.	4	• Permi	• Permissible load (For details, refer to P.104)	
Max. current		(A(o-p))	10	.2	During	Radial load P-direction (N)	392
Regenerative brake	With	out option	No limit Note)2		During assembly	Thrust load A-direction (N)	147
frequency (times/min) No	e)1 D\	/0P4283	No limit	Note)2	assembly	Thrust load B-direction (N)	196
Rated rotational sp	eed	(r/min)	300	00	During	During Radial load P-direction (N) 245	
Max. rotational spe	ed	(r/min)	600	6000 operation Thrust load A, B-direction (N		98	
Moment of inertia	With	nout brake	0.2	26	• For dot	ar dataile of Nato 1 to Nato 5, refer to D104	
of rotor (×10 ⁻⁴ kg·m) w	ith brake	0.2	28	 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.30. 		01.104.
Recommended moment of inertia ratio of the load and the rotor Note)3 Rotary encoder specifications Note)5 Resolution per single turn		30 times or less *1 Rotary encoder specifications: *2 The product that the end of driver mod		nodel designation			
		NS Note)5	20-bit Incremental	17-bit Absolute	has "E" is "positioning type".		Ū
		1,048,576	131,072	Detail of model designation, refer to P.11.		1.11.	

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



Dimensions

<With Brake>

(a) Encoder connector (b) Brake connector (c) Motor connector 112.5 109 83.9 (b) (c) 🖌 42.6 6.5 57

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

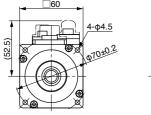
Motor Specifications 200V MSME 400W [Low inertia, Small capacity]

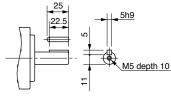
• E	Brake specifications (For details, refer to F	P.105)
(This brake will be released when it is energized. Do not use this for braking the motor in motion.	

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

Mass (kg)/ 1.7

Key way dimensions





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

		AC2	00V	
Motor model *1		082G1	082S1	
	Model	A5 series	MCDHT3520	
Applicable driver *2	No.	A5E series	MCDHT3520E	-
	Fran	ne symbol	C-frame	
Power supply capacit	у	(kVA)	1.	3
Rated output		(W)	75	50
Rated torque		(N·m)	2	4
Momentary Max. pea	k torqu	e (N·m)	7.	.1
Rated current		(A(rms))	4.1	
Max. current		(A(o-p))	17.4	
Regenerative brake Wit		thout option No limit Note)2		t Note)2
frequency (times/min) Note)1	DV	0P4283	283 No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	6000	
Moment of inertia	With	out brake	0.87	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	0.9	97
Recommended moment of inertia ratio of the load and the rotor Note)3			20 times or less	
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.105) (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

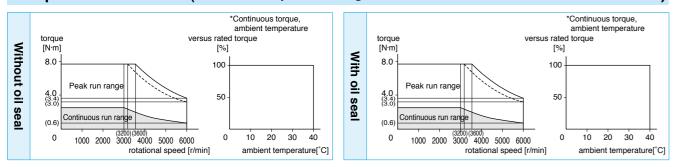
• Permissible load (For details, refer to P.104)

		Radial load P-direction (N)	686
During assembly	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

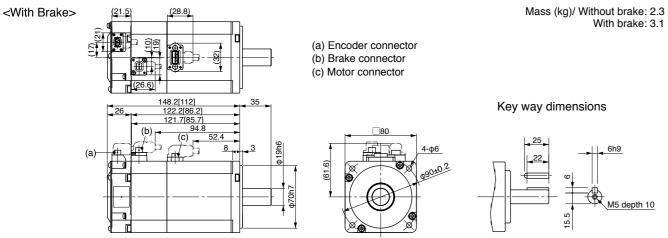
· For details of Note 1 to Note 5, refer to P.104.

- Dimensions of Driver, refer to P.31.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions



* Figures in [] represent the dimensions of with brake

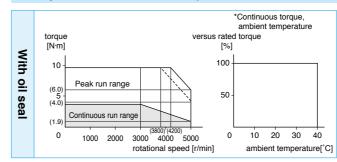
44

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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.

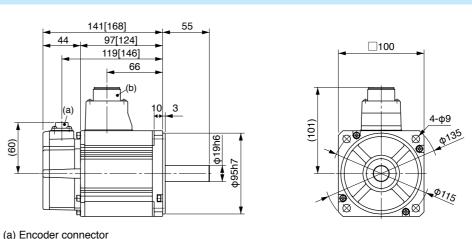
Specifications

Specification	13							
			AC2	00V	• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.)			
Motor model *1		MSME	102G1	102S1		use this for braking the motor in		
	Mode	A5 series	MDDH	T5540	Static fri	ction torque (N·m)	7.8 or more	
Applicable driver *2	No.	A5E series	MDDHT5540E	_	Engagin	g time (ms)	50 or less	
	Fran	ne symbol	D-fra	ame	Releasir	ng time (ms) Note)4	15 or less	
Power supply capaci	ty	(kVA)	1.	8	Exciting	current (DC) (A)	0.81±10%	
Rated output		(W)	1.	0	Releasir	ng voltage (DC) (V)	2 or more	
Rated torque		(N·m)	3.	.18 Exciting voltage (DC) (V)		24±2.4		
Momentary Max. pea	ak torqu	ue (N·m)	9.9	55				
Rated current		(A(rms))	6.6		Permissible load (For details, refer to P.104)		r to P.104)	
Max. current		(A(o-p))	2	28 During		Radial load P-direction (N)	980	
Regenerative brake	With	out option	No limit Note)2		During assembly	Thrust load A-direction (N)	588	
frequency (times/min) Note)	1 D\	/0P4284	No limit Note)2			Thrust load B-direction (N)	686	
Rated rotational spe	ed	(r/min)	3000		During	Radial load P-direction (N)	490	
Max. rotational spee	d	(r/min)	50	00	operation Thrust load A, B-direction (N)		196	
Moment of inertia	With	out brake	2.0	03	For details of Note 1 to Note 5, refer to P.104.			
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	2.3	35		Dimensions of Driver, refer to P.32.		
Recommended moment of inertia ratio of the load and the rotor Note)3 Rotary encoder specifications Note)5			15 times	15 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designation		
		NS Note)5	20-bit Incremental	17-bit Absolute	has "E" is "positioning type".		0	
Resolu	ition pe	r single turn	1,048,576	131,072	Detail of model designation, refer to P.11.			



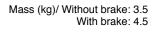
Dimensions

(b) Motor/Brake connector

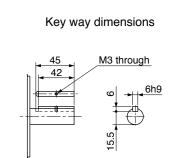


Motor Specifications 200V MSME 1.0kW [Low inertia, Middle capacity]

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



Motor



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

		AC200V			
Motor model *1		152G1 152S1			
	Model	A5 series	MDDH	T5540	
Applicable driver *2	No.	A5E series	MDDHT5540E	-	
	Fran	ne symbol	D-fra	ame	
Power supply capacit	у	(kVA)	2	.3	
Rated output		(W)	1.	.5	
Rated torque		(N·m)	4.	77	
Momentary Max. pea	k torqu	ie (N·m)	14	.3	
Rated current		(A(rms))	8.2		
Max. current		(A(o-p))	35		
Regenerative brake	Without option		No limit Note)2		
frequency (times/min) Note)1	DV0P4284		No limit Note)2		
Rated rotational spee	d	(r/min)	3000		
Max. rotational speed		(r/min)	50	00	
Moment of inertia	With	out brake	2.	84	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	3.	17	
Recommended mome ratio of the load and t		15 times or less			
Rotary encoder speci	IS Note)5	20-bit Incremental	17-bit Absolute		
Resolut	ion per	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.) Do not use this for braking the motor in motion.

, o	,
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.104)

		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.104.

• Dimensions of Driver, refer to P.32.

*1 Rotary encoder specifications:

*2 The product that the end of driver model designation has "E" is "positioning type".

Mass (kg)/ Without brake: 4.4

M3 through

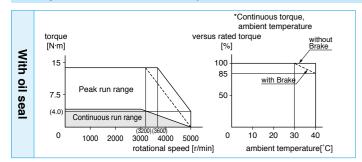
5.5

With brake: 5.4

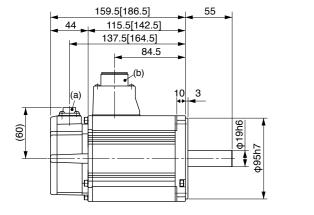
6h9

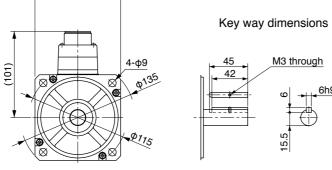
Detail of model designation, refer to P.11.

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



Dimensions





<u>100</u>

(a) Encoder connector

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

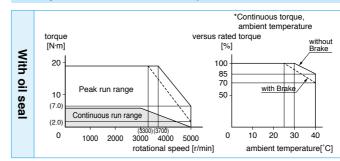
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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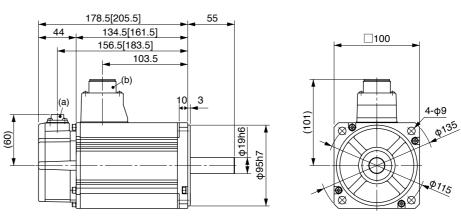


Specifications

			AC200V			specifications (For details	. ,	
Motor model *1		MSME	202G1	202S1		ake will be released when it is e use this for braking the motor ir		
	Mode	A5 series	MEDH	T7364	Static friction torque (N·m)		7.8 or more	
Applicable driver *2	No.	A5E series	MEDHT7364E	-	Engagin	g time (ms)	50 or less	
	Fran	ne symbol	E-fra	ame	Releasir	ng time (ms) Note)4	15 or less	
Power supply capa	Power supply capacity (kVA		3.	3	Exciting	current (DC) (A)	0.81±10%	
Rated output		(W)	2.	0	Releasir	ng voltage (DC) (V)	2 or more	
Rated torque		(N·m)	6.3	37	Exciting voltage (DC) (V) 24±2.		24±2.4	
Momentary Max. pe	ak torqu	ue (N·m)	19	.1				
Rated current (A(rms)		(A(rms))	11.3		 Permissible load (For details, refer to F 		er to P.104)	
Max. current		(A(o-p))	48	В	. .	Radial load P-direction (N)	980	
Regenerative brake	With	out option	No limit Note)2		During assembly	Thrust load A-direction (N)	588	
frequency (times/min) Not	^{e)1} DV	/0P4285	No limit Note)2		assembly	Thrust load B-direction (N)	686	
Rated rotational spe	ed	(r/min)	3000		During	Radial load P-direction (N)	490	
Max. rotational spe	ed	(r/min)	5000		operation	Thrust load A, B-direction (N)	196	
Moment of inertia	With	out brake	3.68		- For details of Note 1 to Note 5, refer to D104			
of rotor (×10 ⁻⁴ kg·m ²) Wi	th brake	4.01			 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.33. 		
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less		*1 Rotary	*1 Rotary encoder specifications: *2 The product that the end of driver model designation		
Rotary encoder spe	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	, has "E	has "E" is "positioning type".		
Reso	ution pe	r single turn	1,048,576	131,072	Detail of model designation, refer to P.11.			



Dimensions

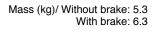


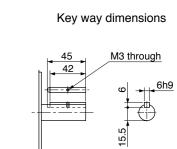
(a) Encoder connector (b) Motor/Brake connector

<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.

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

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





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

Motor

		AC200V			
Motor model *1		302G1	302S1		
	Model	A5 series	MFDHTA390		
Applicable driver *2	No.	A5E series	MFDHTA390E	-	
	Fran	ne symbol	F-fra	ame	
Power supply capacit	у	(kVA)	4.	.5	
Rated output		(W)	3.	.0	
Rated torque		(N·m)	9.	55	
Momentary Max. peal	k torqu	ie (N·m)	28	.6	
Rated current		(A(rms))	18.1		
Max. current		(A(o-p))	77		
Regenerative brake	Without option		No limit Note)2		
frequency (times/min) Note)1	DV0P4285×2		No limit Note)2		
Rated rotational spee	d	(r/min)	30	00	
Max. rotational speed		(r/min)	50	00	
Moment of inertia	With	out brake	6.50		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	7.8	85	
Recommended mome ratio of the load and the			15 times or less		
Rotary encoder speci	IS Note)5	20-bit Incremental	17-bit Absolute		
Resolut	ion per	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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.104)

		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

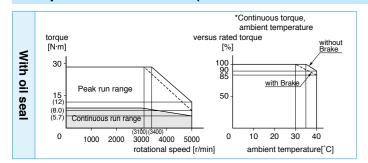
· For details of Note 1 to Note 5, refer to P.104.

• Dimensions of Driver, refer to P.34.

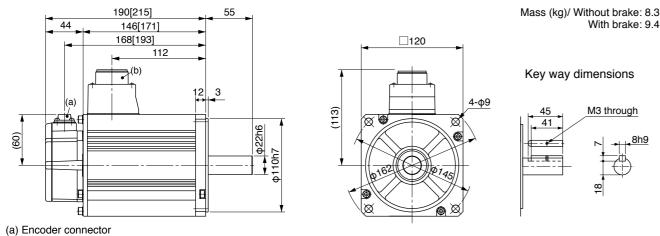
*1 Rotary encoder specifications:

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

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



Dimensions



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

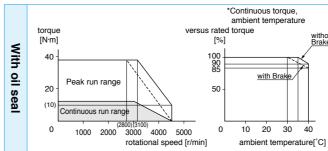
48



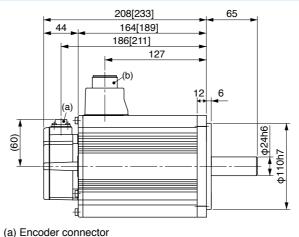
Specifications

Specification	IS							
			AC2	200V		specifications (For details	,	
Motor model *1		MSME	402G1	402S1	(This brake will be released when it is energized.) Do not use this for braking the motor in motion.			
	Mode	A5 series	MFDH	TB3A2	Static fri	Static friction torque (N·m) 1		
Applicable driver *2	No.	A5E series	MFDHTB3A2E	-	Engagin	g time (ms)	110 or less	
	Fran	ne symbol	F-fra	ame	Releasir	ng time (ms) Note)4	50 or less	
Power supply capac	ity	(kVA)	6	.0	Exciting	current (DC) (A)	0.90±10%	
Rated output		(W)	4	.0	Releasing voltage (DC) (V) 2 or more		2 or more	
Rated torque		(N·m)	12	2.7	Exciting voltage (DC) (V) 24±2.4		24±2.4	
Momentary Max. peak torque (N·m)		ue (N·m)	38.2					
Rated current (A(rms))		(A(rms))	19.6		• Permissible load (For details, refer to P.104)			
Max. current		(A(o-p))	8	3	_ .	Radial load P-direction (N)	980	
Regenerative brake	With	out option	No limit Note)2		During assembly	Thrust load A-direction (N)	588	
frequency (times/min) Note	⁾¹ DV0)P4285×2	No limit Note)2			Thrust load B-direction (N)	686	
Rated rotational spe	ed	(r/min)	3000 4500		During	Radial load P-direction (N)	784	
Max. rotational spee	d	(r/min)			operation T	Thrust load A, B-direction (N)	343	
Moment of inertia		nout brake	12.9		• For dot	 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.34. 		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	14	14.2				
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less	*1 Rotary	*1 Rotary encoder specifications:			
Rotary encoder spec	cificatio	NS Note)5	20-bit Incremental	17-bit Absolute	, has "E	*2 The product that the end of driver model designation has "E" is "positioning type".		
Resolu	ution pe	r single turn	1,048,576	131,072	Detail of model designation, refer to P.11.			

Torgue characteristics (at AC200V of power voltage < Dotted line represents the torque at 10% less supply voltage.>) *Continuous torque, ambient temperature torque versus rated torque [N·m] [%] Brake 100 90 85 40 with Brake Peak run rang 20 50 Continuous run rang 10 20 30 40 0 0 1000 2000 3000 4000 5000 rotational speed [r/min] ambient temperature[°C]



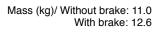
Dimensions



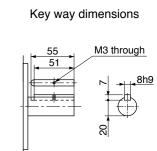
(b) Motor/Brake connector

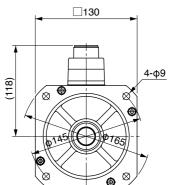
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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



Motor





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

		AC200V			
Motor model *1		502G1	502S1		
	Model	A5 series	MFDHTB3A2		
Applicable driver *2	No.	A5E series	MFDHTB3A2E	-	
	Fran	ne symbol	F-fra	ame	
Power supply capacit	у	(kVA)	7.	.5	
Rated output		(W)	5.	.0	
Rated torque		(N·m)	15	i.9	
Momentary Max. pea	k torqu	ie (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 rotational spee	d	(r/min)	30	00	
Max. rotational speed	l	(r/min)	45	00	
Moment of inertia	With	out brake	17.4		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	18	1.6	
Recommended mome ratio of the load and t			15 times	s or less	
Rotary encoder specification		1S Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion pei	r single turn	1,048,576	131,072	

 Brake specifications (For details, refer to P.1) 	J5)
This brake will be released when it is energized.	
Do not use this for braking the motor in motion.	

Static friction torque (N·m)	16.1 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.104)

		Radial load P-direction (N)	980
During assembly During operation	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	

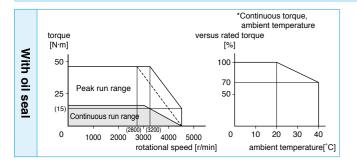
· For details of Note 1 to Note 5, refer to P.104.

· Dimensions of Driver, refer to P.34.

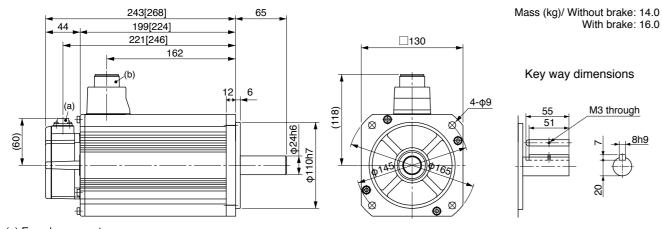
*1 Rotary encoder specifications:

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

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

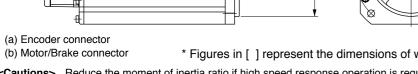


Dimensions

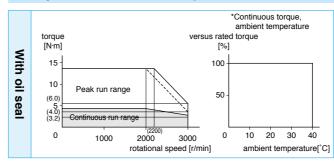


- (a) Encoder connector
- * Figures in [] represent the dimensions of with brake.

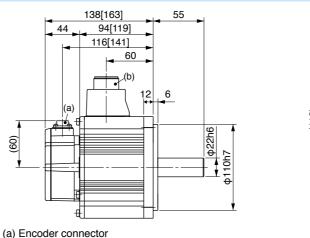
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



AC200V Motor model *1 MDME 102G1 102S1 Model A5 series **MDDHT3530** No. Applicable driver *2 A5E series MDDHT3530E Frame symbol D-frame Power supply capacity (kVA) 1.8 Rated output (W) 1.0 4.77 Rated torque (N·m) Momentary Max. peak torque (N·m) 14.3 5.7 Rated current (A(rms)) 24 Max. current (A(o-p)) Without option No limit Note)2 Regenerative brake frequency (times/min) Note)1 DV0P4284 No limit Note)2 Rated rotational speed (r/min) 2000 Max. rotational speed (r/min) 3000 4.60 Without brake Moment of inertia of rotor (×10⁻⁴kg·m²) With brake 5.90 Recommended moment of inertia 10 times or less ratio of the load and the rotor Note)3 20-bit 17-b Rotary encoder specifications Note)5 Incremental Absolu Resolution per single turn 1.048.576 131.0



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.

Specifications

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

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72	

• Brake specifications (For details, refer to P.105) /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.104)

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

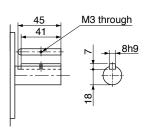
• For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.32.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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

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

Key way dimensions



130 Θ

^{*} Figures in [] represent the dimensions of with brake.

		AC2	00V	
Motor model *1		152G1	152S1	
	Model	A5 series	MDDHT5540	
Applicable driver *2	No.	A5E series	MDDHT5540E	-
	Frame symbol		D-frame	
Power supply capacit	у	(kVA)	2	3
Rated output		(W)	1.	.5
Rated torque		(N·m)	7.	16
Momentary Max. pea	k torqu	e (N·m)	21	.5
Rated current		(A(rms))	9.4	
Max. current		(A(o-p))	40	
Regenerative brake	With	out option	No limit Note)2	
frequency (times/min) Note)1	DV0P4284		No limit Note)2	
Rated rotational spee	d	(r/min)	2000	
Max. rotational speed		(r/min)	3000	
Moment of inertia	Without brake		6.70	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	Vith brake 7.99		99
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute
Resolut	ion per	single turn	1,048,576	131,072

• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.) Do not use this for braking the motor in motion.

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

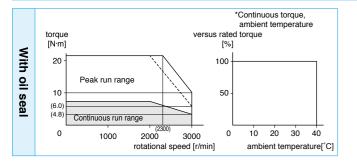
• Permissible load (For details, refer to P.104)

		Radial load P-direction (N)	980
During assembly During operation	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	

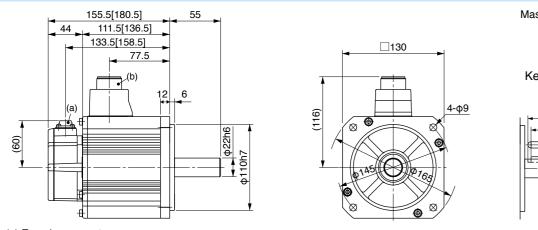
· For details of Note 1 to Note 5, refer to P.104.

- Dimensions of Driver, refer to P.32.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

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



Dimensions

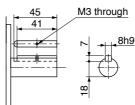


- (a) Encoder connector (b) Motor/Brake connector
- * Figures in [] represent the dimensions of with brake.

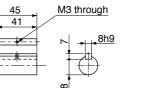
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Mass (kg)/ Without brake: 6.7

Key way dimensions



With brake: 8.2



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173[198]

129[154]

151[176]

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

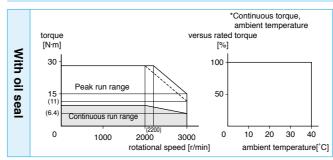
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110h7

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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	00V		specifications (For details		
Motor model *1			MDME	202G1	202S1	(This brake will be released when it is energized.) Do not use this for braking the motor in motion.			
Model A5 series		A5 series	MEDHT7364		Static fri	Static friction torque (N·m)			
Applicable drive	er*2 No	-	A5E series	MEDHT7364E - Engaging t		ig time (ms)	100 or les		
	F	ram	e symbol	E-frame		Releasir	ng time (ms) Note)4	50 or les	
Power supply ca	apacity		(kVA)	3.	3	Exciting	current (DC) (A)	0.79±10%	
Rated output			(W)	2.	0	Releasir	ng voltage (DC) (V)	2 or more	
Rated torque			(N·m)	9.5	55	Exciting	voltage (DC) (V)	24±2.4	
Momentary Max	k. peak to	orque	ə (N·m)	28	.6				
Rated current (A(rms))		11.5		 Permi 	ssible load (For details, refe	er to P.104)			
Max. current			(A(o-p))	49	9	Radial load P-direction (N		980	
Regenerative bra	ake V	Without option DV0P4285		No limit Note)2 No limit Note)2		During assembly	Thrust load A-direction (N)	588	
frequency (times/min	n) Note)1						Thrust load B-direction (N)	686	
Rated rotational	l speed		(r/min)	2000		During	Radial load P-direction (N)	490	
Max. rotational	speed		(r/min)	3000 operation Thrust load A, B-d		Thrust load A, B-direction (N)	196		
Moment of inert	ia V	Vitho	out brake	8.7	72	For details of Note 1 to Note 5. refer to		o P 104	
of rotor (×10 ⁻⁴ kg⋅m ²) With brake		h brake	10.0 • Dimensions of Driver, refer to P.3			01.104.			
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	or less	*1 Rotary encoder specifications: *2 The product that the end of driver model desig		odel designat		
Rotary encoder specifications Note)5		S Note)5	20-bit Incremental	17-bit Absolute	has "E" is "positioning type". Detail of model designation, refer to P.11.				
Resolution per single turn			single turn	1,048,576				131,072	



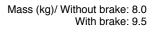
Dimensions

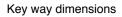
44

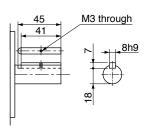
Motor Specifications 200V MDME 2.0kW [Middle inertia, Middle capacity]

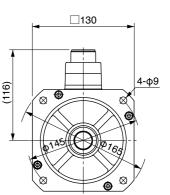
• Brake specifications (For details, refer to P.105)
(This brake will be released when it is energized.) Do not use this for braking the motor in motion.)

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









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

Motor

		AC2	200V	
Motor model *1		302G1 302S1		
	Model	A5 series	MFDH	TA390
Applicable driver *2	No.	A5E series	MFDHTA390E	-
	Fran	ne symbol	F-fra	ame
Power supply capacit	у	(kVA)	4.	.5
Rated output		(W)	3.	.0
Rated torque		(N·m)	14	l.3
Momentary Max. pea	k torqu	ie (N·m)	43	3.0
Rated current		(A(rms))	17.4	
Max. current		(A(o-p))	74	
Regenerative brake V		out option	No limit Note)2	
frequency (times/min) Note)1	DV0P4285×2		No limit Note)2	
Rated rotational spee	d	(r/min)	2000	
Max. rotational speed	l	(r/min)	3000	
Moment of inertia	Without brake		12.9	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encoder speci	ficatior	1S Note)5	20-bit Incremental	17-bit Absolute
Resolut	ion pei	r single turn	1,048,576	131,072

• Brake specifications (For details, refer to P.105) (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

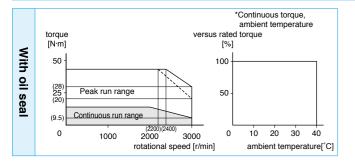
• Permissible load (For details, refer to P.104)

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

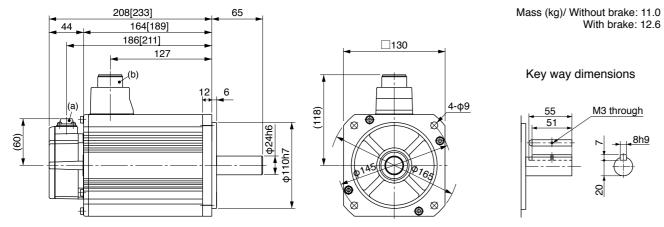
· For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.34.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11.

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



Dimensions

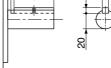


- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions of with brake.

54

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

- M3 through



With brake: 12.6

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(a) Encoder connector

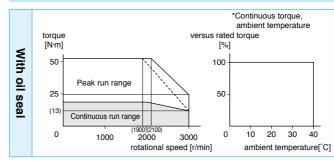
(b) Motor/Brake connector

* Figures in [] represent the dimensions of 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

•					- Droke			
			AC2	00V	Brake specifications (For details, re (This broke will be released when it is appreciated)			
Motor model *1		MDME	402G1	402S1		(This brake will be released when it is energized.) Do not use this for braking the motor in motion.		
	Model	A5 series	MFDH	MFDHTB3A2 Static friction torque (N·m)		24.5 or more		
Applicable driver *2	No.	A5E series	MFDHTB3A2E	_	Engagin	g time (ms)	80 or less	
	Fran	ne symbol	F-fra	ame	Releasir	ng time (ms) Note)4	25 or less	
Power supply capacit	у	(kVA)	6.	.0	Exciting	current (DC) (A)	1.3±10%	
Rated output		(W)	4.	.0	Releasir	ng voltage (DC) (V)	2 or more	
Rated torque		(N·m)	19	.1	Exciting	voltage (DC) (V)	24±2.4	
Momentary Max. pea	k torqu	ie (N·m)	57	.3				
Rated current	(A(rms))		21.0		• Permissible load (For details, refer to P.104)			
Max. current		(A(o-p))	8	89		Radial load P-direction (N)	1666	
Regenerative brake	Without option DV0P4285×2		No limit Note)2		During assembly	Thrust load A-direction (N)	784	
frequency (times/min) Note)			No limit Note)2			Thrust load B-direction (N)	980	
Rated rotational spee	d	(r/min)	20	00	During	Radial load P-direction (N)	784	
Max. rotational speed		(r/min)	30	00	operation	Thrust load A, B-direction (N)	343	
Moment of inertia	With	out brake	37.6 38.6		For details of Note 1 to Note 5, refer to P.104.			
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake				Dimensions of Driver, refer to P.34.		
Recommended moment of inertia ratio of the load and the rotor Note)3 Rotary encoder specifications Note)5 Resolution per single turn		10 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designation				
		IS Note)5	20-bit Incremental	17-bit Absolute	has "E	has "E" is "positioning type". Detail of model designation, refer to P.11.		
		r single turn	1,048,576	131,072				

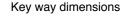


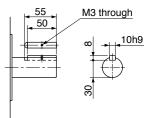
Dimensions

177[202] 70 44 133[158] 155[180] **176** 96 (b) 3.2 4-φ13.5 (140) ø∅

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







		AC2	V00		
Motor model *1		MDME	502G1	502S1	
	Model	A5 series	MFDH	TB3A2	
Applicable driver *2	No.	A5E series	MFDHTB3A2E	-	
	Fram	ne symbol	F-fra	ame	
Power supply capacit	у	(kVA)	7.	.5	
Rated output		(W)	5.	.0	
Rated torque		(N·m)	23	9.9	
Momentary Max. pea	k torqu	e (N·m)	71	.6	
Rated current		(A(rms))	25.9		
Max. current		(A(o-p))	110		
Regenerative brake	Without option		120		
frequency (times/min) Note)1	DV0P4285×2		No limit Note)2		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	nent of inertia With		48	.0	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	48.8		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less		
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion per single turn		1,048,576	131,072	

• Brake specifications (For details, refer to P.105)					
(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.104)

	During assembly	Radial load P-direction (N)	1666
ass Dur		Thrust load A-direction (N)	784
		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.104.

