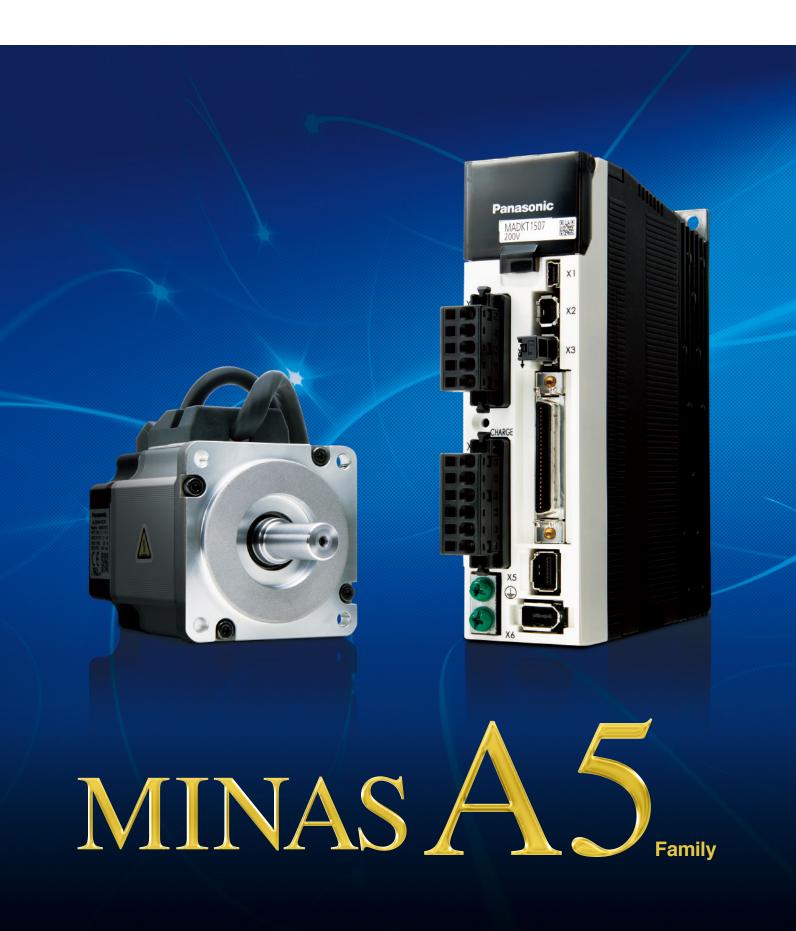
Panasonic

AC Servo
MINAS A5 II / A5 series
MINAS E series

2015/4
Catalog



Servo motor that brings out potential of





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

$A5II_{series}$

Rated output: 50 W to 15.0 kW

- 20 bit incremental encoder,
- 17 bit absolute/ incremental encoder
 All-in-one: Speed, Position, Torque¹
 - *1 Not applicable to two-degree-of-freedom control system.

Full-closed*1 control type

All-in-one type



Rated output: 50 W to 15.0 kW

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

Two-degree-of-freedom control system

Position control type

A5IE series

Rated output: 50 W to 5.0 kW

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

Position control type

A5E series

Rated output: 50 W to 5.0 kW

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

Slim design and position control type





Rated output: 50 W to 400 W

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

the machine. MINAS A5 Family

High-speed communication "Realtime Express" support model

Ultra high-speed Network type

A5IIN Special Order Product series



Rated output:

50 W to 15.0 kW

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

Linear motor and DD motor control type

A5IINL Special Order Product



RTEX
Realtime Express

Capacity of applying Linear motor:

Compatible with 15.0 kW rotary AC servo motor

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

DC 24 V type

A5IIMN Special Order Production Series



Rated output:

10 W, 20 W, 30 W

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

Linear motor control, DC 24 V type

A5IIMNL Special Order Product



RTEX
Realtime Express

Capacity of applying Linear motor:

Compatible with 30 W rotary AC servo motor

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

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Linear motor and DD motor control type

A5L Special Order Product



Capacity of applying Linear motor:

Compatible with 15.0 kW rotary AC servo motor

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

EtherCAT communication driver type



Rated output:

50 W to 15.0 kW

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

General-purpose RS485 communication AE-LINK support type



Special Order Product

Rated output:

50 W to 5.0 kW

- Positioning is possible by built-in NC function
- Can connect up to 31 axes
- Standard Ethernet cable 2 using
- Two-degree-of-freedom control system
- AE-LINK is a registered trade mark of Asahi Engineering.

Quicker, Wiser and Friendlier

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

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







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





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

A5IIE series



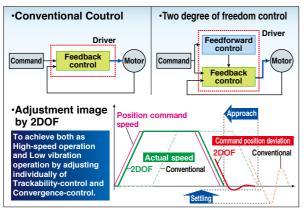
A5 II series

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

Adopted New Algorithm

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

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



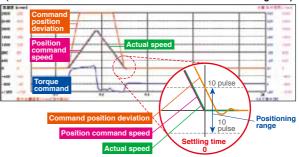
• Full-closed control and torque control are not applicable to 2DOF control system.

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

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

· Waveform of PANATERM

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



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

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

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

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

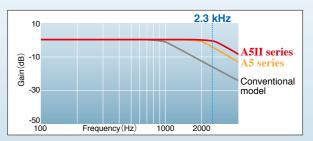
Newly developed feature "Fit Gain" maximizes the characteristics of A5II series. And adaptive notch filter function can reduce the vibration that occurs when the rigidity of the device is low, you can set and adjust automatically the best variety of gain.



Realized 2.3 kHz frequency response to improve productivity

Comparison* 1.15 times faster than conventional

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



^{*} Comparison with conventional product A5-series.

Features





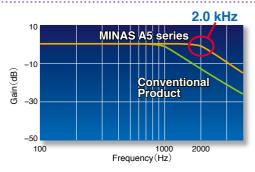
2.0 kHz Frequency Response

A5E

Example application Semiconductor production equipment, packaging, etc.

Achieves the industry's leading frequency response

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





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

Example application Machine tools, textile machinery, etc.

Ensures smoother operation and reduced vibration at stopping.

Ensures accurate positioning in a short time.

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

<At incremental type>

Conventional A4 Series 2500 p/r

15II, A5 Series 1048576 p/r [1.04 million pulses]

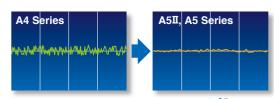


Low Cogging Torque (Excluding MSMD, MHMD, MDME 11.0 kW. 15.0 kW) A5II

Example application Semiconductor production equipment, textile machinery, etc.

For the industry's most stable speed and lowest

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



Vibration reduced to only 1/8



The Input/Output Pulse 4 Mpps

Example application Semiconductor production equipment, machine tools, etc.

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

The command input and feedback output operate at the high speed of 4 Mpps. Accommodates high-resolution and high-speed operation, including standard full closed operation. (Provided with A5II, A5 only.)

Conventional A4 Series 2 Mpps



4 Mpps





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

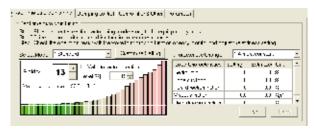
Example application Semiconductor production equipment, food processing machinery, etc.

High-performance real-time auto-gain tuning featuring simple setup.

After installation, tuning will be completed automatically after several operations. When the response is adjusted, **simple tuning** is supported with a change of one parameter value. Use of the gain adjustment mode in the setup support software contributes to optimum adjustment. **The built-in auto vibration suppression**

function reduces equipment damage. Appropriate modes are provided for various machines such as vertical axis machines and high friction machines with belts.

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



A5II



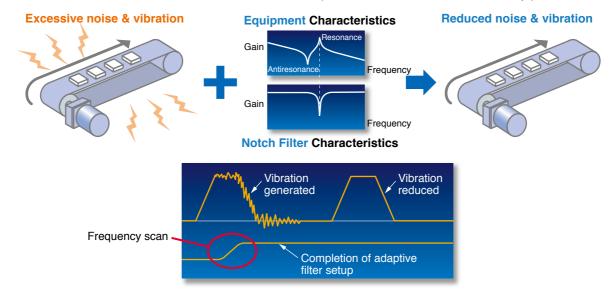
Manual/Auto Notch Filters

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

Equipped with auto-setting notch filters for greater convenience.

Now there is no need to measure troublesome vibration frequencies. Our notch filters automatically detect vibration and provide simple auto-setting. These notch filters greatly reduce noise and vibration caused by equipment resonance and respond quickly

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



Features



Manual/Auto Damping Filter

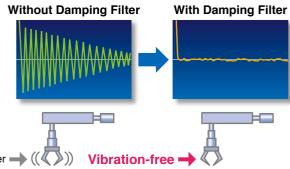
A5II

Example application

Chip mounters, food processing machinery, robots, general production machinery, etc.

Equipped with a damping filter featuring simplified automatic setup.

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





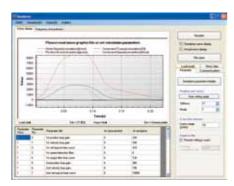
Motion Simulation

A5II

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.





New Structure/ Innovative Core/ Innovative Encoder A5II

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



Innovative encoder

Featuring significantly reduced weight and a more compact motor

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



[Examples]	for MOM	or MDM1
ILXAIIIDIGS	IUI IVIGIV	

Series	A 4	A5II A5	Weight Reduction
MSM 1 kW	4.5 kg	3.5 kg	▲1 kg
MSM 2 kW	6.5 kg	5.3 kg	▲1.2 kg
MDM 1 kW	6.8 kg	5.2 kg	▲1.6 kg
MDM 2 kW	10.6 kg	8.0 kg	▲ 2.6 kg





Complies with European Safety Standards.

A5II

Example application Semiconductor and LCD production equipment, etc.

Compliance with EU safety standards.

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

the required motor in order to accommodate low-voltage machinery commands. (The final safety compliance must be applied as machine.)



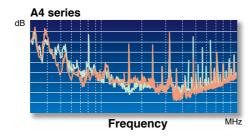
Low noise

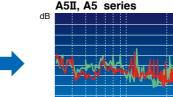
Example application

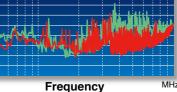
Semiconductor and LCD production equipment, etc. general production machinery for export to the European market

Complies with the European EMC Directive

By incorporating the latest circuit technology, A5II, A5 series achieves a further noise reduction of 3 dB compared with the conventional A4 series, which also features noise suppression. (The A4 series also conforms to the EMC Directive.)









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

A5II

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.



IP67

Protection against water

 Protection against temporary immersion in water

Protection against dust

- Protected against dust penetration when in full contact
- Motors of MSMD and MHMD series and 0.9 kW or higher standard stock items have IP65 rating.
- Motors of IP67 have smaller encoder connector that requires cable compatible with IP67 motor.
- * IP67 motor is build to order items.









PANATERM Set-up Support Software



A5



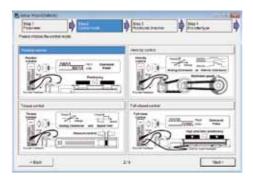
The PANATERM Set-up Support Software, with many added features.

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

Localized in 4 languages
 Choose either English, Japanese, Chinese, or Korean-language display.

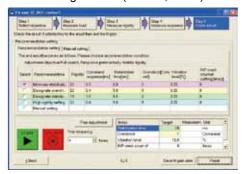
Setup Wizard

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



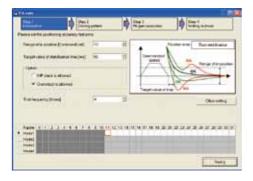
The fit gain function for setting two-degree-of-freedom control.

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



Fit gain

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



Service Life Prediction

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



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

Encoder Temperature Monitor

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

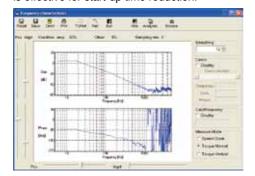
malfunction (provided with 20-bit encoder only).

Other New Function

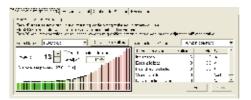
The software offers a wide range of convenient features including motor and driver data such as load factor, voltage, and driver temperature. Moreover, the logging function records the interface history. As well, a non-rotating contributing factor display function.

Frequency characteristics measurement function

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



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

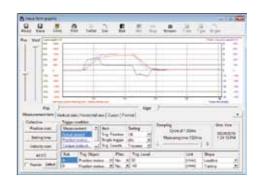


Trial run

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



Significant increase of measuring objects Multi-functional waveform graphic



<CAUTION>

This software is applicable only to A5 \mathbb{I} , A5, A5 \mathbb{I} E, A5E series.

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

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		Windows® XP SP3 (32-bit Ver.), Windows® VISTA SP1 (32-bit Ver.)						
	OS	Windows® 7 (32-bit Ver., 64-bit Ver.)						
		[English, Japanese, Chinese or Korean version]						
	Serial communication port	USB port						
Display	Resolution	1024 × 768pix or more (desirably 1024 × 768)						
Display	Number of colors	24bit colors (TrueColor) or more						

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

Features



Command Control Mode A5II A5

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

Full-closed Control A5II A5

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

SEMI F47 A5II A5 A5IIE A5E

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

Inrush Current Preventive Function ASIL AS ASIE ASE

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

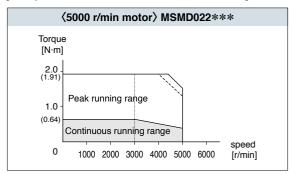
Regenerative Energy Discharge ASII AS ASIIE ASE

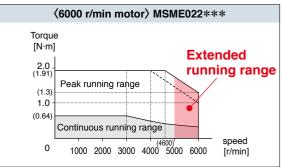
- A regenerative resistor is used to discharge regenerative energy, which is the energy generated when stopping a load with a large moment of inertia or when using this unit in vertical operation. This energy is returned to the driver from the motor.
- Frame A, B, G and frame H model drivers do not contain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

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

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

[Comparison of new and conventional 200 W]





Gear head

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

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

MSME → 6000 r/min

MSMD → 5000 r/min

Dynamic Braking A5II A5 A5IIE A5E

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

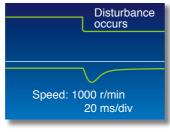
Parameter Initialization A5II A5 A5IIE A5E

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

Disturbance Observer A5II A5 A5IIE A5E

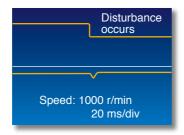
By using a disturbance observer to add an estimated disturbance torque value to the torque canceling command, this function diminishes the impact of the disturbance torque, reduces vibration, and offsets any speed decline.

Disturbance observer function not in effect





Disturbance observer function in effect



Torque Feed Forward A5II A5 A5IE A5E

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

Friction Torque Compensation ASII AS ASIE ASE

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

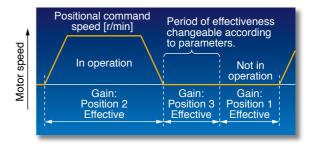
3-Step Gain A5II A5 A5IE A5E

A 3-step gain switch is available in addition to the normal gain switch.

This chooses appropriate gain tunings at both stopping and running.

The 3-step gain switch gives you choices of 3 different tunings for normal running, stopping for faster positioning and at stopping.

The right gaining tunings achieve lower vibration and quicker positioning time of your application.



Inertia Ratio Conversion A5II A5 A5IIE A5E

You can adjust right inertia ratio by Inertia Ratio Conversion input(J-SEL).

When you have significant load inertia changes, it can adjust unbalanced speed and position gain turning combination.

It ends up quicker response of your system.

Input/Output Signal Assignment A5II A5 A5IE A5E

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

Torque Limiter Switching A5II A5 A5IE A5E

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

Applicable international safety standards

















			(ADII, AD Selles) (ADIIE, ADE Selles)
		Driver	Motor
	EMC Directives	EN55011 EN61000-6-2 IEC61800-3	_
	Low-Voltage Directives	EN61800-5-1	EN60034-1 EN60034-5
EC Directives	Machinery Directives Functional safety '1	ISO13849-1(PL d) (Cat. 3) EN61508(SIL2) EN62061(SILCL 2) EN61800-5-2(STO) IEC61326-3-1	_
UL Standards		UL508C (E164620)	UL1004-1, UL1004-6 (E327868)
CSA Standards		C22.2 No.14	C22.2 No.100
Radio Waves Act (South Korea) (KC) *2		KN11 KN61000-4-2, 3, 4, 5, 6, 8, 11	

IEC: International Electrotechnical Commission

EN: Europaischen Normen

EMC: Electromagnetic Compatibility UL: Underwriters Laboratories

CSA: Canadian Standards Association

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

Panasonic Testing Centre

Panasonic Service Europe, a division of Panasonic Marketing Europe GmbH

Winsbergring 15, 22525 Hamburg, F.R. Germany

- When export this product, follow statutory provisions of the destination country.
- *1 A5IE and A5E series doesn't correspond to the functional safety standard.
- *2 Information related to the Korea Radio Law

This servo driver is a Class A commercial broadcasting radio wave generator not designed for home use. The user and dealer should be aware of this fact.