• Dimensions of Driver, refer to P.34.

4-φ13.5

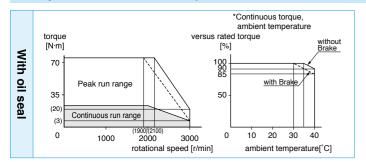
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*1 Rotary encoder specifications:

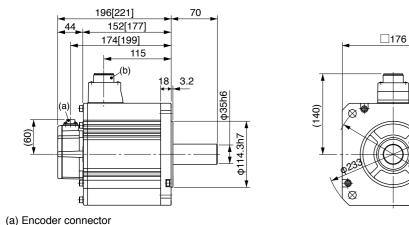
*2 The product that the end of driver model designation has "E" is "positioning type".

Detail of model designation, refer to P.11.

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



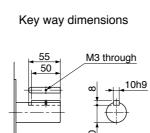
Dimensions



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

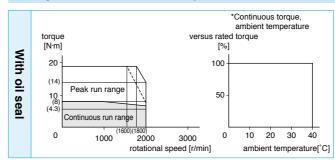
Mass (kg)/ Without brake: 18.6 With brake: 21.8



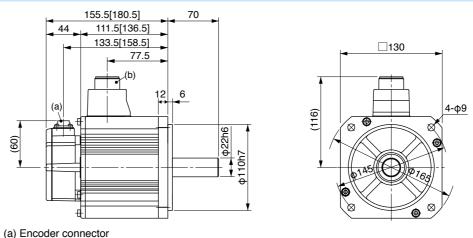


Specifications

			AC2	00V		specifications (For details			
Motor model *1		MGME	092G1	092S1	(This brake will be released when it is energized.) Do not use this for braking the motor in motion.				
	Model	A5 series	MDDH	T5540	Static fri	Static friction torque (N·m)			
Applicable driver *2	∗2 No .	A5E series	MDDHT5540E	-	Engagin	g time (ms)	100 or less		
	Fram	ne symbol	D-frame		Releasir	ng time (ms) Note)4	50 or less		
Power supply capacit	y	(kVA)	1.	8	Exciting	current (DC) (A)	0.79±10%		
Rated output		(W)	0.	9	Releasir	ng voltage (DC) (V)	2 or more		
Rated torque		(N·m)	8.5	59	Exciting	voltage (DC) (V)	24±2.4		
Momentary Max. pea	k torqu	le (N·m)	19.3						
Rated current	Rated current (A(rms))		7.6		• Permissible load (For details, refer to P.104)				
Max. current		(A(o-p))	24		During	Radial load P-direction (N)	980		
Regenerative brake	With	out option	No limit Note)2		During assembly	Thrust load A-direction (N)	588		
frequency (times/min) Note)	DV0P4284		No limit Note)2		accombry	Thrust load B-direction (N)	686		
Rated rotational spee	d	(r/min)	10	00	During	Radial load P-direction (N)	686		
Max. rotational speed	1	(r/min)	20	00	operation	Thrust load A, B-direction (N)	196		
Moment of inertia	nent of inertia Without brake		6.70		For details of Note 1 to Note 5, refer to P.104.				
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	7.99			 Dimensions of Driver, refer to P.32. 			
Recommended moment of inertia ratio of the load and the rotor Note)3 Rotary encoder specifications Note)5 Resolution per single turn			10 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designation				
		IS Note)5	20-bit Incremental	17-bit Absolute	has "E	has "E" is "positioning type". Detail of model designation, refer to P.11.			
		single turn	1,048,576	131,072					



Dimensions

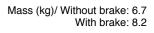


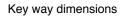
(b) Motor/Brake connector

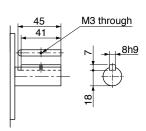
Motor Specifications 200V MGME 0.9kW [Middle inertia, Middle capacity]

• Brake specifications (For details, refer to P.105				
(This brake will be released when it is energized.) Do not use this for braking the motor in motion.)				

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







* Figures in [] represent the dimensions of 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.

			AC2	00V
Motor model *1	MGME	202G1	202S1	
	Model	A5 series	MFDH	TA390
Applicable driver *2	No.	A5E series	MFDHTA390E	-
	Fran	ne symbol	F-fra	ame
Power supply capacit	у	(kVA)	3.	.8
Rated output		(W)	2	.0
Rated torque		(N·m)	19	0.1
Momentary Max. pea	k torqu	ie (N·m)	47	.7
Rated current		(A(rms))	17.0	
Max. current	Max. current		60	
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0P4285×2		No limit Note)2	
Rated rotational spee	d	(r/min)	1000	
Max. rotational speed		(r/min)	2000	
Moment of inertia	With	out brake	30.3	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	31.4	
	Recommended moment of inertia ratio of the load and the rotor Note)3			s or less
Rotary encoder speci	ficatior	1S Note)5	20-bit Incremental	17-bit Absolute
Resolut	ion per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.105) (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.104)

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

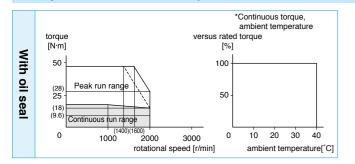
· For details of Note 1 to Note 5, refer to P.104.

• Dimensions of Driver, refer to P.34.

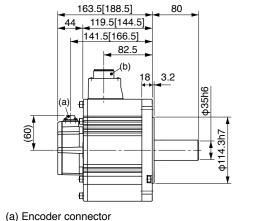
*1 Rotary encoder specifications:

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

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



Dimensions



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

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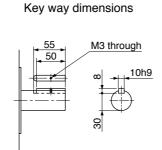
176

4-φ13.5

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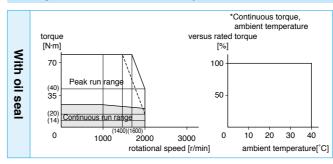
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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

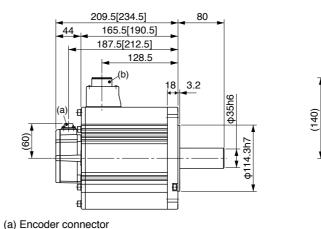


Specifications

			AC2	00V		• Brake specifications (For details, refer to P.10)			
Motor model *1 MGME		302G1	302S1		(This brake will be released when it is energized. Do not use this for braking the motor in motion.)				
		Model	A5 series	MFDHTB3A2		Static fr	Static friction torque (N·m)		
Applicable driv	/er *2	No.	A5E series	MFDHTB3A2E	-	Engagin	g time (ms)	150 or less	
		Fram	ne symbol	F-frame		Releasi	ng time (ms) Note)4	50 or less	
Power supply	capacity	y	(kVA)	4.	5	Exciting	current (DC) (A)	1.4±10%	
Rated output			(W)	3.	0	Releasi	ng voltage (DC) (V)	2 or more	
Rated torque			(N·m)	28	.7	Exciting	Exciting voltage (DC) (V) 24±2.4		
Momentary Ma	ax. peal	k torqu	e (N·m)	71	.7		- · · · · · · · · · ·		
Rated current			(A(rms))	22	• Permissible load (For details, refer to		er to P.104)		
Max. current			(A(o-p))	8	80		Radial load P-direction (N)	2058	
Regenerative b	orake	Without option		No limit Note)2		During assembly	Thrust load A-direction (N)	980	
frequency (times/n	min) Note)1	DV0	P4285×2	No limit Note)2		accombig	Thrust load B-direction (N)	1176	
Rated rotation	al spee	d	(r/min)	1000		During	Radial load P-direction (N)	1470	
Max. rotationa	l speed		(r/min)	2000		operation	Thrust load A, B-direction (N)	490	
Moment of ine	rtia	With	out brake	48.4		. For dot	For details of Note 4 to Note 5, refer to D404		
of rotor (×10 ⁻⁴	kg∙m²)	With brake		49.2		 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.34. 			
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less		 *1 Rotary encoder specifications: *2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11. 				
Rotary encoder specifications Note)5		IS Note)5	20-bit 17-bit Incremental Absolute						
Resolution per single turn		single turn	1,048,576	131,072	Dotai				



Dimensions



(b) Motor/Brake connector

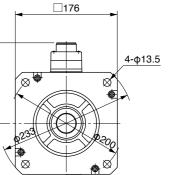
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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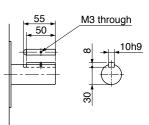
Motor Specifications 200V MGME 3.0kW [Middle inertia, Middle capacity]

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

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



Key way dimensions



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

		AC2	V00		
Motor model *1		МНМЕ	102G1 102S1		
	Model	A5 series	MDDHT3530		
Applicable driver *2	No.	A5E series	MDDHT3530E	-	
	Fram	ne symbol	D-fra	ame	
Power supply capacit	у	(kVA)	1.	.8	
Rated output		(W)	1.	.0	
Rated torque		(N·m)	4.	77	
Momentary Max. pea	k torqu	e (N·m)	14.3		
Rated current		(A(rms))	5.7		
Max. current		(A(o-p))	24		
Regenerative brake	Without option		83		
frequency (times/min) Note)1	DV0P4284		No limit Note)2		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	Without brake		24.7		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	26.0		
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less		
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute	
Resolut	ion per	single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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)	4.9
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.104)

	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.104.

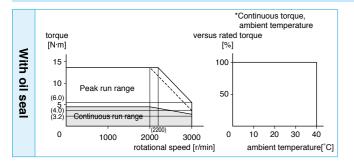
• Dimensions of Driver, refer to P.32.

*1 Rotary encoder specifications:

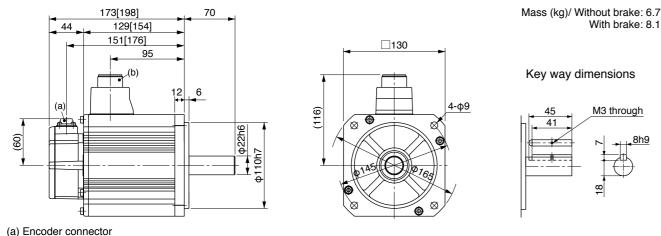
*2 The product that the end of driver model designation has "E" is "positioning type".

Detail of model designation, refer to P.11.

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



Dimensions

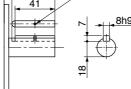


- (b) Motor/Brake connector
- * Figures in [] represent the dimensions of with brake.

<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.

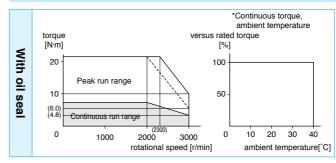
Key way dimensions M3 through 41

With brake: 8.1

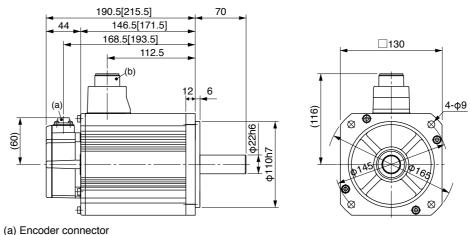


Specifications

			AC2	200V		specifications (For details ake will be released when it is e		
Motor model *1 MHME		152G1	152S1		motion.			
	Mod	lel A5 series	MDDHT5540		Static fri	Static friction torque (N·m)		
Applicable driver	2 No.	A5E series	MDDHT5540E	-	Engagin	g time (ms)	100 or less	
	Fra	ame symbol	D-frame		Releasir	ng time (ms) Note)4	50 or less	
Power supply cap	acity	(kVA)	2.	.3	Exciting	Exciting current (DC) (A) 0.79±10		
Rated output		(W)	1.	.5	Releasir	ng voltage (DC) (V)	2 or more	
Rated torque		(N·m)	7.1	16	Exciting	Exciting voltage (DC) (V) 24±2		
Momentary Max.	beak tor	que (N·m)	21	.5				
Rated current		(A(rms))	9.	.4	• Permi	• Permissible load (For details, refer to P.104)		
Max. current		(A(o-p))	4	40		Radial load P-direction (N)	980	
Regenerative brak	, Wi	thout option	22		During assembly	Thrust load A-direction (N)	588	
frequency (times/min) N	ote)1 E	0V0P4284	130		assembly	Thrust load B-direction (N)	686	
Rated rotational s	beed	(r/min)	2000		During	Radial load P-direction (N)	490	
Max. rotational sp	eed	(r/min)	3000		operation	Thrust load A, B-direction (N)	196	
Moment of inertia	W	thout brake	37.1 38.4		• For deta	For details of Note 1 to Note 5, refer to P.104.		
of rotor (×10 ⁻⁴ kg·n	1 ²) \	Vith brake			Dimensions of Driver. refer to P.32.			
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less *1 Rotary encoder specifications:		,]			
Rotary encoder specifications Note)5		ONS Note)5	20-bit 17-bit has "E" is "positioning type".			5		
Resolution per sing		er single turn	1,048,576					



Dimensions



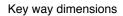
(b) Motor/Brake connector

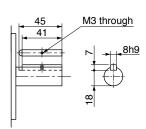
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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

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

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





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

Motor

		AC2	00V		
Motor model *1		МНМЕ	202G1 202S1		
	Model	A5 series	MEDHT7364		
Applicable driver *2	No.	A5E series	MEDHT7364E	-	
	Fran	ne symbol	E-fra	ame	
Power supply capacit	у	(kVA)	3.	3	
Rated output		(W)	2.	.0	
Rated torque		(N·m)	9.9	55	
Momentary Max. pea	k torqu	ie (N·m)	28.6		
Rated current		(A(rms))	11.1		
Max. current		(A(o-p))	47		
Regenerative brake	Without option		45		
frequency (times/min) Note)1	DV0P4285		142		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	With	out brake	57.8		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	59.6		
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less		
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute	
Resolut	ion pei	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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.104)

	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.104.

• Dimensions of Driver, refer to P.33.

*1 Rotary encoder specifications:

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

Mass (kg)/ Without brake: 12.2

Key way dimensions

50

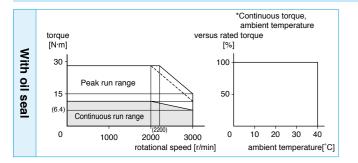
⊨⊭

With brake: 15.5

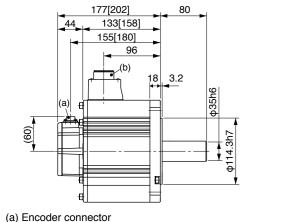
M3 through

10h9

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



Dimensions



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

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(140)

176

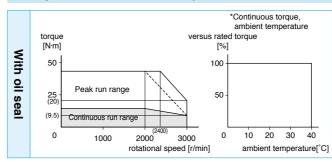
4-φ13.5

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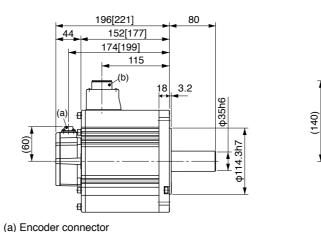
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

Specificat	tion	S							
				AC200V			specifications (For details	. ,	
Motor model *1	Motor model *1 MHME		MHME	302G1 302S1		(This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)			
		Model	A5 series	MFDHTA390		Static fri	ction torque (N·m)	24.5 or more	
Applicable drive	er *2	No.	A5E series	MFDHTA390E	-	Engagin	g time (ms)	80 or less	
		Fram	ne symbol	F-frame		Releasir	ng time (ms) Note)4	25 or less	
Power supply ca	apacity	y	(kVA)	4.	.5	Exciting	current (DC) (A)	1.3±10%	
Rated output			(W)	3.	3.0 Releasing voltage (DC) (V)		2 or more		
Rated torque			(N·m)	14	.3	Exciting voltage (DC) (V) 24±2		24±2.4	
Momentary Max	Momentary Max. peak torque (N·m)		43	3.0					
Rated current			(A(rms))	16.0 • Permissible load (For details, refer to P.		er to P.104)			
Max. current			(A(o-p))	6	68 Radial load P-direction (N)		1666		
Regenerative bra	ake	Without option DV0P4285×2		19		During assembly	Thrust load A-direction (N)	784	
frequency (times/mir	n) Note)1			142			Thrust load B-direction (N)	980	
Rated rotational	l spee	d	(r/min)	20	2000 During Radial load P-direction (N)		784		
Max. rotational	speed		(r/min)	3000		operation	Thrust load A, B-direction (N)	343	
Moment of inert	tia	With	out brake	90.5		- For details of Note 1 to Note E refer to D104			
of rotor (×10 ⁻⁴ kç	g∙m²)	Wi	th brake	92	2.1	 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.34. 			
	Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designation				
Rotary encoder	Rotary encoder specifications Note)5		20-bit 17-bit Incremental Absolute		has "E" is "positioning type".		U		
Resolution per single tur		single turn	1,048,576	131,072	Detail of model designation, refer to P.11.				



Dimensions

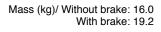


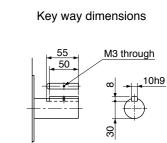
(b) Motor/Brake connector

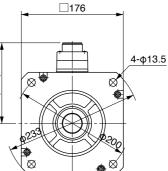
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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

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







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

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

Specifications

		AC2	V00		
Motor model *1		402G1 402S1			
	Model	A5 series	MFDH	TB3A2	
Applicable driver *2	No.	A5E series	MFDHTB3A2E	-	
	Fram	ne symbol	F-fra	ame	
Power supply capacit	у	(kVA)	6.	.0	
Rated output		(W)	4.	.0	
Rated torque		(N·m)	19	0.1	
Momentary Max. pea	k torqu	e (N·m)	57.3		
Rated current		(A(rms))	21.0		
Max. current		(A(o-p))	89		
Regenerative brake	Without option		17		
frequency (times/min) Note)1	DV0	P4285×2	125		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	Without brake		112		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	11	4	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less		
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion per	single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.) Do not use this for braking the motor in motion.

J	
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.104)

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

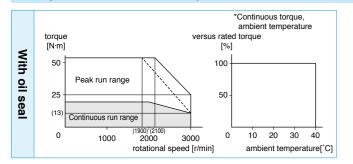
· For details of Note 1 to Note 5, refer to P.104.

• Dimensions of Driver, refer to P.34.

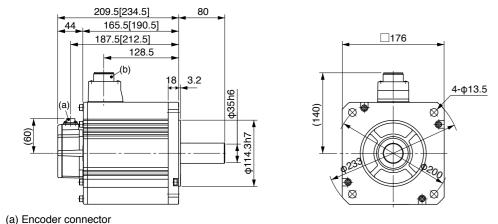
*1 Rotary encoder specifications:

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

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



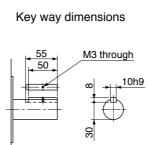
Dimensions



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

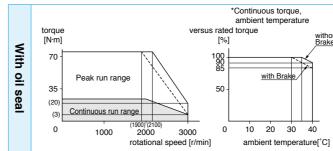
Mass (kg)/ Without brake: 18.6 With brake: 21.8



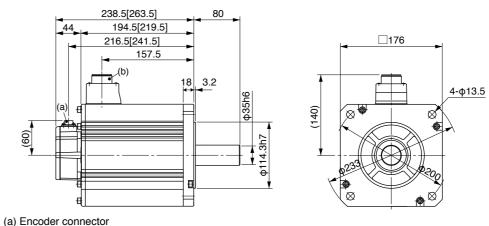
Creations

Specification	S						
			AC2	00V	• Brake specifications (For details, refer to P.105 (This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)		. ,
Motor model *1		МНМЕ	502G1	502S1			
Mode		A5 series	MFDHTB3A2		Static fri	Static friction torque (N·m)	
Applicable driver *2	No.	A5E series	MFDHTB3A2E –		Engagin	Engaging time (ms)	
	Fran	ne symbol	F-frame		Releasir	Releasing time (ms) Note)4	
Power supply capacit	у	(kVA)	7.	.5	Exciting	current (DC) (A)	1.3±10%
Rated output		(W)	5.	.0	Releasir	Releasing voltage (DC) (V)	
Rated torque	Rated torque (N·m)		23.9		Exciting voltage (DC) (V)		24±2.4
Momentary Max. peak torque (N·m)		e (N·m)	71.6				
Rated current (A(rms))		25.9		Permissible load (For details, refer to P.104)		r to P.104)	
Max. current		(A(o-p))	110		During	Radial load P-direction (N)	1666
Regenerative brake	Without option DV0P4285×2		10 76		During assembly	Thrust load A-direction (N)	784
frequency (times/min) Note)1						Thrust load B-direction (N)	980
Rated rotational spee	d	(r/min)	2000		During	Radial load P-direction (N)	784
Max. rotational speed		(r/min)	30	00	operation	Thrust load A, B-direction (N)	343
Moment of inertia	With	out brake	162		For details of Note 1 to Note 5, refer to P.104.		
of rotor (×10 ⁻⁴ kg·m ²) With brake		th brake	164		Dimensions of Driver, refer to P.34.		
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designation		odel designation	
Rotary encoder specifications Note)5		20-bit 17-bit has "E" is "positioning type".		C			
Resolution per single turn		1,048,576	131,072	Detail of model designation, refer to P.11.			

Torgue characteristics (at AC200V of power voltage < Dotted line represents the torque at 10% less supply voltage.>) *Continuous torque, ambient temperature torque versus rated torque vithou [N·m] [%] Brake 100 90 85 70 with Brake Peak run rand 35 50 (20) Continuous run range (3) 10 20 30 40 0 0 1000 3000 2000 rotational speed [r/min] ambient temperature[°C]

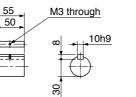


Dimensions



(b) Motor/Brake connector

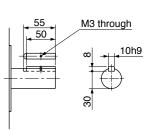
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



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

Mass (kg)/ Without brake: 23.0 With brake: 26.2 Motor

Key way dimensions



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

		AC1	00V	
Motor model *1 MSMD		5AZG1	5AZS1	
	Model	A5 series	MADHT1105	
Applicable driver *2	No.	A5E series	MADHT1105E	-
	Fran	ne symbol	A-frame	
Power supply capacit	у	(kVA)	0.	.5
Rated output		(W)	5	0
Rated torque		(N·m)	0.	16
Momentary Max. pea	k torqu	ie (N·m)	0.4	48
Rated current		(A(rms))	1.1	
Max. current (A		(A(o-p))	4.7	
Regenerative brake	Without option		No limi	t Note)2
frequency (times/min) Note)1	DV0P4280		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	5000	
Moment of inertia	Without brake		0.025	
of rotor (×10 ⁻⁴ kg·m ²)	With brake		0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times	s or less	
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn		r single turn	1,048,576	131,072

• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.)

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

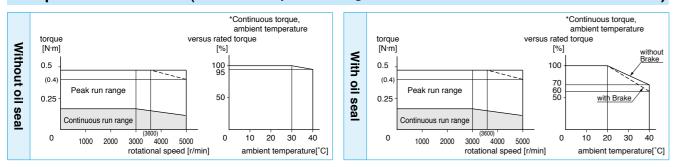
• Permissible load (For details, refer to P.104)

ſ		Radial load P-direction (N)	147
During assembly During operation	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.104.

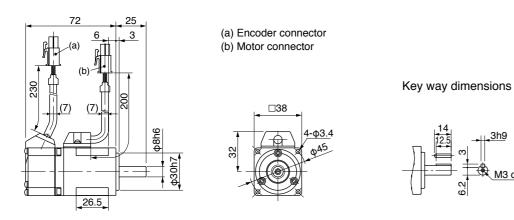
- · Dimensions of Driver, refer to P.30.
- has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions

<Without Brake>



* For the dimensions of 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.

Do not use this for braking the motor in motion.

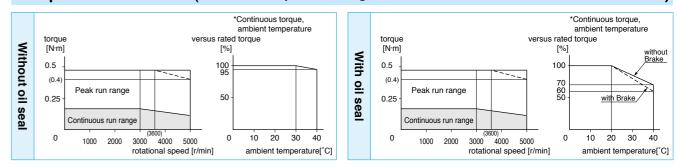
	0.20 01 11010	
gaging time (ms)	35 or less	
easing time (ms) Note)4	20 or less	
citing current (DC) (A)	0.3	
easing voltage (DC) (V)	1 or more	
citing voltage (DC) (V)	24±1.2	

uring sembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
uring eration	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation

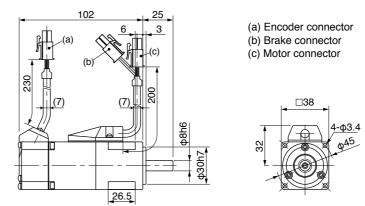
Mass (kg)/ 0.32

M3 depth 6



Dimensions

<With Brake>



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

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

Specifications

			AC2	00V
Motor model *1 MSMD			5AZG1	5AZS1
	Model	A5 series	MADHT1505	
Applicable driver *2	No.	A5E series	MADHT1505E	-
	Frame symbol		A-frame	
Power supply capacit	у	(kVA)	0.	5
Rated output		(W)	5	0
Rated torque		(N·m)	0.1	16
Momentary Max. pea	k torqu	ie (N·m)	0.4	48
Rated current		(A(rms))	1.1	
Max. current (A(o-p))		(A(o-p))	4.7	
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0P4281		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	5000	
Moment of inertia	Without brake		0.025	
of rotor (×10 ⁻⁴ kg·m ²)	With brake		0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times	s or less	
Rotary encoder specification		IS Note)5	20-bit Incremental	17-bit Absolute
Resolut	ion per single turn		1,048,576	131,072

• Brake specifications (For details, refer to P.105) /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.104)

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

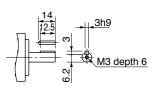
• For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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

Mass (kg)/ 0.53

Key way dimensions



		AC1	00V	
Motor model *1 MSMD		011G1	011S1	
	Model	A5 series	MADHT1107	
Applicable driver *2	No.	A5E series	MADHT1107E	-
	Frame symbol		A-frame	
Power supply capacit	у	(kVA)	0.	4
Rated output		(W)	1(00
Rated torque		(N·m)	0.3	32
Momentary Max. pea	k torqu	e (N·m)	0.9	95
Rated current		(A(rms))	1.7	
Max. current		(A(o-p)) 7.2		2
Regenerative brake	brake With		ion No limit Note)2	
frequency (times/min) Note)1	DV0P4280		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	5000	
Moment of inertia	Without brake		0.051	
of rotor (×10 ⁻⁴ kg·m ²)	With brake		0.054	
Recommended moment of inertia ratio of the load and the rotor Note)3 Rotary encoder specifications Note)5 Resolution per single turn		30 times	s or less	
		20-bit Incremental	17-bit Absolute	
		single turn	1,048,576	131,072

• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.)

	,
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.104)

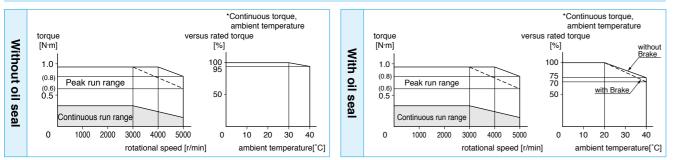
		Radial load P-direction (N)	147
During assembly During	Thrust load A-direction (N)	88	
	Thrust load B-direction (N)	117.6	
	Radial load P-direction (N)	68.6	
	operation	Thrust load A, B-direction (N)	58.8

• For details of Note 1 to Note 5, refer to P.104.

- Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".

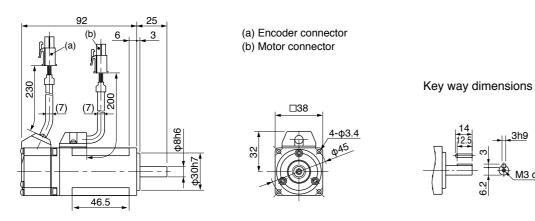
Detail of model designation, refer to P.11.

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



Dimensions

<Without Brake>



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

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

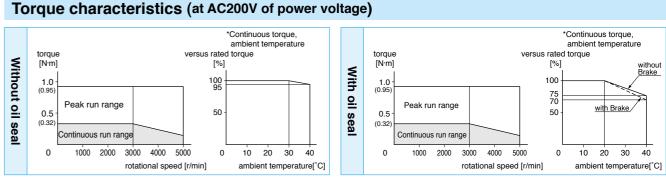
Do not use this for braking the motor in motion.