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

(대상기종 : Servo Driver)

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

Applicable External Scales

A5II A5

Applicable External Scale	Manufacturer	Model No.	Resolution [µs]	Maximum Speed (m/s) ⁻³
Parallel Type (AB-phase)	General	_	Maximum s	speed after ation: 4 Mpps
	GSI Group Japan Corporation	MI5000si/Pa MI6000si/Pa	0.1 *4	5 ^{*5}
		SR75	0.01 to 1	3.3
		SR85	0.01 to 1	3.3
Serial Type (Incremental)	Magnescale Co., Ltd.	SL700-PL101RP/RHP	0.1	10
		SL710-PL101RP/RHP	0.1	10
		BF1	0.001/0.01	0.4/1.8
	Nidec Sankyo Corporation	PSLH	0.1	6
		LIC2197P/LIC2199P	0.05/0.1	10
	DR. JOHANNES HEIDENHAIN GmbH	LIC4193P/LIC4195P LIC4197P/LIC4199P	0.001 /0.005 /0.01	10
		SVAP	0.05	2.5
	Faces Automotion C Coop	SAP	0.05	2.5
	Fagor Automation S.Coop.	GAP	0.05	2.5
		LAP	0.1	2
Serial Type (Absolute)	Magnessala Co. Ltd.	SR77	0.01 to 1	3.3
	Magnescale Co., Ltd.	SR87	0.01 to 1	3.3
	Mitutous Companyation	AT573A	0.05	2.5
	Mitutoyo Corporation	ST778A(L)	0.1	5
			0.001	0.4
	Renishaw plc	RESOLUTE	0.05	20
			0.1	40

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

^{*4} It changes by the setting.*5 At 0.1 µm resolution.

Motor Line-up

			Rated		Rotary 6	encoder																						
	Мо	tor	Voltage Rated output (kW)		rotational speed (Max. speed) (r/min)	20-bit incremental	17-bit absolute	Enclosure (*1)	Features	Applications																		
	MSMD			100 V 200 V	0.05 0.1 0.2 0.4	3000 (5000)	0	0	IP65	Leadwire typeSmall capacitySuitable for high																		
				200 V	0.75	3000 (4500)	J			speed application • Suitable for all applications	BonderSemiconductor production equipment																	
Low inertia			100 V 200 V	0.05 0.1 0.2 0.4	3000 (6000)	0	0	IP67	Small capacitySuitable for high speed application	Packing machines etc																		
ertia	момп		200 V	0.75	(0000)				Suitable for all applications																			
	MSME		400 V	0.75	3000				Middle capacitySuitable for the	• SMT machines																		
		9	200 V	1.0 1.5	(5000)	0	0	IP65 ^(*2)	machines directly coupled with ball screw and high	Food machinesLCD																		
			400 V	2.0 3.0 4.0 5.0	3000				stiffness and high repetitive applica-	production equipment																		
			400 V	0.4 0.6	(4500)				tion	etc																		
	MDME			1.0 1.5	2000																							
				2.0 3.0 4.0 5.0	(3000)			IP65 ^(*2)	Middle capacity Suitable for low stiffness machines with belt driven	ConveyorsRobotsMachine tool etc																		
			200 V 400 V		1500	0	0																					
					11.0 (*3)	(3000)																						
Midd							15.0 ^(*3)	(2000)																				
Middle inertia	MFME (Flat type)		200 V 400 V	1.5 2.5 4.5	2000 (3000)	0	0	IP67	Middle capacity Flat type and suitable for machines with space limitation	Robots Food machines etc																		
	MGME (Low speed/ High torque type		200 V 400 V	3.0 4.5 (*3) 6.0 (*3)	1000 (2000)	0	0	IP65 ^(*2)	Middle capacity Suitable for low speed and high torque application	Conveyors Robots Textile machines etc																		
	MHMD														100 V 200 V	0.2	3000 (5000)	0	0	IP65	Leadwire typeSmall capacitySuitable for low	• Conveyors • Robots						
High			200 V	0.75	3000 (4500)			33	stiffness machines with belt driven	etc																		
High inertia	мнме		200 V 400 V	1.0 1.5 2.0 3.0 4.0 5.0	2000 (3000)	0	0	IP65 ^(*2)	Middle capacity Suitable for low stiffness machines with belt driven, and large load	• Conveyors • Robots • LCD manufacturing																		
																						connecto	7.5 (*3)	1500 (3000)	11.1.1 (12)	0 100=		moment of inertia

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

^{*} See the P.21 to P.28, driver and motor combination.

MINAS A5 Family

Model Designation

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

Servo Motor

M S M E 5 A Z G 1 S **

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

Motor rated output

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

Voltage specifications

. c.i.a.g. openiioniionii				
Symbol	Specifications			
1	100 V			
2	200 V			
4	400 V			
Z	100 V/200 V common (50 W only)			

Rotary encoder specifications

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

^{*} S: can be used in incremental.

Special specifications

Motor specifications

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

INISINIE(30 W to 730 W [200 V]), INISINID, INITINID							
	Shaft			Holding brake		Oil seal	
Symbol	Round	D-cut	Key-way, center tap	without	with	without	with
Α	•			•		•	
В	•				•	•	
С							•
D	•				•		•
N		•		•		•	
Р		•			•		
Q				•			•
R					•		•
S			•				
T					•	•	
U			•				•
V			•		•		•

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

Symbol	Shaft Holding brake		Oil seal			
Syllibol	Round	Key-way	without	with	without	with
С	•		•			•
D	•			•		•
G		•	•			•
Н		•		•		•

Design order

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

Motor with reduction gear

M S M E 0 1 1 G 3 1 N

Motor rated output Symbol Rated output 01 100 W

01	100 W
02	200 W
04	400 W
80	750 W

Voltage specifications

Symbol	ool Specifications	
1	100 V	
2	200 V	

Rotary encoder specifications

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

^{*} S: can be used in incremental.

Gear ratio, gear type

Cumbal	Gear Gear		otor ou	Gear		
Symbol	reduction ratio	100	200	400	750	type
1N	1/5	•	•	•	•	
2N	1/9	•	•	•	•	For high
3N	1/15	•	•	•	•	accuracy
4N	1/25					

^{*} MHMD 100 W is not prepared.

Motor structure

Symbol	Shaft	Holding brake	
Syllibol	Key-way	without	with
3	•	•	
4	•		•

Servo Driver

Speed, Position, Torque, Full-closed type

Position control type

M A D K T 1 5 0 5 * * * * M A D K T 1 5 0 5 E * *

Special specifications Special specifications

Frame symbol *-

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

* A5IE, A5E series is up to F-frame.

Series -

Symbol	Velocity, Position, Torque, Full-Closed type	Position control type	
K	A5I series	A5IE series	
Н	A5 series	A5E series	

Power device Max. current rating

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

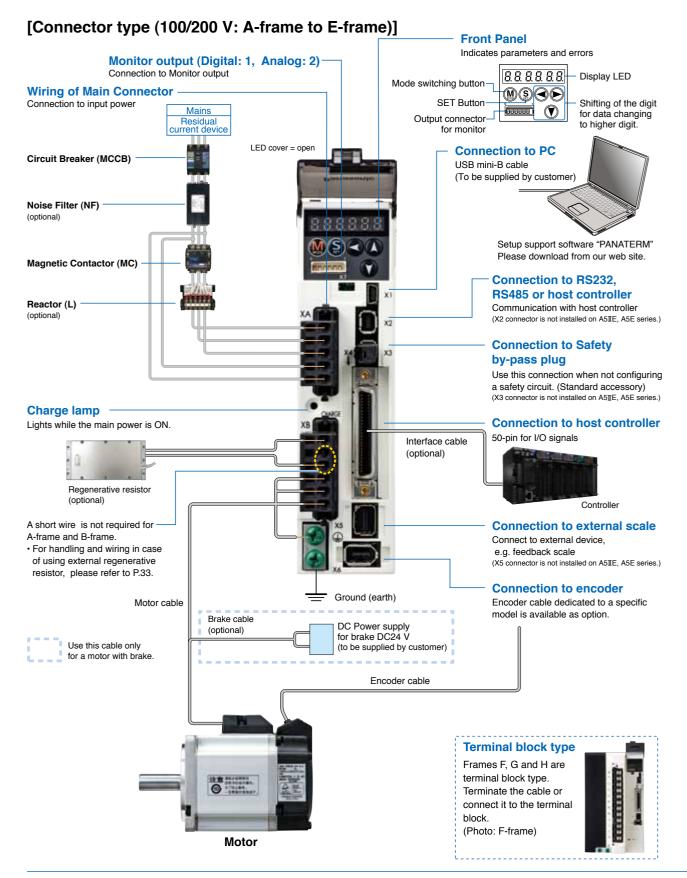
└ Only position control

Supply voltage

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

Current detector current rating

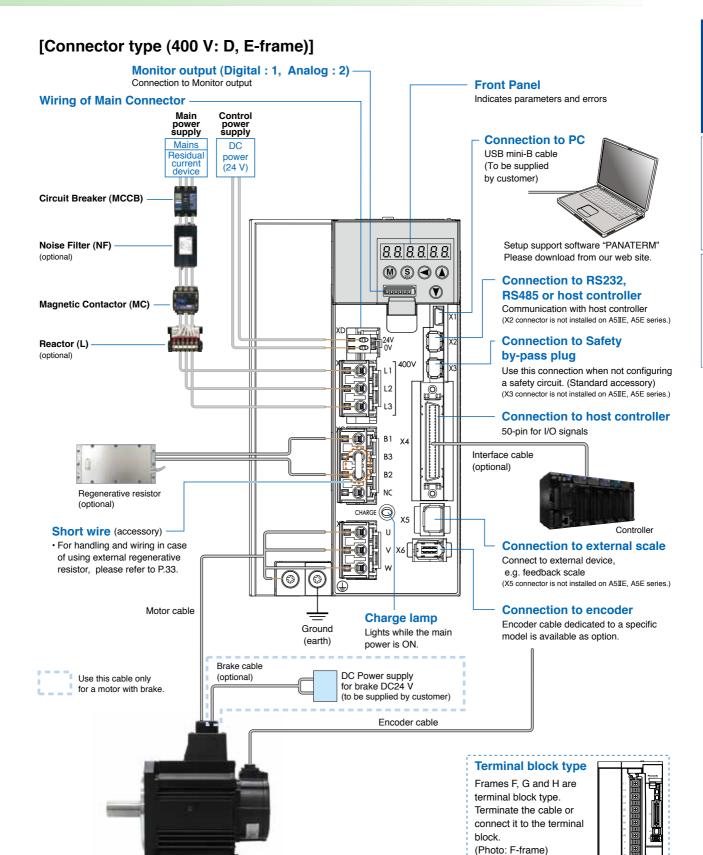
Symbol	Specifications		Symbol	Specifications
05	5 A		40	40 A
07	7.5 A		64	64 A
10	10 A	I	90	90 A
12	12 A		A2	120 A
20	20 A		B4	240 A
30	30 A			



<Caution>

Apply adequate tightening torque to the product mounting screw by taking into consideration strength of the screw and the characteristics of material to which the product is installed. Overtightening can damage the screw and/or material; undertightening can result in loosening.

Example) Steel screw (M5) into steel section: 2.7 N·m to 3.3 N·m.

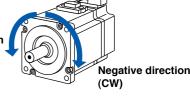


<Note>

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

Motor

Positive direction (CCW)





Driver and List of Applicable Peripheral Equipments

Driver	Applicable motor	Voltage *1	Rated output	Required Power at the (rated load)	Circuit breaker (rated (current)	Noise filter (Single phase 3-phase	Surge absorber (Single phase 3-phase	Noise filter for signal	Rated operating current of magnetic contactor Contact configuration *2	Diameter and withstand voltage of main circuit cable	Crimp terminal for main circuit terminal block *4	Diameter and withstand voltage of control power supply cable	Crimp terminal for control power supply terminal block	Diameter and withstand voltage of motor cable *5	Diameter and withstand voltage of brake cable
MADH	MSME	Single phase, 100 V	50 W to 100 W	approx. 0.4 kVA		DV0P4170	DV0P4190								
MADK	MSMD MHMD	Single/ 3-phase,	50 W to 200 W	approx. 0.5 kVA		DV0P4170 DV0PM20042	DV0P4190 DV0P1450								
MPDII	MSME	200 V Single 100 V	200 W	approx. 0.5 kVA	10 A	DV0P4170	DV0P4190		20 A	0.75 mm ² / AWG18				0.75 mm²/ AWG18	0.28 mm ² to 0.75 mm ² / AWG22 to
MBDH MBDK	MSMD MHMD	Single/ 3-phase,	400 W	approx. 0.9 kVA		DV0P4170 DV0PM20042	DV0P4190 DV0P1450		(3P+1a)	600 VAC or more				600 VAC or more	AWG18 100 VAC
MCDH	MSME	200 V Single 100 V	400 W	approx. 0.9 kVA		D VOT WILCOOPE	DV0P4190					0.75 mm²/ AWG18			or more
MCDK	MSMD MHMD	Single/ 3-phase, 200 V	750 W	approx. 1.3 kVA	45.4	DV0PM20042						600 VAC or more			
	MDME MHME	200 V	1.0 kW	approx. 1.8 kVA	15 A						_				
	MGME	Single/	0.9 kW	approx. 1.8 kVA			DV0P4190	DV0P1460			Con		Con		
	MSME MHME	3-phase, 200 V	1.0 kW	approx. 1.8 kVA	20 A	DV0P4220	DV0P1450		30 A (3P+1a)		nection		nection		
	MDME MFME MSME		1.5 kW	approx. 2.3 kVA							Connection to exclusive connector		Connection to exclusive connector		
MDDH MDDK	MDME MDME		400 W	approx. 0.9 kVA approx.							ive co		ive co		
	MSME		750 W	1.2 kVA approx. 1.6 kVA							nnecto		nnecto	2.0 mm²/ AWG14 600V VAC	
	MSME MDME	3-phase, 400 V	1.0 kW	approx.	10 A	FN258L-16-07 (Recommended)	DV0PM20050		20 A (3P+1a)	2.0 mm ² / AWG14 600V VAC	, ×	0.52 mm ² / AWG20 100 VAC	¥		
	MHME MGME MSME	400 \$	0.9 kW	1.8 kVA		\ component /			(51 +14)	or more		or more		or more	
	MDME MFME MHME		1.5 kW	approx. 2.3 kVA											
	MDME MSME MHME	3-phase, 200 V	2.0 kW	approx. 3.3 kVA	30 A	DV0PM20043	DV0P1450	DV0P1460 RJ8035 (Recommended)	60 A (3P+1a)			0.75 mm²/ AWG18 600 VAC			
MEDH	MFME		2.5 kW	approx. 3.8 kVA				component /	(0			or more			
MEDK	MSME MDME MHME	3-phase,	2.0 kW	approx. 3.3 kVA	15 A	FN258L-16-07 /Recommended)	DV0PM20050	DV0P1460	30 A			0.52 mm²/ AWG20			
	MFME	400 V	2.5 kW	approx. 3.8 kVA		(component)			(3P+1a)			100 VAC or more			
	MGME MDME		2.0 kW	approx. 3.8 kVA					60 A						
	MHME MSME MGME MDME		3.0 kW	approx. 4.5 kVA				DV0P1460	(3P+1a)		11 mm or smaller	0.75 mm²/	11 mm or smaller		
	MHME MSME	3-phase, 200 V	4.0 kW	approx. 6.0 kVA approx.	50 A	DV0P3410	410 DV0P1450	RJ8035 (Recommended) component *6	100 A		φ5.3 Terminal	AWG18 600 VAC or more	/ <u>φ5.3</u> Terminal		0.75 mm ² / AWG18
	MFME MGME		4.5 kW	6.8 kVA					100 A (3P+1a)		block M5		block M5		100 VAC or more
MEDII	MDME MHME		5.0 kW	approx. 7.5 kVA						3.5 mm²/				3.5 mm ² /	or more
MFDH MFDK	MSME MGME		2.0 kW	approx. 3.8 kVA						AWG12 600 VAC or more				AWG12 600 VAC or more	
	MSME MDME MGME		3.0 kW	approx. 4.5 kVA						of more	10 mm or smaller		7 mm or smaller	of more	
	MHME MSME MDME MHME	3-phase, 400 V	4.0 kW	approx. 6.0 kVA	30 A	FN258L-30-07 (Recommended component	DV0PM20050	DV0P1460	60 A (3P+1a)		φ4.3	0.75 mm²/ AWG18 100 VAC	φ3.2		
	MFME		4.5 kW	approx. 6.8 kVA							Terminal block	or more	Terminal block		
	MGME MSME MDME MHME		5.0 kW	approx. 7.5 kVA							M4		М3		
	MDME		7.5 kW	approx. 11 kVA		F05550 55 5					11 mm or	0.75 mm ² /	10 mm or		
	MGME	3-phase, 200 V	6.0 kW	approx. 9.0 kVA	60 A	FS5559-60-34 (Recommended) component	DV0P1450		100 A (3P+1a)	5.3 mm ² /	smaller	AWG18 600 VAC	smaller		
MGDH MGDK	MHME		7.5 kW 7.5 kW	approx. 11 kVA approx.		FN258-42-07				AWG10 600 VAC	φ5.3	or more	φ5.3	13.3 mm²/ AWG6	
	MGME	3-phase, 400 V	6.0 kW	11 kVA approx. 9.0 kVA	30 A	or FN258-42-33	DV0PM20050	DV0P1460	60 A (3P+1a)	or more	Terminal block	0.75 mm ² / AWG18 100 VAC	Terminal block	600 VAC or more	
	MHME	400 V	7.5 kW	approx. 11 kVA		(Recommended) component		RJ8095 (Recommended)	(OI + IA)		M5	or more	M5		
		3-phase,	11 kW	approx. 17 kVA	100 A	FS5559-80-34	5105	T400-61D	150 A		16 mm or	0.75 mm ² / AWG18	10 mm or	21.1 mm²/	
MHDH		200 V	15 kW	approx. 22 kVA	125 A	(Recommended) component	DV0P1450	(Recommended component *6	(3P+1a)	13.3 mm²/ AWG6	smaller	600 VAC or more	smaller	AWG4 600 VAC or more 13.3 mm ² /	
MHDK	MDME	3-phase, 400 V	11 kW	approx. 17 kVA	50 A	FN258-42-07 or FN258-42-33	DV0PM20050		100 A (3P+1a)	600 VAC or more *3	/φ6.4 Terminal block	0.75 mm²/ AWG18 100 VAC	/φ4.3 Terminal block	13.3 mm²/ AWG6 600 VAC or more 21.1 mm²/	
		.50 V	15 kW	approx. 22 kVA	60 A	(Recommended) component			(G/ +1a)		M6	or more	M4	AWG4 600 VAC or more	

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

· Related page

· About circuit breaker and magnetic contactor

To comply to EC Directives, install a circuit break er between the power and the noise filter without fail, and the circuit breaker should conform to IEC Standards and UL recognized (Listed and (1) marked). Suitable for use on a circuit capable of delivering not more than 5000 Arms symmetrical amperes, below the maximum input voltage of the product.

If the short-circuit current of the power supply exceeds this value, install a current limit device (current limiting fuse, current limiting circuit breaker, transformer, etc.) to limit the short-circuit current.

<Remarks>

- Select a circuit breaker and noise filter which match to the capacity of power supply (including a load condition).
- Terminal block and protective earth terminals
 - Use a copper conductor cables with temperature rating of 75 °C or higher.
 - Use the attached exclusive connector for A-frame to E-frame, and maintain the peeled off length of 8 mm to 9 mm.

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

	Driver	Termina	al block screw	Terminal cover fastening screw		
Frame	Terminal name	Nominal size	Fastening torque (N•m)	Nominal size	Fastening torque (N•m)	
F(200 V)	L1, L2, L3, L1C, L2C, B1, B2, B3, NC, U, V, W	M5	1.0 to 1.7			
F(400 V)	24V、0V	М3	0.4 to 0.6	МЗ	0.10 to 0.21	
F(400 V)	L1, L2, L3, B1, B2, B3, NC, U, V, W	M4	0.7 to 1.0	IVIO	0.19 to 0.21	
G	L1C, L2C, 24V, 0V, DB1, DB2, DB3, DB4, NC	M5	1.0 to 1.7			
G	L1, L2, L3, B1, B2, NC, U, V, W	M5	2.0 to 2.4	M3	0.3 to 0.5	
Н	L1C, L2C, 24V, 0V, DB1, DB2	M4	0.7 to 1.0	M5	2.0 to 2.5	
П	L1, L2, L3, B1, B2, NC, U, V, W	M6	2.2 to 2.5	CIVI	2.0 10 2.5	

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

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

<Caution>

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

<Remarks>

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

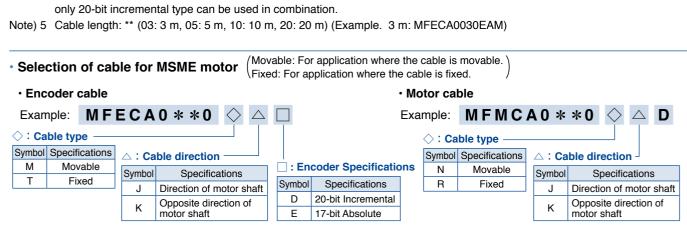
A5 Family

Table of Part Numbers and Options

/MSMD, MHMD: IP65\ 50 W to 750 W **MSME** : IP67

			Motor				Driver		Power			
IV	lotor series	Power supply	Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5II series A5 series Part No. Speed, Position, Torque, Full-Closed type Note) 2	A5IIE series A5E series Part No. (Position control) type Note) 3,4	Frame	capacity (at rated load) (kVA)	20-bit 17-bit		
			50	MSMD5AZ ☐ 1 *	49	MAD 🔷 T1105	MAD \diamondsuit T1105E	A .	Approx. 0.4			
		Single	100	MSMD011 □ 1 *	51	MAD 🔷 T1107	MAD \diamondsuit T1107E	A-frame	Approx. 0.4			
		phase 100 V	200	MSMD021 □ 1 *	53	MBD ◇ T2110	MBD ◇ T2110E	B-frame	Approx. 0.5		MFECA ** 0EAM 0 ** 0EAE Note) 7	
	MSMD		400	MSMD041 □ 1 *	55	MCD ♦ T3120	MCD ♦ T3120E	C-frame	Approx. 0.9			
	phase		50	MSMD5AZ ☐ 1 *	50	MAD 🔷 T1505	MAD ◇ T1505E		Approx. 0.5	MFECA 0 * * 0EAM		
		Single	Single 100	MSMD012 □ 1 *	52	MAD \diamondsuit T1505	MAD ◇ T1505E	A-frame	Approx. 0.5			
		phase/ 3-phase	200	MSMD022 □ 1 *	54	MAD 🔷 T1507	MAD ◇ T1507E		Approx. 0.5			
		200 V	400	MSMD042 □ 1 *	56	MBD ◇ T2510	MBD ◇ T2510E	B-frame	Approx. 0.9			
Lowi			750	MSMD082 □ 1 *	57	MCD ♦ T3520	MCD ◇ T3520E	C-frame	Approx. 1.3			
_ow inertia			50	MSME5AZ ☐ 1 *	65	MAD \diamondsuit T1105	MAD \diamondsuit T1105E	Λ	Approx. 0.4	MFECA	MFECA	
		Single	100	MSME011 □ 1 *	67	MAD \diamondsuit T1107	MAD \diamondsuit T1107E	A-frame	Approx. 0.4	0 * * 0MJD /For movable,\	0 * * 0MJE /For movable,\	
		phase 100 V	200	MSME021 □ 1 *	69	MBD ◇ T2110	MBD ◇ T2110E	B-frame	Approx. 0.5	direction of	direction of motor shaft / MFECA 0 ** 0MKE / For movable,	
	MSME		400	MSME041 □ 1 *	71	MCD ♦ T3120	MCD ◇ T3120E	C-frame	Approx. 0.9	0 * * 0MKD For movable, opposite direction		
	(Connector)		50	MSME5AZ ☐ 1 *	66	MAD ◇ T1505	MAD \diamondsuit T1505E		Approx. 0.5	of motor shaft MFECA	opposite direction of motor shaft MFECA	
	3000 r/min	Single	100	MSME012 □ 1 *	68	MAD ◇ T1505	MAD \diamondsuit T1505E	A-frame	Approx. 0.5	0 * * OTJD	0 * * OTJE	
		phase/ 3-phase	200	MSME022 □ 1 *	70	MAD ◇ T1507	MAD ♦ T1507E		Approx. 0.5	direction of motor shaft/	direction of motor shaft/	
		200 V	400	MSME042 □ 1 *	72	MBD ◇ T2510	MBD ◇ T2510E	B-frame	Approx. 0.9	0 * * 0TKD For fixed, opposite direction	0 * * 0TKE For fixed, opposite direction	
			750	MSME082 □ 1 *	73	MCD ◇ T3520	MCD ♦ T3520E	C-frame	Approx. 1.3	of motor shaft	of motor shaft	
		Single phase	200	MHMD021 □ 1 *	59	MBD ◇ T2110	MBD ◇ T2110E	B-frame	Approx. 0.5			
High	мнмр	100 V	400	MHMD041 □ 1 *	61	MCD ◇ T3120	MCD ♦ T3120E	C-frame	Approx. 0.9			
h inertia	(Leadwire) type	Single	200	MHMD022 □ 1 *	60	MAD ◇ T1507	MAD ◇ T1507E	A-frame	Approx. 0.5	MFECA 0 * * 0EAM	MFECA 0 * * 0EAE	
rtia	3000 r/min	phase/ 3-phase	400	MHMD042 □ 1 *	62	MBD ◇ T2510	MBD \diamondsuit T2510E	B-frame	Approx. 0.9		Note) 7	
		200 V	750	MHMD082 □ 1 *	63	MCD ◇ T3520	MCD ◇ T3520E	C-frame	Approx. 1.3			

- Note) 1 Rotary encoder specifications: ☐ Motor specification: * (refer to P.16)
- Note) 2 \diamondsuit : Drivers series K: A5II series H: A5 series
- Note) 3 \diamondsuit : Drivers series K: A5IE series H: A5E series
- Note) 4 Because A5IE, A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.



Optional par	rts					
Motor	Cable	Brake Cable	External	Reactor	Noise Filter	
without Brake Note) 5	with Brake Note) 5	Note) 5	Regenerative Resistor	Single phase 3-phase	Single phase 3-phase	
			DV0P4280	DV0P227	DV0P4170	
			DV0P4283			
			DV0P4282	DV0P228	DV0PM20042	
MFMCA 0 * * 0EED	_	MFMCB 0 * * 0GET	DV0P4281	DV0P227 DV0P220	DV0P4170	
					DV0PM20042	
			DV0P4283	DV0P228 DV0P220	DV0PM20042	
MFMCA 0 * * 0NJD For movable, direction of		MFMCB 0 * * 0PJT /For movable, direction of	DV0P4280	DV0P227	DV0P4170	
motor shaft / MFMCA		\ motor shaft / MFMCB \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	DV0P4283			
0 * * 0NKD For movable, opposite direction of motor shaft			DV0P4282	DV0P228	DV0PM20042	
MFMCA 0 * * 0RJD (For fixed, direction of motor shaft)	-	MFMCB 0 * * 0SJT For fixed, direction of motor shaft	DV0P4281	DV0P227 DV0P220	DV0P4170	
MFMCA 0 * * 0RKD		MFMCB 0 * * 0SKT			DV0PM20042	
For fixed, opposite direction of motor shaft		For fixed, opposite direction of motor shaft	DV0P4283	DV0P228		
Note) 6				DV0P220	DV0PM20042	
			DV0P4283	DV0P228	DV0P4170	
			DV0P4282		DV0PM20042	
MFMCA 0 * * 0EED	_	MFMCB 0 * * 0GET		DV0P227 DV0P220	DV0P4170	
			DV0P4283	DV0P228	DV0PM20042	
				DV0P220	DV0PM20042	

Note) 6 Cables for opposite to output shaft cannot be used with 50 W or 100 W motor.

Note) 7 When you use a 17-bit absolute encoder as an incremental encoder, please use the encoder cable MFECA0**0EAD.

· Brake cable

Example: MFMCB0 * *0 \Diamond \triangle T

♦ : Cable type								
Symbol	Specifications							
Р	Movable							
S	Fixed							
S	Fixea							

△:Cat	ole direction				
Symbol	Specifications				
J	Direction of motor shaft				
К	Opposite direction of motor shaft				

Options

· Options				_		
	Title		Part No.	Page		
Interface Cable			DV0P4360			
			DV0P4120			
			DV0P4121	197		
Interface Conve	rsion Cab	ole	DV0P4130			
			DV0P4131			
			DV0P4132			
Connector Kit for Power Supply Input	A-frame to	Single row type	DV0PM20032	200		
Connection	D-frame	Double row type	DV0PM20033			
Connector Kit for Motor Connection	A-frame	to D-frame	DV0PM20034	201		
Connector Kit fo	nr		DV0P4290	202		
Motor/Encoder		n	DV0P4380	203		
			DV0PM20035			
Connector Kit for Motor/Brake Co			DV0PM20040	206		
	RS485,	RS232	DV0PM20024			
	Safety		DV0PM20025	198		
Commontor Kit	Interface)	DV0P4350			
Connector Kit	External	Scale	DV0PM20026			
	Encoder		DV0PM20010	199		
	Analog M	Ionitor Signal	DV0PM20031			
Battery For Abs			DV0P2990			
Battery Box			DV0P4430	207		
	A-frame		DV0PM20027			
Mounting	B-frame		DV0PM20028	208		
Bracket	C-frame		DV0PM20029	200		
	O-mame		MFECA0**0EAD			
			MFECA0**0EAM	188		
			MFECA0**0MJD			
	without E	Battery Box		-		
			MFECA0**0MKD	189		
			MFECA0**0TJD			
Encoder Cable			MFECA0**0TKD			
			MFECA0**0EAE	188		
		_	MFECA0**0MJE			
	with Batt	ery Box	MFECA0**0MKE	189		
			MFECA0**0TJE	-		
			MFECA0**0TKE			
			MFMCA0**0EED			
			MFMCA0**0NJD			
Motor Cable	without E	Brake	MFMCA0**0NKD	191		
			MFMCA0**0RJD			
			MFMCA0**0RKD			
			MFMCB0**0GET			
			MFMCB0**0PJT			
Brake Cable			MFMCB0**0PKT	196		
			MFMCB0**0SJT			
			MFMCB0**0SKT			
	50 Ω 25	W	DV0P4280			
	100 Ω 2	5 W	DV0P4281	1		
External	25 Ω 50	W	DV0P4282	1		
Regenerative	50 Ω 50		DV0P4283	210		
Resistor	30 Ω 100		DV0P4284	1		
	20 Ω 130	-	DV0P4285	1		
Reactor	DV0P22 DV0P22	0, DV0P221, 3, DV0P224,	DV0P222, DV0P225,	209		
Naiss Fil	DV0P41	7, DV0P228, 70, DV0PM2 20, DV0PM2		250		
Noise Filter			.0040	254		
	DV0P34		DV0D4400	251		
Surge Absorber	Single p		DV0P4190	253		
	3-phase		DV0P1450	05.		
Noise Filter for S	signal Lin	es	DV0P1460	254		