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

uring ssembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
uring peration	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	58.8

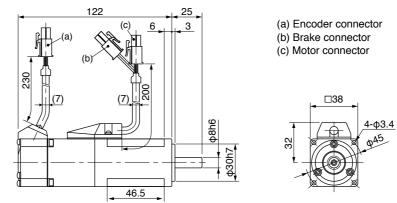
Mass (kg)/ 0.47

M3 depth (



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.

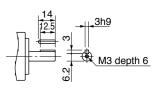
Specifications

AC200V		00V	• Brake specifications (For details, refer to P.105)				
Motor model *1		MSMD	012G1	012S1	(This brake will be released when it is energized. Do not use this for braking the motor in motion.)		
	Mode	A5 series	MADH	T1505	Static friction torque (N·m)		0.29 or more
Applicable driver *2	No.	A5E series	MADHT1505E	-	Engagir	Engaging time (ms)	
	Fran	ne symbol	A-frame		Releasi	Releasing time (ms) Note)4	
Power supply capac	ty	(kVA)	0.	5	Exciting	current (DC) (A)	0.3
Rated output		(W)	10	00	Releasi	ng voltage (DC) (V)	1 or more
Rated torque		(N·m)	0.3	32	Exciting	voltage (DC) (V)	24±1.2
Momentary Max. pea	ak torqu	ue (N·m)	0.9	95			
Rated current	Rated current (A(rms)) 1.1		1	• Permissible load (For details, refer to P.104)		er to P.104)	
Max. current		(A(o-p))	4.	7			147
Regenerative brake	With	Without option No limit Note)2		assembly	Thrust load A-direction (N)	88	
frequency (times/min) Note	1 DV	/0P4281	No limit Note)2		docombry	Thrust load B-direction (N)	117.6
Rated rotational spe	ed	(r/min)	30	00	During	Radial load P-direction (N)	68.6
Max. rotational spee	d	(r/min)	50	00	operation	Thrust load A, B-direction (N)	58.8
Moment of inertia	With	out brake	0.0	51	For details of Note 1 to Note 5, refer to P.104.		o P 104
of rotor (×10 ⁻⁴ kg·m ²) With brake		0.054		Dimensions of Driver, refer to P.30.			
Recommended mom ratio of the load and			30 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designation		
Rotary encoder spec	ificatio	NS Note)5	20-bit 17-bit has "E" is "positioning type"		5		
Resolution per single turn		1,048,576	131,072				
· · ·			·		-		

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

Mass (kg)/ 0.68

Key way dimensions



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

			AC100V		
Motor model *1 MSMD		021G1 021S1			
	Model	A5 series	MBDHT2110		
Applicable driver *2	No.	A5E series	MBDHT2110E	-	
	Fran	ne symbol	B-frame		
Power supply capacit	у	(kVA)	0.5		
Rated output		(W)	20	00	
Rated torque		(N·m)	0.0	64	
Momentary Max. pea	k torqu	ie (N·m)	1.91		
Rated current(A(rms))Max. current(A(o-p))		2.5			
		10.6			
Regenerative brake	Without option		No limit Note)2		
frequency (times/min) Note)1		0P4283	No limit Note)2		
Rated rotational speed (r/min)		3000			
Max. rotational speed		(r/min)	5000		
Moment of inertia of rotor (x10 ⁻⁴ kg·m²) Without brake Recommended moment of inertia ratio of the load and the rotor Note)3		out brake	0.	0.14	
		th brake	0.16		
		30 times or less			
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute		
Resolution per single turn		1,048,576	131,072		

• Brake specifications (For details, refer to P.105) (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

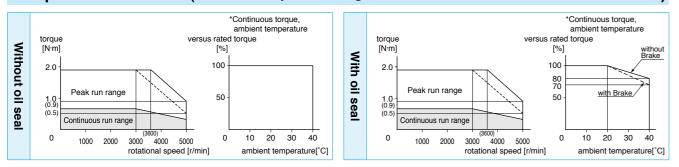
• Permissible load (For details, refer to P.104)

	_ .	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

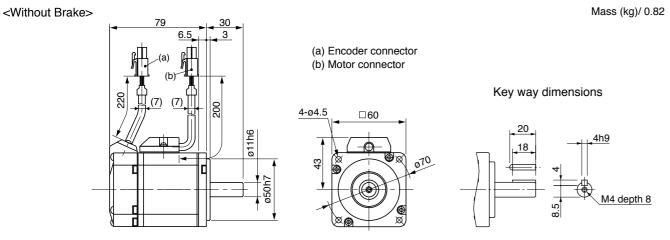
· For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions

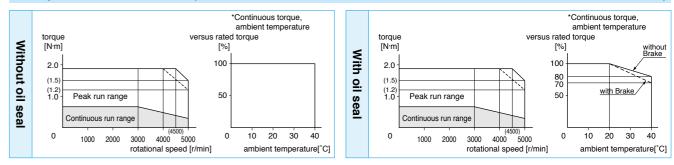


* For the dimensions of with brake, refer to the right page.

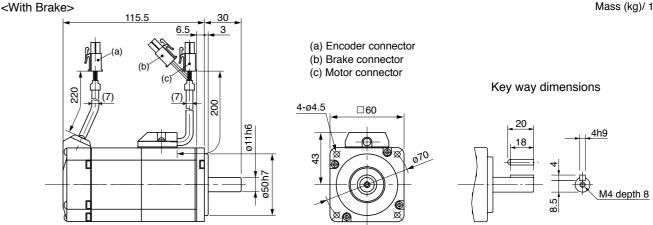
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Specifications

	AC200V			00V
Motor model *1		MSMD	022G1	022S1
	Model	A5 series	MADHT1507	
Applicable driver *2	No.	A5E series	MADHT1507E	-
	Frame symbol		A-frame	
Power supply capacit	у	(kVA)	0.5	
Rated output		(W)	20	00
Rated torque		(N·m)	0.6	64
Momentary Max. pea	k torqu	e (N·m)	1.91	
Rated current (A(rms))		1.6		
Max. current (A(o-p))		6.9		
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0P4283		No limit Note)2	
Rated rotational spee	Rated rotational speed (r/min)		3000	
Max. rotational speed	Max. rotational speed (r/min)		5000	
Moment of inertia Without brake		out brake	0.14	
of rotor (×10 ⁻⁴ kg·m ²) With brake		th brake	0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		
Rotary encoder specifications Note)5 Resolution per single turn		20-bit Incremental	17-bit Absolute	
		1,048,576	131,072	

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



Dimensions



* For the dimensions of 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.

•	Brake specifications (For details, refer to P.105)
	(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.104)

	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147
	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.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

Mass (kg)/ 1.3

		AC1	00V	
Motor model *1 MSMD		041G1	041S1	
	Model A5 series		MCDHT3120	
Applicable driver *2	No.	A5E series	MCDHT3120E	-
	Fran	ne symbol	C-frame	
Power supply capacit	у	(kVA)	0.9	
Rated output		(W)	40	00
Rated torque		(N·m)	1.	.3
Momentary Max. pea	k torqu	ie (N·m)	3.	.8
Rated current		(A(rms))	4.6	
Max. current (A(o-p))		19.5		
		out option	No limit Note)2	
		'0P4282	No limit Note)2	
Rated rotational speed (r/min)		3000		
Max. rotational speed	Max. rotational speed (r/min)		5000	
Moment of inertia Without brake		out brake	0.26	
of rotor (×10 ⁻⁴ kg·m ²) With brake		th brake	0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times	s or less	
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn		1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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

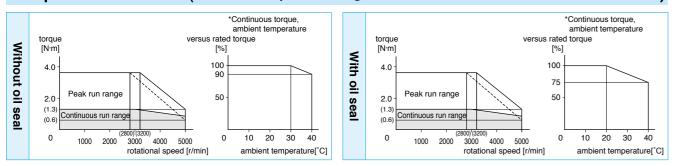
• Permissible load (For details, refer to P.104)

		Radial load P-direction (N)	392
During assembly During operation	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	

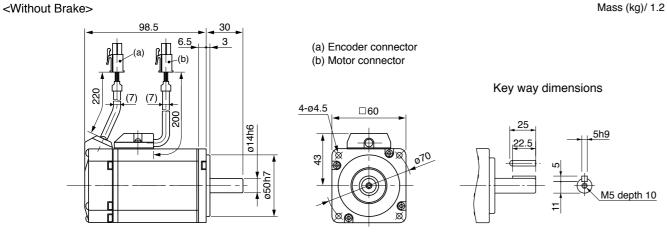
· For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.31.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions



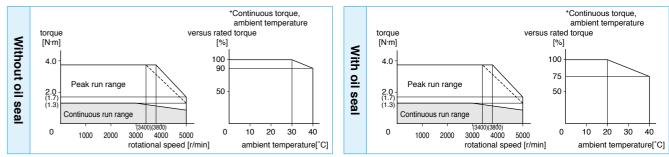
* For the dimensions of with brake, refer to the right page

72

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.

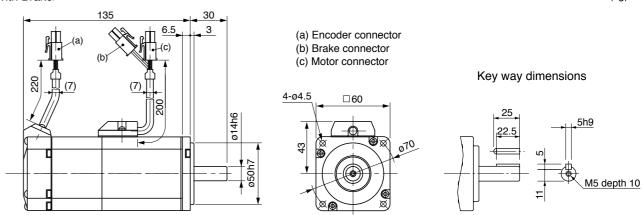
tatic friction torque (N·m)	1.27 or more
ngaging time (ms)	50 or less
eleasing time (ms) Note)4	15 or less
xciting current (DC) (A)	0.36
eleasing voltage (DC) (V)	1 or more
xciting voltage (DC) (V)	24±1.2

ouring ssembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
uring	Radial load P-direction (N)	245
peration	Thrust load A, B-direction (N)	98



Dimensions

<With Brake>



* For the dimensions of 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.

MSMD

(kVA)

(W)

(N·m)

(N·m)

(A(rms))

(A(o-p))

(r/min)

(r/min)

Note)3

Note)5

Without option

DV0P4283

Without brake

With brake

Resolution per single turn

Model A5 series

Frame symbol

No.

Specifications

Motor model *1

Rated output

Rated torque

Rated current

Max. current

Regenerative brake frequency (times/min) Note)1

Rated rotational speed

Max. rotational speed

Moment of inertia

of rotor (×10⁻⁴kg·m²)

Recommended moment of inertia

ratio of the load and the rotor

Rotary encoder specifications

Applicable driver *2

Power supply capacity

Momentary Max. peak torque

V
042S1
510
-
e
ata)0
ote)2 ote)2
01012
less
17-bit Absolute
131,072

AC200V

MBDHT2510

B-frame

0.9

400

1.3

3.8

2.6

11.0

No limit Note)2

No limit Note)2

3000

5000 0.26

0.28

30 times or less

20-bit

Incremental

1.048.576

042S⁻

042G1

A5E series MBDHT2510E

•	Brake specifications (For details, refer to P.105)
	(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.104)

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.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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

Mass (kg)/ 1.7

		AC200V		
Motor model *1		MSMD	082G1	082S1
	Model	A5 series	MCDHT3520	
Applicable driver *2	No.	A5E series	MCDHT3520E	-
	Fram	ne symbol	C-frame	
Power supply capacit	у	(kVA)	1.3	
Rated output		(W)	75	50
Rated torque		(N·m)	2	.4
Momentary Max. pea	k torqu	ie (N·m)	7.	.1
Rated current		(A(rms))	4.0	
Max. current (A(o-p))		17.0		
Regenerative brake frequency (times/min) Note)1		out option	No limit Note)2	
		0P4283	No limit Note)2	
Rated rotational spee	Rated rotational speed (r/min)		3000	
Max. rotational speed	. rotational speed (r/min)		4500	
Moment of inertia Witho		out brake	0.87	
of rotor (×10 ⁻⁴ kg·m ²) With bra		th brake	0.97	
Recommended moment of inertia ratio of the load and the rotor Note)3		20 times	s or less	
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn		1,048,576	131,072	

 Brake specifications (For details, refer to P.105)
(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

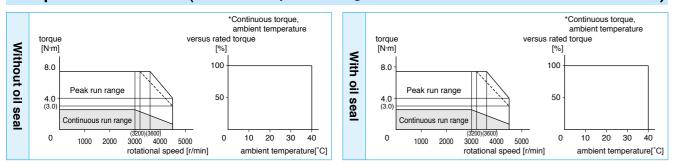
• Permissible load (For details, refer to P.104)

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

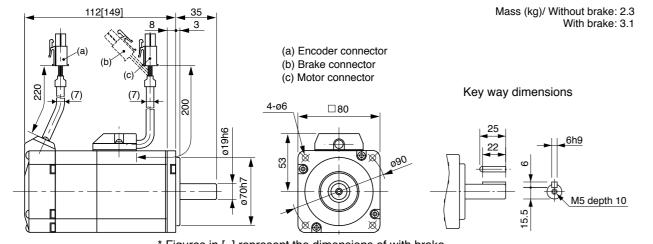
• For details of Note 1 to Note 5, refer to P.104.

- Dimensions of Driver, refer to P.31.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions



* Figures in [] represent the dimensions of 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.



MEMO

			AC100V	
Motor model *1 MHMD			021G1	021S1
	Model No.	A5 series	MBDH	T2110
Applicable driver *2		A5E series	MBDHT2110E	-
	Fran	ne symbol	B-frame	
Power supply capacit	у	(kVA)	0.	.5
Rated output		(W)	20	00
Rated torque		(N·m)	0.0	64
Momentary Max. pea	k torqu	ie (N·m)	1.9	91
Rated current		(A(rms))	2.5	
Max. current		(A(o-p))	10.6	
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0P4283		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	5000	
Moment of inertia	With	out brake	0.42	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	0.45	
	ecommended moment of inertia tio of the load and the rotor Note)3		30 times	s or less
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute
Resolution per single turn			1,048,576	131,072

• Brake specifications (For details, refer to P.105) (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.104)

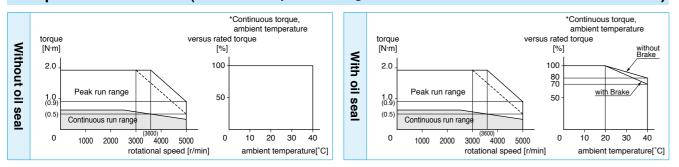
as Di	During assembly	Radial load P-direction (N)	392
		Thrust load A-direction (N)	147
		Thrust load B-direction (N)	196
	During	Radial load P-direction (N)	245
	operation	Thrust load A, B-direction (N)	98

· For details of Note 1 to Note 5, refer to P.104.

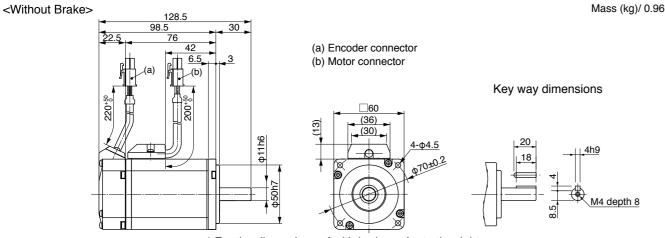
- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".

Detail of model designation, refer to P.11.

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



Dimensions



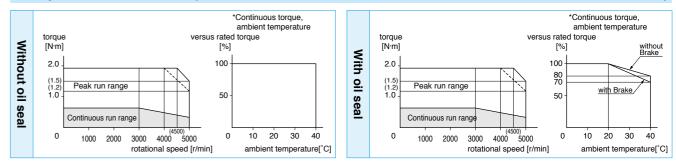
Reduce the moment of inertia ratio if high speed response operation is required. <Cautions> Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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

Specifications

		AC200V		
Motor model *1 MHMD			022G1	022S1
	Model No.	A5 series	MADH	T1507
Applicable driver *2		A5E series	MADHT1507E	-
	Frame symbol		A-frame	
Power supply capacit	у	(kVA)	0.	5
Rated output		(W)	20	0
Rated torque	Rated torque (N·m)			64
Momentary Max. peak torque (N·m)			1.9	91
Rated current (A(rms))			1.6	
Max. current (A(o-p))			6.9	
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0P4283		No limit Note)2	
Rated rotational spee	d	(r/min)	3000	
Max. rotational speed		(r/min)	5000	
Moment of inertia With		out brake	0.42	
of rotor (×10 ⁻⁴ kg·m ²)	With brake		0.45	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less		
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute
Resolution per singl			1,048,576	131,072

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



Dimensions

<With Brake> 165 135 22.5 (a) Encoder connector (b) Brake connector (c) Motor connector 220+50 (36) (30) -

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

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

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

• Brake specifications (For details, refer to P.105) /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.104)

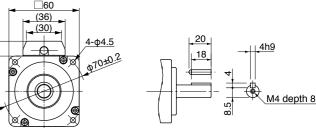
	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During	Radial load P-direction (N)	245
operation	Thrust load A, B-direction (N)	98

• For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

Mass (kg)/ 1.4

Key way dimensions



			AC100V		
Motor model *1 MHMD			041G1	041S1	
	Model No.	A5 series	MCDH	T3120	
Applicable driver *2		A5E series	MCDHT3120E	-	
	Fram	ne symbol	C-frame		
Power supply capacit	у	(kVA)	0.	.9	
Rated output		(W)	40	00	
Rated torque		(N·m)	1.	.3	
Momentary Max. pea	k torqu	e (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 rotational spee	d	(r/min)	3000		
Max. rotational speed		(r/min)	5000		
Moment of inertia	With	lithout brake		0.67	
of rotor (×10 ⁻⁴ kg·m ²)	With brake		0.70		
	ecommended moment of inertia tio of the load and the rotor Note)3		30 times or less		
Rotary encoder speci	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn			1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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

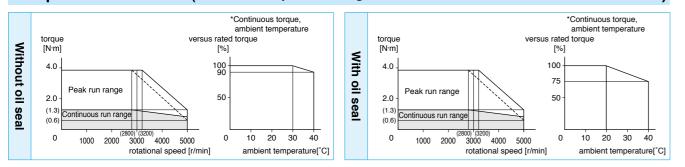
• Permissible load (For details, refer to P.104)

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

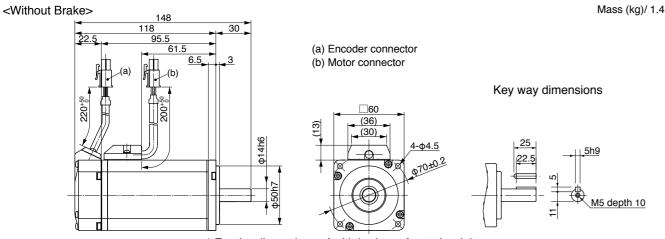
· For details of Note 1 to Note 5, refer to P.104.

- · Dimensions of Driver, refer to P.31.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



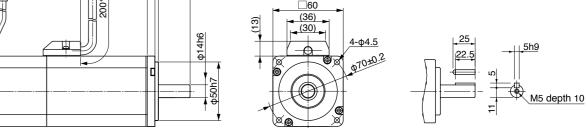
Dimensions



<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.

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

Dimensions <With Brake> 184. 154.5 22.5 220+50



* For the dimensions of 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.

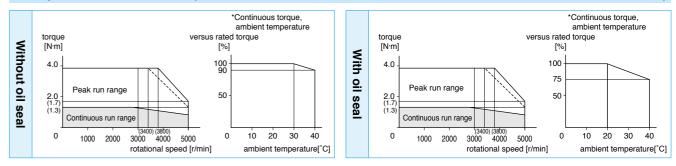
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	pecif	

Specifications

			AC200V	
Motor model *1 MHMD			042G1	042S1
Applicable driver *2	Model	A5 series	MBDH	T2510
	No.	A5E series	MBDHT2510E	-
	Frame symbol		B-fra	ame
Power supply capacit	у	(kVA)	0.9	
Rated output		(W)	40	00
Rated torque (N·m)			1.	3
Momentary Max. peak torque (N·m)			3.8	
Rated current (A(rms))			2.6	
Max. current (A(o-p))			11.0	
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0P4283		No limit Note)2	
Rated rotational speed (r/min)			3000	
Max. rotational speed		(r/min)	5000	
Moment of inertia With		ithout brake		67
of rotor (×10 ⁻⁴ kg·m ²)	With brake		0.70	
Recommended moment of inertia ratio of the load and the rotor Note			30 times	s or less
Rotary encoder speci	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
Resolution per s		single turn	1,048,576	131,072

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



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

• Brake specifications (For details, refer to P.105)					
	(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.104)

	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.104.

- · Dimensions of Driver, refer to P.30.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

Mass (kg)/ 1.8

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

Key way dimensions

Motor model *1 MHMD		AC200V			
		MHMD	082G1	082S1	
	Model	A5 series	MCDHT3520		
Applicable driver *2	No.	A5E series	MCDHT3520E	-	
	Frame symbol		C-frame		
Power supply capacit	у	(kVA)	1.	3	
Rated output		(W)	75	50	
Rated torque		(N·m)	2.	4	
Momentary Max. pea	Momentary Max. peak torque (N·m)			7.1	
Rated current (A		(A(rms))	4.0		
Max. current		(A(o-p))	17.0		
Regenerative brake	With	out option	No limi	t Note)2	
frequency (times/min) Note)1	DV0P4283		No limit Note)2		
Rated rotational spee	d	(r/min)	3000 4500		
Max. rotational speed		(r/min)			
Moment of inertia	With	out brake	1.51		
of rotor (×10 ⁻⁴ kg⋅m ²)	With brake		1.61		
	Recommended moment of inertia ratio of the load and the rotor Note)3		20 times	s or less	
Rotary encoder speci	Rotary encoder specification		20-bit Incremental	17-bit Absolute	
Resolut	ion per	r single turn	1,048,576	131,072	

 Brake specifications (For details, refer to P.105)
(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

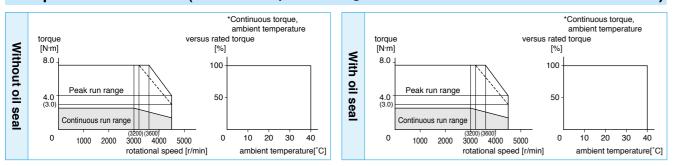
• Permissible load (For details, refer to P.104)

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

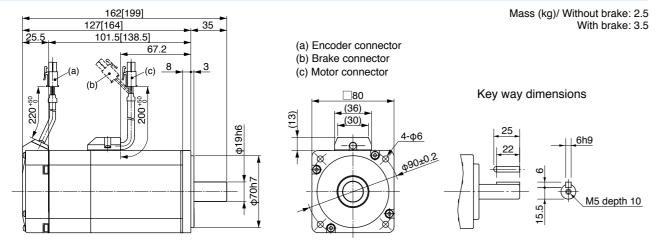
• For details of Note 1 to Note 5, refer to P.104.

- Dimensions of Driver, refer to P.31.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

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



Dimensions



* Figures in [] represent the dimensions of 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.

-----_____ _____ _____ _____ -----_____ _____ _____ _____ -----

MEMO

	Motor model *1 MSME		AC4	00V
Motor model *1			104G1	104S1
	Model	A5 series	MDDHT3420	
Applicable driver *2	No.	A5E series	MDDHT3420E	-
	Frame symbol		D-frame	
Power supply capacit	у	(kVA)	1.	.8
Rated output		(W)	1.	.0
Rated torque		(N·m)	3.	18
Momentary Max. pea	k torqu	e (N·m)	9.55	
Rated current		(A(rms))	3.3	
Max. current	Max. current (A(o-p))		14	
Regenerative brake	Without option		No limit Note)2	
frequency (times/min) Note)1	DV0PM20048		No limit Note)2	
Rated rotational spee	d	(r/min)	3000 5000	
Max. rotational speed		(r/min)		
Moment of inertia	Without brake		2.03	
of rotor (×10 ⁻⁴ kg·m ²)	With brake		2.35	
	Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less
Rotary encoder speci	ary encoder specificatior		20-bit Incremental	17-bit Absolute
Resolution per single turn		1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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)	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.104)

	. .	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

· For details of Note 1 to Note 5, refer to P.104.

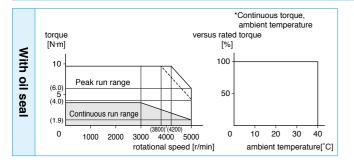
· Dimensions of Driver, refer to P.32.

*1 Rotary encoder specifications:

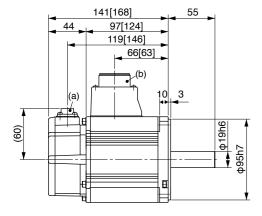
*2 The product that the end of driver model designation has "E" is "positioning type".

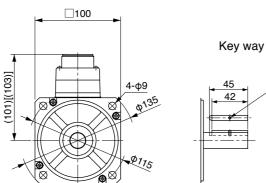
Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



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.

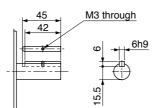
* Figures in [] represent the dimensions of with brake.

Key way dimensions M3 through 6h9



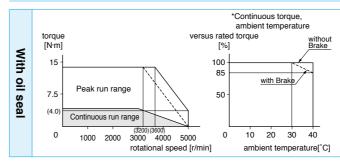
With brake: 4.5

Mass (kg)/ Without brake: 3.5

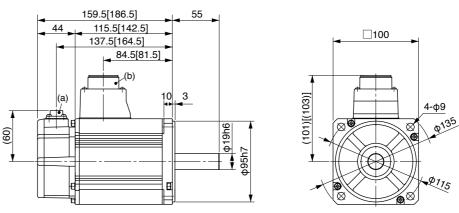


Specifications

	AC400V		• Brake specifications (For details, refer to P.105)					
Motor model *1		MSME	154G1	154S1	(This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)			
	Model	A5 series	MDDH	T3420	420 Static friction torque (N·m) 7.8 or more		7.8 or more	
Applicable driver *2	No.	A5E series	MDDHT3420E –		Engagin	g time (ms)	50 or less	
	Fran	ne symbol	D-fra	D-frame		ng time (ms) Note)4	15 or less	
Power supply capacit	у	(kVA)	2.	.3	Exciting	current (DC) (A)	0.81±10%	
Rated output		(W)	1.	.5	Releasi	ng voltage (DC) (V)	2 or more	
Rated torque		(N·m)	4.	77	Exciting	voltage (DC) (V)	24±2.4	
Momentary Max. pea	k torqu	ie (N·m)	14	.3				
Rated current		(A(rms))	4.	4.2		• Permissible load (For details, refer to P.104)		
Max. current		(A(o-p))	1	8	During	Radial load P-direction (N)	980	
Regenerative brake	Without option		No limit Note)2		During assembly	Thrust load A-direction (N)	588	
frequency (times/min) Note)1	DV0	PM20048	No limi	t Note)2	accombry	Thrust load B-direction (N)	686	
Rated rotational spee	d	(r/min)	30	00	During	Radial load P-direction (N)	490	
Max. rotational speed	l	(r/min)	50	00	operation	Thrust load A, B-direction (N)	196	
Moment of inertia	With	out brake	2.8	84	• For det	tails of Note 1 to Note 5, refer to P.104.		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	3.17		Dimensions of Driver, refer to P.32.			
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less		 *1 Rotary encoder specifications: *2 The product that the end of driver model designation has "E" is "positioning type". 			
Rotary encoder specifications Note		IS Note)5	20-bit 17-bit Incremental Absolute					
Resolut	ion pe	r single turn	1,048,576 131,072		Detail of model designation, refer to P.11.			
· ·								



Dimensions

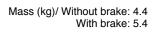


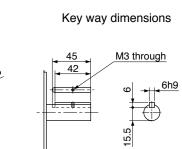
(a) Encoder connector (b) Motor/Brake connector

<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.

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

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)





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

Motor

			AC400V		
Motor model *1		204G1 204S1			
	Model	A5 series	MEDHT4430		
Applicable driver *2	No.	A5E series	MEDHT4430E	-	
	Fram	ne symbol	E-fra	ame	
Power supply capacit	у	(kVA)	3.	.3	
Rated output		(W)	2	.0	
Rated torque		(N·m)	6.	37	
Momentary Max. pea	k torqu	ie (N·m)	19	0.1	
Rated current		(A(rms))	5.7		
Max. current		(A(o-p))	24		
Regenerative brake	Without option		No limit Note)2		
frequency (times/min) Note)1	DV0PM20049		No limit Note)2		
Rated rotational spee	d	(r/min)	3000		
Max. rotational speed		(r/min)	5000		
Moment of inertia	Without brake		3.68		
of rotor (×10 ⁻⁴ kg·m ²)		th brake	4.01		
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less			
Rotary encoder specifications		IS Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion per	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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.104)

	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.104.

- Dimensions of Driver, refer to P.33.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".