A5 Family

Table of Part Numbers and Options

0.4 kW to 5.0 kW IP65 motor

			Motor				Driver		Power			
N	lotor series	Power	Output	Part No.	Rating/	A5II series A5 series Part No. /Speed, Position,\	A5IIE series A5E series Part No.	Frame	capacity	Encode 20-bit	r Cable	
		supply	(W)	Note) 1	(page)	Torque, (Full-Closed type) Note) 2	(Position control type) Note) 3,4	Trumo	\ load / (kVA)	Incremental Note) 5	Absolute Note) 4,5	
		Single phase/ 3-phase 200 V	1000	MSME102 ☐ C *	74	MDD \diamondsuit T5540	MDD ◇ T5540E	D-frame	Approx. 1.8			
			1500	MSME152 □ C *	75	MDD ◇ T5540	MDD \diamondsuit T5540E		Approx. 2.3	MFECA	MFECA	
			2000	MSME202 □ C *	76	MED <> T7364	MED ♦ T7364E	E-frame	Approx. 3.3	0**0ESD	0**0ESE	
		3-phase	3000	MSME302 ☐ C *	77	MFD \diamondsuit TA390	MFD \diamondsuit TA390E		Approx. 4.5			
.	MSME	200 V	4000	MSME402 C *	78	MFD \diamondsuit TB3A2	MFD \diamondsuit TB3A2E	F-frame	Approx. 6	_		
	3000 r/min		5000	MSME502 ☐ C *	79	MFD ♦ TB3A2	MFD ♦ TB3A2E		Approx. 7.5			
2			750	MSME084 ☐ C *	104	MDD 🔷 T2412	MDD 🔷 T2412E		Approx. 1.6			
			1000	MSME104 C *	105	MDD ♦ T3420	MDD ♦ T3420E	D-frame				
		3-phase	1500	MSME154 C *	106	MDD 🔷 T3420	MDD 🔷 T3420E		Approx. 2.3	MFECA	MFECA	
		400 V	2000	MSME204 C *	107	MED ♦ T4430	MED ◇ T4430E	E-frame	Approx. 3.3	0**0ESD	0**0ESE	
			3000	MSME304 ☐ C *	108	MFD \diamondsuit T5440	MFD \diamondsuit T5440E		Approx. 4.5	. 0.00	0 0000	
			4000	MSME404 ☐ C *	109	MFD \diamondsuit TA464	MFD \diamondsuit TA464E	F-frame	Approx. 6			
			5000	MSME504 ☐ C *	110	MFD \diamondsuit TA464	MFD \diamondsuit TA464E		Approx. 7.5			
		Single phase/	1000	MDME102 □ C *	80	MDD \diamondsuit T3530	MDD ◇ T3530E	D-frame	Approx. 1.8			
		3-phase 200 V	1500	MDME152 □ C *	81	MDD 🔷 T5540	MDD \diamondsuit T5540E		Approx. 2.3	MFECA	MFECA	
			2000	MDME202 □ C *	82	MED ◇ T7364	MED ♦ T7364E	E-frame	Approx. 3.3	0**0ESD	0**0ESE	
		3-phase	3000	MDME302 ☐ C *	83	MFD \diamondsuit TA390	MFD ♦ TA390E		Approx. 4.5			
	MDME	200 V	4000	MDME402 ☐ C *	84	MFD ♦ TB3A2	MFD ♦ TB3A2E	F-frame	Approx. 6			
	MDME		5000	MDME502 □ C *	85	MFD ♦ TB3A2	MFD ♦ TB3A2E		Approx. 7.5			
	2000 r/min		400	MDME044 □ C *	111	MDD \diamondsuit T2407	MDD \diamondsuit T2407E					
					_	<u> </u>	·	-	Approx. 0.9	-		
2			600	MDME064 C *	112	MDD ♦ T2407	MDD \diamondsuit T2407E	D-frame	Approx. 1.2	_		
Middle inertia			1000	MDME104 C *	113	MDD 🔷 T2412	MDD 🔷 T2412E	-	Approx. 1.8			
Ď		3-phase	1500	MDME154 C *	114	MDD ♦ T3420	MDD ♦ T3420E		Approx. 2.3	MFECA	MFECA	
₫.		400 V	2000	MDME204 ☐ C *	115	MED ♦ T4430	MED ◇ T4430E	E-frame	Approx. 3.3	0**0ESD	0**0ESE	
<u> </u>			3000	MDME304 ☐ C *	116	MFD 🔷 T5440	MFD \diamondsuit T5440E		Approx. 4.5			
ט			4000	MDME404 ☐ C *	117	MFD \diamondsuit TA464	MFD \diamondsuit TA464E	F-frame	Approx. 6			
			5000	MDME504 ☐ C *	118	MFD \diamondsuit TA464	MFD \diamondsuit TA464E		Approx. 7.5			
	MGME /Low speed/\	Single phase/ 3-phase 200 V	900		92		MDD ◇ T5540E	D-frame		MFECA 0**0ESD	MFECA 0**0ESE	
	High torque	3-phase	2000	MGME202 C *	93	MFD \diamondsuit TA390	MFD \diamondsuit TA390E	F-frame	Approx. 3.8			
	type	200 V	3000	MGME302 C *	94	MFD \diamondsuit TB3A2	MFD \diamondsuit TB3A2E		Approx. 4.5			
	1000 r/min	3-phase	900	MGME094 C *	125	MDD ◇ T3420	MDD ♦ T3420E	D-frame	Approx. 1.8	MFECA	MFECA	
		400 V	2000	MGME204 C *	126	MFD \Diamond T5440	MFD \Diamond T5440E	F-frame	Approx. 3.8	0**0ESD	0**0ESE	
+		0:	3000	MGME304 □ C *	127	MFD \diamondsuit TA464	MFD ♦ TA464E		Approx. 4.5			
		Single phase/	1000	MHME102 □ C *	97	MDD \diamondsuit T3530	MDD ◇ T3530E	D-frame	Approx. 1.8			
		3-phase 200 V	1500	MHME152 □ C *	98	MDD \diamondsuit T5540	MDD \diamondsuit T5540E		Approx. 2.3	MEEGA	MEEO A	
		O nhaas	2000	MHME202 □ C *	99	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3	MFECA 0**0ESD	MFECA 0**0ESE	
<u> </u>		3-phase	3000	MHME302 C *	100	MFD \diamondsuit TA390	MFD ♦ TA390E		Approx. 4.5			
5	MHME	200 V	4000	MHME402 ☐ C *	101	MFD ♦ TB3A2	MFD ♦ TB3A2E	F-frame	Approx. 6]		
2	2000 r/min		5000	MHME502 ☐ C *	102	MFD ♦ TB3A2	MFD ♦ TB3A2E		Approx. 7.5			
High inertia			1000	MHME104 □ C *	130	MDD 🔷 T2412	MDD 🔷 T2412E		Approx. 1.8			
ا د			1500	MHME154 \(\Bar{\cappa} \) C *	131	MDD \diamondsuit T3420	MDD \diamondsuit T3420E	D-frame	Approx. 1.3			
		3-phase	2000	MHME204 \(\text{C} *	132	MED \diamondsuit T4430	MED ♦ T4430E	E-frame	Approx. 3.3	MFECA	MFECA	
		400 V	3000	MHME304 □ C *	133	MFD 🔷 T5440	MFD \diamondsuit T5440E		Approx. 4.5	0**0ESD	0**0ESE	
			4000	MHME404 □ C *	134	MFD \diamondsuit TA464	MFD \diamondsuit TA464E	F-frame		1		
			5000	MHME504 C *	135	MFD \diamondsuit TA464	MFD \diamondsuit TA464E	1	Approx. 7.5	1		
_		l .	5555	<u></u>		5 🌣 171404	5 V 1713-7L	1	pp.ox. 7 .U			

Note) 1 Rotary encoder specifications: ☐ Motor specification: * (refer to P.16)

Note) 2 \diamondsuit : Drivers series K: A5II series H: A5 series Note) 3 \diamondsuit : Drivers series K: A5IIE series H: A5E series

Note) 4 Because A5IIE, A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.

Motor	Cable	Brake					Title
without	with	Cable	External Regenerative	Reactor Single phase	Noise Filter	Interface Cable	
Brake Note) 5	Brake Note) 5	Note) 5	Resistor	3-phase		Interface Conve	rsion Cable
MFMCD 0**2ECD	MFMCA 0**2FCD		DV0P4284	DV0P228 DV0P222 DV0PM20047 DV0P222	DV0P4220		A-frame to Single
		_	DV0P4285 Note) 6	DV0P223	DV0PM20043	Connector Kit for Power Supply Input	D-frame Doubl
MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224 DV0P225	DV0P3410	Connection	E-frame (200 V D-frame (400 V E-frame (400 V
MFMCD 0**2ECD	MFMCE 0**2FCD		DV0PM20048	Note) 7	Recommended components	Connector Kit for Control Power Supply Input Connection	D-frame and E-frame (400 V
MFMCA 0**3ECT	MFMCA 0**3FCT	_	DV0PM20049 ×2 in parallel	Note) 7	P.252	Connector Kit for Motor Connection	A-frame to D-fra E-frame (200 V D-frame (400 V
MFMCD	MFMCA		DV0P4284	DV0P228 DV0P222	DV0P4220	Connector Kit for Regenerative Resistor	E-frame D-frame (400 V
0**2ECD	0**2FCD	_	DV0P4285	DV0PM20047 DV0P222 DV0P223	DV0PM20043	Connector Kit fo Motor/Encoder (
MFMCA 0**3ECT	MFMCA 0**3FCT		Note) 7 DV0P4285 ×2 in parallel	DV0P224 DV0P225	DV0P3410		RS485, RS232 Safety
MFMCD 0**2ECD	MFMCE 0**2FCD		DV0PM20048	Note) 7	Recommended	Connector Kit	Interface External Scale Encoder Analog Monitor 9
		_	DV0PM20049	Note) 7	components P.252	Battery For Absorbattery Box	olute Encoder
MFMCA 0**3ECT	MFMCA 0**3FCT		DV0PM20049 ×2 in parallel			Mounting Bracket	D-frame
MFMCD 0**2ECD	MFMCA **2FCD		DV0P4284	DV0P228 DV0P221	DV0P4220	Encoder Cable	without Battery with Battery Box
MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P223 DV0P224	DV0P3410		without Brake
MFMCD 0**2ECD MFMCA	MFMCE 0**2FCD MFMCA	_	DV0PM20048 DV0PM20049	— Note) 7	Recommended components	Motor Cable	
0**3ECT	0**3FCT MFMCA		x2 in parallel	DV0P228/ DV0P222	P.252		with Brake
0**2ECD	0**2FCD		DV0P4284	DV0PM20047/ DV0P222	DV0P4220		50 Ω 25 W 100 Ω 25 W
MFMCE 0**2ECD	MFMCE 0**2FCD	_	DV0P4285 Note) 6	DV0P223	DV0PM20043	External	25 Ω 50 W 50 Ω 50 W
MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P224 DV0P225 Note) 7	DV0P3410	Regenerative Resistor	30 Ω 100 W 20 Ω 130 W 120 Ω 80 W
MFMCD 0**2ECD MFMCE	MFMCE 0**2FCD MFMCE		DV0PM20049	Note) 7	Recommended	Reactor	80 Ω 190 W DV0P220, DV0 DV0P223, DV0
0**2ECD MFMCA	0**2FCD MFMCA	_	DV0PM20049	Note) 7	components P.252	Noise Filter	DV0P227, DV0 DV0P4170, DV DV0P4220, DV
0**3ECT Note) 5 Ca	0**3FCT able length: *	* (03: 3	×2 in parallel m, 05: 5 m, 10): 10 m, 20: 20 ı	m),		DV0P3410 Single phase
	,			400005444		Surge Absorber	13-nhasa (200 V

(Example. 3 m: MFECA0030EAM)

Note) 6 Other combinations exist, and refer to P.210 for details. Note) 7 Reactor should be prepared by the user.

Optional parts

· Options (IP65 motor)

	Title		Part No.	Page		
Interface Cable			DV0P4360			
			DV0P4120			
			DV0P4121			
Interface Conve	rsion Cab	le	DV0P4130	197		
			DV0P4131			
			DV0P4132			
		Single row				
	A-frame to	type	DV0PM20032			
Connector Kit for Power	D-frame	Double row type	DV0PM20033	200		
Supply Input Connection	E-frame	(200 V)	DV0PM20044			
Connection	D-frame	(400 V)	DV0PM20051			
	E-frame	(400 V)	DV0PM20052			
Connector Kit for Control Power Supply Input Connection	D-frame E-frame		DV0PM20053			
Connector Kit	A-frame	to D-frame	DV0PM20034	201		
for Motor	E-frame	(200 V)	DV0PM20046			
Connection	D-frame	(400 V)	DV0PM20054			
Connector Kit	E-frame		DV0PM20045			
for Regenerative	D-frame	(400 V)	DV0PM20055			
Resistor	2 mame	(.00 •)				
_			DV0P4310	204		
Connector Kit fo		_	DV0P4320	205		
Motor/Encoder (Jonnectio	n	DV0P4330			
			DV0P4340			
	RS485, I	RS232	DV0PM20024			
	Safety		DV0PM20025	198		
0	Interface		DV0P4350			
Connector Kit	External	Scale	DV0PM20026			
	Encoder		DV0PM20010	199		
	Analog M	Ionitor Signal	DV0PM20031			
Battery For Abso			DV0P2990			
Battery Box			DV0P4430	207		
Mounting						
Bracket	D-frame		DV0PM20030	208		
Encoder Cable		Battery Box	MFECA0**0ESD	189		
	with Batt	ery Box	MFECA0**0ESE	190		
			MFMCA0**2ECD	191		
			MFMCD0**2ECD			
	without E	Brako	MFMCE0**2ECD	192		
	Williout L	JIANE	MFMCF0**2ECD			
Motor Cable			MFMCA0**3ECT	400		
			MFMCD0**3ECT	193		
			MFMCA0**2FCD			
	with Brak	ке	MFMCE0**2FCD	194		
			MFMCA0**3FCT	195		
	50 Ω 25	W	DV0P4280			
	100 Ω 25		DV0P4281			
	25 Ω 50		DV0F4281			
External	50 Ω 50		DV0F4283			
Regenerative			DV0P4283 DV0P4284	210		
	20 0 100		U VUF4∠ŏ4	1		
Resistor	30 Ω 100					
Resistor	20 Ω 130) W	DV0P4285			
Resistor	20 Ω 130 120 Ω 80) W	DV0P4285 DV0PM20048			
Resistor	20 Ω 130 120 Ω 80 80 Ω 190) W) W) W	DV0P4285 DV0PM20048 DV0PM20049			
Resistor	20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22) W) W) W 0, DV0P221, 3, DV0P224,	DV0P4285 DV0PM20048 DV0PM20049 DV0P222,	209		
Reactor	20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41	0 W 0 W 0 D W 0, DV0P221, 3, DV0P224, 7, DV0P228, 70, DV0PM2	DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047	209		
	20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41 DV0P42	0 W 0 W 0 D 0, DV0P221, 3, DV0P224, 7, DV0P228, 70, DV0PM2 20, DV0PM2	DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047	250		
Reactor	20 Ω 130 120 Ω 80 80 Ω 190 DV0P22: DV0P22: DV0P41: DV0P42: DV0P434	0 W 0 W 0 W 0, DV0P221, 3, DV0P224, 7, DV0P228, 70, DV0PM2 20, DV0PM2	DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042 0043			
Reactor Noise Filter	20 Ω 130 120 Ω 80 80 Ω 190 DV0P22: DV0P22: DV0P41: DV0P42: DV0P34 Single ph	0 W 0 W 0 D 0, DV0P221, 3, DV0P224, 7, DV0P228, 70, DV0PM2 20, DV0PM2 10	DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042 0043 DV0P4190	250 251		
Reactor	20 Ω 130 120 Ω 80 80 Ω 190 DV0P22: DV0P22: DV0P41: DV0P434 Single ph 3-phase	0 W 0 W 0, DV0P221, 3, DV0P224, 7, DV0P228, 70, DV0PM2 20, DV0PM2 10 nase (200 V)	DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042 0043 DV0P4190 DV0P1450	250		
Reactor Noise Filter	20 Ω 130 120 Ω 80 80 Ω 190 DV0P22: DV0P22: DV0P41: DV0P43: DV0P34 Single ph 3-phase 3-phase	0 W 0 W 0, DV0P221, 3, DV0P224, 7, DV0P228, 70, DV0PM2 20, DV0PM2 10 nase (200 V) (400 V)	DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042 0043 DV0P4190	250 251		