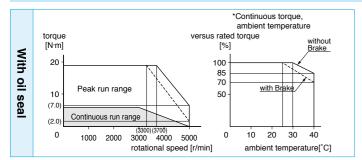
With brake: 6.3

6h9

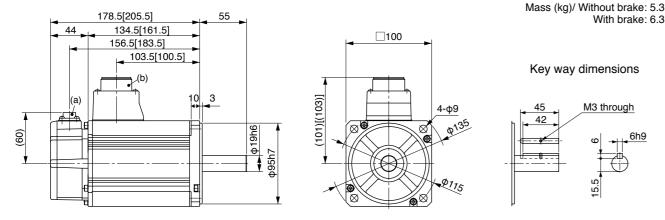
M3 through

Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



Dimensions



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

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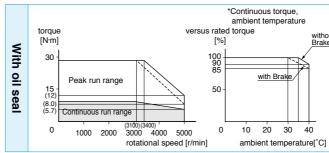
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.



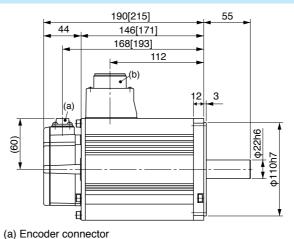
Specifications

			AC400V			specifications (For details	. ,	
Motor model *1 MSME		MSME	304G1 304S1		(This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)			
	Mode	A5 series	MFDH	T5440	Static fri	ction torque (N·m)	11.8 or more	
Applicable driver *2	No.	A5E series	MFDHT5440E –		Engagin	g time (ms)	80 or less	
	Frar	ne symbol	F-fra	ame	Releasir	ng time (ms) Note)4	15 or less	
Power supply capac	city	(kVA)	4.	5	Exciting	current (DC) (A)	0.81±10%	
Rated output		(kW)	3.	0	Releasir	ng voltage (DC) (V)	2 or more	
Rated torque		(N·m)	9.5	55	Exciting	voltage (DC) (V)	24±2.4	
Momentary Max. pe	ak torqı	ue (N·m)	28.6					
Rated current		(A(rms))	9.2		 Permi 	ssible load (For details, refe	er to P.104)	
Max. current		(A(o-p))	3	9	. .	Radial load P-direction (N)	980	
Regenerative brake	With	out option	No limit Note)2		During assembly	Thrust load A-direction (N)	588	
frequency (times/min) Not	^{e)1} DV0F	M20049×2	No limit Note)2		accombry	Thrust load B-direction (N)	686	
Rated rotational spe	ed	(r/min)	3000		During	Radial load P-direction (N)	490	
Max. rotational spec	d	(r/min)	50	00	operation	Thrust load A, B-direction (N)	196	
Moment of inertia	With	nout brake	6.8	50	• For dot	ails of Noto 1 to Noto 5, rofor t	o P 104	
of rotor (×10 ⁻⁴ kg·m ²	W	th brake	7.85			 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.34. 		
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less		*1 Rotary	 *1 Rotary encoder specifications: *2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11. 		
Rotary encoder specifications Note)5 Resolution per single turn		NS Note)5	20-bit17-bitIncrementalAbsolute1,048,576131,072		has "E			
		r single turn						

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>) *Continuous torque, ambient temperature torque versus rated torque without . [N·m] Brake 30



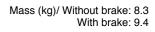
Dimensions



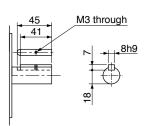
(b) Motor/Brake connector

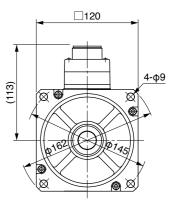
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

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



Key way dimensions





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

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

Motor

			AC400V		
Motor model *1		404G1 404S1			
	Model	A5 series	MFDH	TA464	
Applicable driver *2	No.	A5E series	MFDHTA464E	-	
	Fram	ne symbol	F-fra	ame	
Power supply capacit	у	(kVA)	6.8		
Rated output		(kW)	4.	.0	
Rated torque		(N·m)	12	2.7	
Momentary Max. pea	k torqu	ie (N·m)	38	.2	
Rated current		(A(rms))	9.9		
Max. current		(A(o-p))	42		
Regenerative brake	With	out option	No limit Note)2		
frequency (times/min) Note)1	DV0PM20049×2		No limit Note)2		
Rated rotational spee	d	(r/min)	3000		
Max. rotational speed		(r/min)	45	00	
Moment of inertia	Without brake		12.9		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	14.2		
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	s or less	
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion per	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.) Do not use this for braking the motor in motion.

Static friction torque (N·m)	16.1 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.104)

	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

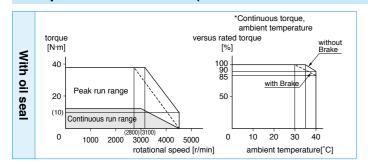
· For details of Note 1 to Note 5, refer to P.104.

• Dimensions of Driver, refer to P.34.

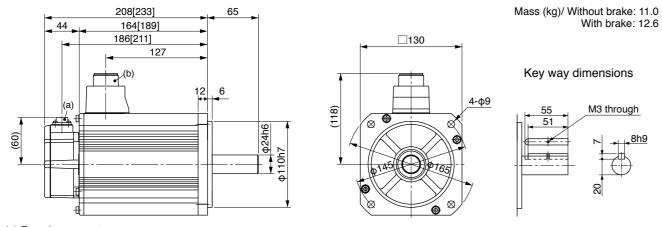
*1 Rotary encoder specifications:

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

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

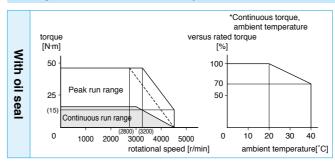


- (a) Encoder connector
- (b) Motor/Brake connector

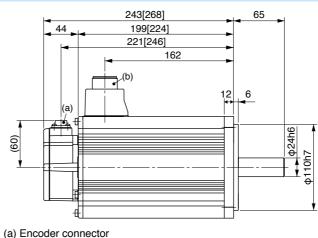
* Figures in [] represent the dimensions of with brake.

<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.

		AC400V		• Brake specifications (For details, refer to P.105)					
Motor model *1 MSME		504G1 504S1		(This brake will be released when it is energized.) (Do not use this for braking the motor in motion.)					
		Model	A5 series	MFDH	TA464	Stat	Static friction torque (N·m)		16.1 or more
Applicable driv	ver *2	No.	A5E series	MFDHTA464E	-	Eng	gagin	g time (ms)	110 or less
		Fram	ne symbol	F-fra	ame	Rel	easir	ng time (ms) Note)4	50 or less
Power supply	capacit	у	(kVA)	7.	5	Exc	iting	current (DC) (A)	0.90±10%
Rated output			(kW)	5.	0	Rel	easir	ng voltage (DC) (V)	2 or more
Rated torque			(N·m)	15	.9	Exc	itina	voltage (DC) (V)	24±2.4
Momentary M	ax. pea	k torqu	ie (N·m)	47.7			0	0 ()()	
Rated current			(A(rms))	12.0		• Pe	ermi	ssible load (For details, refe	er to P.104)
Max. current			(A(o-p))	5	1	. .		Radial load P-direction (N)	980
Regenerative t	brake	With	out option	35	7	Durin asser	5	Thrust load A-direction (N)	588
frequency (times/	/min) Note)1	DV0P	M20049×2	No limit Note)2		40001	inory	Thrust load B-direction (N)	686
Rated rotation	nal spee	d	(r/min)	3000		Durin	ng	Radial load P-direction (N)	784
Max. rotationa	al speed		(r/min)	4500		opera	ation	Thrust load A, B-direction (N)	343
Moment of ine	ertia	With	out brake	17	.4	• For	dota	ails of Note 1 to Note 5, refer t	o P 104
of rotor (×10 ⁻⁴	^t kg·m²)	Wi	th brake	18.6			 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.34. 		
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less		*1 R	 *1 Rotary encoder specifications: *2 The product that the end of driver model designation has "E" is "positioning type". Detail of model designation, refer to P.11. 				
Rotary encoder specifications Note)5		20-bit Incremental							
	Resolut	ion per	per single turn 1,048,576 131,072				ciun		



Dimensions



(b) Motor/Brake connector

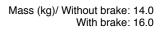
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

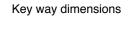
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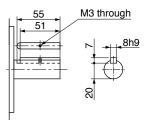
Specifications

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

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)







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

			AC400V		
Motor model *1 MDME			104G1	104S1	
	Model	A5 series	MDDH	T2412	
Applicable driver *2	No.	A5E series	MDDHT2412E	-	
	Fran	ne symbol	D-fra	ame	
Power supply capacit	у	(kVA)	1.	.8	
Rated output		(W)	1.	.0	
Rated torque		(N·m)	4.1	77	
Momentary Max. peal	k torqu	ie (N·m)	14	.3	
Rated current		(A(rms))	2.8		
Max. current		(A(o-p))	12		
Regenerative brake	Without option		No limit Note)2		
frequency (times/min) Note)1	DV0PM20048		No limit Note)2		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	Without brake		4.60		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	5.90		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encoder specifications Note)5		1S Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion pei	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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.104)

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

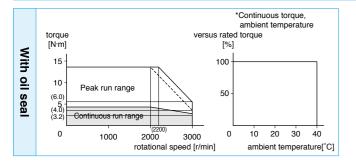
· For details of Note 1 to Note 5, refer to P.104.

· Dimensions of Driver, refer to P.32.

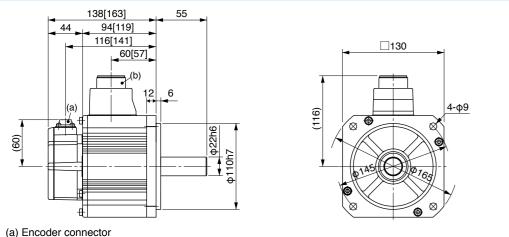
*1 Rotary encoder specifications:

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

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



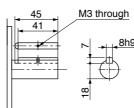
Dimensions



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

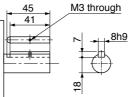
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Mass (kg)/ Without brake: 5.2



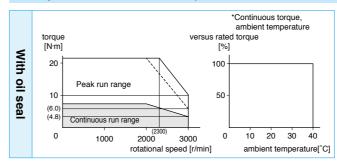
With brake: 6.7

Key way dimensions

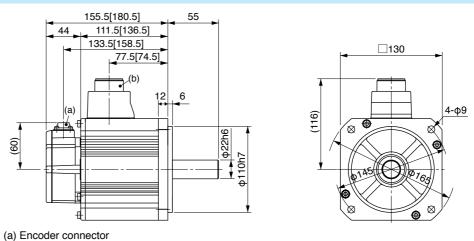


Specifications

			AC4	00V		specifications (For details		
Motor model *1		MDME	154G1	154S1	(This brake will be released when it is energized. (Do not use this for braking the motor in motion.)			
	Model	A5 series	MDDH	T3420	Static fri	Static friction torque (N·m) 13.7		
Applicable driver *2	No.	A5E series	MDDHT3420E	-	Engagin	g time (ms)	100 or less	
	Fram	ne symbol	D-fra	ame	Releasir	Releasing time (ms) Note)4 50 or les		
Power supply capacit	y	(kVA)	2.	.3	Exciting	current (DC) (A)	0.79±10%	
Rated output		(W)	1.	.5	Releasir	ng voltage (DC) (V)	2 or more	
Rated torque		(N·m)	7.	16	Exciting	Exciting voltage (DC) (V) 24±2.4		
Momentary Max. peak torque (N·m)		e (N·m)	21	.5				
Rated current	Rated current (A(rms))		4.	.7	• Permi	• Permissible load (For details, refer to P.104)		
Max. current		(A(o-p))	2	0	During	Radial load P-direction (N)	980	
Regenerative brake	With	out option	assembly		Thrust load A-direction (N)	588		
frequency (times/min) Note)	DV0	PM20048			Thrust load B-direction (N)	686		
Rated rotational spee	d	(r/min)	in) 2000 During Radial load P-direction		Radial load P-direction (N)	490		
Max. rotational speed	1	(r/min)	30	00	operation	ion Thrust load A, B-direction (N) 19		
Moment of inertia	With	out brake	6.	70	• For dot	ataila of Noto 1 to Noto 5, refer to D104		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	7.9	99		 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.32. 		
Recommended moment of inertiaratio of the load and the rotor Note)3 Rotary encoder specifications Note)5		10 times	s or less	*1 Rotary	*1 Rotary encoder specifications: *2 The product that the end of driver model designation			
		IS Note)5	20-bit Incremental	17-bit Absolute	, has "E	has "E" is "positioning type".		
Resolut	tion per	single turn	1,048,576	131,072	Detail	Detail of model designation, refer to P.11.		



Dimensions



(b) Motor/Brake connector

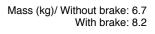
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

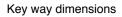
Motor Specifications 400V MDME 1.5kW [Middle inertia, Middle capacity]

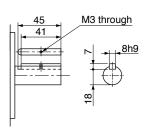
•	Brake specifications (For details, refer to P.105)
	(This brake will be released when it is energized.) Do not use this for braking the motor in motion.

Motor

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)







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

		AC400V			
Motor model *1		204G1	204S1		
	Model	A5 series	MEDH	T4430	
Applicable driver *2	No.	A5E series	MEDHT4430E	-	
	Fran	ne symbol	E-fra	ame	
Power supply capacit	у	(kVA)	3.	.3	
Rated output		(W)	2	.0	
Rated torque		(N·m)	9.	55	
Momentary Max. pea	k torqu	ie (N·m)	28	8.6	
Rated current		(A(rms))	5.9		
Max. current		(A(o-p))	25		
Regenerative brake	Without option No limit Not		t Note)2		
frequency (times/min) Note)1	DV0PM20049		No limit Note)2		
Rated rotational spee	d	(r/min)	20	2000	
Max. rotational speed		(r/min)	3000		
Moment of inertia	With	Without brake 8.72		72	
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	e 10.0		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less		
Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute	
Resolut	ion pei	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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

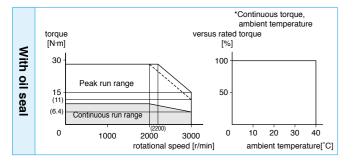
• Permissible load (For details, refer to P.104)

		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

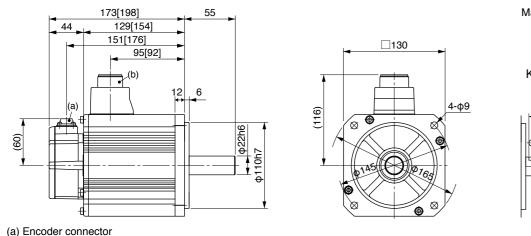
· For details of Note 1 to Note 5, refer to P.104.

- Dimensions of Driver, refer to P.33.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".
- Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

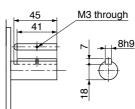


- (b) Motor/Brake connector
- * Figures in [] represent the dimensions of with brake.

<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.

Mass (kg)/ Without brake: 8.0

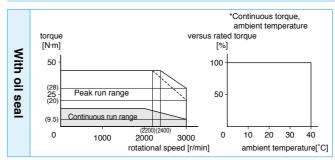
Key way dimensions



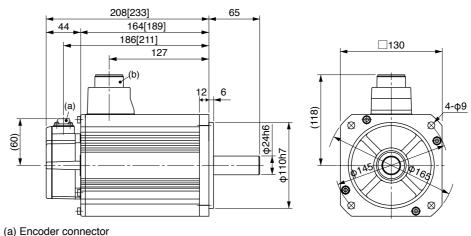
With brake: 9.5

Specifications

		AC4	00V		• Brake specifications (For details, refer to P.105)				
Motor model *1 MDME		MDME	304G1	304G1 304S1 0 This brake will be released when Do not use this for braking the m					
	Mod	lel /	A5 series	MFDHT5440			Static friction torque (N·m)		16.2 or more
Applicable driver *	No.	ŀ	A5E series	MFDHT5440E –			Engagin	g time (ms)	110 or less
	Fra	ame	e symbol	F-fra	ame		Releasing time (ms) Note)4 50 or less		50 or less
Power supply capa	city		(kVA)	4.	.5		Exciting current (DC) (A) 0.90±109		0.90±10%
Rated output			(W)	3.	.0		Releasir	ng voltage (DC) (V)	2 or more
Rated torque			(N·m)	14	.3		Exciting	voltage (DC) (V)	24±2.4
Momentary Max. peak torque (N·m)		e (N·m)	43	3.0					
Rated current			(A(rms))	8.	.7		• Permissible load (For details, refer to P.104)		er to P.104)
Max. current			(A(o-p))	3	7		_ .	Radial load P-direction (N) 980	
Regenerative brake Without opti		ut option	No limit Note)2			During assembly	Thrust load A-direction (N)	588	
frequency (times/min) No	^{te)1} DV0)PN	//20049×2	No limit Note)2			abbombry	Thrust load B-direction (N)	686
Rated rotational sp	eed		(r/min)	20	00		During Radial load P-direction (N) 784		784
Max. rotational spe	ed		(r/min)	30	00		operation	ation Thrust load A, B-direction (N) 343	
Moment of inertia	Wi	tho	ut brake	12	2.9		• For deta	details of Note 1 to Note 5, refer to P.104.	
of rotor (×10 ⁻⁴ kg·m ²) With brake		n brake	14	.2		Dimensions of Driver, refer to P.34.		01.104.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		*1 Rotary encoder specifications: *2 The product that the end of driver model design		odel designation		
Rotary encoder specifications Note)5		S Note)5	20-bit Incremental	17-bit Absolute		has "E" is "positioning type". Detail of model designation, refer to P.11.			
Reso	lution p	er s	single turn	1,048,576	131,072				



Dimensions



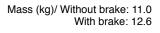
(b) Motor/Brake connector

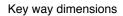
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

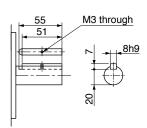
Motor Specifications 400V MDME 3.0kW [Middle inertia, Middle capacity]

Motor

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)







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

		AC4	V00		
Motor model *1		MDME	404G1		
	Model	A5 series	MFDH	TA464	
Applicable driver *2	No.	A5E series	MFDHTA464E	-	
	Fram	ne symbol	F-fra	ame	
Power supply capacit	у	(kVA)	6	.8	
Rated output		(W)	4	.0	
Rated torque		(N·m)	19	0.1	
Momentary Max. pea	k torqu	e (N·m)	57	57.3	
Rated current		(A(rms))	10.6		
Max. current		(A(o-p))	45		
Regenerative brake	Without option No lim		t Note)2		
frequency (times/min) Note)1	DV0P	M20049×2	No limit Note)2		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	With	out brake	out brake 37.6		
of rotor (×10 ⁻⁴ kg·m ²) V		th brake	38	3.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion per	single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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.104)

		Radial load P-direction (N)	1666
During assembly During operation	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	

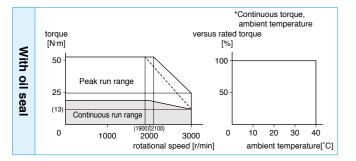
· For details of Note 1 to Note 5, refer to P.104.

• Dimensions of Driver, refer to P.34.

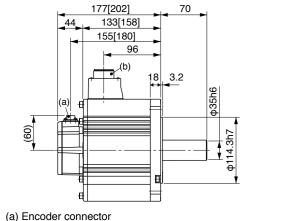
*1 Rotary encoder specifications:

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

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



Dimensions



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

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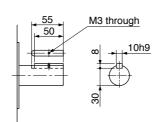
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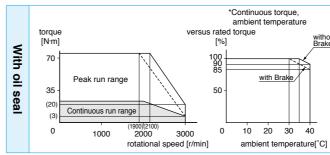
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Mass (kg)/ Without brake: 15.5 With brake: 18.7 Key way dimensions

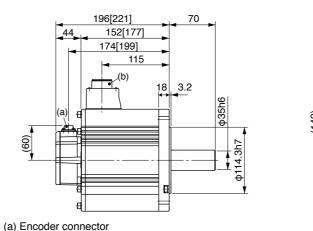


Specification	S							
Motor model *1		MDME	AC4	00V 504S1	/This br	specifications (For details ake will be released when it is e use this for braking the motor in	energized.	
	Model	A5 series	MFDH	TA464	Static fri	Static friction torque (N·m) 24.5 or mo		
Applicable driver *2	No.	A5E series	MFDHTA464E	-	Engagin	g time (ms)	80 or less	
	Fran	ne symbol	F-frame		Releasir	ng time (ms) Note)4	25 or less	
Power supply capacit	y	(kVA)	7.	.5	Exciting	Exciting current (DC) (A) 1.3±10%		
Rated output		(W)	5.	.0	Releasir	easing voltage (DC) (V) 2 or more		
Rated torque	Rated torque (N·m)		23	9.9	Exciting	Exciting voltage (DC) (V) 24±2.4		
Momentary Max. pea	Momentary Max. peak torque (N·m)		71	.6				
Rated current		(A(rms))	13	8.0	• Permi	ssible load (For details, refe	Is, refer to P.104)	
Max. current		(A(o-p))	5	5	. .	Radial load P-direction (N) 1666		
Regenerative brake	With	out option	assembly		J	Thrust load A-direction (N)	784	
frequency (times/min) Note)	DV0P	M20049×2			Thrust load B-direction (N)	980		
Rated rotational spee	ed	(r/min)	20	00	During	Radial load P-direction (N)784Thrust load A, B-direction (N)343		
Max. rotational speed	ł	(r/min)	30	00	operation			
Moment of inertia	With	out brake	48	3.0	• Eor dot	r details of Note 1 to Note 5, refer to P.104.		
of rotor (×10 ⁻⁴ kg·m ²)	of rotor (×10 ⁻⁴ kg·m ²) With brake		48	.8		ions of Driver, refer to P.34.	.0 F. 104.	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	*1 Rotary	 *1 Rotary encoder specifications: *2 The product that the end of driver model designation has "E" is "positioning type". 			
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	has "E				
Resolu	Resolution per single turn		1,048,576	131,072	Detail	Detail of model designation, refer to P.11.		

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>) *Continuous torque, ambient temperature torque [N·m] versus 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



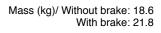
Dimensions



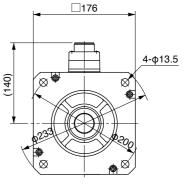
(b) Motor/Brake connector

<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.

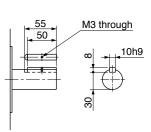
Motor Specifications 400V MDME 5.0kW [Middle inertia, Middle capacity]



Motor



Key way dimensions



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

		AC4	AC400V		
Motor model *1		MGME	094G1 094S1		
	Model	A5 series	MDDHT3420		
Applicable driver *2	No.	A5E series	MDDHT3420E	-	
	Fran	ne symbol	D-fra	ame	
Power supply capacit	у	(kVA)	1.	.8	
Rated output		(W)	0.	.9	
Rated torque		(N·m)	8.	59	
Momentary Max. pea	k torqu	ie (N·m)	19	.3	
Rated current		(A(rms))	3.8		
Max. current		(A(o-p))	12		
Regenerative brake	With	out option	No limit Note)2		
frequency (times/min) Note)1	DV0PM20048		No limit Note)2		
Rated rotational spee	d	(r/min)	1000		
Max. rotational speed	l	(r/min)	2000		
Moment of inertia	With	out brake	6.70		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	7.9	99	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encoder speci	1S Note)5	20-bit Incremental	17-bit Absolute		
Resolut	ion pei	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (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.104)

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

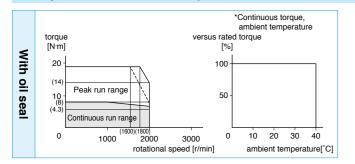
· For details of Note 1 to Note 5, refer to P.104.

· Dimensions of Driver, refer to P.32.

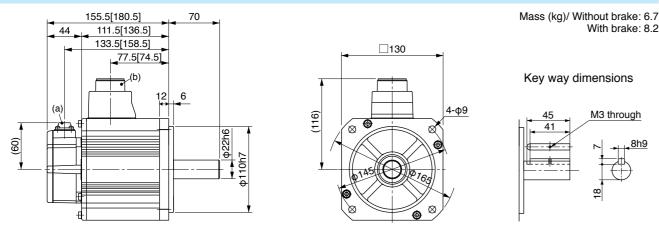
*1 Rotary encoder specifications:

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

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

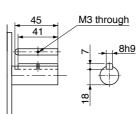


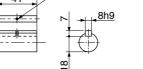
- (a) Encoder connector (b) Motor/Brake connector
- * Figures in [] represent the dimensions of with brake.

94

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

With brake: 8.2





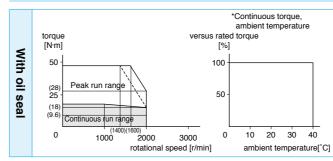
(a) Encoder connector

(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.

Specifications

			AC4	00V		specifications (For details ake will be released when it is e			
Motor model *1	otor model *1 MGME			204S1		motion.			
	Mode	A5 series	MFDH	T5440	Static friction torque (N·m)		24.5 or more		
Applicable driver *	₂ No.	A5E series	MFDHT5440E	-	Engagin	g time (ms)	80 or less		
	Fra	ne symbol	F-fra	ame	Releasir	ng time (ms) Note)4	25 or less		
Power supply capa	city	(kVA)	3.	.8	Exciting	Exciting current (DC) (A) 1.3			
Rated output		(W)	2.	.0	Releasir	ng voltage (DC) (V)	2 or more		
Rated torque (N·m)		(N·m)	19	0.1	Exciting	Exciting voltage (DC) (V) 24			
Momentary Max. peak torque (N·m)		ue (N·m)	47	.7					
Rated current		(A(rms))	8.	.5	• Permi	ssible load (For details, refe	er to P.104)		
Max. current		(A(o-p))	3	0	Radial load P-direction (N)		1666		
Regenerative brake	With	nout option	No limit Note)2 No limit Note)2		During assembly	Thrust load A-direction (N)	784		
frequency (times/min) No	^{te)1} DV0F	PM20049×2			accombry	Thrust load B-direction (N)	980		
Rated rotational sp	eed	(r/min)	1000		During operation	Radial load P-direction (N)	1176		
Max. rotational spe	ed	(r/min)	2000			Thrust load A, B-direction (N)	490		
Moment of inertia	Wit	nout brake	30	.3	- For dataile of Note 1 to Note 5, refer to D1(o P 104		
of rotor (×10 ⁻⁴ kg·m	²) W	ith brake	31	31.4		 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.34. 			
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designation					
Rotary encoder sp	ecificatio	NS Note)5	20-bit 17-bit Incremental Absolute		has "E" is "positioning type". Detail of model designation, refer to P.11.				
Reso	lution pe	r single turn	1,048,576	131,072	שבומוי טו וווטעבו עבטעומוטוו, ובובו נט ד. וו.				



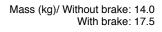
Dimensions

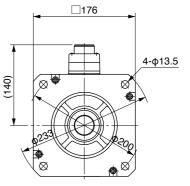
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163.5[188.5] 80 44 119.5[144.5] 141.5[166.5] 82.5 (b) 3.2 18

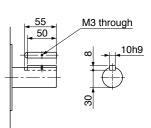
Motor Specifications 400V MGME 2.0kW [Middle inertia, Middle capacity]

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)





Key way dimensions



Motor

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Specifications

		AC400V			
Motor model *1		MGME	304G1	304S1	
	Model	A5 series	MFDHTA464		
Applicable driver *2	No.	A5E series	MFDHTA464E	-	
	Fram	ne symbol	F-fra	F-frame	
Power supply capacit	у	(kVA)	4.	.5	
Rated output		(W)	3.	.0	
Rated torque		(N·m)	28	9.7	
Momentary Max. pea	k torqu	e (N·m)	71	.7	
Rated current		(A(rms))	11.3		
Max. current		(A(o-p)) 40			
Regenerative brake	With	out option	No limit Note)2		
frequency (times/min) Note)1	DV0PM20049×2		No limit Note)2		
Rated rotational spee	d	(r/min)	1000		
Max. rotational speed		(r/min)	2000		
Moment of inertia	With	out brake	48.4		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	49.2		
Recommended mome ratio of the load and t			10 times or less		
Rotary encoder speci	ficatior	IS Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion per	single turn	1,048,576	131,072	

 Brake specifications (For details, refer to P.105) 							
(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.104)

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

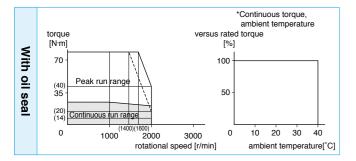
• For details of Note 1 to Note 5, refer to P.104.

• Dimensions of Driver, refer to P.34.

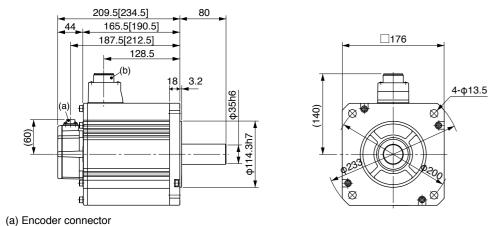
*1 Rotary encoder specifications:

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

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)

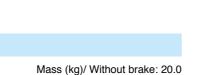


Dimensions



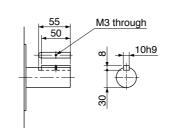
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions of with brake.

<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.