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

_		I	Motor				Driver		Power			
		Dawar	Outnut	Part No.	Rating/	A5II series A5 series Part No.	A5IIE series A5E series		capacity	Encode	r Cable	
N	Notor series	Power supply	Output (W)	Note) 1	Spec. (page)	(Speed, Position, Torque, Full-Closed type) Note) 2	Part No. (Position control type Note) 3,4	Frame	rated load (kVA)	20-bit Incremental Note) 5	17-bit Absolute Note) 4,5	
		Single phase/	1000	MSME102 □ 1 *	74	MDD ◇ T5540	MDD \diamondsuit T5540E	D-frame	Approx. 1.8			
		3-phase 200 V	1500	MSME152 □ 1 *	75	MDD ◇ T5540	MDD \diamondsuit T5540E	D mane	Approx. 2.3	MFECA	MFECA	
			2000	MSME202 □ 1 *	76	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3			
-		3-phase	3000	MSME302 □ 1 *	77	MFD ♦ TA390	MFD ♦ TA390E		Approx. 4.5			
3	MSME	200 V	4000	MSME402 ☐ 1 *	78	MFD \diamondsuit TB3A2	MFD ♦ TB3A2E	F-frame	Approx. 6			
ow inertia	3000 r/min		5000	MSME502 □ 1 *	79	MFD ♦ TB3A2	MFD ♦ TB3A2E		Approx. 7.5			
5			750	MSME084 ☐ 1 *	104	MDD \diamondsuit T2412	MDD 🔷 T2412E		Approx. 1.6			
			1000	MSME104 ☐ 1 *	105	MDD 🔷 T3420	MDD ♦ T3420E	D-frame	Approx. 1.8			
			1500	MSME154 ☐ 1 *	106	MDD 🔷 T3420	MDD 🔷 T3420E		Approx. 2.3			
		3-phase 400 V	2000	MSME204 ☐ 1 *	107	MED \diamondsuit T4430	MED ♦ T4430E	E-frame	Approx. 3.3	MFECA	MFECA 0**0ETE	
		400 V	3000	MSME304 ☐ 1 *	108	MFD 🔷 T5440	MFD \diamondsuit T5440E		Approx. 4.5	0**0ETD		
			4000	MSME404 ☐ 1 *	109	MFD \diamondsuit TA464	MFD ♦ TA464E	F-frame	Approx. 6	-		
			5000	MSME504 ☐ 1 *	110	MFD \diamondsuit TA464	MFD \diamondsuit TA464E		Approx. 7.5			
		Single	1000	MDME102 □ 1 *	80	MDD ◇ T3530	MDD ◇ T3530E		Approx. 1.8			
		phase/ 3-phase 200 V	1500	MDME152 □ 1 *	81	MDD ◇ T5540	MDD \diamondsuit T5540E	D-frame	Approx. 2.3		MEEOA	
			2000	MDME202 □ 1 *	82	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3			
			3000	MDME302 □ 1 *	83	MFD \diamondsuit TA390	MFD ♦ TA390E		Approx. 4.5	MFECA	MFECA	
			4000	MDME402 □ 1 *	84	MFD ♦ TB3A2	MFD ♦ TB3A2E	F-frame	Approx. 6	0**0ETD	0**0ETE	
		3-phase	5000	MDME502 □ 1 *	85	MFD \diamondsuit TB3A2	MFD ♦ TB3A2E		Approx. 7.5			
		200 V	7500	MDME752 □ 1 *	86	MGD ♦ TC3B4		G-frame	Approx. 11			
			11000	MDMEC12 1 *	87	MHD ♦ TC3B4	_		Approx. 17			
	MDME		15000	MDMEC52 1 *	88	MHD \diamondsuit TC3B4		H-frame	-frame Approx. 17 Approx. 22			
	2000 r/min		400	MDME044 □ 1 *	111		_		Approx. 0.9			
			600	MDME064 ☐ 1 *	112	MDD ◇ T2407	·	Approx. 1.2	+			
			1000	MDME104 1 *		MDD ♦ T2412	MDD 🔷 T2412E	D-frame	Approx. 1.8	_		
<u> </u>			1500	MDME154 □ 1 *	114	MDD \diamondsuit T3420	MDD \diamondsuit T3420E	-	Approx. 2.3			
Middle			2000	MDME204 □ 1 *	115	MED \diamondsuit T4430	MED \diamondsuit T4430E	F _{-frame}	Approx. 3.3			
D .		3-phase	3000	MDME304 □ 1 *	116	MFD \diamondsuit T5440	MFD \diamondsuit T5440E		Approx. 4.5	MFECA	MFECA	
inortio		400 V	4000	MDME404 \(\begin{array}{c} 1 \ * \end{array}	117	MFD \diamondsuit TA464	MFD \diamondsuit TA464E	F-frame	Approx. 6	0**0ETD	0**0ETE	
2.			5000	MDME504 1 *	118	MFD \diamondsuit TA464	MFD \diamondsuit TA464E	I -liallie	Approx. 7.5			
			7500	MDME754 ☐ 1 *	119	MGD \diamondsuit TB4A2	WI D V IA404L	G-frame	Approx. 11			
			11000	MDMEC14 ☐ 1 *	120	MHD ♦ TB4A2	_		Approx. 17	-		
			15000	MDMEC54 \(\Boxed{1} \) 1 *	121	MHD \diamondsuit TB4A2		H-frame	Approx. 22	-		
-		Single phase/ 3-phase 200 V	1500	MFME152 \(\text{1 *}	89	MDD \diamondsuit T5540	MDD ◇ T5540E	D-frame		MFECA	MFECA	
	MFME (Flat type)	3-phase 200 V	2500	MFME252 ☐ 1 *	90	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.8	0**0ETD	0**0ETE	
	(Flat type) 2000 r/min	∠00 V	4500	MFME452 □ 1 *	91	MFD ♦ TB3A2	MFD ♦ TB3A2E					
			1500	MFME154 ☐ 1 *	122	MDD 🔷 T3420	MDD \diamondsuit T3420E		Approx. 2.3			
		3-phase	2500	MFME254 ☐ 1 *	123	MED \diamondsuit T4430	MED <> T4430E	E-frame	Approx. 3.8	MFECA	MFECA	
- 1		3-phase 400 V	1		1		I	1		0**0ETD	0**0ETE	i .

Note) 1 Rotary encoder specifications:

Motor specification: * (refer to P.16)

Note) 2 🔷 : Drivers series K: A5II series H: A5 series Note) 3 🔷 : Drivers series K: A5IIE series H: A5E series

Note) 4 Because A5IE, A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.

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

Motor Cable Brake Brake Note) 5 External Regenerative Resistor Reactor (single ginuse) (single ginus	Optional	parts					
without Brake Note) 5 with Brake Note) 5 with Brake Note) 5 Note) 6 Note) 5 Note) 5 Note) 6 Note) 6 Note) 5 Note) 6 Note) 6 Note) 8 Note) 8 Note) 9 Note) 8	Motor	Cable		Evtownol	_		
MFMCD 0"2FCD 0"2FCD DV0P4284 DV0P222 DV0PM20047 DV0P222 DV0PM20043 DV0PM20043 DV0PM20043 DV0P224 DV0P3410 DV	Brake	Brake		Regenerative	Single phase	Noise Filter	
MFMCA 0"3ECT 0"3FCT DV0P4285 DV0P420 DV0P225 DV0P3410				DV0P4284	DV0P222 DV0PM20047	DV0P4220	
MFMCA 0"3FCT 0"3FCT DV0P4285 DV0P224 DV0P3410			_		DV0P223	DV0PM20043	
Note 6 Note 6	1451404	1451404		,	DV0P224		
MFMCD 0**2ECD 0**2FCD 0**2F	-	-			DV0P225	DV0P3410	
MFMCA					Note) 8		
MFMCA 0**3ECT 0**3FCT DV0PM20049 x2 in parallel DV0P228 DV0PM20047 DV0P222 DV0PM20047 DV0P222 DV0PM20047 DV0P222 DV0PM20047 DV0P222 DV0PM20043 DV0P222 DV0PM20043 DV0PM20048 DV0P225 DV0PM20048 DV0PM20058 DV0PM20059 DV0PM20049 x2 in parallel DV0PM20049 x3 in parallel DV0PM20049 x3 in parallel DV0PM20059 DV0PM20049 DV0PM20049 DV0PM20049 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20049 DV0PM20	-				_		
MFMCD	MENAGA	NATINGA	_		Note) 8	·	
MFMCD 0**2FCD 0**2FCD DV0P4284 DV0P4222 DV0PM20047 DV0P4220	-						
MFMCA	-			DV0P4284	DV0P222 DV0PM20047	DV0P4220	
MFMCA 0**3ECT 0**3FCT					DV0P223	DV0PM20043	
Note 6	MEMCΔ	MEMCΔ	_	,	DV0P224		
Note) 6	-				DV0P225	DV0P3410	
MFMCD	— Noto) 6	— Noto) 6			— Note) 8		
DV0PM20049	Note) 0	Note) 6		DV0PM20058		P.252	
MFMCA 0**3ECT MFMCA 0**3FCT DV0PM20049 x2 in parallel Note) 8 Recommended components P.252 DV0PM20049 x3 in parallel DV0PM20049 x3 in parallel DV0PM20059 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20047 DV0PM20048 DV0PM20043 DV0PM20043 DV0PM20043 DV0PM20043 DV0PM20043 DV0PM20043 DV0PM20043 DV0PM20048 DV0PM20048 DV0PM20048 DV0PM20048 DV0PM20049 Recommended components Recommended components Recommended components Recommended components Recommended components Recomponents				DV0PM20048			
Note 8 Note 8 Note 8 P.252				DV0PM20049	_		
Note) 6			_		Note) 8	·	
MFMCA 0**2ECD 0**2FCD DV0P4284 DV0PM20047 DV0P222 DV0P4220 MFMCF 0**2ECD 0**2FCD 0**2FCD 0**3ECT 0**3FCT 0**3FCT 0**2ECD 0**2FCD DV0PM20048 DV0PM20049 DV0P	_	_					
MFMCF 0**2ECD MFMCE 0**2FCD DV0P4284 DV0P222 DV0P4220 MFMCF 0**2ECD MFMCE 0**2FCD DV0P4285 Note) 7 DV0P224 DV0PM20043 MFMCD 0**3ECT MFMCA 0**3FCT DV0P4285 ×2 in parallel Note) 8 DV0P3410 MFMCF 0**2ECD MFMCE 0**2FCD DV0PM20048 DV0PM20049 Recommended components MFMCD MFMCA DV0PM20049 Note) 8 Recommended components Note) 8 P 252	Note) 6	Note) 6		DV0PM20059			
0**2ECD 0**2FCD Note) 7 DV0P224 DV0PM20043 MFMCD MFMCA DV0P4285 — DV0P3410 0**3ECT 0**3FCT ×2 in parallel Note) 8 DV0P3410 MFMCF MFMCE DV0PM20048 — Recommended components 0**2ECD 0**2FCD DV0PM20049 Note) 8 P 252				DV0P4284		DV0P4220	
0**3ECT 0**3FCT ×2 in parallel Note) 8 DV0P3410 MFMCF 0**2ECD MFMCE 0**2FCD DV0PM20048 DV0PM20049 Recommended components MFMCD MFMCA DV0PM20049 Note) 8 P.252			_		DV0P224	DV0PM20043	
MFMCF 0**2ECD MFMCE 0**2FCD DV0PM20048 DV0PM20049 Recommended components MFMCD MFMCA DV0PM20049 Note) 8 P.252	MFMCD				 Note) 8	DV0P3410	
0**2ECD 0**2FCD _ DV0PM20049 _ components MFMCD MFMCA DV0PM20049 Note) 8 P 252	MFMCF	MFMCE		DV0PM20048		Recommended	
P 252			_		— Note) 8		
					.1010, 0	P.252	

Note) 6 Recommend to get the connector kit of options.

Note) 7 Other combinations exist, and refer to P.210 for details.

Note) 8 Reactor should be prepared by the user.

•	Options	(IP67	motor))
	Op	(o .		,

	Title		Part No.	Pag		
Interface Cable			DV0P4360			
			DV0P4120			
			DV0P4121	40-		
Interface Conve	rsion Cab	le	DV0P4130	197		
			DV0P4131			
			DV0P4132			
	A-frame	Single row	DV0PM20032			
Connector Kit for Power	to D-frame	type Double row type	DV0PM20033			
Supply Input	E-frame		DV0PM20044	200		
Connection	D-frame	· ,	DV0PM20051			
	E-frame	,	DV0PM20051			
Connector Kit for Control Power Supply Input Connection	D-frame E-frame	and	DV0PM20053			
Connector Kit	A-frame	to D-frame	DV0PM20034	20-		
for Motor	E-frame	(200 V)	DV0PM20046	20		
Connection	D-frame	,	DV0PM20054			
Connector Kit	E-frame	, ,	DV0PM20045			
for Regenerative Resistor	D-frame	(400 V)	DV0PM20055			
	<u> </u>	*	DV0PM20036	203		
Connector Kit fo	r		DV0PM20037			
Motor/Encoder (n	DV0PM20038	204		
			DV0PM20039	20!		
	RS485, I	RS232	DV0PM20024			
	Safety		DV0PM20025	198		
	Interface		DV0P4350			
Connector Kit	External		DV0PM20026			
-	Encoder		DV0PM20010	199		
		Ionitor Signal				
Battery For Abso			DV0P2990			
Battery Box			DV0P4430	207		
Mounting Bracket	D-frame		DV0PM20030	208		
O.II	without E	Battery Box	MFECA0**0ETD	40/		
Encoder Cable	with Batt	ery Box	MFECA0**0ETE	190		
		-	MFMCA0**2ECD	19		
			MFMCD0**2ECD			
			MFMCE0**2ECD	19		
	without E	Brake	MFMCF0**2ECD	102		
Motor Cable			MFMCA0**3ECT			
Motor Cable			MFMCA0**3ECT	193		
Motor Cable			MFMCD0**3ECT			
Motor Cable	with Bral	Ke	MFMCD0**3ECT MFMCA0**2FCD			
Motor Cable	with Bral	ке	MFMCD0**3ECT	194		
Motor Cable	with Bral		MFMCD0**3ECT MFMCA0**2FCD MFMCE0**2FCD	194		
Motor Cable	50 Ω 25	W	MFMCD0**3ECT MFMCA0**2FCD MFMCE0**2FCD MFMCA0**3FCT DV0P4280	194		
Motor Cable	50 Ω 25 100 Ω 25	W 5 W	MFMCD0**3ECT MFMCA0**2FCD MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281	194		
Motor Cable	50 Ω 25 100 Ω 25 25 Ω 50	W 5 W	MFMCD0**3ECT MFMCA0**2FCD MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282	194		
External Regenerative	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50	W 5 W W	MFMCD0**3ECT MFMCA0**2FCD MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283	194		
External	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100	W 5 W W W	MFMCD0**3ECT MFMCA0**2FCD MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284	194		
External Regenerative	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50	W 5 W W W O W	MFMCD0**3ECT MFMCA0**2FCD MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283	194		
External Regenerative	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80	W 55 W W W O W O W O W	MFMCD0**3ECT MFMCA0**2FCD MFMCA0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048	194		
External Regenerative	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22	W 5 W W O W O W O W O D W O D W O D W O D W O D W O D W O D, DV0P221, J, DV0P224, J, DV0P224,	MFMCD0**3ECT MFMCA0**2FCD MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225,	194		
External Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41	W 5 W W W D W D W D W D W D W D D W D D W D	MFMCD0**3ECT MFMCA0**2FCD MFMCA0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0PM20047	194		
External Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41 DV0P42	W 5 W W O W O W O D W O D W O D W O D W O D D D D	MFMCD0**3ECT MFMCA0**2FCD MFMCA0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0PM20047	194 195 210 209 250		
External Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41 DV0P42 DV0P42 DV0P34	W 5 W W W D W D W D W D W D W D D W D D V D V	MFMCD0**3ECT MFMCA0**2FCD MFMCA0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042	194 199 210 209 250		
External Regenerative Resistor Reactor Noise Filter	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41 DV0P42 DV0P34 Single pl	W 5 W W W D W D W D W D W D W D D W D D V D V	MFMCD0**3ECT MFMCA0**2FCD MFMCA0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042 0043	193 194 195 210 200 250 251		
External Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41 DV0P42 DV0P34 Single pl	W 5 W W W D W D W D W D W D W D W D W D	MFMCD0**3ECT MFMCA0**2FCD MFMCA0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042	194 199 210 209 250		

A5 Family

Table of Part Numbers and Options

0.9 kW to 7.5 kW IP67 motor (MGME)

			-	Motor				Driver		D					
	N	Motor series Power supply		Motor series Power supply		Output (W)	Part No. Note) 1	Rating/ Spec. (page)	A5II series A5 series Part No. (Speed, Position, Torque, Full-Closed type)	A5IIE series A5E series Part No. (Position control type	Frame	capacity at rated load (kVA)	20-bit Incremental	er Cable 17-bit Absolute	
							Note) 2	Note) 3,4		,	Note) 5	Note) 4,5			
	Middle inertia		Single phase/ 3-phase 200 V	900	MGME092 □ 1 *	92	MDD ◇ T5540	MDD \diamondsuit T5540E	D-frame	Approx. 1.8					
				2000	MGME202 □ 1 *	93	MFD \diamondsuit TA390	MFD ♦ TA390E		Approx. 3.8	MFECA	MFECA			
				3000	MGME302 □ 1 *	94	MFD ♦ TB3A2	MFD ♦ TB3A2E	F-frame	Approx. 4.5	0**0ETD	0**0ETE			
		MGME	3-phase	4500	MGME452 □ 1 *	95	MFD ♦ TB3A2	MFD ♦ TB3A2E		Approx. 7.5					
		Low speed/ High torque type	200 V	6000	MGME602 □ 1 *	96	MGD ♦ TC3B4	_	G-frame	Approx. 9.0					
		1000 r/min		900	MGME094 □ 1 *	125	MDD \diamondsuit T3420	MDD ◇ T3420E	D-frame	Approx. 1.8	MFECA MFECA 0**0ETD 0**0ETE				
			0	2000	MGME204 ☐ 1 *	126	MFD \diamondsuit T5440	MFD \diamondsuit T5440E		Approx. 3.8		MEECA			
			3-phase 400 V	3000	MGME304 □ 1 *	127	MFD \diamondsuit TA464	MFD ♦ TA464E	F-frame	Approx. 4.5		_			
				4500	MGME454 ☐ 1 *	128	MFD \diamondsuit TA464	MFD \diamondsuit TA464E		Approx. 7.5					
				6000	MGME604 □ 1 *	129	MGD ♦ TB4A2	_	G-frame	Approx. 9.0					
			Single phase/ 3-phase 200 V	1000	MHME102 □ 1 *	97	MDD ◇ T3530	MDD ◇ T3530E	D-frame						
				1500	MHME152 □ 1 *	98	MDD ◇ T5540	MDD ♦ T5540E		Approx. 2.3					
				2000	MHME202 □ 1 *	99	MED ◇ T7364	MED ◇ T7364E	E-frame	Approx. 3.3	MFECA	MFECA			
				3000	MHME302 □ 1 *	100	MFD \diamondsuit TA390	MFD ♦ TA390E		Approx. 4.5	0**0ETD	0**0ETE			
			3-phase	4000	MHME402 □ 1 *	101	MFD ♦ TB3A2	MFD ♦ TB3A2E	F-frame	Approx. 6					
	<u>∓</u> .		200 V	5000	MHME502 ☐ 1 *	102	MFD \diamondsuit TB3A2	MFD ♦ TB3A2E		Approx. 7.5					
	High inertia	MHME 2000 r/min		7500	MHME752 ☐ 1 *	103	MGD ♦ TC3B4	_	G-frame	Approx. 11					
	۳ ا			1000	MHME104 □ 1 *	130	MDD 🔷 T2412	MDD 🔷 T2412E	D.	Approx. 1.8					
				1500	MHME154 □ 1 *	131	MDD 🔷 T3420	MDD \diamondsuit T3420E	D-frame	Approx. 2.3					
				2000	MHME204	132	MED ◇ T4430	MED ◇ T4430E	E-frame	Approx. 3.3	MEEOA	MEEOA			
			3-phase 400 V	3000	MHME304 □ 1 *	133	MFD \diamondsuit T5440	MFD \diamondsuit T5440E		Approx. 4.5	MFECA 0**0ETD	MFECA 0**0ETE			
				4000	MHME404 ☐ 1 *	134	MFD \diamondsuit TA464	MFD \diamondsuit TA464E	F-frame	Approx. 6	_	_			
				5000	MHME504 ☐ 1 *	135	MFD \diamondsuit TA464	MFD \diamondsuit TA464E		Approx. 7.5					
				7500	MHME754 □ 1 *	136	MGD ♦ TB4A2	_	G-frame	Approx. 9.0					

- Note) 1 Rotary encoder specifications: ☐ Motor specification: * (refer to P.16)
- Note) 2 🔷 : Drivers series K: A5II series H: A5 series
- Note) 3 \diamondsuit : Drivers series K: A5IIE series H: A5E series
- Note) 4 Because A5IIE, A5E series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.
- Note) 5 Cable length: ** (03: 3 m, 05: 5 m, 10: 10 m, 20: 20 m), (Example. 3 m: MFECA0030EAM)
- Note) 6 Recommend to get the connector kit of options.
- Note) 7 Reactor should be prepared by the user.
- Note) 8 Other combinations exist, and refer to P.210 for details.