With brake: 23.5

Key way dimensions





MEMO

		AC400V			
Motor model *1		МНМЕ	104G1	104S1	
	Model	A5 series	MDDH	T2412	
Applicable driver *2	No.	A5E series	MDDHT2412E	-	
	Fran	ne symbol	D-fra	ame	
Power supply capacit	у	(kVA)	1.	.8	
Rated output		(W)	1.	.0	
Rated torque		(N·m)	4.	77	
Momentary Max. pea	k torqu	ie (N·m)	14	.3	
Rated current		(A(rms))	2.9		
Max. current		(A(o-p))	12		
Regenerative brake	With	Vithout option 83		3	
frequency (times/min) Note)1	DV0PM20048		No limit Note)2		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	With	out brake	24.7		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	26.0		
Recommended mome ratio of the load and t		5 times or less			
Rotary encoder speci	ficatior	1S Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion per	r single turn	1,048,576	131,072	

• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.) Do not use this for braking the motor in motion.

1 · · · · · · · · 5 · · · ·	
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.104)

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

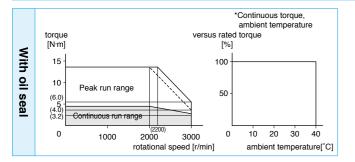
· For details of Note 1 to Note 5, refer to P.104.

· Dimensions of Driver, refer to P.32.

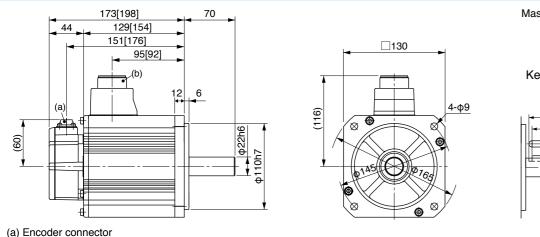
*1 Rotary encoder specifications:

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

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



Dimensions

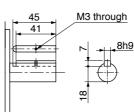


(b) Motor/Brake connector

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

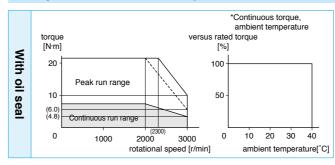
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Mass (kg)/ Without brake: 6.7 With brake: 8.1 Key way dimensions

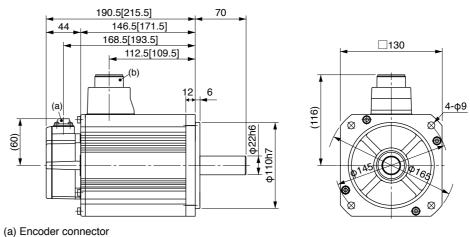


Specifications

		AC4	00V		Brake specifications (For details, refer to P. (This brake will be released when it is energized.)				
Motor model *1			МНМЕ	154G1	154S1	(This brake will be released when it is energized.) Do not use this for braking the motor in motion.			
			A5 series	MDDH	T3420	Static fr	ction torque (N·m)	13.7 or more	
Applicable driver *2		No.	A5E series	MDDHT3420E	-	Engagin	g time (ms)	100 or less	
		Fran	ne symbol	D-frame		Releasi	ng time (ms) Note)4	50 or less	
Power supply ca	oacit	y	(kVA)	2.	.3	Exciting	current (DC) (A)	0.79±10%	
Rated output			(W)	1.	.5	Releasi	ng voltage (DC) (V)	2 or more	
Rated torque			(N·m)	7.	16	Exciting	Exciting voltage (DC) (V) 24±2		
Momentary Max.	Momentary Max. peak torque (N·m)		ie (N·m)	21	.5				
Rated current	Rated current (A(rms))		(A(rms))	4.	.7	• Permi	• Permissible load (For details, refer to P.104)		
Max. current			(A(o-p))	2	0			980	
Regenerative bra	Regenerative brake requency (times/min) Note)1	With	out option	22		During assembly	Thrust load A-direction (N)	588	
frequency (times/min)		DV0	PM20048	13	30	accombry	Thrust load B-direction (N)	686	
Rated rotational	spee	d	(r/min)	20	00	During Radial load P-direction (N)		490	
Max. rotational s	beed		(r/min)	30	00	operation	Thrust load A, B-direction (N)		
Moment of inertia	ı	With	out brake	37	'.1	• For dot	ails of Noto 1 to Noto 5, refer t	o P 104	
of rotor (×10 ⁻⁴ kg·	m²)	Wi	th brake	38	38.4		 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.32. 		
Recommended moment of inertia ratio of the load and the rotor Note)3 Rotary encoder specifications Note)5 Resolution per single turn		5 times or less		*1 Rotary encoder specifications: *2 The product that the end of driver model designation					
		1S Note)5	20-bit Incremental	17-bit Absolute	has "E" is "positioning type". Detail of model designation, refer to P.11.				
		r single turn	1,048,576	131,072					



Dimensions



(b) Motor/Brake connector

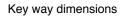
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

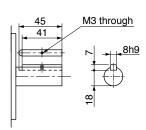
Motor Specifications 400V MHME 1.5kW [High inertia, Middle capacity]

Motor

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)

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





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

		AC400V			
Motor model *1		МНМЕ	204G1	204S1	
	Model	A5 series	MEDH	T4430	
Applicable driver *2	No.	A5E series	MEDHT4430E	-	
	Fran	ne symbol	E-fra	ame	
Power supply capacit	у	(kVA)	3.	3	
Rated output		(W)	2.	.0	
Rated torque		(N·m)	9.9	55	
Momentary Max. pea	k torqu	e (N·m)	28	.6	
Rated current		(A(rms))	5.5		
Max. current		(A(o-p))	24		
Regenerative brake	With	hout option 45		5	
frequency (times/min) Note)1	DV0PM20048		142		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	With	out brake	57.8		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	59.6		
Recommended mome ratio of the load and t		5 times or less			
Rotary encoder speci	ficatior	1S Note)5	20-bit Incremental	17-bit Absolute	
Resolut	ion per	single turn	1,048,576	131,072	

 Brake specifications (For details, refer to P.1) 	05)
(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.104)

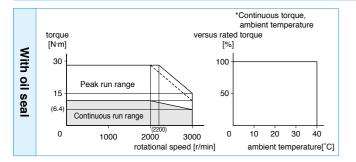
During assembly During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

· For details of Note 1 to Note 5, refer to P.104.

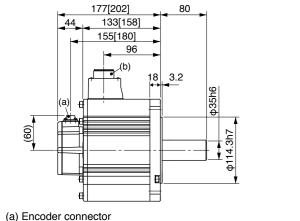
- Dimensions of Driver, refer to P.33.
- *1 Rotary encoder specifications:
- *2 The product that the end of driver model designation has "E" is "positioning type".

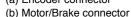
Detail of model designation, refer to P.11.

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)



Dimensions





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

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(140)

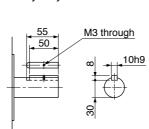
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4-φ13.5

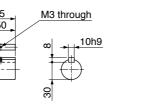
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<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all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

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

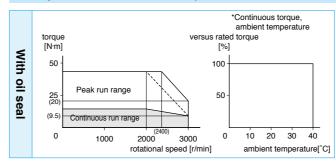


Key way dimensions

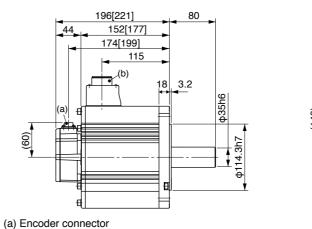


Creations

Specifications									
			AC400V • Brake specifications (For deta		. ,				
Motor model *1		MHME	304G1 304S1		(This brake will be released when it is energized.) Do not use this for braking the motor in motion.)				
	Mode	A5 series	MFDH	IT5440	Static fri	ction torque (N·m)	24.5 or more		
Applicable driver *2	No.	A5E series	MFDHT5440E	- Enga		g time (ms)	80 or less		
	Fran	ne symbol	F-fr	ame	Releasi	ng time (ms) Note)4	25 or less		
Power supply capac	ity	(kVA)	4	.5	Exciting	current (DC) (A)	1.3±10%		
Rated output		(W)	-	.0	Releasi	ng voltage (DC) (V)	2 or more		
Rated torque		(N·m)	14.3		Exciting	Exciting voltage (DC) (V)			
, ,	Momentary Max. peak torque (N·m)		43.0						
Rated current		(A(rms))	8.0		• Permissible load (For details, refer to P.104)				
Max. current	(A(o-p))		Max. current		3	34	During	Radial load P-direction (N)	1666
Regenerative brake	With	out option	19		During assembly	Thrust load A-direction (N)	784		
frequency (times/min) Note	¹ DV0F	M20049×2	142		,	Thrust load B-direction (N)	980		
Rated rotational spe	ed	(r/min)	2000		During	Radial load P-direction (N)	784		
Max. rotational spee	d	(r/min)	3000		operation	Thrust load A, B-direction (N)	343		
Moment of inertia	With	out brake	90.5		For details of Note 1 to Note 5, refer to P.104.				
of rotor (×10 ⁻⁴ kg·m ²) With brake		92.1		 Dimensions of Driver, refer to P.34. *1 Rotary encoder specifications: *2 The product that the end of driver model designation has "E" is "positioning type". 					
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 Incremental Absolute							
Resolution per single turn			1,048,576	131,072	Detail of model designation, refer to P.11.				



Dimensions



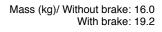
(b) Motor/Brake connector

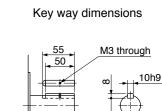
* Figures in [] represent the dimensions of with brake.

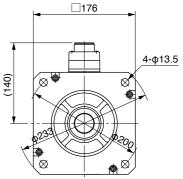
<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications 400V MHME 3.0kW [High inertia, Middle capacity]

Torgue characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)







Motor Specifications 400V MHME 4.0kW [High inertia, Middle capacity]

Specifications

		AC400V			
Motor model *1		404G1	404S1		
Model A5 serie			MFDHTA464		
Applicable driver *2	No.	A5E series	MFDHTA464E	-	
	Fram	ne symbol	F-fra	ame	
Power supply capacit	у	(kVA)	6	.8	
Rated output		(W)	4.	.0	
Rated torque		(N·m)	19	0.1	
Momentary Max. pea	k torqu	e (N·m)	57	.3	
Rated current		(A(rms))	10.5		
Max. current		(A(o-p))	45		
Regenerative brake	With	/ithout option 17		7	
frequency (times/min) Note)1	DV0PM20049×2		125		
Rated rotational spee	d	(r/min)	2000		
Max. rotational speed		(r/min)	3000		
Moment of inertia	With	out brake	112		
of rotor (×10 ⁻⁴ kg·m ²)	Wi	th brake	114		
Recommended mome ratio of the load and t		5 times or less			
Rotary encoder speci	ficatior	20-bit Incremental	17-bit Absolute		
Resolut	ion per	1,048,576	131,072		

• Brake specifications (For details, refer to P.105) (This brake will be released when it is energized.) Do not use this for braking the motor in motion.

J	1
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.104)

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.104.

• Dimensions of Driver, refer to P.34.

*1 Rotary encoder specifications:

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

Mass (kg)/ Without brake: 18.6

Key way dimensions

50

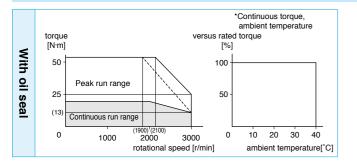
⊨⊭

With brake: 21.8

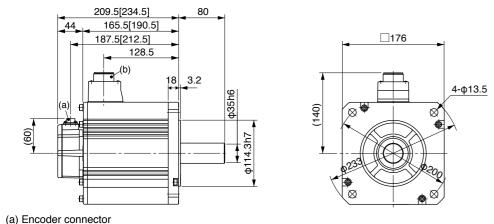
M3 through

10h9

Torque characteristics (at AC400V of power voltage < Dotted line represents the torque at 10% less supply voltage.>)

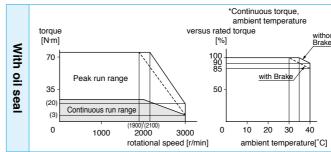


Dimensions

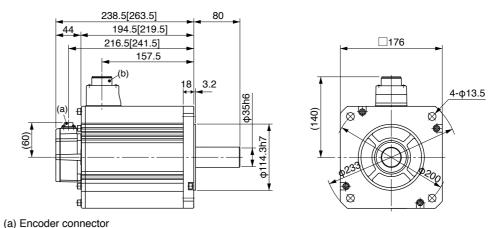


- (b) Motor/Brake connector
- * Figures in [] represent the dimensions of with brake.

<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.



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.

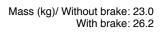
Specifications

Specifications									
				AC400V			specifications (For details	. ,	
Motor model *1			MHME	504G1 504S1		(This brake will be released when it is energized.) Do not use this for braking the motor in motion.)			
		Model	A5 series	MFDH	MFDHTA464		iction torque (N·m)	24.5 or more	
Applicable driver	• *2	No.	A5E series	MFDHTA464E	-	Engagir	ng time (ms)	80 or less	
		Fram	ne symbol	F-fra	ame	Releasi	ng time (ms) Note)4	25 or less	
Power supply ca	pacit	y	(kVA)	7.	.5	Exciting	current (DC) (A)	1.3±10%	
Rated output			(W)	5.	.0	Releasi	ng voltage (DC) (V)	2 or more	
Rated torque			(N·m)	23.9		Exciting	Exciting voltage (DC) (V)		
Momentary Max.	Momentary Max. peak torque (N·m)		71.6						
Rated current			(A(rms))	13.0		Permissible load (For details, refer to P.104)			
Max. current			(A(o-p))	5	5	. .	Radial load P-direction (N)	1666	
Regenerative bral	ke	With	out option	10		During assembly	Thrust load A-direction (N)	784	
frequency (times/min)	Note)1	DV0PM20049×2		76		docernory	Thrust load B-direction (N)	980	
Rated rotational	spee	d	(r/min)	2000		During	Radial load P-direction (N)	784	
Max. rotational s	peed		(r/min)	30	00	operation	Thrust load A, B-direction (N)	343	
Moment of inertia	a	With	out brake	162					
of rotor (×10 ⁻⁴ kg·	of rotor (×10 ⁻⁴ kg·m ²) With brake		164		 For details of Note 1 to Note 5, refer to P.104. Dimensions of Driver, refer to P.34. *1 Rotary encoder specifications: *2 The product that the end of driver model designation 				
	Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less						
Rotary encoder s	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	has "E" is "positioning type". Detail of model designation, refer to P.11.		5		
Resolution per single turn			1,048,576	131,072					

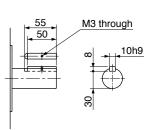
Motor Specifications 400V MHME 5.0kW [High inertia, Middle capacity]

Torque characteristics (at AC400V of power voltage <Dotted line represents the torque at 10% less supply voltage.>)

without
without Brake
1
÷
10
re[°C]



Key way dimensions



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

Notes on [Motor specification] page

Note) 1. [At AC100V of power voltage]

Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/ rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC115V (at 100V of the main voltage).
- If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/115) relative to the value in the table.
- · When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

[At AC200V of power voltage]

Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/ rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC230V (at 200V of the main voltage).
- If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/230) relative to the value in the table.
- · When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

[At AC400V of power voltage]

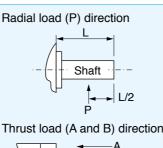
Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

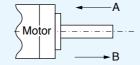
- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/ rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC460V (at 400V of the main voltage).
- If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/460) relative to the value in the table.
- · When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
- Note) 2. If the effective torque is within the rated torque, there is no limit in generative brake.
- Note) 3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
- Note) 4. Releasing time values represent the ones with DC-cutoff using a varistor.
- Note) 5. The 17-bit absolute encoder can also be used as a 17-bit incremental encoder.

Permissible Load at Output Shaft

The radial load is defined as a load applied to the output shaft in the 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.

Never use this for "Brake" purpose to stop the load in motion.

• Output Timing of BRK-OFF Signal

- in motion, refer to the Operating Instructions (Overall).
- details, download a copy of the instruction manual from our website. <Note>
- built-in brake, however this does not affect any functionality.
- open). Pay an extra attention when magnetic sensors are used nearby the motor.

Specifications of Built-in Holding Brake

Motor series	Motor output	Static friction torque N·m	Rotor inertia x 10 ⁻⁴ kg·m²	Engaging time ms	Releasing time ms	Exciting current DC A (at cool-off)	Releasing voltage	Permissible work (J) per one braking	Permissible total work x 10 ³ J	Permissible angular acceleration rad/s ²																												
	50W, 100W	0.29 or more	0.002	35 or less	20 or less	0.3	50.01	39.2	4.9																													
MSMD	200W, 400W	1.27 or more	0.018	50 or less	15 or less	0.36	DC1V or more	137	44.1	30000																												
	750W	2.45 or more	0.075	70 or less	20 or less	0.42		196	147																													
	50W, 100W	0.29 or more	0.002	35 or less	20 or less	0.3	DOAV	39.2	4.9																													
	200W, 400W	1.27 or more	0.018	50 or less	15 or less	0.36	DC1V or more	137	44.1	30000																												
	750W	2.45 or more	0.075	70 or less	20 or less	0.42	or more	196	147																													
MSME	1.0kW, 1.5kW, 2.0kW	7.8 or more	0.33	50 or less	15 or less	0.81	DO0 (392	490																													
	3.0kW	11.8 or more		80 or less	(100)		DC2V or more			10000																												
	4.0kW, 5.0kW	16.1 or more	1.35	110 or less	50 or less (130)	0.9	ormore	1470	2200																													
	1.0kW	4.9 or more		80 or less	70 or less (200)	0.59		588	780																													
	1.5kW, 2.0kW	13.7 or more	1.35	100 or less	50 or less	0.79	DC2V or more	1176	1500	10000																												
MDME	3.0kW	16.2 or more		110 or less	(130)	0.9		1470	2200																													
	4.0kW, 5.0kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3		1372	2900	5440																												
	900W	13.7 or more	1.35	100 or less	50 or less (130)	0.79		1176	1500	10000																												
MGME	2.0kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3	DC2V or more	1372	2900	5440																												
	3.0kW	58.8 or more	4.7	150 or less	50 or less (130)	1.4																														1372	2900	5440
MHMD	200W, 400W	1.27 or more	0.018	50 or less	15 or less	0.36	DC1V	137	44.1	30000																												
	750W	2.45 or more	0.075	70 or less	20 or less	0.42	or more	196	147	30000																												
	1.0kW	4.9 or more	1.35	80 or less	70 or less (200)	0.59		588	780	10000																												
мнме	1.5kW	13.7 or more	1.55	100 or less	50 or less (130)	0.79	DC2V or more	1176	1500	10000																												
	2.0kW to 5.0kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3		1372	2900	5440																												

Excitation voltage is DC24V±10% (Large type motor) and DC24V±5% (Small type motor).

- · Releasing time values represent the ones with DC-cutoff using a varistor.
- Values in () represent those measured by using a diode (V03C by Hitachi, Ltd.)
- · Backlash of the built-in holding brake is kept ±1° or smaller at ex-factory point.
- 10 million times. (Life end is defined as when the brake backlash drastically changes.)

Use this built-in brake for "Holding" purpose only, that is to hold the stalling status.

• For the brake release timing at power-on, or braking timing at Servo-OFF/Servo-Alarm while the motor is

• 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

1. The lining sound of the brake (chattering and etc.) might be generated while running the motor with

2. Magnetic flux might be generated through the motor shaft while the brake coil is energized (brake is

Above values (except static friction torque, releasing voltage and excitation current) represent typical values.

· Service life of the number of acceleration/deceleration with the above permissible angular acceleration is more than

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.)

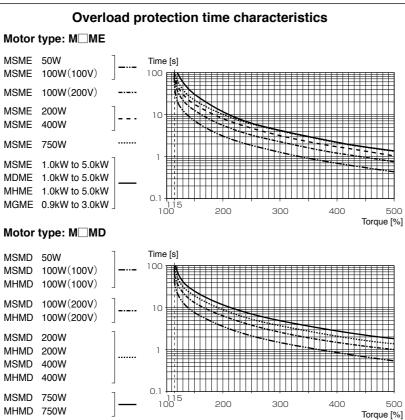
(2) Make sure to install a circuit breaker or fuse which are UL recognized (Listed (1) marked) between the power supply and the noise filter.

For rated current of circuit breaker and fuse, refer to P.14 "Driver and List of Applicable Peripheral

Equipments".

Use a copper cable with temperature rating of 75°C or higher.

(3) Over-load protection level Over-load protective function will be activated when the effective current exceeds 115% or more than the rated current based on the time characteristics (see the next page). 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).



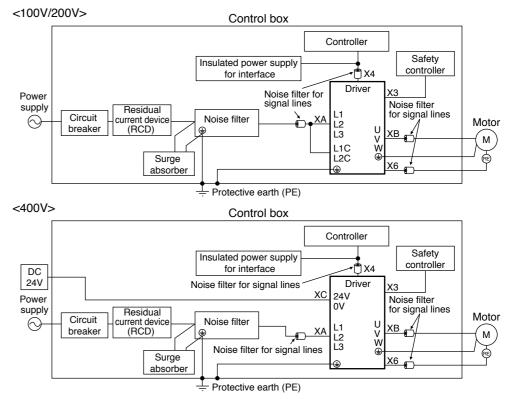
Conformed Standards

For details, refer to P.9.



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.)



<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.

0/60Hz
0/60Hz
0/60Hz
0/60Hz
/) III of EN lies with E

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.

Composition of Peripheral Equipments

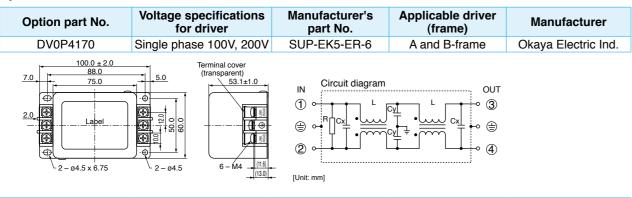
Options

N 61800-5-1:2007. EN60950.

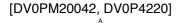
Noise Filter

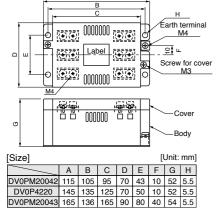
When you install one noise filter at the power supply for multi-axes application, contact to a manufacture of the noise filter. If noise margin is required, connect 2 filters in series to emphasize effectiveness.

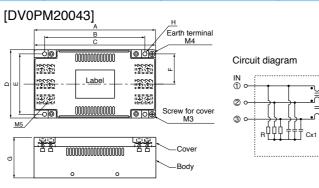
Options



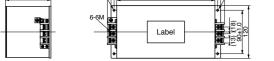
Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
	3-phase 200V		A and B-frame	
DV0PM20042	Single phase 100V, 200V 3-phase 200V	3SUP-HU10-ER-6	C-frame	Okaya Electric Ind.
DV0P4220	Single/3-phase 200V	3SUP-HU30-ER-6	D-frame	
DV0PM20043	3-phase 200V	3SUP-HU50-ER-6	E-frame	

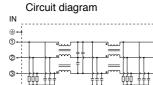






Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0P3410	3-phase 200V	3SUP-HL50-ER-6B	F-frame	Okaya Electric Ind.
2-05.5 x 7 -	286±3.0 270 255±1.0 240	Circuit diagram	OUT	





Recommended components

part No.	Voltage specifications for driver	Current rating (A)	Manufacturer
RTHN-5010		10	TDK-Lambda
RTHN-5020	Single phase 100V, 200V 3-phase 200V	30	
RTHN-5030		50	Corp.
FN258L-16-07	2 phase 4001/	16	SCHAFENER
FN258L-30-07	3-phase 400V	30	SUNAFFINER

[Unit: mm]

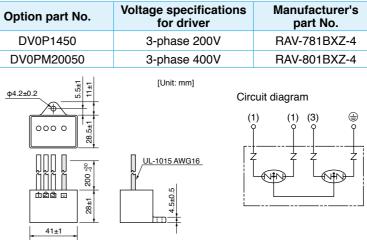
<Remarks>

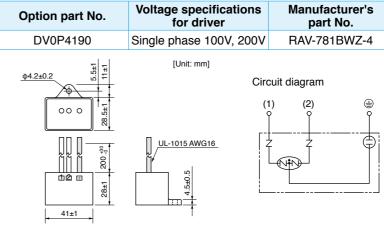
· Select a noise filter of capacity that exceeds the capacity of the power source (also check for load condition). · For detailed specification of the filter, contact the manufacturer.

Conformance to Composition of Peripheral Equipments international standards

Surge Absorber

Provide a surge absorber for the primary side of nois





Noise Filter for Signal Lines

Install noise filters for signal lines to all cables (power cable, motor cable, encoder cable and interface cable)

Option part No.	Manufacturer's part No.	Number	
DV0P1460	ZCAT3035-1330	4	

<Caution>

Fix the signal line noise filter in place to eliminate excessive stress to the cables.

Residual current device

Install a type B Residual current device (RCD) at primary side of the power supply.

Grounding

- trol box without fail to prevent electrical shocks.
- (2) Do not make a joint connection to the protective earth terminals $((\frac{1}{z}))$. 2 terminals are provided for protective earth.

<Note>

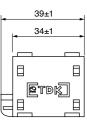
For driver and applicable peripheral equipments, refer to P.14 "Driver and List of Applicable Peripheral Equipments"

se	filter.	
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anufacturer's part No.	Manufacturer
AV-781BXZ-4	Okava Electric Ind.
AV-801BXZ-4	Oraya Electric Ind.

anufacturer's part No.	Manufacturer
AV-781BWZ-4	Okaya Electric Ind.





Mass: 62.8g 13±1

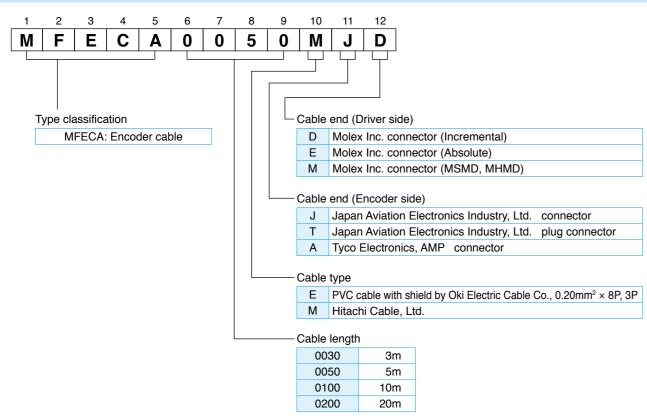
[Unit: mm]

Options

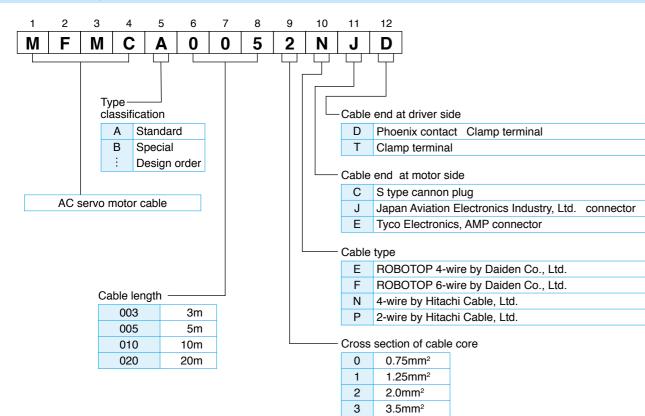
(1) Connect the protective earth terminal ($(\underline{-})$) of the driver and the protective earth terminal (PE) of the con-

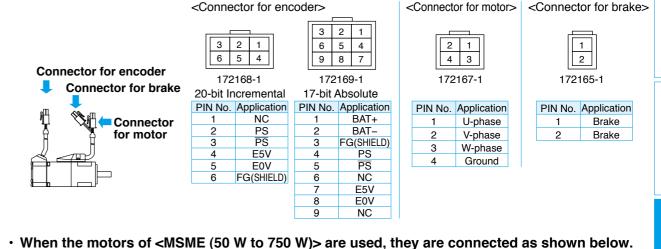
Options Cable part No. designation

Encoder cable



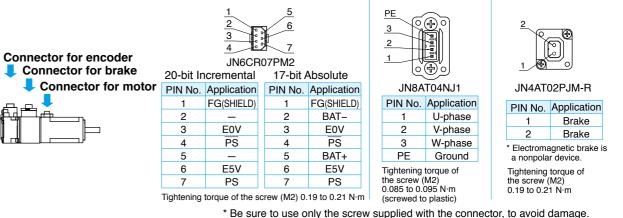
Motor cable, Brake cable





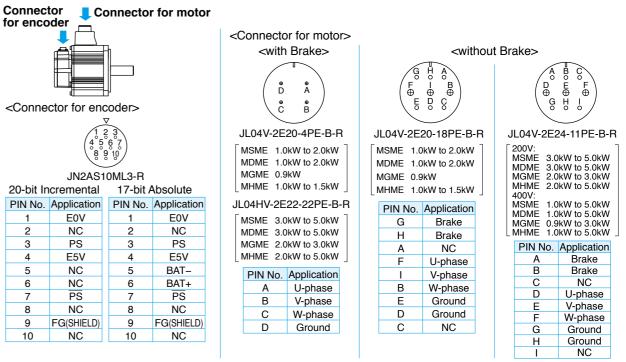
Connector: Made by Japan Aviation Electronics Industry, Ltd. (The figures below show connectors for the motor.)