Optional	parts					
Motor	Cable	Brake Cable	External	Reactor		
without Brake Note) 5	with Brake Note) 5	Note) 5	Regenerative Resistor	Single phase 3-phase	Noise Filter	
MFMCD 0**2ECD	MFMCA 0**2FCD		DV0P4284	DV0P228 DV0P221	DV0P4220	
MFMCA 0**3ECT	MFMCA 0**3FCT	_	DV0P4285 ×2 in parallel	DV0P223 DV0P224	DV0P3410	
_ Note) 6	— Note) 6	-	DV0P4285 ×3 in parallel	— Note) 7	Recommended components P.252	
MFMCD 0**2ECD	MFMCE 0**2FCD		DV0PM20048			
MFMCA 0**3ECT	MFMCA 0**3FCT	_	DV0PM20049 ×2 in parallel	— Note) 7	Recommended components P.252	
— Note) 6	— Note) 6		DV0PM20049 ×3 in parallel			
				DV0P228		
MFMCD	CD MFMCA		DV0P4284	DV0P222	DV0P4220	
0**2ECD	0**2FCD		DV0F4204	DV0PM20047 DV0P222	D V 01 4220	
MFMCE 0**2ECD	MFMCE 0**2FCD	_	DV0P4285 Note) 8	DV0P223	DV0PM20043	
NATNACA	NATNACA		DV0D4005	DV0P224		
MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P225	DV0P3410	
– Note) 6	— Note) 6		DV0P4285 x3 in parallel	— Note) 7	Recommended components P.252	
MFMCD 0**2ECD	MFMCE		DV0PM20048			
MFMCE 0**2ECD	0**2FCD		DV0PM20049		Recommended	
MFMCA 0**3ECT	MFMCA 0**3FCT	_	DV0PM20049 ×2 in parallel	Note) 7	components P.252	
— Note) 6	— Note) 6		DV0PM20049 ×3 in parallel			

· Options (IP67 motor)

	Title		Part No.	Page	
Interface Cable			DV0P4360	. uge	
interface Cable			DV0F4120	-	
			DV0P4120 DV0P4121	-	
Interface Conve	reion Cah	ما	DV0P4121 DV0P4130	197	
interrace Conve	ision Gab	I C		-	
			DV0P4131 DV0P4132	-	
		Single rour			
Connector Kit	A-frame to	Single row type	DV0PM20032	-	
for Power Supply Input	D-frame	Double row type	DV0PM20033	200	
Connection	E-frame	· · · · · · · · · · · · · · · · · · ·	DV0PM20044		
	D-frame	,	DV0PM20051	-	
	E-frame	(400 V)	DV0PM20052		
Connector Kit for Control Power Supply Input Connection	D-frame E-frame		DV0PM20053		
Connector Kit	A-frame	to D-frame	DV0PM20034	201	
for Motor	E-frame	(200 V)	DV0PM20046		
Connection	D-frame	(400 V)	DV0PM20054		
Connector Kit	E-frame		DV0PM20045		
for Regenerative Resistor	D-frame	(400 V)	DV0PM20055		
1 10010101		. ,	DV0PM20036	203	
				203	
Connector Kit fo Motor/Encoder (n	DV0PM20037	204	
oto./Enough	J 31 11 10 CUO		DV0PM20038	205	
	DC40E	2000	DV0PM20039	205	
	RS485, RS232		DV0PM20024	100	
	Safety		DV0PM20025	198	
Connector Kit	Interface		DV0P4350		
	External	Scale	DV0PM20026		
	Encoder		DV0PM20010	199	
- · ·		Ionitor Signal	DV0PM20031		
Battery For Abso	olute Enco	oder	DV0P2990	207	
Battery Box			DV0P4430		
Mounting Bracket	D-frame		DV0PM20030	208	
Encoder Cable		Battery Box	MFECA0**0ETD	190	
	with Batt	ery Box	MFECA0**0ETE		
			MFMCA0**2ECD	191	
			MFMCD0**2ECD		
	without E	Brake	MFMCE0**2ECD	192	
			MFMCF0**2ECD		
Motor Cable			MFMCA0**3ECT	193	
			MFMCD0**3ECT	193	
			MFMCA0**2FCD	194	
	with Bral	ке	MFMCE0**2FCD	194	
			MFMCE0**2FCD MFMCA0**3FCT	194 195	
	50 Ω 25	W	MFMCE0**2FCD MFMCA0**3FCT DV0P4280		
	50 Ω 25 100 Ω 25	W 5 W	MFMCE0**2FCD MFMCA0**3FCT		
Estamol	50 Ω 25 100 Ω 25 25 Ω 50	W 5 W	MFMCE0**2FCD MFMCA0**3FCT DV0P4280		
External Beggenerative	50 Ω 25 100 Ω 25	W 5 W	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281	195	
External Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100	W 5 W W W	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282		
Regenerative	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50	W 5 W W W	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283	195	
Regenerative	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100	W 5 W W W O W	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284	195	
Regenerative	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130	W 5 W W W O W O W	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285	195	
Regenerative	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22	W 5 W W W D W D W D W D W D W D D W D D W D D W D D W D D W D D W D D W D D D W D D W D D W D	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222,	195	
Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41	W 5 W W W D W D W D W D W D W D D W D D W D D W D D W D D W D D W D D W D D D W D D W D D W D	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047	210	
Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41	W 5 W W D W D W D W D W D W D W D D W D D W D D W D D W D	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047	210	
Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P22 DV0P41 DV0P42	W 5 W W W D W D W D W D W D D W D D W D D W D D W D D W D	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047	210	
Regenerative Resistor	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41 DV0P44 DV0P34 Single pl	W 5 W W W D W D W D W D W D D W D D W D D W D D W D D W D	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042 0043	210	
Regenerative Resistor Reactor Noise Filter	50 Ω 25 100 Ω 25 25 Ω 50 50 Ω 50 30 Ω 100 20 Ω 130 120 Ω 80 80 Ω 190 DV0P22 DV0P22 DV0P41 DV0P44 DV0P34 Single pl	W 5 W W W D W D W D W D W D W D W D W D	MFMCE0**2FCD MFMCA0**3FCT DV0P4280 DV0P4281 DV0P4282 DV0P4283 DV0P4284 DV0P4285 DV0PM20048 DV0PM20049 DV0P222, DV0P225, DV0PM20047 0042 0043 DV0P4190	210 209 250 251	

A5II, A5 series (Speed, Position, Torque,)

			40.07			
400.14	Main circuit		Single phase, 100 V to 120 V $^{+10~\%}_{-15~\%}$ 50 Hz/60 Hz			
100 V	Contro	ol circuit	Single phase, 100 V to 120 V			
	Main	A-frame to D-frame	Single/3-phase, 200 V to 240 V +10 % 50 Hz/60 Hz			
000 V	circuit	E-frame to H-frame	3-phase, 200 V to 230 V +10 % 50 Hz/60 Hz			
200 V	Control	A-frame to	Single phase, 200 V to 240 V +10 % 50 Hz/60 Hz			
	circuit	E-frame to	Single phase, 200 V to 230 V +10 %			
400.1/	Main circuit	D-frame to H-frame	3-phase, 380 V to 480 V			
400 V	Control circuit	D-frame to H-frame	DC 24 V ± 15 %			
tempe		erature	Ambient temperature: 0 °C to 55 °C (free from freezing) Storage temperature: -20 °C to 65 °C (Max.temperature guarantee: 80 °C for 72 hours free from condensation 1)			
vironment	humidity		Both operating and storage : 20 % to 85 %RH (free from condensation*1)			
	Altitude		Lower than 1000 m			
	Vibr	ation	5.88 m/s² or less, 10 Hz to 60 Hz (No continuous use at resonance frequency)			
Control method			IGBT PWM Sinusoidal wave drive			
Encoder feedback			17-bit (131072 resolution) absolute encoder, 7-wire serial 20-bit (1048576 resolution) incremental encoder, 5-wire serial			
A/B phase			A/B phase, initialization signal defferential input.			
Feedback scale feedback serial		serial	Manufacturers that support serial communication scale: DR. JOHANNES HEIDENHAIN GmbH Fagor Automation S.Coop. GSI Group Japan Corporation Encoder Group Magnescale Co., Ltd. Mitutoyo Corporation Nidec Sankyo Corporation Renishaw plc			
	signal Input Output		General purpose 10 inputs The function of general-purpose input is selected by parameters.			
Control			General purpose 6 outputs The function of general-purpose output is selected by parameters.			
		Input	3 inputs (16Bit A/D : 1 input, 12Bit A/D : 2 inputs)			
Analog	signal	Output	2 outputs (Analog monitor: 2 output)			
		Input	2 inputs (Photo-coupler input, Line receiver input)			
Pulse si	gnal	Output	4 outputs (Line driver: 3 output, open collector: 1 output)			
1		USB	Connection with PC etc.			
	ion	RS232	1 : 1 communication			
iction		RS485	1 : n communication up to 31 axes to a host.			
fety functi	on		Used for functional safety.			
ont panel			(1) 5 keys (2) LED (6-digit) (3) Connector for monitor (Analog monitor output (2ch), Digital monitor output (1ch))			
Regeneration			A, B, G and H-frame: no built-in regenerative resistor (external resistor only) C-frame to F-frame: Built-in regenerative resistor (external resistor is also enabled.)			
Dynamic brake			A-frame to G-frame: Built-in (external resistor is also available to G-frame) H-frame: External only			
Control mode			Switching among the following 7 mode is enabled, (1) Position control (2) Speed control (3) Toque control (4) Position/Speed control (5) Position/Torque control (6) Speed/Torque control (7) Full-closed control			
	edback sodback Control Analog s Pulse si mmunicat ction fety function generation namic bra	Analog signal Pulse signal Pulse signal Pulse signal Punction Analog signal Punction Punction Analog signal Analog signal Punction Analog signal Punction Analog signal Punction Analog signal	A-frame to D-frame E-frame to H-frame A-frame to H-frame Control circuit A-frame to H-frame A-frame to H-frame Control circuit A-frame to H-frame Control circuit A-frame to H-frame E-frame to H-frame Control circuit Altitude Vibration Introl method Coder feedback Control signal Control signal Control signal Analog signal Pulse signal Pulse signal Pulse signal Output Input Output USB RS232 RS485 fety function Inamic brake			

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

^{*2} Not applicable to 2DOF control system.

		Control inpu	ıt	(1) Deviation counter clear (2) Command pulse inhibitation(3) Electric gear (4) Damping control switching etc.		
		Control outp	out	Positioning complete (In-position) etc.		
			Max. command pulse frequency	Exclusive interface for Photo-coupler: 500 kpps Exclusive interface for line driver: 4 Mpps		
	Positio	Pulse input	Input pulse signal format	Differential input ((1) Positive and Negative direction, (2) A and B-phase, (3) Command and direction)		
	Position control	Input	Electronic gear (Division/Multiplication of command pulse)	1/1000 times to 1000 times		
	<u> </u>		Smoothing filter	Primary delay filter or FIR type filter is adaptable to the command input		
		Analog	Torque limit command input	Individual torque limit for both positive and negative direction is enabled.		
		input	Torque feed forward input	Analog voltage can be used as torque feed forward input.		
		Instantaneo	us Speed Observer	Available		
		Damping Co	ontrol	Available		
		2DOF settin	gs	Only available at A5I Series		
		Control inpu	ıt	(1) Selection of internal velocity setup 1(2) Selection of internal velocity setup 2(3) Selection of internal velocity setup 3(4) Speed zero clamp etc.		
		Control outp	ut	Speed arrival etc.		
	Spi	Analog	Velocity command input	Speed command input can be provided by means of analog voltage. Parameters are used for scale setting and command polarity. (6 V/Rated rotational speed Default)		
	ec	input	Torque limit command input	Individual torque limit for both positive and negative direction is enabled.		
	8		Torque feed forward input	Analog voltage can be used as torque feed forward input.		
	Speed control	Internal velo	city command	Switching the internal 8speed is enabled by command input.		
	<u>o</u>	Soft-start/do	own function	Individual setup of acceleration and deceleration is enabled, with 0 s to 10 s/1000 r/min. Sigmoid acceleration/deceleration is also enabled.		
		Zero-speed	clamp	Speed zero clamp input is enabled.		
		Instantaneo	us Speed Observer	Available		
Function		Speed Control filter		Available		
ਹੁ		2DOF settin	gs	Only available at A5I Series		
유	_	Control inpu	it	Speed zero clamp, Torque command sign input etc.		
	orq	Control outp		Speed arrival etc.		
	Torque control*2	Analog input Torque command input		Speed command input can be provided by means of analog voltage. Parameters are used for scale setting and command polarity. (3 V/rated torque Default)		
	N [*]	Speed limit	function	Speed limit value with parameter is enabled.		
		Control inpu		(1) Deviation counter clear (2) Command pulse inhibition(3) Command dividing gradual increase switching (4) Damping control switching etc.		
		Control outp		Full-closed positioning complete etc.		
	Ţ		Max. command pulse	Exclusive interface for Photo-coupler: 500 kpps		
	두		frequency	Exclusive interface for line driver : 4 Mpps		
	Ö	Pulse	Input pulse signal format	Differential input		
	Full-closed control *2	input	Electronic gear (Division/ Multiplication of command pulse)	1/1000 times to 1000 times		
	<u>ro</u>		Smoothing filter	Primary delay filter or FIR type filter is adaptable to the command input		
	v,*	Analog	Torque limit command input	Individual torque limit for both positive and negative direction is enabled.		
		input	Torque feed forward input	Analog voltage can be used as torque feed forward input.		
		Setup range feedback sc	e of division/multiplication of cale	1/40 times to 160 times		
		Damping Co	ontrol	Available		
	Q	Auto tuning		The load inertia is identified in real time by the driving state of the motor operating according to the command given by the controlling device and set up support software "PANATERM". The gain is set automatically in accordance with the rigidity setting.		
	Common	Division of e	encoder feedback pulse	Set up of any value is enabled (encoder pulses count is the max.).		
	of C	Protective Hard error		Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current and encoder error etc.		
	ם			Excess position deviation, command pulse division error, EEPROM error etc.		
	ם	function	Soft error of alarm data			

A5IIE, A5E series (Position control type)