<Connector for encoder> <Connector for motor> </Connector for brake>



When the motors of <MSME (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.)



<Remarks> Do not connect anything to NC.

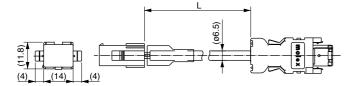
Options Specifications of Motor connector

• When the motors of <MSMD, MHMD> are used, they are connected as shown below.

Connector: Made by Japan Aviation Electronics Industry, Ltd. (The figures below show connectors for the motor.)

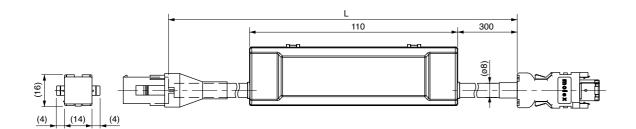
Options Junction Cable for Encoder

Part No.	MFECA0 * * 0EAM	Compatible motor output	MSMD	50W to 750W,	MHMD	200W to 750W
Specifications	For 20-bit incremental encoder (Without battery box)					



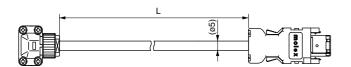
Title	Part No.	Manufacturer	L (m)	Part No.
Connector	55100-0670	Molex Inc	3	MFECA0030EAM
Connector	172160-1		5	MFECA0050EAM
Connector pin	170365-1	Tyco Electronics AMP	10	MFECA0100EAM
Cable	0.20mm ² ×3P	Oki Electric Cable Co., Ltd.	20	MFECA0200EAM

Part No.	MFECA0 * * 0EAE	Compatible motor output	MSMD	50W to 750W,	MHMD	200W to 750W	
Specifications	ications For 17-bit absolute encoder (With battery box)						

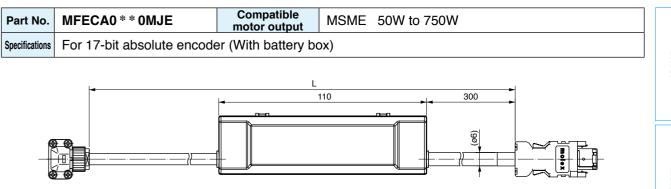


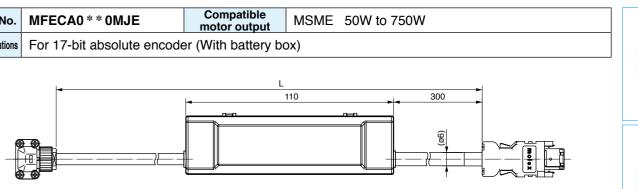
Title	Part No.	Manufacturer	L (m)	Part No.
Connector	55100-0670	Molex Inc	3	MFECA0030EAE
Connector	172161-1	Tyco Electronics AMP	5	MFECA0050EAE
Connector pin	170365-1	TYCO Electronics AIVIF	10	MFECA0100EAE
Cable	0.20mm ² ×4P	Oki Electric Cable Co., Ltd.	20	MFECA0200EAE

Part No.	MFECA0 * * 0MJD	Compatible motor output	MSME 50W to 750W
Specifications	For 20-bit incremental end	oder (Without ba	tery box)

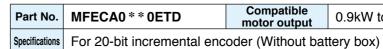


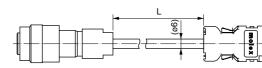
Title	Part No.	Manufacturer	L (m)	Part No.
Connector	55100-0670	Molex Inc	3	MFECA0030MJD
Connector	JN6FR07SM1	Japan Aviation	5	MFECA0050MJD
Connector pin	LY10-C1-A1-10000	Electronics Ind.	10	MFECA0100MJD
Cable	AWG24×4P, AWG22×2P	Hitachi Cable, Ltd.	20	MFECA0200MJD





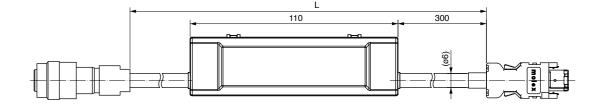
Title	Part No.	Manufacturer	L (m)	Part No.
Connector	55100-0670	Molex Inc	3	MFECA0030MJE
Connector	SMM-003T-P0.5	J.S.T Mfg. Co., Ltd.	5	MFECA0050MJE
Connector pin	ZMR-02	0.3.1 Wilg. CO., Llu.	10	MFECA0100MJE
Connector	JN6FR07SM1	Japan Aviation	20	MFECA0200MJE
Connector pin	LY10-C1-A1-10000	Electronics Ind.		
Cable	AWG24 ×4P, AWG22×2P	Hitachi Cable, Ltd.		





Title	Part No.	Manufacturer	L (m)	Part No.
Connector	55100-0670	Molex Inc	3	MFECA0030ETD
Connector	JN2DS10SL1-R	Japan Aviation	5	MFECA0050ETD
Connector pin	JN1-22-22S-PKG100	Electronics Ind.	10	MFECA0100ETD
Cable	0.2mm ² ×3P	Oki Electric Cable Co., Ltd.	20	MFECA0200ETD

Part No.	MFECA0 * * 0ETE	Compatible motor output
Specifications	For 17-bit absolute encode	er (With battery



Title	Part No.	Manufacturer	L (m)	Part No.
Connector	55100-0670	Molex Inc	3	MFECA0030ETE
Connector	ZMR-02	J.S.T Mfg. Co., Ltd.	5	MFECA0050ETE
Connector pin	SMM-003T-P0.5	J.S. I Wilg. CO., Llu.	10	MFECA0100ETE
Connector	JN2DS10SL1-R	Japan Aviation	20	MFECA0200ETE
Connector pin	JN1-22-22S-PKG100	Electronics Ind.		
Cable	0.2mm ² ×3P	Oki Electric Cable Co., Ltd.		

Option

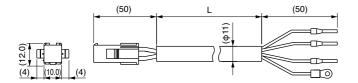
0.9kW to 5.0kW

0.9kW to 5.0kW box)

Options Junction Cable for Motor (Without brake)

Part No. MFMCA0 * * 0EED

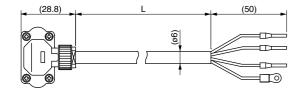
Applicable model MSMD 50W to 750W, MHMD 200W to 750W



Title	Part No.	Manufacturer	L (m)	Part No.
Connector	172159-1	Tugo Electropico AMD	3	MFMCA0030EED
Connector pin	170366-1	Tyco Electronics AMP	5	MFMCA0050EED
Rod terminal	AI0.75-8GY	Phoenix Contact	10	MFMCA0100EED
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	20	MFMCA0200EED
Cable	ROBO-TOP 600V 0.75mm ²	Daiden Co.,Ltd.		

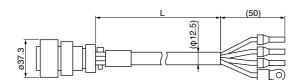
Part No. MFMCA0 * * 0NJD

Applicable MSME 50W to 750W



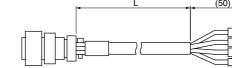
Title	Part No.	Manufacturer	L (m)	Part No.
Connector	JN8FT04SJ1	Japan Aviation	3	MFMCA0030NJD
Connector pin	ST-TMH-S-C1B-3500	Electronics Ind.	5	MFMCA0050NJD
Rod terminal	Al0.75-8GY	Phoenix Contact	10	MFMCA0100NJD
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	20	MFMCA0200NJD
Cable	AWG18×4P	Hitachi Cable, Ltd.		

		Annlinghia	MSME	1.0kW to 2.0kW,	MDME	1.0kW to 2.0kW
Part No.	MFMCD0 * * 2ECD	model	MHME	1.0kW to 1.5kW,	MGME	0.9kW
			(All mod	lel 200V and 400V	commor	nness)



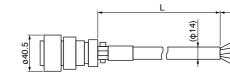
Title	Part No.	Manufacturer	L (m)	Part No.
Connector	JL04V-6A20-4SE-EB-R	Japan Aviation	3	MFMCD0032ECD
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.	5	MFMCD0052ECD
Rod terminal	AI2.5-8BU	Phoenix Contact	10	MFMCD0102ECD
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.	20	MFMCD0202ECD
Cable	ROBO-TOP 600V 2.0mm ²	Daiden Co.,Ltd.		





Title	Part No.	Manufacturer
Straight plug	JL04V-6A22-22SE-EB-R	Japan Aviation
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.
Rod terminal	AI2.5-8BU	Phoenix Contact
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 2.0mm ²	Daiden Co.,Ltd.





Title	Part No.	Manufacturer	L (m)	Part No.
Straight plug	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 600V 3.5mm ²	Daiden Co.,Ltd.	20	MFMCA0203ECT

Applicable MHME 2.0kW (200V and 400V commonness)



L (m)	Part No.
3	MFMCE0032ECD
5	MFMCE0052ECD
10	MFMCE0102ECD
20	MFMCE0202ECD

MSME 3.0kW to 5.0kW, MDME 3.0kW to 5.0kW MHME 3.0kW to 5.0kW, MGME 2.0kW to 3.0kW (All model 200V and 400V commonness)



Options

Options Junction Cable for Motor (With brake)

1. 5 MFN ct 10 MFN	(200V) conform to IP67. Part No. MFMCA0032FCD MFMCA0052FCD MFMCA0102FCD MFMCA0202FCD
L (m) 3 MFN 3 MFN 5 MFN 10 MFN 20 MFN 3 MFN 10 MFN 20 MFN 0. 0 0. 0 0. 0 0. 0	Part No. MFMCA0032FCD MFMCA0052FCD MFMCA0102FCD MFMCA0202FCD
L (m) 3 MFN 3 MFN 5 MFN 10 MFN 20 MFN 3 MFN 10 MFN 20 MFN 0. 0 0. 0 0. 0 0. 0	Part No. MFMCA0032FCD MFMCA0052FCD MFMCA0102FCD MFMCA0202FCD
3 MFN 1. 5 MFN 5 MFN 10 MFN td. 20 MFN d. 0 MFN 10	MFMCA0032FCD MFMCA0052FCD MFMCA0102FCD MFMCA0202FCD
1. 5 MFN 10 MFN 20 MFN 20 MFN 20 MFN 20 MFN 20 MFN	MFMCA0052FCD MFMCA0102FCD MFMCA0202FCD
10 MFN .td. 20 MFN d. . .	MFMCA0102FCD MFMCA0202FCD
.td. d. DV), MDME 1.0kW to	MFMCA0202FCD
DV), MDME 1.0kW to	7 to 2.0kW (400V)
)V), MDME 1.0kW to	· · /
)V), MDME 1.0kW to	· · /
	· · /
r L (m)	Part No.
	MFMCE0032FCD
	MFMCE0052FCD
	MFMCE0102FCD
_td. 20 MFN	MFMCE0202FCD
i.	
_	td.

* This cable does not conform to IP67.

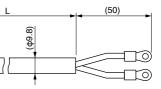
			\mathbf{Y}			
[Title		Part No.	Manufacturer	L (m)	Part No.
	Straight plu	g	JL04V-6A24-11SE-EB-R	Japan Aviation	3	MFMCA0033FCT
	Cable clam	р	JL04-2428CK(17)-R	Electronics Ind.	5	MFMCA0053FCT
	Nylon insulated	Earth	N5.5-5	J.S.T Mfg. Co., Ltd.	10	MFMCA0103FCT
	round terminal	Brake	N1.25-M4	J.S. I MIG. CO., Ltd.	20	MFMCA0203FCT
	Cable		ROBO-TOP 600V 0.75mm ² and ROBO-TOP 600V 3.5mm ²	Daiden Co.,Ltd.		

(50)

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Options Junction Cable for Brake

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



	Manufacturer
	Tyco Electronics AMP
	J.S.T Mfg. Co., Ltd.
n²	Daiden Co.,Ltd.

Part No.
MFMCB0030GET
MFMCB0050GET
MFMCB0100GET
MFMCB0200GET

Options

Applicable model MSME 50W to 750W

(50)

Manufacturer	L (m)	Part No.
 Japan Aviation	3	MFMCB0030PJT
 Electronics Ind.	5	MFMCB0050PJT
J.S.T Mfg. Co., Ltd.	10	MFMCB0100PJT
Hitachi Cable, Ltd.	20	MFMCB0200PJT

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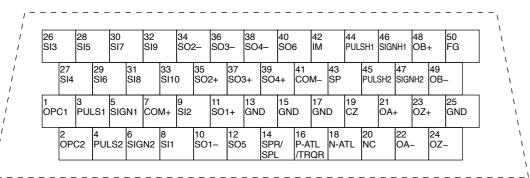
Connector Kit for Interface

Part No. DV0P4350

Components

Title	Part No.	Number	Manufacturer	Note
Connector	54306-5019	1	Molex Inc	For Connector X4
Connector cover	54331-0501	1		(50-pins)

Pin disposition (50 pins) (viewed from the soldering side)



1) Check the stamped pin-No. on the connector body while making a wiring.

2) For the function of each signal title or its symbol, refer to the wiring example of the connector X4.

3) Do not connect anything to NC pins in the above table.

Interface Cable

Part No. DV0P4360

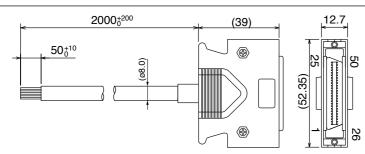


Table for wiring

This 2 m connector cable contains AWG28 conductors.

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>

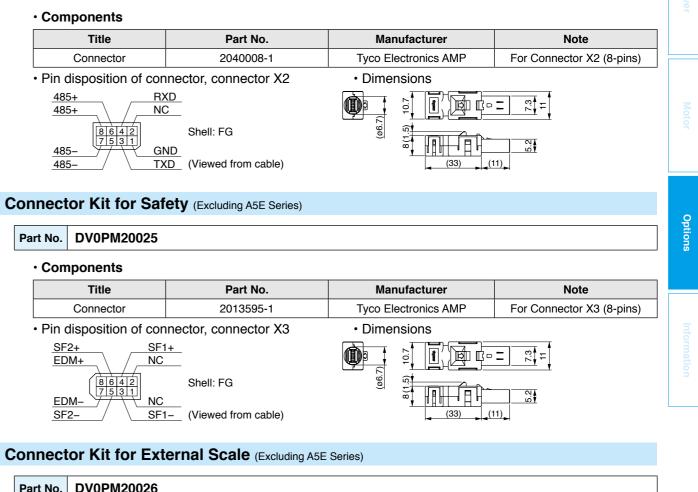
Color designation of the cable

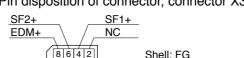
e.g.) Pin-1 Cable color : Orange (Red1) : One red dot on the cable

Connector Kit for Communication Cable (for RS485, RS232) (Excluding A5E Series)

Part No. DV0PM20024

Components					
Title	Part No.				
Connector	2040008-1				
• Pin disposition of connector, connector X2					
485+ RX 485+ NC					
485- GN	Shell: FG				





Compor	nents			
٦	Fitle	Part No.	Manufacturer	Note
Cor	nnector	MUF-PK10K-X	J.S.T Mfg. Co., Ltd.	For Connector X5
	_			

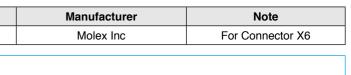
Connector Kit for Encoder

Part No. DV0PM20010					
• Con	ponents				
Title Part No.					

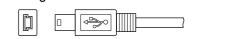
Title	Part No.
Connector	55100-0670

<Remarks>

Connector X1: use with commercially available cable.



Configuration of connector X1: USB mini-B



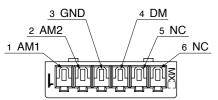
Connector Kit for Analog Monitor Signal

Part No. DV0PM20031

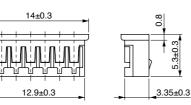
Components

Title	Part No.	Number	Manufacturer	Note	
Connector	510040600	1	Moloy Inc	Ear Connector V7 (6 pipe)	
Connector pin	500118100	6	Molex Inc	For Connector X7 (6-pins)	

Pin disposition of connector, connector X7



Dimensions



Connector Kit for Power Supply Input

Part No. DV0PM20032 (For A to D-frame: Single row type)

Components

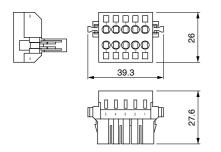
Title	Part No.	Number	Manufacturer	Note	
Connector	05JFAT-SAXGF	1		For Connector XA	
Handle lever	J-FAT-OT	2	J.S.T Mfg. Co., Ltd.	FOI CONNECTOR XA	

Part No. DV0PM20033 (For A to D-frame: Double row type)

Components

Title	Part No.	Number	Manufacturer	Note	
Connector	05JFAT-SAXGSA-C	1			
Handle lever	J-FAT-OT	2	J.S.T Mfg. Co., Ltd.	For Connector XA	

Dimensions



Part No. DV0PM20044 (For E-frame)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XA (E-frame)
Handle lever	J-FAT-OT-L	2		

Part No. DV0PM20051 (For D-frame 400V)

Components

Components						
Title	Part No.	Number	Manufacturer	Note		
Connector	03JFAT-SAYGSA-M	1	J.S.T Mfg. Co., Ltd.	For Connector VA (D frame)		
Handle lever	J-FAT-OT-L	2	J.S. I MIG. CO., LIU.	For Connector XA (D-frame)		

Part No. DV0PM20052 (For E-frame 400V)

Components

Components					
Title	Part No.	Number	Manufacturer	Note	
Connector	03JFAT-SAYGSA-L	1		For Connector VA (E frome)	
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	For Connector XA (E-frame)	

Connector Kit for Control Power Supply Input

Part No. DV0PM20053 (For D, E-frame 400V)

Components

oomponenta						
Title	Part No.	Number	Manufacturer	Note		
Connector	02MJFAT-SAGF	1		For Connector XC		
Handle lever	MJFAT-0T	1	J.S.T Mfg. Co., Ltd.	(D, E-frame)		

Connector Kit for Regenerative Resistor Connection (E-frame)

Part No. DV0PM20045 (For E-frame 200V/400V)

Components

Componente						
Title	Part No.	Number	Manufacturer	Note		
Connector	04JFAT-SAXGSA-L	1		200V: For Connector XC		
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	400V: For Connector XD * Jumper wire is included.		

Part No. DV0PM20055 (For D-frame 400V)

Components

Componente					
Title	Part No.	Number	Manufacturer	Note	
Connector	04JFAT-SAXGSA-M	1		For Connector VD	
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	For Connector XD	

Connector Kit for Motor Connection (Driver side)

Part No. DV0PM20034 (For A to D-frame 100V/200V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	06JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For Connector XB
Connector pin	J-FAT-OT	2		* Jumper wire is included.

Part No. DV0PM20046 (For E-frame 200V/400V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAXGSA-L	1		For Connector XB (E-frame)
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	

Part No. DV0PM20054 (For D-frame 400V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAXGSA-M	1		For Connector XB (D-frame)
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	

Connector Kit for Motor/Encoder Connection

Do	Part No. DV0P4290	Applicable	MSMD 50W to 750W, MHMD 200W to 750W	
Га	ITT NO.	DV0F4290	model	(absolute encoder type)

Components

1 E5V

3 E5V

5 PS

Title	Part No.	Number	Manufacturer	Note	
Connector	55100-0670	1	Molex Inc	For Connector X6 (6-pins)	
Connector	172161-1	1	Tues Flectronics AMD	For junction cable to	
Connector pin	170365-1	9	Tyco Electronics AMP	encoder (9-pins)	
Connector	172159-1	1	Tues Flectronics AMD	For junction cable to	
Connector pin	170366-1	4	Tyco Electronics AMP	motor power (4-pins)	

• Pin disposition of connector, connector X6

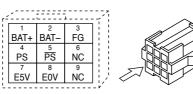
J|**t**_}|

(Case)

2 E0V

4 E0V

- Pin disposition of junction cable for motor power
- Pin disposition of junction cable for encoder



* When you connect the battery for absolute encoder, refer to P.125, "When you make your own cable for 17-bit absolute encoder"

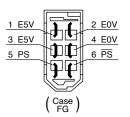
Part No.		Applicable	MSMD 50W to 750W, MHMD 200W to 750W
Fart NO.	DV0F4360	model	(incremental encoder type)

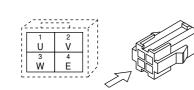
Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0670	1	Molex Inc	For Connector X6 (6-pins)
Connector	172160-1	1	Tues Fleetronics AMD	For junction cable to
Connector pin	170365-1	6	Tyco Electronics AMP	encoder (6-pins)
Connector	172159-1	1	Tues Electronics AMD	For junction cable to
Connector pin	170366-1	4	Tyco Electronics AMP	motor power (4-pins)

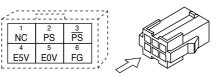
• Pin disposition of junction cable

• Pin disposition of connector, connector X6





for motor power

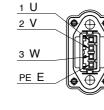


Pin disposition of junction cable

for encoder

Part No.	DV0PM20035	Applicable model MSN	1E 50W	to 750W	
• Con	nponents				
	Title	Part No.	Number	Manufacturer	Note
	Connector	55100-0670	1	Molex Inc	For Connector X6 (6-pins)
Enc	coder plug connector	JN6FR07SM1	1	Japan Aviation Electronics Ind.	For junction cable to encoder (7-pins)
	Socket contact	LY10-C1-A1-10000	7		
M	otor plug connector	JN8FT04SJ1	1	Japan Aviation	For junction cable to
	Socket contact	ST-TMH-S-C1B-3500	4	Electronics Ind.	motor power (4-pins)
	disposition of connector X3	ctor, • Pin disposition of for motor power	junction of	cable • Pin disposit	tion of junction cable

ᢖᢆᡏ 1 E5V 2 E0V з NC 4 NC 1 C $6 \overline{PS}$ 5 PS ኯዋ (Case FG



Part No.	DV0PM20036	Applicable model	MSME 1.0kW to 2.0kW, MDME 1.0kW to 2.0kW MHME 1.0kW to 1.5kW, MGME 0.9kW (All model 200V and 400V commonness)	Without brake		
• Components						

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0670	1	Molex Inc	For Connector X6 (6-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For junction cable to
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	encoder
Motor connector	JL04V-6A-20-4SE-EB-R	1	Japan Aviation	For junction cable to
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	motor power

Part No.		Applicable model		Without brake
----------	--	---------------------	--	------------------

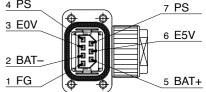
Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0670	1	Molex Inc	For Connector X6 (6-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For junction cable to
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	encoder
Motor connector	JL04V-6A22-22SE-EB-R	1	Japan Aviation	For junction cable to
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	motor power

Options Connector Kit

for encoder

<u>4 P</u>S



* Pins 2 and 5 are not used left unused for incremental encoder.

Options

123

Options Connector Kit

Part No.	DV0PM20038	Applicable model	MSME 1.0kW to 2.0kW, MDME 1.0kW to 2.0kW MHME 1.0kW to 1.5kW, MGME 0.9kW (All model 200V)	With brake
----------	------------	---------------------	---	---------------

Components

Title	Part No.	Number	Manufacturer	Note	
Connector	55100-0670	1	Molex Inc	For Connector X6 (6-pins)	
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For junction cable to	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	encoder	
Motor connector	JL04V-6A20-18SE-EB-R	1	Japan Aviation	For junction cable to	
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	motor power	

Part No.	DV0PM20039	Applicable model	(400V)	With brake
			MSME 1.0kW to 5.0kW, MDME 1.0kW to 5.0kW	
			MHME 1.0kW to 5.0kW, MGME 0.9kW to 3.0kW	

Components

Title	Part No.	Number	Manufacturer	Note
Connector	55100-0670	1	Molex Inc	For Connector X6 (6-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For junction cable to
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	encoder
Motor connector	JL04V-6A24-11SE-EB-R	1	Japan Aviation	For junction cable to
Cable clamp	JL04-2428CK(17)-R	1 Electronics Ind.		motor power

Connector Kit for Motor/Brake Connection

Part No. DV0PM20040

Components

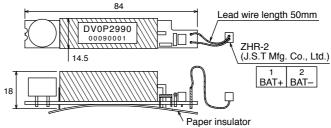
Title	Part No.	Number	Manufacturer	Note
Connector	JN4FT02SJM-R	1	Japan Aviation	
Handle lever	ST-TMH-S-C1B-3500	2	Electronics Ind.	

Options

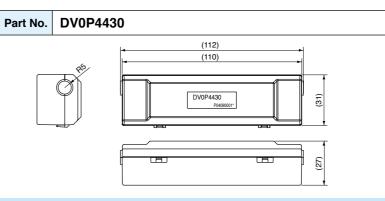
Battery For Absolute Encoder

Part No. DV0P2990

Lithium battery: 3.6V 2000mAh



Battery Box For Absolute Encoder



When you make your own cable for 17-bit absolute encoder

When you make your own cable for 17-bit absolute encoder, connect the optional battery for absolute encoder, DV0P2060 or 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

- 1) Indoors, where the products are not subjected to rain or direct sun beam.
- splash of inflammable gas, grinding oil, oil mist, iron powder or chips and etc.
- 3) Well-ventilated and humid and dust-free place. 4) Vibration-free place

• Wiring Diagram		cable nnector kit) 5V	7 (6) (4 3 (3) (1	Pin number when a c Pin number when a c Pin number when a c
	B/ F	AT- 	1 (5) (6 2 (2) (5 4 (7) (3 5 (4) (7 3 (1) (9	
Title	Part No.	Manufa	cturer	
Connector	ZMR-2	J.S	.T.	
Connector pin	SMM-003T-P0	.5 J.S	.T.	Connector for absolute
Clamping Jig	YRS-800	J.S	.T.	(To be provided by cust

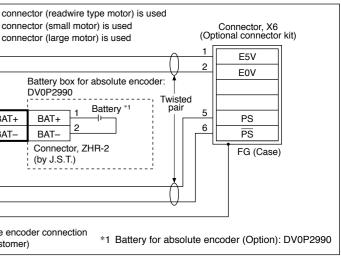
Battery For Absolute Encoder

A5Eseries does not correspond to absolute encoder type

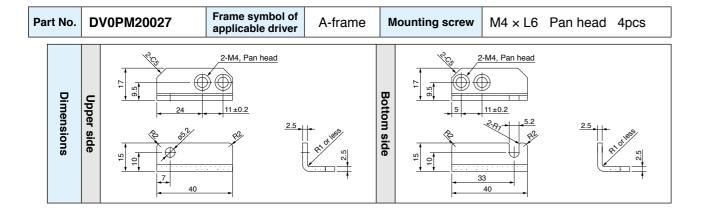
<Caution>

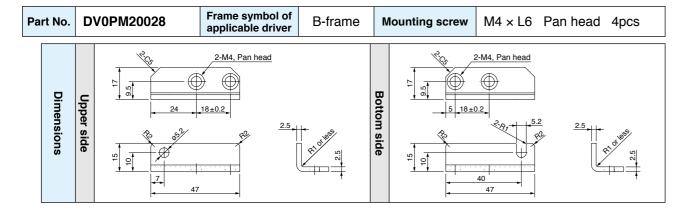
This battery is categorized as hazardous substance, and you may be required to present an application of hazardous substance when you transport by air (both passenger and cargo airlines).

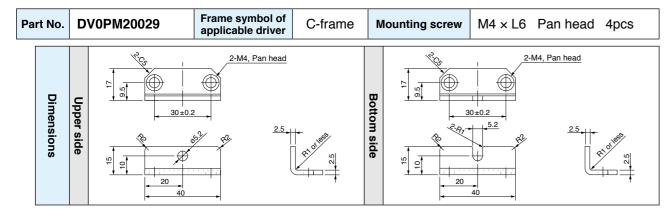
2) Where the products are not subjected to corrosive atmospheres such as hydrogen sulfide, sulfurous acid, chlorine, ammonia, chloric gas, sulfuric gas, acid, alkaline and salt and so on, and are free from



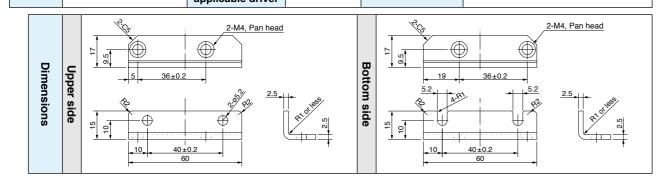
Options Mounting Bracket





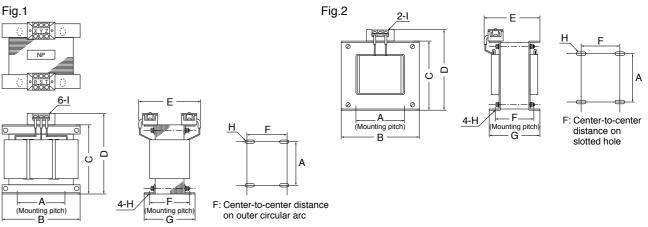


Frame symbol of Part No. DV0PM20030 D-frame Mounting screw M4 × L6 Pan head 4pcs applicable driver



<Caution>

For E and F-frame, you con make a front end and back end mounting by changing the mounting direction of L-shape bracket (attachment).



	Part No.	Α	В	с	D	E(Max)	F	G	н	I	Inductance (mH)	Rated current (A)
	DV0P220	65±1	125±1	(93)	136Max	155	70+3/–0	85±2	4-7φ×12	M4	6.81	3
[DV0P221	60±1	150±1	(113)	155Max	130	60+3/-0	75±2	4-7φ×12	M4	4.02	5
	DV0P222	60±1	150±1	(113)	155Max	140	70+3/-0	85±2	4-7φ×12	M4	2	8
Fig.1	DV0P223	60±1	150±1	(113)	155Max	150	79+3/–0	95±2	4-7φ×12	M4	1.39	11
	DV0P224	60±1	150±1	(113)	160Max	155	84+3/-0	100±2	4-7φ×12	M5	0.848	16
	DV0P225	60±1	150±1	(113)	160Max	170	100+3/-0	115±2	4-7φ×12	M5	0.557	25
	DV0P227	55±0.7	80±1	66.5±1	110Max	90	41±2	55±2	4-5φ×10	M4	4.02	5
Fig.2	DV0P228	55±0.7	80±1	66.5±1	110Max	95	46±2	60±2	4-5φ×10	M4	2	8

* For application, refer to P.16, 17 "Table of Part Numbers and Options".

Harmonic restraint

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.

- mand. (Refer to JEM-TR 210 and JEM-TR 225.)
- extent.

Options Reactor

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 de-

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

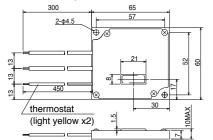
<Remarks> When using a reactor, be sure to install one reactor to one servo driver.

Options External Regenerative Resistor

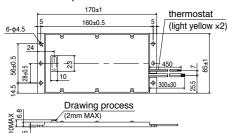
			Specifications		
Part No.	Manufacturer's	_	Rated power	r (reference) *	Activation
Part NO.	part No.	Resistance [Ω]	Free air	with fan [W]	temperature of built-in thermostat
		[]	[W]	1m/s	
DV0P4280	RF70M	50	10	25	
DV0P4281	RF70M	100	10	25	
DV0P4282	RF180B	25	17	50	140±5°C B-contact
DV0P4283	RF180B	50	17	50	Open/Close capacity
DV0P4284	RF240	30	40	100	(resistance load)
DV0P4285	RH450F	20	52	130	4A 125VAC 10000 times 2.5A 250VAC 10000 times
DV0PM20048	RF240TF	120	35	80]
DV0PM20049	RH450FTF	80	65	190	

Manufacturer : Iwaki Musen Kenkyusho

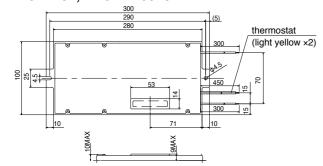
DV0P4280, DV0P4281



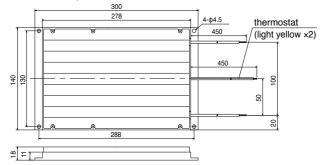
DV0P4282, DV0P4283



DV0P4284, DV0PM20048



DV0P4285, DV0PM20049



* Power with which the driver can be used without activating the built-in thermostat.

		Power supply	
Frame	Single phase, 100V	Single phase, 200V 3-phase, 200V	3-phase, 400V
А	DV0P4280	DV0P4281	
A	DV0F4200		
В	DV0P4283	DV0P4283	_
С	DV0P4282		
D		DV0P4284	DV0PM20048
E		DV0P4285	DV0PM20049
F	_	DV0P4285 × 2 in parallel	DV0PM20049 × 2 in parallel

<Remarks>

Thermal fuse is installed for safety. Compose the circuit so that the power will be turned off when the thermostat is activated. The thermal fuse may blow due to heat dissipating condition, working temperature, supply voltage or load fluctuation.

Make it sure that the surface temperature of the resistor may not exceed 100°C at the worst running conditions with the machine, which brings large regeneration (such case as high supply voltage, load inertia is large or deceleration time is short) Install a fan for a forced cooling if necessary.

<Caution>

Regenerative resistor gets very hot.

Take preventive measures for fire and burns. Avoid the installation near inflammable objects, and easily accessible place by hand.

Options Surge absorber for motor brake

	Motor	Part No.	Manufacturer
MSME	50W to 750W	Z15D271	Ishizuka Electronics Co.
MHME	2.0kW to 5.0kW		
MGME	0.9kW to 2.0kW		
MSME	1.0kW to 5.0kW	Z15D151	Ishizuka Electronics Co.
MDME	4.0kW to 5.0kW		
MGME	3.0kW		
MDME	1.0kW to 3.0kW		Ninnen Chemi Con Co
MHME	1.0kW to 1.5kW	TND09V-820KB00AAA0	Nippon Chemi_Con Co.

ns

nformation

Options List of Peripheral Equipments

Manufacturer	Tel No. / Home Page	Peripheral components
Automation Controls Company Panasonic Electric Works, Co.,Ltd	81-6-6908-1131 http://panasonic-denko.co.jp/ac	Circuit breaker Surge absorber
lwaki Musen Kenkyusho Co., Ltd.	81-44-833-4311 http://www.iwakimusen.co.jp/	Regenerative resistor
Nippon Chemi-Con Co.	81-3-5436-7711 http://www.chemi_con.co.jp/	Surge absorber
Ishizuka Electronics Corp.	81-3-3621-2703 http://www.semitec.co.jp/	for holding brake
TDK Corp.	81-3-5201-7229 http://www.tdk.co.jp/	Noise filter for signal lines
Okaya Electric Industries Co. Ltd.	81-3-4544-7040 http://www.okayatec.co.jp/	Surge absorber Noise filter
Japan Aviation Electronics Industry, Ltd.	81-3-3780-2717 http://www.jae.co.jp	
Sumitomo 3M	81-3-5716-7290 http://www.mmmco.jp	
Tyco Electronics AMP k.k,	81-44-844-8111 http://www.tycoelectronics.com/ japan/amp	Connector
Japan Molex Inc.	81-462-65-2313 http://www.molex.co.jp	
J.S.T. Mfg. Co., Ltd.	81-45-543-1271 http://www.jst-mfg.com/index_i.html	
Daiden Co., Ltd.	81-3-5805-5880 http://www.dyden.co.jp/	Cable
Mitutoyo Corp.	81-44-813-8236 http://www.mitutoyo.co.jp	External scale
Sony Manufacturing Systems Corp.	81-3-3490-3920 http://www.sonysms.co.jp/	External scale

 \ast The above list is for reference only. We may change the manufacturer without notice.

Information

Options

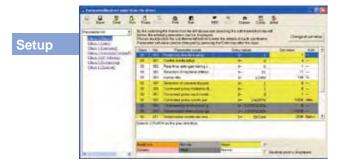
Contents
Setup support software "PANATERM" F2
Motor capacity selection software
AC servo motor capacity selection softwareF3
Option selection software for AC servo motorF3
Guide to the International System of Units (SI)F4
Selecting Motor Capacity F6
Request Sheet for Motor Selection F12
Connection between Driver and Controller
Index (Alphabetical order) F25
Sales OfficeF32

Next generation support tool fully loaded with advanced functions

Introduction to new setup support software "PANATERM"

Monitoring, setting and analyzing through a PC

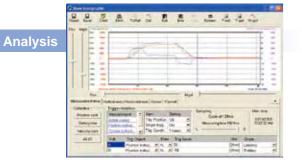
- High speed accessing between the driver and PC via USB communication
- Multilingualization (Japanese, English, Chinese and Korean)
- Supporting OS



Hierarchical parameter display for easier entry

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Universal monitor with recording/reproducing capability



High-performance waveform graphical display covers a wider range of measuring objects.

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Adjustme



Trial run program that limits operating range assures safe test sequence.

Others

- Frequency response measurement
- Troubleshooting
- Analog input adjustment
- · Z-phase searching
- Alarm monitoring
- · Functionality enhancement by using external tool

Hardware configuration		
	CPU	Pentium III 512MHz or more
	Memory	256MB or more (512MB recommended)
Personal	Hard disk capacity	Vacancy of 512MB or more recommended
computer	OS	Windows® XP SP3, Windows® Vista SP1 (Japanese/US/Chinese version) * It does not correspond to 64 bit version(x64).
	serial communication port	USB port
Disular	Resolution	1024 × 768pix or more (desirably 1024 × 768)
Display	Number of colors	24bit colors (TrueColor) or more
Display	Number of colors	24bit colors (TrueColor) or more

Please download from our web site and use after install to the PC.

http://panasonic.co.jp/motor/

Motor capacity AC servo motor capacity selection software 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] or [absolute position

standard] with optional settings such as S-acceleration/de celeration.

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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.

Two procedures for option selection

1. Selection according to driver series and motor type

Suitable option can be selected by selecting driver series, motor type and motor specification through pulldown menu.

Mode

2. Entry of model number

If you know the model number based on the servo motor and driver currently used, enter the model number.

Result of selection

Tab sheet specific to each of option model number is used for easier identification of the desired option

* When you are using the motor capacity selection software, simply press [Option Selection] tab and the screen as shown right will appear.

Please download from our web site and use after install to the PC.

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 MINAL A. use with your Married Street machine. Select the motor that is best suitable for your machine application. Details of motor Once the motor is selected, specifications of the motor and amplifier, and details of reason for determination are displayed and may be printed out.

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Guide to the International System of Units (SI) Organization of the system of units

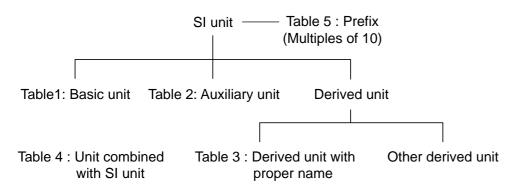


Table1: Basic unit

Quantity	Name of unit	Symbol of unit
Length	meter	m
Weight	kilogram	kg
Time	second	S
Current	ampere	А
Thermodynamic temperature	kelvin	K
Amount of substance	mol	mol
Luminous intensity	candela	cd

Table 2: Auxiliary unit

Quantity	Name of unit	Symbol of unit
Plane angle	radian	rad
Solid angle	steradian	sr

Table 3: Major derived unit with proper name

Quantity	Name	Symbol of unit	Derivation from basic unit, auxiliary unit or other derived unit
Frequency	hertz	Hz	1Hz=1s ⁻¹
Force	newton	N	1N=1kg·m/s ²
Pressure, Stress	pascal	Pa	1Pa=1N/m ²
Energy, Work, Amount of heat	joule	J	1J=1N•m
Amount of work, Work efficiency, Power, Electric power	watt	W	1W=1J/s
Electric charge, Amount of electricity	coulomb	С	1C=1A·s
Electric potential, Potential difference, Voltage, Electromotive force	volt	V	1V=1J/C
Electrostatic capacity, Capacitance	farad	F	1F=1C/V
Electric resistance	ohm	Ω	1Ω=1V/A
Electric conductance	siemens	S	1S=1Ω ⁻¹
Magnetic flux	weber	Wb	1Wb=1V·s
Magnetic flux density, Magnetic induction	tesla	Т	1T=1Wb/m ²
Inductance	henry	Н	1H=1Wb/A
Degree centigrade (Celsius)	degree centigrade (Celsius) / degree	°C	t°C=(t+273.15)K
Luminous flux	lumen	lm	1lm=1cd•sr
Illuminance	lux	lx	1lx=1lm/m ²

Table 4: Unit combined with SI unitTable 5: Prefix

Quantity	Name	Symbol of unit	Multiples powered	Pre	Prefix	
Quantity		-	to unit	Name	Symbol	
	minute	min	10 ¹⁸	exa	E	
Time	hour	h	10 ¹⁵	peta	Р	
TIME	lioui		10 ¹²	tera	Т	
	day	d	10 ⁹	giga	G	
		0	10 ⁶	mega	М	
	degree	0	10 ³	kilo	k	
Diana angla	minuto	,	10 ²	hecto	h	
Plane angle	minute		10	deca	da	
	second	"	10 ⁻¹	deci	d	
			10 ⁻²	centi	с	
Volume	liter	I, L	10 ⁻³	milli	m	
			10-6	micro	μ	
Weight	ton	t	10 ⁻⁹	nano	n	
	1		10 ⁻¹²	pico	р	
			10 ⁻¹⁵	femto	f	
			10 ⁻¹⁸	atto	а	

Guide to the International System of Units (SI)

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Quantity	Symbol of conventional unit	Symbol of SI unit and compatible unit	Conversion value
Length	μ (micron)	μm	1μ=1μm (micrometer)
Acceleration	Gal	m/s ²	1Gal=10 ⁻² m/s ²
	G	m/s ²	1G=9.806 65m/s ²
Frequency	c/s, c	Hz	1c/s=Hz
Revolving speed, Number of revolutions	rpm	s ^{-1 or} min ⁻¹ , r/min	1rpm=1min ⁻¹
Weight	kgf	-	
Mass	-	kg	Same value
Weight flow rate	kgf/s	-	
Mass flow rate	_	kg/s	Same value
Specific weight	kgf/m ³	-	
Density	-	kg/m ³	Same value
Specific volume	m ³ /kgf	m ³ /kg	Same value
Load	kgf	N	1kgf=9.806 65N
Force	kgf	Ν	1kgf=9.806 65N
	dyn	Ν	1dyn=10 ⁻³ N
Moment of force	kgf-m	N-m	1kgf-m=9.806 N•m
Pressure	kgf/cm ²	Pa, bar ⁽²⁾ or kgf/cm ²	1kgf/cm ² =9.806 65 x 10 ⁴ Pa=0.980
	at (Engineering atmospheric pressure)	Pa	665bar
	atm (Atmospheric pressure)	Pa	1at=9.806 65 x 10 ⁴ Pa
	mH ₂ o, mAq	Pa	1atm=1.013 25 x 10 ³ Pa
	mmHg	Pa or mmHg ⁽²⁾	1mH₂O=9.806 65 x 10³Pa
	Torr	Pa	1mmHg=133.322Pa
Stress	kgf/mm ²	Pa or N/m ²	1kgf/mm ² =9.806 65 x 10 ⁴ Pa
Chicos			$=9.806 65 \times 10^{6} \text{N/m}^{2}$
	kgf/cm ²	Pa or N/m ²	1kgf/cm ² =9.806 65 x 10 ⁴ Pa
	kg, on		=9.806 65 x 10 ⁴ N/m ²
Elastic modulus	kgf/m ²	Pa or N/m ²	1kgf/m ² =9.806 65Pa=9.806 65N/m
	Ng//II		$1 \text{kgf/cm}^2 = 9.806 \ 65 \ \text{x} \ 10^4 \text{N/m}^2$
Energy, Work	kgf-m	J (joule)	1kgf•m=9.806 65J
Energy, Work	erg	J	1erg=10 ⁷ J
Work efficiency, Power	kgf-m/s	W (watt)	1kgf-m/s=9.806 65W
work enciency, r ower	PS	W	1PS=0.735_5kW
Viscosity	PP	Ps-s	1P=0.1Pa-s
Kinetic viscosity	St	mm ² /s	10 ⁻² St=1mm ² /s
Thermodynamic temperature	K	K (kelvin)	1K=1K
Temperature interval		K (Keivin)	1deg=1K
Amount of heat	deg	J	1cal=4.186 05J
	cal cal/°C	J/K ⁽³⁾	1cal/°C=4.186 05J/K
Heat capacity			$1cal/ (kgf^{\circ}C)=4.186 05J/ (kg^{K})$
Specific heat, Specific heat capacity	cal/ (kgf∙°C)	cal/ (kgf•K) ⁽³⁾	1cal/K=4.186 05J/K
Entropy	cal/K	J/K	
Specific entropy	cal/ (kgf•K)	J/(kg•K)	1cal/ (kgf•K)=4.186 05J/ (kg•K)
Internal energy (Enthalpy)	cal	J	1cal=4.186 05J
Specific internal energy (Specific enthalpy)	cal/kgf	J/kg	1cal/kgf=4.186 05J/kg
Heat flux	cal/h	W	1kcal/h=1.162 79W
Heat flux density	cal/ (h•m²)	W/m ²	1kcal (h·m ²⁾ =1.162 79W/m ²
Thermal conductivity	cal/ (h•m•°C)	W/ (m•K) ⁽³⁾	1kcal (h•m•°C)=1.162 79W/ (m•K)
Coefficient of thermal conductivity	cal/ (h•m²•°C)	W/ (m ² •K) ⁽³⁾	1kcal (h•m•°C)=1.162 79W/ (m ² •K)
Intensity of magnetic field	Oe	A/m	1Oe=10 ² / (4π)A/m
Magnetic flux	Mx	Wb (weber)	1Mx=10 ⁻³ Wb
Magnetic flux density	Gs,G	T (tesla)	1Gs=10 ⁻⁴ T

Information

Note

(1) Applicable to liquid pressure. Also applicable to atmospheric pressure of meteorological data, when "bar" is used in international standard.
(2) Applicable to scale or indication of blood pressure manometers.
(3) "°C" can be substituted for "K".

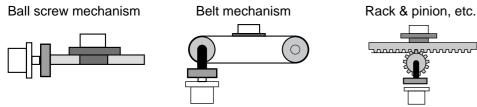
r compatible unit

Flow of motor selection

1. Definition of mechanism to be driven by motor.

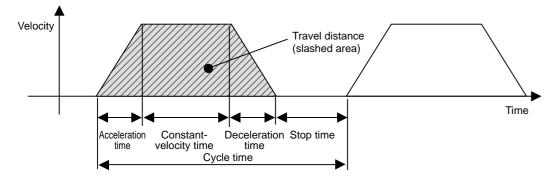
Define details of individual mechanical components (ball screw length, lead and pulley diameters, etc.)

<Typical mechanism>



2. Definition of operating pattern.

Acceleration/deceleration time, Constant-velocity time, Stop time, Cycle time, Travel distance



Note) Selection of motor capacity significantly varies depending on the operating pattern. The motor capacity can be reduced if the acceleration/deceleration time and stop time are set as long as possible.

3. Calculation of load inertia and inertia ratio.

Calculate load inertia for each mechanical component. (Refer to "General inertia calculation method" described later.)

Divide the calculated load inertia by the inertia of the selected motor to check the inertia ratio. For calculation of the inertia ratio, note that the catalog value of the motor inertia is expressed as " $\times 10^{-4}$ kg·m²".

4. Calculation of motor velocity

Calculate the motor velocity from the moving distance, acceleration / deceleration time and constant-velocity time.

5. Calculation of torque

Calculate the required motor torque from the load inertia, acceleration/deceleration time and constant-velocity time.

6. Calculation of motor

Select a motor that meets the above 3 to 5 requirements.

Description on the items related to motor selection

1. Torque

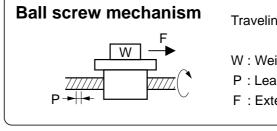
(1) Peak torque

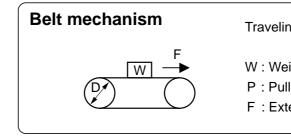
Indicate the maximum torque that the motor requires during operation (mainly in acceleration and deceleration steps). The reference value is 80% or less of the maximum motor torque. If the torque is a negative value, a regenerative discharge resistor may be required.

(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.

Trms – Ta^2	ta + Tf ² x tb + Td tc
$\gamma = \sqrt{-1}$	tc
Ta : Acceleration t	orque [N•m] ta : Acc
Tf: Traveling torq	ue [N•m] tb : Cor
Td: Deceleration f	orque [N·m] td: Dec

2. Motor velocity

Maximum velocity

Maximum velocity of motor in operation: The reference value is the rated velocity or lower value. When the motor runs at the maximum velocity, you must pay attention to the motor torque and temperature rise. For actual calculation of motor velocity, see "Example of motor selection" described later.

Description on the items related to motor selection

ng torque T _f =	$\frac{P}{2\pi\eta}$ (µgW+F)
eight [kg] ad [m] ternal force [N]	η : Mechanical efficiency μ : Coefficient of friction g : Acceleration of gravity 9.8[m/s ²]
ng torque Tf=	$\frac{D}{2\pi\eta} (\mu gW + F)$
eight [kg] lley diameter [m] ternal force [N]	η : Mechanical efficiency μ : Coefficient of friction g : Acceleration of gravity 9.8[m/s²]

$d^2 \times td$

ta : Acceleration time [s]tb : Constant-velocity time [s]td : Deceleration time [s]

tc : Cycle time [s] (Run time + Stop time)

Description on the items related to motor selection

3. Inertia and inertia ratio

Inertia is like the force to retain the current moving condition.

Inertia ratio is calculated by dividing load inertia by rotor inertia.

Generally, for motors with 750 W or lower capacity, the inertia ratio should be "20" or less. For motors with 1000 W or higher capacity, the inertia ratio should be "10" or less.

If you need quicker response, a lower inertia ratio is required.

For example, when the motor takes several seconds in acceleration step, the inertia ratio can be further \increased.

General inertia calculation method

Shape	J calculation formula	Shape	J calculation formula
Disk	$J = \frac{1}{8} WD^{2} [kg \cdot m^{2}]$ W : Weight [kg] D : Outer diameter [m]	Hollow cylinder	$J = \frac{1}{8} W(D^2 + d^2) [kg \cdot m^2]$ W : Weight [kg] D : Outer diameter [m] d : Inner diameter [m]
Prism	J = $\frac{1}{12}$ W (a ² + b ²) [kg·m ²] W : Weight [kg] a, b, c : Side length [m]		$J = \frac{1}{48} W(3D^2 + 4L^2) [kg \cdot m^2]$ W : Weight [kg] D : Outer diameter [m] L : Length [m]
Straight rod	$J = \frac{1}{3} WL^{2} [kg \cdot m^{2}]$ W : Weight [kg] L : Length [m]	Separated rod	$J = \frac{1}{8} WD^{2} + WS^{2} [kg \cdot m^{2}]$ W : Weight [kg] D : Outer diameter [m] S : Distance [m]
Reduction gear	Inertia on shaft "a" $J = J_{1} + \left(\frac{n_{2}}{n_{1}}\right)^{2} J_{2}[kg \cdot m^{2}]$ $n_{1} : A \text{ rotational speed of a shaft } [r/min]$ $n_{2} : A \text{ rotational speed of b shaft } [r/min]$		
Conveyor	J = $\frac{1}{4}$ W D ² [kg·m ²] W : Workpiece weight on conveyor [kg] D : Drum diameter [m] * Excluding drum J	Ball screw	$J = J_{B} + \frac{W \cdot P^{2}}{4\pi^{2}} [kg \cdot m^{2}]$ W : Weight [kg] P : Lead JB : J of ball screw

If weight (W [kg]) is unknown, calculate it with the following formula: Weight W[kg]=Density ~ [kg/m³] x Volume V[m³]

Density of each material

Iron $\rho = 7.9 \times 10^3 \, [\text{kg/m}^3]$ Aluminum $\rho = 2.8 \times 10^3 \, [\text{kg/m}^3]$ Brass $\rho = 8.5 \times 10^3 \, [\text{kg/m}^3]$

To drive ball screw mechanism

1. Example of motor selection for driving ball screw mechanism

Workpiece weight	WA = 10 [kg]
Ball screw length	BL = 0.5 [m]
Ball screw diameter	BD = 0.02 [m]
Ball screw pitch	BP = 0.02 [m]
Ball screw efficiency	$B\eta = 0.9$
Travel distance 0.3[m]	
Coupling inertia Jc = 10	$0 \times 10^{-6} [\text{kg} \cdot \text{m}^2] (\text{Use})$

2. Running pattern :

Acceleration time	ta = 0.1 [s]	veloon
Constant-velocity time	tb = 0.8 [s]	
Deceleration time	td = 0.1 [s]	
Cycle time	tc = 2 [s]	
Travel distance 0.3[m]		

3. Ball screw weight

```
= 1.24 [kg]
```

4. Load inertia

```
= 1.73 \times 10^{-4} [\text{kg} \cdot \text{m}^2]
```

5. Provisional motor selection

In case of MSME 200 W motor : $JM = 0.14 \times 10^{-4} [kg \cdot m^2]$

6. Calculation of inertia ratio

 $JL / JM = 1.73 \times 10^{-4} / 0.14 \times 10^{-4}$ Therefore, the inertia ratio is "12.3" (less than "30") (In case of MSME 100 W motor: $JM = 0.051 \times 10^{-4}$ Therefore, the inertia ratio is "33.9".)

7. Calculation of maximum velocity (Vmax)

 $\frac{1}{2}$ × Acceleration time × Vmax+ Constant-velocity time × Vmax+ $\frac{1}{2}$ × Deceleration time × Vmax = Travel distance $\frac{1}{2} \times 0.1 \times \text{Vmax} + 0.8 \times \text{Vmax} + \frac{1}{2} \times 0.1 \times \text{Vmax} = 0.3$ $0.9 \times Vmax = 0.3$

= 0.3 / 0.9 = 0.334 [m/s]

8. Calculation of motor velocity (N [r/min]) Ball screw lead per resolution: BP = 0.02 [m]

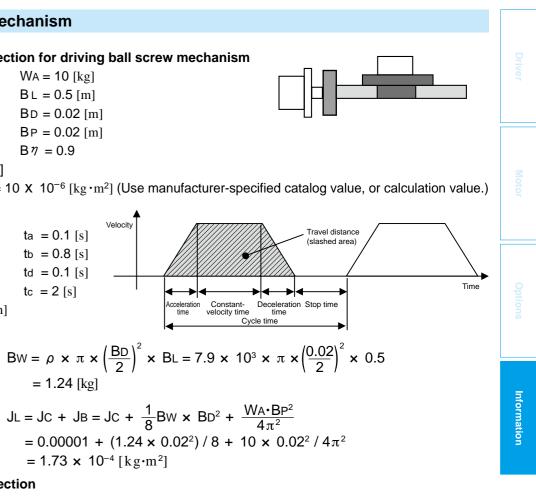
N = 0.334 / 0.02 = 16.7 [r/s] 00 4000 5 11

$$= 16.7 \times 60 = 1002 [min^{-1}] < 3000 [min^{-1}]$$

9. Calculation of torque

Traveling torque
$$Tf = \frac{BP}{2\pi B \eta} (\mu gWA + F) = \frac{0.02}{2\pi \times 0.9} (0.1 \times 9.8 \times 10 + 0)$$
$$= 0.035 [N \cdot m]$$
Acceleration torque
$$Ta = \frac{(JL + JM) \times 2\pi N[r/s]}{\text{Acceleration time } [s]} + \text{Traveling torque}$$
$$= \frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7} + 0.035$$

+ 0.0350.1 $= 0.196 + 0.035 = 0.231 [N \cdot m]$



3000 [min⁻¹] (Rated velocity of MSME 200W motor)

To drive ball screw mechanism Example of motor selection

Deceleration torque
$$T_d = \frac{(J_L + J_M) \times 2\pi N[r/s]}{Deceleration time [s]} - Traveling torque$$

= $\frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} - 0.035$
= $0.196 - 0.035 = 0.161 [N \cdot m]$

10. Verification of maximum torque

Acceleration torque = $T_a = 0.231 [N \cdot m] < 1.91 [N \cdot m]$ (Maximum torque of MSME 200 W motor)

11. Verification of effective torque

$$Trms = \sqrt{\frac{Ta^{2} \times ta + Tf^{2} \times tb + Td^{2} \times td}{tc}}$$
$$= \sqrt{\frac{0.231^{2} \times 0.1 + 0.035^{2} \times 0.8 + 0.161^{2} \times 0.1}{2}}$$
$$= 0.067 [N \cdot m] < 0.64 [N \cdot m] \text{ (Rated torque of MSME 200 W motor)}$$

12. Judging from the inertia ratio calculated above, selection of 200 W motor is preferable, although the torque margin is significantly large.