	100 V	Main	circuit	Single phase, 100 V to 120 V $^{+10~\%}_{-15~\%}$ 50 Hz/60 Hz		
	100 V	Contro	l circuit	Single phase, 100 V to 120 V		
		Main	A-frame to D-frame	Single/3-phase, 200 V to 240 V +10 % 50 Hz/60 Hz		
Input power	200 V	circuit	E-frame to F-frame	3-phase, 200 V to 230 V		
ower	200 V	Control circuit	A-frame to D-frame	Single phase, 200 V to 240 V +10 % 50 Hz/60 Hz		
			E-frame to F-frame	Single phase, 200 V to 230 V +10 % 50 Hz/60 Hz		
	400 V	Main circuit	D-frame to F-frame	3-phase, 380 V to 480 V		
		Control circuit	D-frame to F-frame	DC 24 V ± 15 %		
Bas	temperature			Ambient temperature: 0 °C to 50 °C (free from freezing) Storage temperature: -20 °C to 65 °C (Max.temperature guarantee: 80 °C for 72 hours free from condensation 1)		
Sic En	vironment	humidity		Both operating and storage : 20 % to 85 %RH (free from condensation*1)		
E E E E E E E E E E E E E E E E E E E		Alti	tude	Lower than 1000 m		
ation		Vibr	ation	5.88 m/s² or less, 10 Hz to 60 Hz (No continuous use at resonance frequency)		
-	Control method			IGBT PWM Sinusoidal wave drive		
En	ncoder feed	dback		20-bit (1048576 resolution) incremental encoder, 5-wire serial		
Pe	Control	Input		General purpose 10 inputs The function of general-purpose input is selected by parameters.		
Parallel I/O	Control	sigilai	Output	General purpose 6 outputs The function of general-purpose output is selected by parameters.		
_	Analog :	signal	Input	none		
connector		J	Output	2 outputs (Analog monitor: 2 output)		
or	Pulse si	gnal	Input	2 inputs (Photo-coupler input, Line receiver input)		
0-	mmı:nin=4	ion	Output	4 outputs (Line driver: 3 output、open collector: 1 output)		
	ommunicat nction	ION	USB	Connection with PC etc.		
Fre	Front panel			(1) 5 keys (2) LED (6-digit) (3) Analog monitor output (2ch)		
Re	egeneratio	n		A, B-frame: no built-in regenerative resistor (external resistor only) C-fram to F-frame: Built-in regenerative resistor (external resistor is also enabled.)		
Dy	/namic bra	ke		Built-in		
Co	Control mode			(1) Position control (2) Internal velocity control (3) Position/ Internal velocity control		

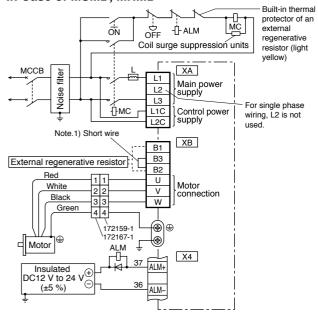
^{*1} Air containing water vapor will become saturated with water vapor as the temperature falls, causing dew.

				(1) Deviation counter clear (2) Command pulse inhibitation		
	Position control	Control inpu	ıt 	(3) Electric gear (4) Damping control switching etc.		
		Control outp	out	Positioning complete (In-position) etc.		
			Max. command pulse frequency	Exclusive interface for Photo-coupler: 500 kpps Exclusive interface for line driver: 4 Mpps		
		Pulse input	Input pulse signal format	Differential input ((1) Positive and Negative direction, (2) A and B-phase, (3) Command and direction)		
			Electronic gear (Division/ Multiplication of command pulse)	1/1000 times to 1000 times		
ъ			Smoothing filter	Primary delay filter or FIR type filter is adaptable to the command input		
Function		Instantaneous Speed Observer		Available		
ă		Damping Co	ontrol	Available		
		2DOF setting	igs	Only available at A5IE Series		
		Auto tuning		The load inertia is identified in real time by the driving state of the motor operating according to the command given by the controlling device and set up support software "PANATERM". The gain is set automatically in accordance with the rigidity setting.		
	Co	Division of e	encoder feedback pulse	Set up of any value is enabled (encoder pulses count is the max.).		
	Common	Protective	Hard error	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current and encoder error etc.		
		function	Soft error	Excess position deviation, command pulse division error, EEPROM error etc.		
		Traceability	of alarm data	The alarm data history can be referred to.		

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

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

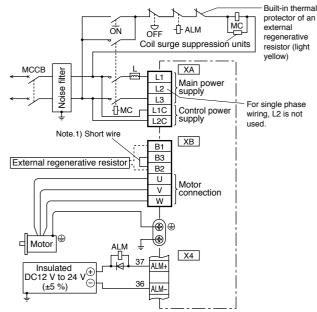
· In Case of MSMD, MHMD



Note.1)

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

· In Case of MSME

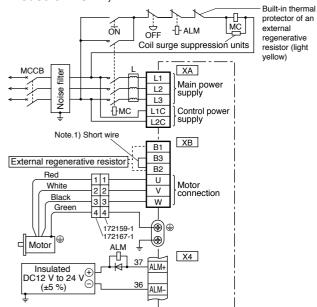


Note.1)

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

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

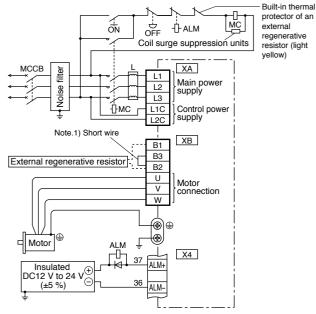
· In Case of MSMD, MHMD



Note.1)

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

· In Case of MSME

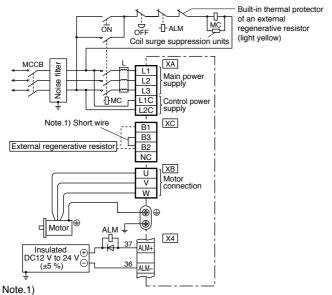


Note.1)

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

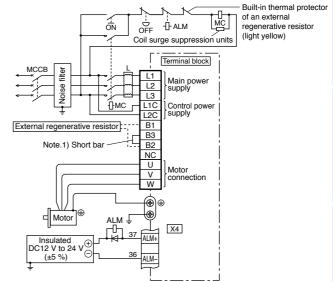
^{*} Refer to P.186, P.187, Specifications of Motor connector.

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



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

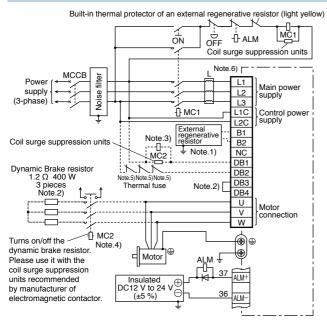
In Case of 3-phase, F-frame, 200 V type



Note.1)

Frame	Short bar	Built-in	Connection of	terminal block
	(Accessory)	regenerative resistor	In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
F-frame	with	with	Remove the short bar accessory from between B2-B3. Connect an external regenerative resistor between B1-B2	Shorted between B2-B3 with an attached short bar

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



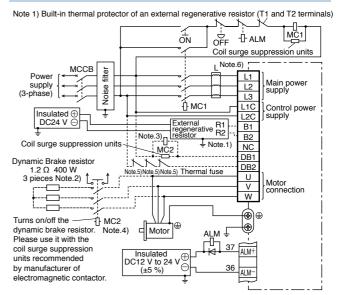
Note.1) About regenerative resistor

Frame	Short bar	Built-in	Connection of	terminal block
	(Accessory)	regenerative resistor	In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
G-frame	without	without	Connect an external regenerative resistor between B1-B2	Open between B1-B2

Note.2) About dynamic brake resistor

		-			
Frame	Short bar	Built-in	Connection of terminal block		
	(Accessory)	dynamic brake resistor.		In case of not using an external dynamic brake resistor.	
G-frame	with	with	Remove attached short bar between DB3-DB4. Connect external dynamic brake resistor as shown above.	Shorted with attached short bar between DB3-DB4 Open between DB1-DB2	

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



Note.1) About regenerative resistor

Frame Short b	Chart has	Built-in regenerative resistor	Connection of terminal block		
	(Accessory)		iii dadd di ddiiig	In case of not using an external regenerative resistor.	
H-frame	without	without	(External regenerative resistor terminal) - Terminal R1, R2 connect to B1, B2 - Terminal T1, T2 connection as shown above - Terminal 24 V, 0 V connect to DC power supply of DC24 V E terminal connect to the ground	Open between B1-B2	

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

Note.2) About dynamic brake resistor

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

<common for G & H frame>

Note.3) Magnetic contactor MC2 must be the same rating as the contactor MC1 in the main circuit.

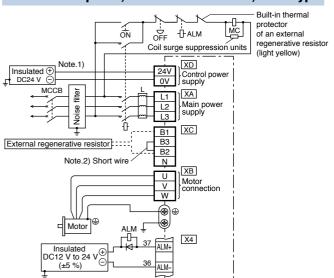
Note.4) Servo may be turned on in the external sequence if the contact deposits: to protect the system, provide the auxiliary contact.

Note.5) Provide an external protective device (e.g. thermal fuse) to monitor the temperature of the external dynamic brake resistor. Note.6) Reactor should be prepared by the customer.

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

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

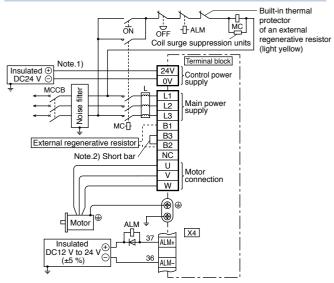
In Case of 3-phase, D-frame and E-frame, 400 V type



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

Frame	Short wire	Built-in		ne connector XC
	(Accessory)	regenerative resistor	In case of using an external regenerative resistor.	In case of not using an external regenerative resistor.
E-frame	with	with	Remove the short wire accessory from between B2-B3. Connect an external regenerative resistor between B1-B2	Shorted between B2-B3 with an attached short wire

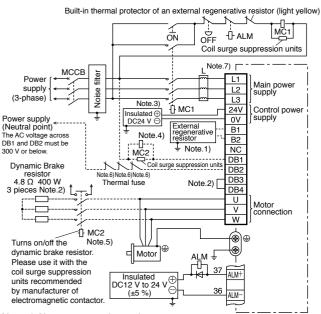
In Case of 3-phase, F-frame, 400 V type



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

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

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



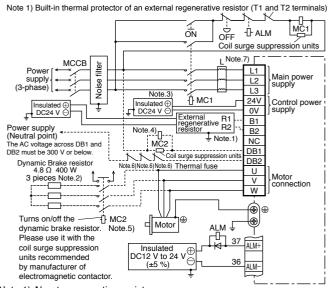
Note.1) About regenerative resistor

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

Note.2) About dynamic brake resistor

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

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



Note.1) About regenerative resistor

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

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

Note.2) About dynamic brake resistor

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

<common for G & H frame>

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

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

Wiring to the Connector, X3 (Excluding A5IIE, A5E Series)

Safety Function

A5 Family

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

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

Outline Description of Safe Torque Off (STO)

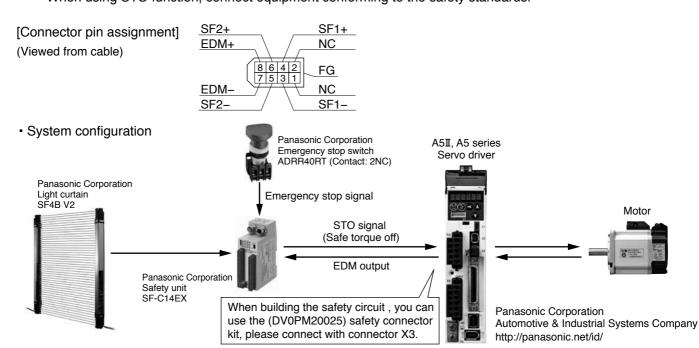
The safe torque off (STO) function is a safety function that shuts the motor current and turns off motor output torque by forcibly turning off the driving signal of the servo driver internal power transistor. For this purpose, the STO uses safety input signal and hardware (circuit).

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

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

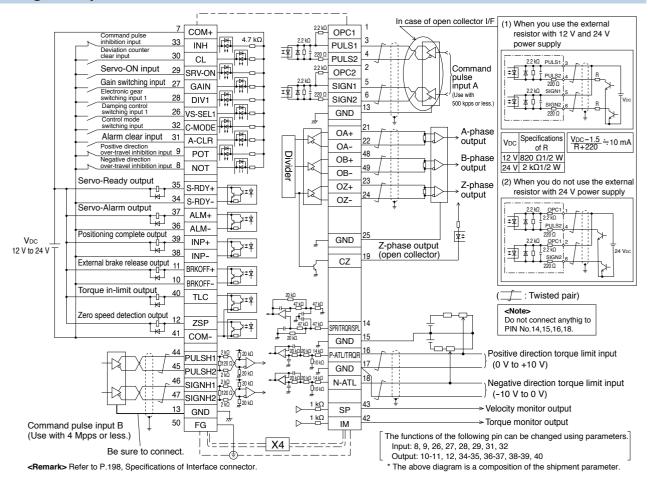
Safety Precautions

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

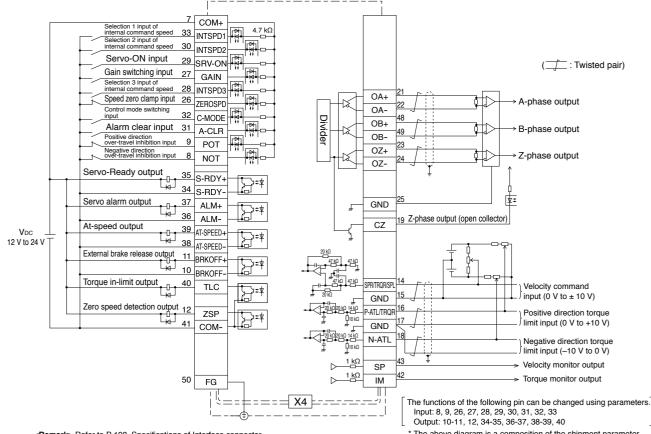


Control Circuit Diagram Wiring to the Connector, X4

Wiring Example of Position Control Mode



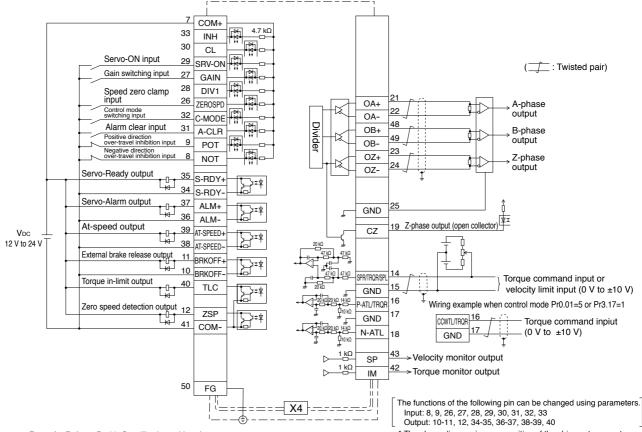
Wiring Example of Velocity Control Mode (Excluding A5IIE, A5E series)



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

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

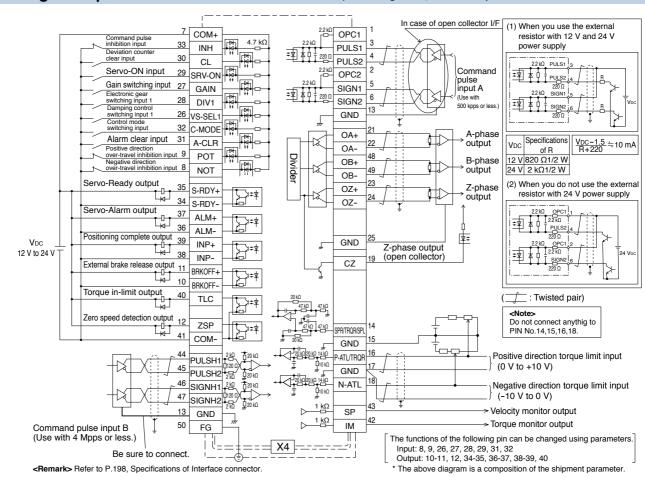
Wiring Example of Torque Control Mode (Excluding A5IIE, A5E series)



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

The above diagram is a composition of the shipment parameter.