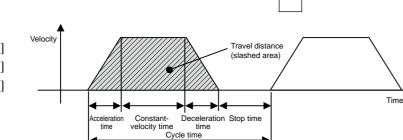
Example of motor selection

Example of motor selection for timing belt mechanism 1.Mecha

-		-	
chanism	Workpiece weight	WA = 3[kg] (including belt)	
	Pulley diameter	PD = 0.05[m]	
	Pulley weight	WP= 0.5[kg] (Use manufacturer-specified catalo	og value, or calculation value.)
	Mechanical efficiency	$B\eta = 0.8$	
	Coupling inertia	Jc = 0 (Direct connection to motor shaft)	
	Belt mechanism inertia	JB	
	Pulley inertia	JP	
nning pattern		▲	

2. Running pattern

Acceleration time ta = 0.1[s]Constant-velocity time tb = 0.8[s]Deceleration time td = 0.1[s]Cycle time tc = 2[s]Travel distance 1[m]



3. Load inertia JL = JC + JB + JP

$$= JC + \frac{1}{4}WA \times PD^{2} + \frac{1}{8}WP \times PD^{2} \times 2$$

= 0 + $\frac{1}{4} \times 3 \times 0.05^{2} + \frac{1}{8} \times 0.5 \times 0.05^{2} \times 2$
= 0.00156 = 15.6 × 10⁻⁴ [kg·m²]

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

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)

$$\frac{1}{2} \times \text{Acceleration time} \times \text{Vmax} + \text{Constant-velocity}$$

$$\frac{1}{2} \times 0.1 \times \text{Vmax} + 0.8 \times \text{Vmax} + \frac{1}{2} \times 0.9 \times \text{Vmax} = 1$$

$$\text{Vmax} = 1 / 0.9 = 1.111 \text{[m/s]}$$

7. Calculation of motor velocity (N [r/min])

A single rotation of pulley : $\pi \times PD = 0.157[m]$ N = 1.11 / 0.157 = 7.08[r/s]

8. Calculation of torque

Traveling torque	$Tf = \frac{PD}{2\eta} (\mu gWA + F)$
	= 0.061[N·m]
Acceleration torque	$T_{a} = \frac{(J_{L} + J_{M}) \times 2\pi N}{Acceleration tin}$ $= (15.6 \times 10^{-4} + 0)$

$$= 0.751 + 0.06$$

Deceleration torque

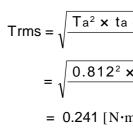
$$T_{d} = \frac{(J_{L} + J_{M}) \times 2}{Deceleration}$$
$$= \frac{(15.6 \times 10^{-4} - 10^{-4})}{10^{-4}}$$

 $= 0.751 - 0.061 = 0.69[N \cdot m]$

9. Verification of maximum torque

Acceleration torque
$$Ta = 0.812[N \cdot m]$$

10. Verification of effective torque



11. Judging from the above calculation result, selection of MSME 750W motor is acceptable.

 $time \times Vmax + \frac{1}{2} \times Deceleration time \times Vmax = Travel distance$ 0.1 × Vmax = 1

 $= 7.08 \times 60 = 424.8 [min^{-1}] < 3000 [min^{-1}]$ (Rated velocity of MSME 750 W motor)

$$\mathsf{F}) = \frac{0.05}{2 \times 0.8} \ (0.1 \times 9.8 \times 3 + 0)$$

 $\frac{N[r/s]}{me[s]}$ + Traveling torque 0.87×10^{-4} × $2\pi \times 7.08$ + 0.061 0.1 $51 = 0.812[N \cdot m]$

 $\frac{2\pi N[r/s]}{r}$ – Traveling torque time[s] + 0.87×10^{-4}) × $2\pi \times 7.08$ - 0.061 0.1

2[N·m] < 7.1[N·m] (Maximum torque of MSME 750 W motor)

$$\frac{+ Tf^{2} \times tb + Td^{2} \times td}{tc}$$

$$\frac{(0.1 + 0.061^{2} \times 0.8 + 0.69^{2} \times 0.1)}{2}$$

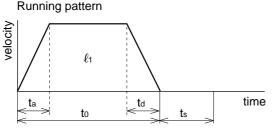
= $0.241 [N \cdot m] < 2.4 [N \cdot m]$ (Rated torque of MSME 750 W motor)

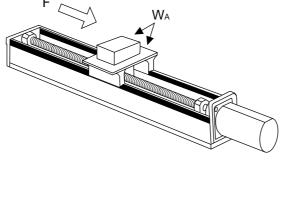
Customer Service Technical Support Center, Motor Company, Panasonic Corporation

Request for Motor Selection I : Ball screw drive

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle	l1:	mm	
2) Cycle time	to:	S	Running
(Fill in items 3) and 4) if required.)			velocity
3) Acceleration time	ta:	S	
4) Deceleration time	td:	S	ta <
5) Stopping time	ts:	S	
6) Max. velocity	V:	mm/s	F
7) External force	F:	kg	
8) Positioning accuracy of the work load	±	mm	
9) Total weight of the work load and the table	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	14) Traveling d (horizontal,
			· · · ·





eling direction	
izontal, vertical etc.)	

2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

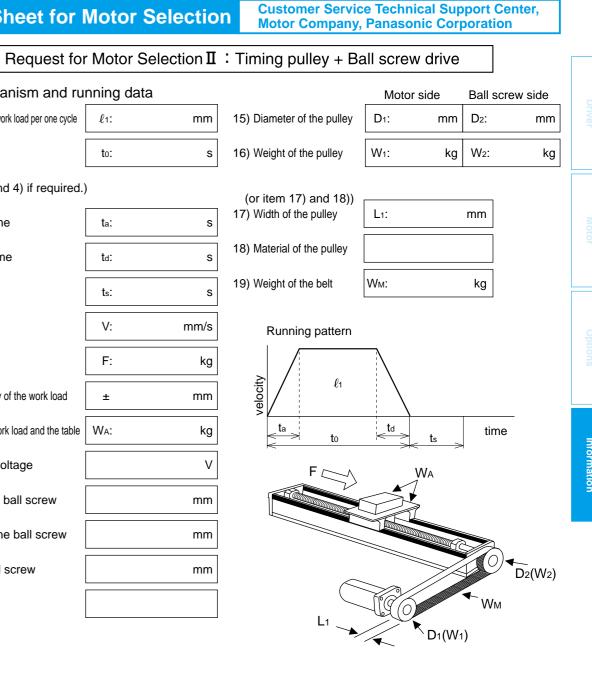
Request Sheet for Motor Selection

1. Driven mechanism and running data 1) Travel distance of the work load per one cycle *ℓ*1: mm to: 2) Cycle time s (Fill in items 3) and 4) if required.) 3) Acceleration time ta: s 4) Deceleration time td: s ts: 5) Stopping time s 6) Max. velocity V: mm/s F: 7) External force kg 8) Positioning accuracy of the work load ± mm 9) Total weight of the work load and the table | WA: kg 10) Power supply voltage V 11) Diameter of the ball screw mm 12) Total length o the ball screw mm 13) Lead of the ball screw mm

2. Other data

14) Traveling

(Fill the details on specific mechanism and its configurations in the following blank.)



Company name :			
Department/Section :			
Name :			
Address :			
Tel :			
Fax :			
E-mail address:			

Customer Service Technical Support Center, Motor Company, Panasonic Corporation

Request for Motor Selection III : Belt drive

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle	<i>ℓ</i> 1: mm	Running pattern
2) Cycle time	to: s	
(Fill in items 3) and 4) if required.)		l1
3) Acceleration time	ta: S	$\frac{1}{t_a} = t_0 \qquad t_a \qquad t_b $
4) Deceleration time	td: s	
5) Stopping time	ts: S	
6) Max. velocity	V: mm/s	
7) External force	F: kg	
8) Positioning accuracy of the work load	± mm	
9) Total weight of the work load	WA: kg] W1
10) Power supply voltage	V	(or item 14) and 15))
11) Weight of the belt	WM: kg	14)Width of the pulley L1: mm
12) Diameter of the driving pulley	D1: mm	15) Material of the pulley
13) Total weight of the pulley	W1: kg	16) Traveling direction (horizontal, vertical etc.)

2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

Request Sheet for Motor Selection

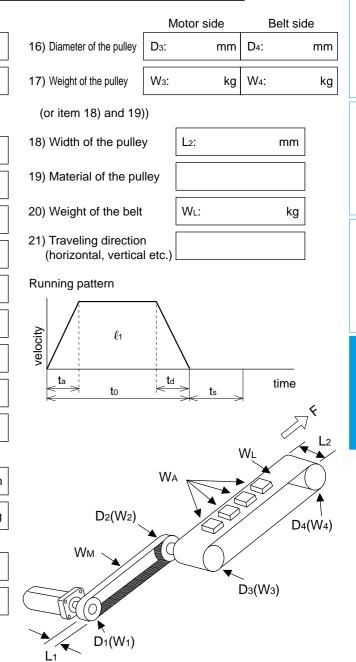
Request for Motor Selection \mathbf{N} : Timing pulley + Belt drive

1. Driven mechanism and running data 1) Travel distance of the work load per one cycle *ℓ*1: mm to: 2) Cycle time 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 F: 7) External force kg 8) Positioning accuracy of the work load ± mm 9) Total weight of the work load and the table WA: kg 10) Power supply voltage V Wм: 11) Weight of motor site belt kg Motor side Belt side 12) Diameter of the pully D1: mm | D₂: mm kg W2: 13) Weight of the pulley | W1: kg (or item 14) and 15)) L1: 14) Weight of the belt mm 15) Material of the pulley

2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

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Company name :			
Department/Section :			
Name :			
Address :			
Tel :			
Fax :			
E-mail address:			

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Requ	uest for Motor Sele	ection V: Turntable	e drive			
1. Driven mechanism and rur		Prism		Су	linder	
1) Travel distance of the work load per one cycle	d1: deg	14) Dimensions of the work load	a:	mm	a:	mm
2) Cycle time	to: s		b:	mm	b:	mm
(Fill in items 3) and 4) if required.))		с:	mm	C:	mm
3) Acceleration time	ta: S	15) Number of work loa	ads			pcs
4) Deceleration time td: s Ru		Running pattern				
5) Stopping time	ts: S					
6) Max. rotational speed of the table	v: deg/s		dı			
(or)	V: r/s		o td	ts	_	time
7) Positioning accuracy of the work load	± deg			<	—>	
8) Weight of one work load	WA: kg] WA ·		\gtrsim		
9) Driving radius of the center of gravity of the	R1: mm]				
10) Diameter of the table	D1: mm]			·	
11) Mass of the table	W1: kg					
12) Diameter of the table support	T1: mm)		
13) Power supply voltage	V		b		b	

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:

а

Request Sheet for Motor Selection

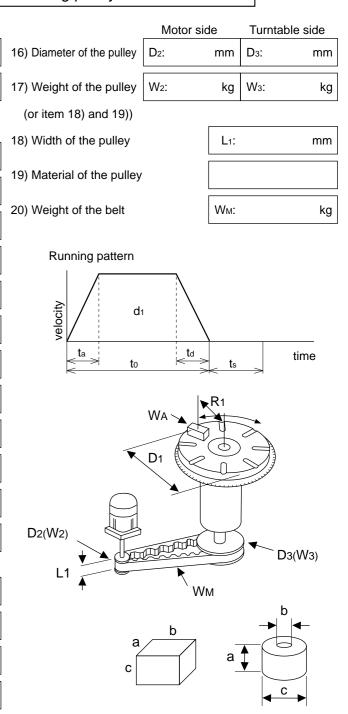
1. Driven mechanism and running data 1) Travel distance of the work load per one cycle d1: deg to: s 2) Cycle time (Fill in items 3) and 4) if required.) 3) Acceleration time ta: s 4) Deceleration time td: s ts: 5) Stopping time s 6) Max. rotating speed of the table v: deg/s (or) V: r/s 7) Positioning accuracy of the work load ± deg 8) Weight of one work load WA: kg 9) Driving radius of the center of gravity of the R1: mm 10) Diameter of the table D1: mm W1: 11) Mass of the table kg 12) Diameter of the table support T1: mm V 13) Power supply voltage (Prism) (Cylinder) 14) Dimension of the work load a: mm | a: mm b: mm | b: mm C: mm c: mm 15) Number of work loads pcs

2. Other data

(Fill the details on specific mechanism and its configurations in the following blank.)

Customer Service Technical Support Center, Motor Company, Panasonic Corporation

Request for Motor Selection VI :Timing pulley + Turntable drive



Company name :		
Department/Section :		
Name :		
Address :		
Tel :		
Fax :		
E-mail address:		

Customer Service Technical Support Center, Motor Company, Panasonic Corporation

Request for Motor Selection VII : Roller feed drive

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle	<i>ℓ</i> 1: mm]
2) Cycle time	to: s	Running pattern
(Fill in items 3) and 4) if required.)	λipodity μ
3) Acceleration time	ta: S	$\begin{bmatrix} & & & \\ & & & \\ & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & & \\ & & & & & & \\ & & & & & \\ & & & & & \\ & & & & & & \\ & & & & $
4) Deceleration time	td: S	
5) Stopping time	ts: S	
6) Max. velocity	v: mm/s	
7) External pulling force	F: kg	
8) Positioning accuracy of the work load	± mm] D1(W1)
9) Total weight of the work load	pcs]
10) Power supply voltage	V	(or item 13) and 14))
11) Diameter of the roller	D1: mm	13) Width of the roller L1: mm
12) Mass of the roller	W1: kg	14) Material of the roller

2. Other data

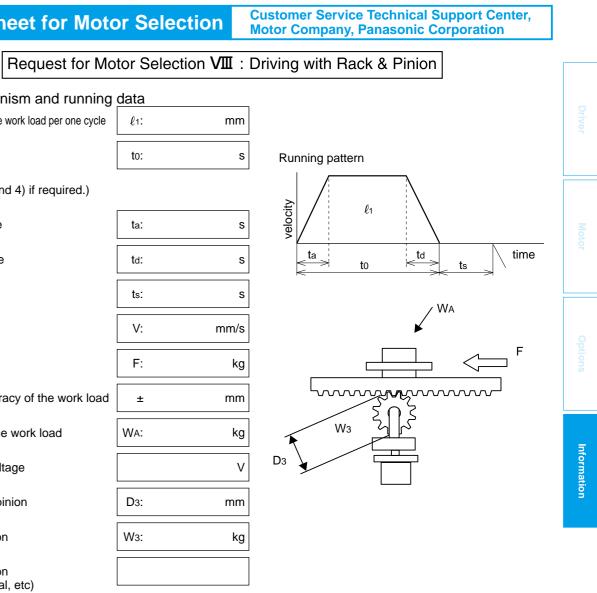
(Fill the details on specific mechanism and its configurations in the following blank.)

Request Sheet for Motor Selection

1. Driven mechanism and running	data
1) Travel distance of the work load per one cycle	l1:
2) Cycle time	to:
(Fill in items 3) and 4) if required.)	
3) Acceleration time	ta:
4) Deceleration time	td:
5) Stopping time	ts:
6) Max. velocity	V:
7) External force	F:
8) Positioning accuracy of the work load	±
9) Total weight of the work load	WA:
10) Power supply voltage	
11) Diameter of the pinion	D3:
12) Mass of the pinion	W3:
13) Traveling direction (horizontal, vertical, etc)	

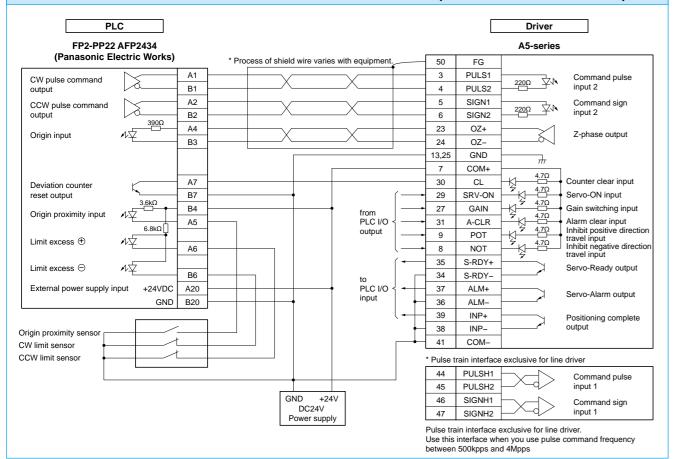
2. Other data

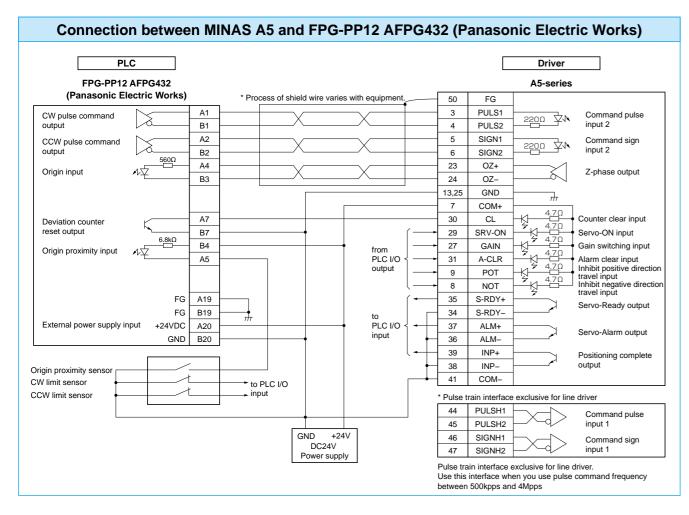
(Fill the details on specific mechanism and its configurations in the following blank.)

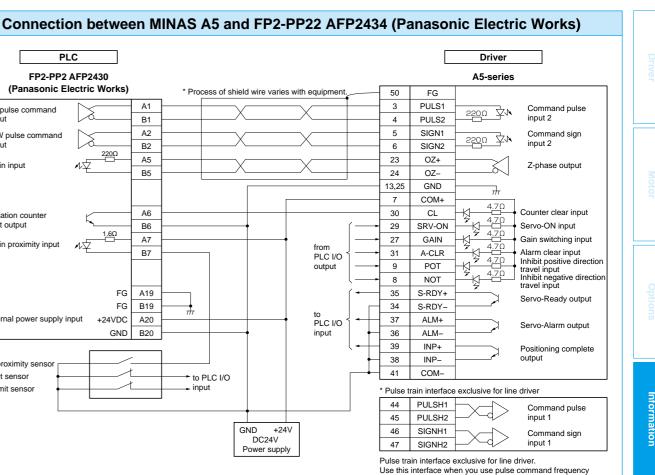


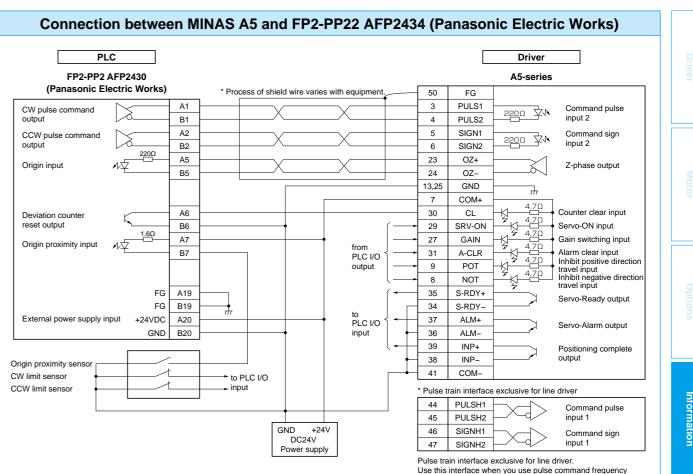
Company name :
Department/Section :
Name :
Address :
Tel :
Fax :
E-mail address:

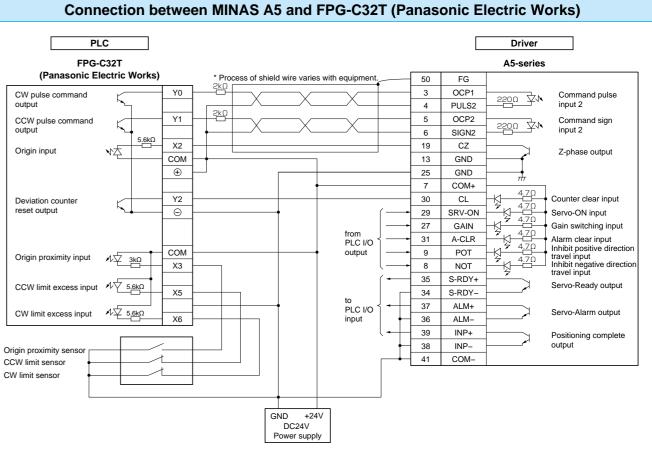






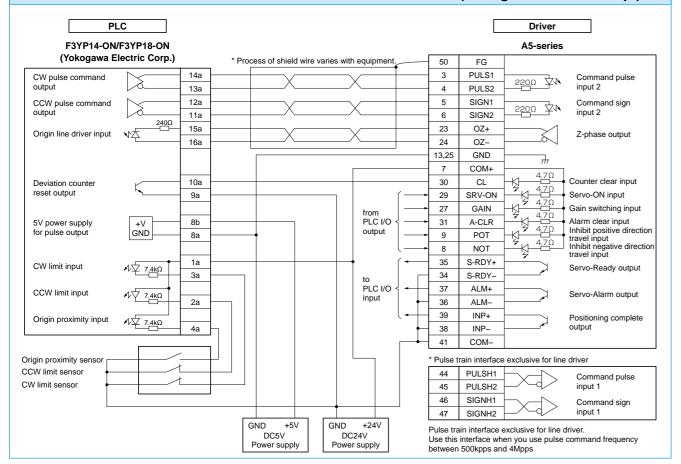


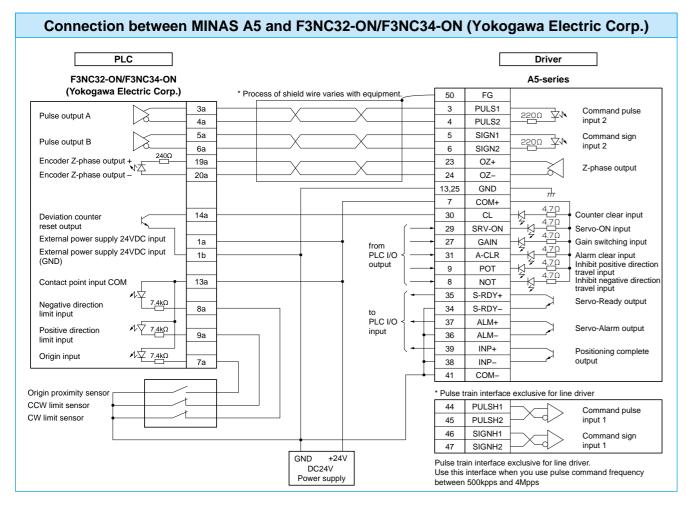


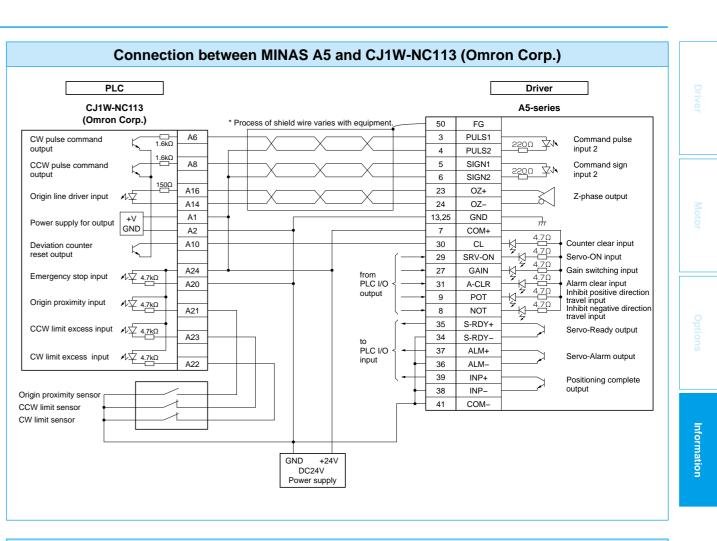


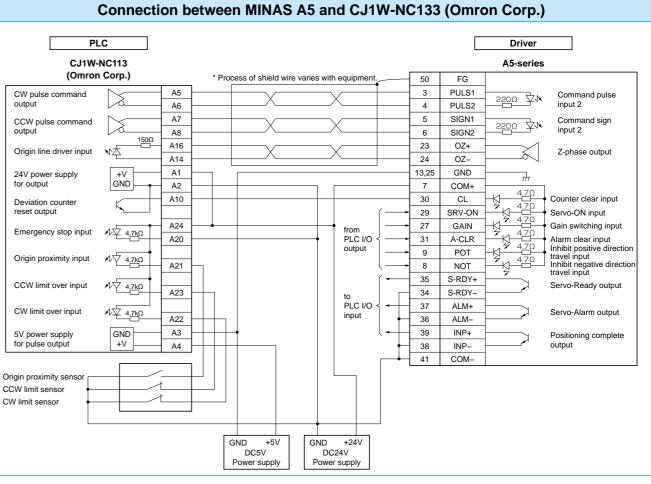
between 500kpps and 4Mpps

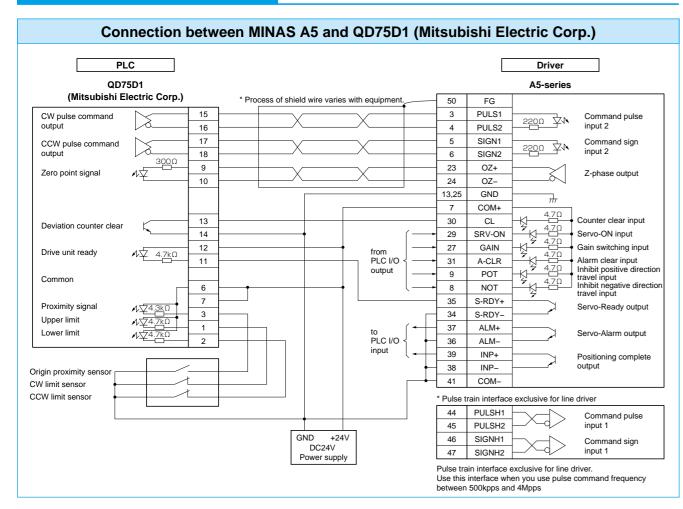
Connection between MINAS A5 and F3YP14-ON/F3YP18-ON (Yokogawa Electric Corp.)

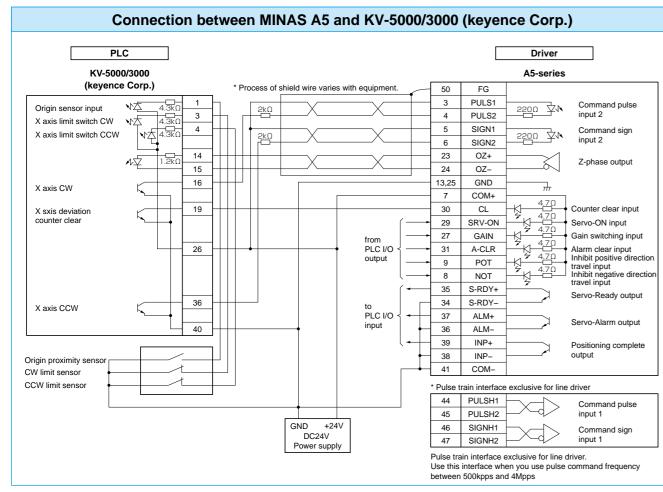












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MSMD 100W Absolute encoder

MSMD 100W Incremental encoder

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[Panasonic Sales Office of Motors]

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				1-408-436-8037
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				82-31-732-9188
	Zeus Co.,Ltd.	Osan	163-1, Busan-Dong, Osan-City, Kyunggi-Do, 447-050, Korea	82-31-377-9500
				82-31-378-8660

Cautions for Proper Use

- This product is intended to be used with a general industrial product, but not designed or manufactured to be used in a machine or system that may cause personal death when it is failed.
- Installation, wiring, operation, maintenance, etc., of the equipment should be done by qualified and experienced personnel.
- Apply adequate tightening torque to the product mounting screw by taking into consideration strength of the screw and the characteristics of material to which the product is installed. Overtightening can damage the screw and/or material; undertightening can result in loosening.

Example) Steel screw (M5) into steel section: 2.7 to 3.3 N·m.

- Install a safety equipments or apparatus in your application, when a serious accident or loss of property is expected due to the failure of this product.
- Consult us if the application of this product is 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 the products, however, application of exceptionally larger external noise disturbance and static electricity, or failure in input power, wiring and components may result in unexpected action. It is highly recommended that you make a fail-safe design and secure the safety in the operative range.
- If the motor shaft is not electrically grounded, it may cause an electrolytic corrosion to the bearing, depending on the condition of the machine and its mounting environment, and may result in the bearing noise. Checking and verification by customer is required.
- Failure of this product depending on its content, may generate smoke of about one cigarette. Take this into consideration when the application of the machine is clean room related.
- Please be careful when using 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.
- Take care to avoid inputting a supply voltage which significantly exceeds the rated range to the power supply of this product. Failure to heed this caution may result in damage to the internal parts, causing smoking and/or a fire and other trouble.
- 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.
- Read and observe the instruction manual without fail for proper usage of the products.

Repair	Consult to the dealer from whom you have purchased this product for details of repair work. When the product is incorporated to the machine you have purchased, consult to the machine manufacturer or its dealer.	
URL	Electric data of this product (Instruction Manual, CAD data) can be download from the following web site; http://industrial.panasonic.com/ww/i_e/25000/motor_fa_e/motor_fa_e.html	

Contact to :	Motor Company, Panasonic Corporation 1-1 Morofuku 7-chome, Daito, Osaka 574-0044, Japan Tel : +81-72-871-1212 Fax: +81-72-870-3151
	ISO9001 Certificate division CERTIFICATE OF APPROVAL ISO9001
	The contents of this catalog apply to the products as of Nov. 1, 2009.

· Printed colors may be slightly different from the actual products

• Specifications and design of the products are subject to change without notice for the product improvement.