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

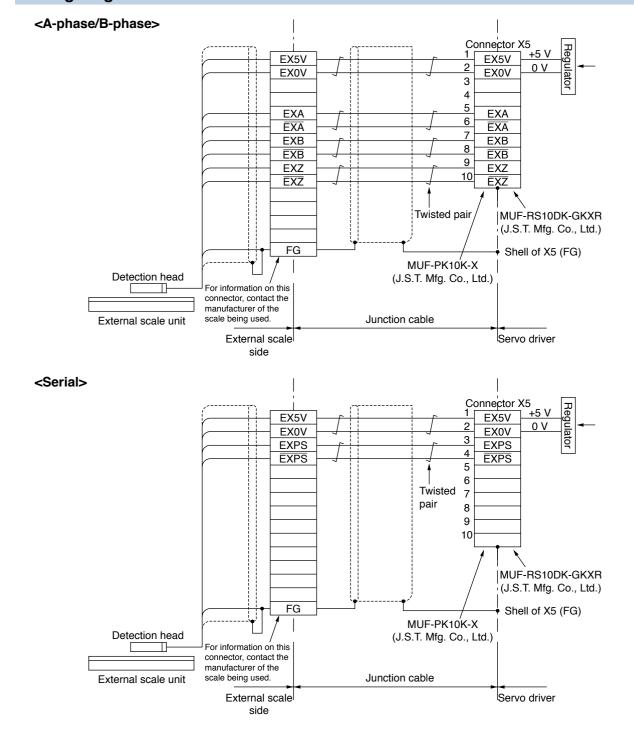


Applicable External Scale

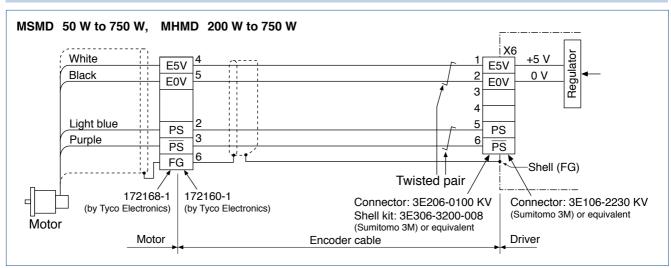
The manufacturers applicable external scales for this product are as follows.

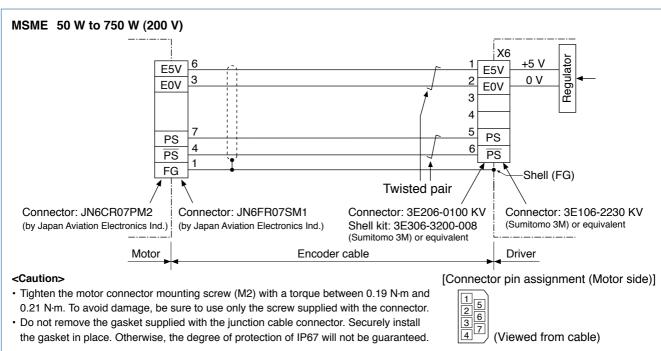
- DR. JOHANNES HEIDENHAIN GmbH
- · Fagor Automation S.Coop.
- · GSI Group Japan Corporation Encoder Group
- · Magnescale Co., Ltd.
- Mitutoyo Corporation
- Nidec Sankyo Corporation
- · Renishaw plc
- * For the details of the external scale product, contact each company.

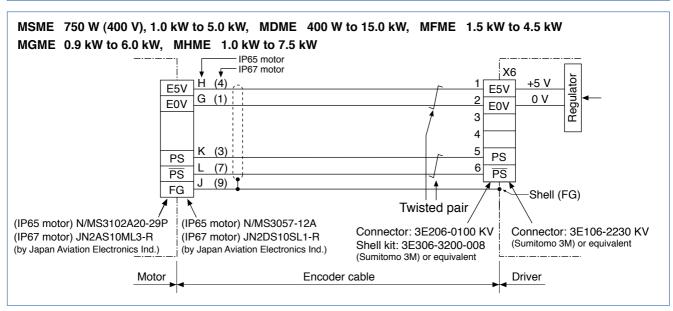
Wiring Diagram of X5



In Case of 20-bit Incremental Encoder



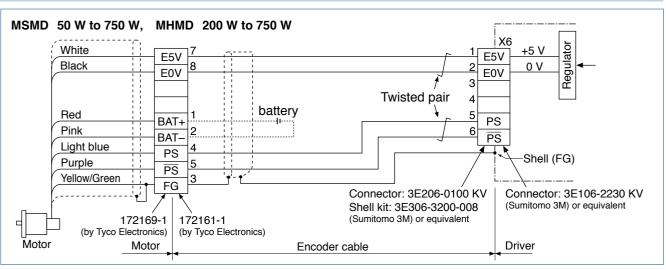


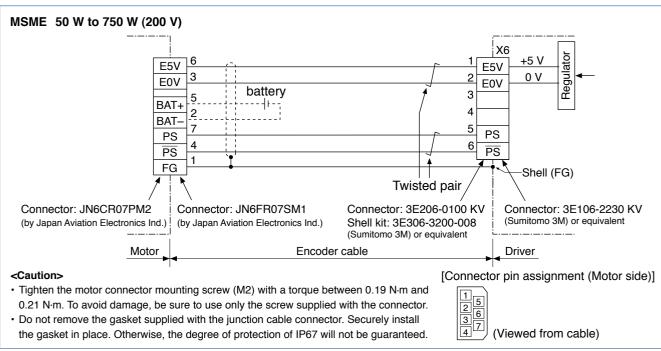


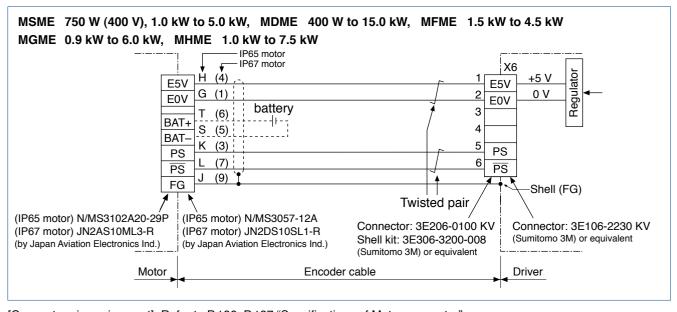
[Connector pin assignment] Refer to P.186, P.187 "Specifications of Motor connector".

Control Circuit Diagram Wiring to the Connector, X6

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





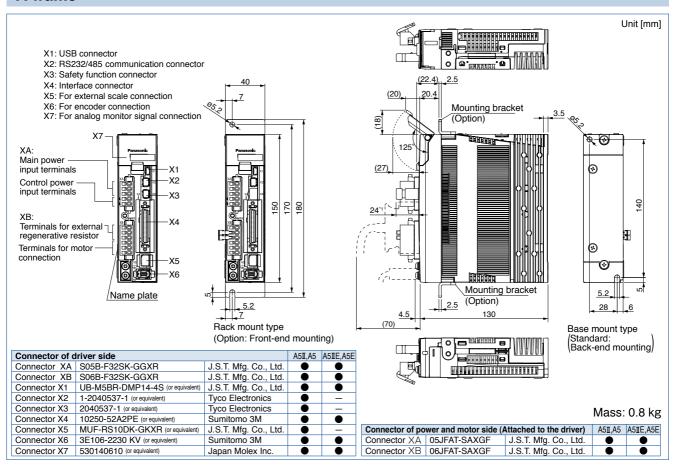


[Connector pin assignment] Refer to P.186, P.187 "Specifications of Motor connector".

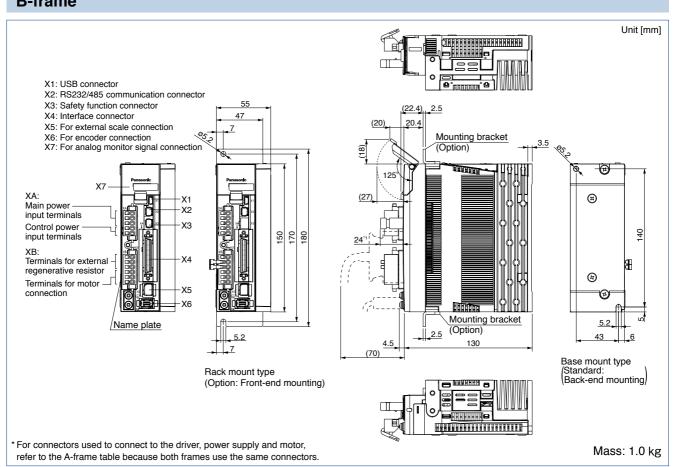
• The size of A5II, A5 series and A5IIE, A5E series is same.

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

A-frame



B-frame

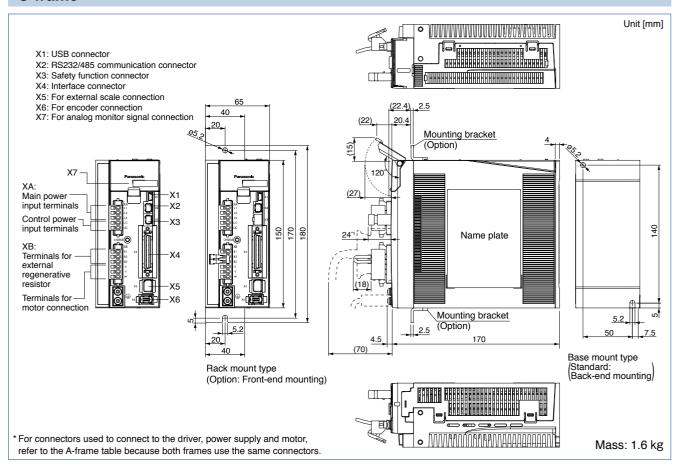


A5 Family

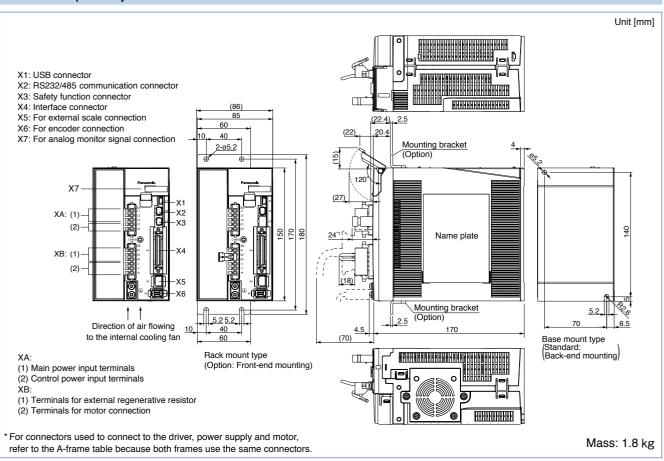
Dimensions of Driver

- The size of A5II, A5 series and A5IIE, A5E series is same.
- *1 The height of the safety by-pass provided plug is one of the 14 mm or 24 mm to connector X3.

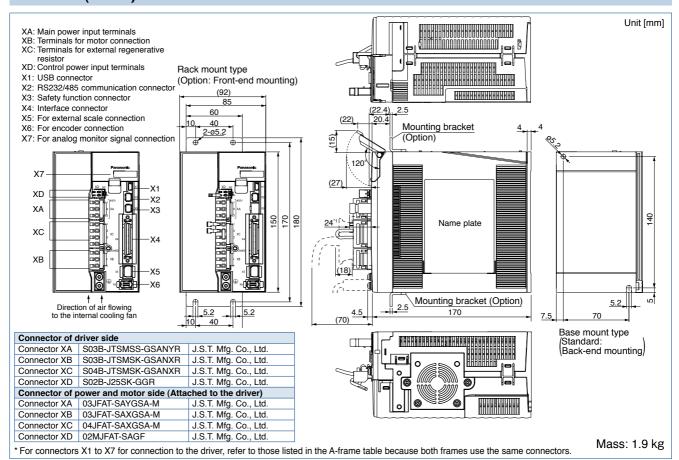
C-frame



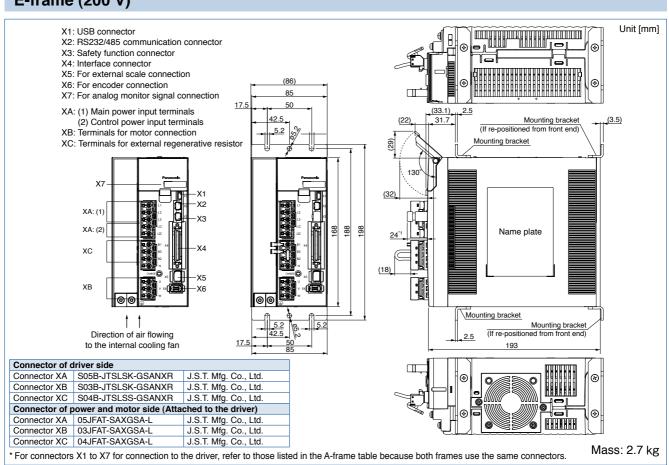
D-frame (200 V)



D-frame (400 V)



E-frame (200 V)

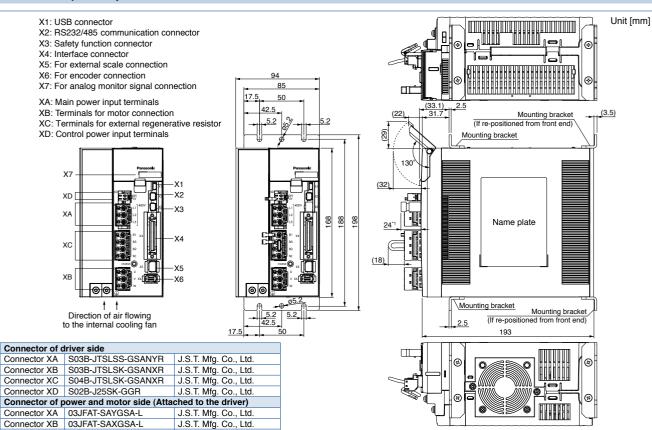


Dimensions of Driver

- The size of A5II, A5 series and A5IIE, A5E series is same.
- *1 The height of the safety by-pass provided plug is one of the 14 mm or 24 mm to connector X3.

Mass: 2.7 kg

E-frame (400 V)



F-frame (200 V/400 V)

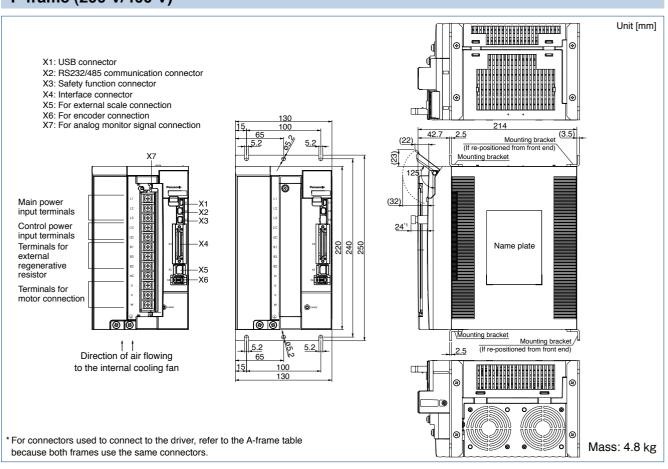
J.S.T. Mfg. Co., Ltd.

J.S.T. Mfg. Co., Ltd.

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

Connector XC 04JFAT-SAXGSA-I

Connector XD 02MJFAT-SAGF



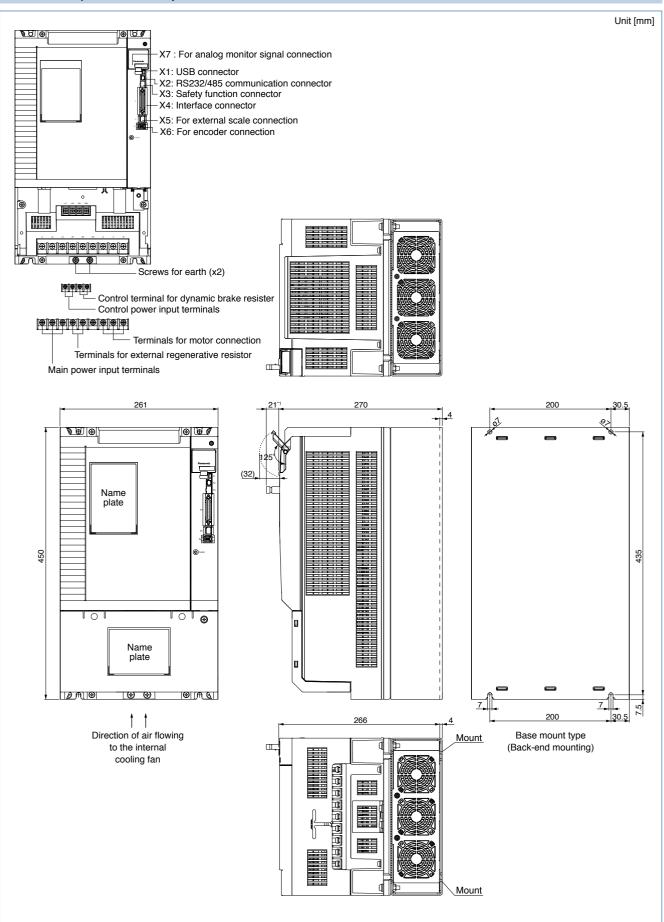
G-frame (200 V/400 V) * A5IIE, A5E series is out of the lineup.

Unit [mm] Connector X7: For analog monitor signal connection Connector X1: USB connector Main power -Connector X2: RS232/485 communication connector input terminals Control power ^LConnector X3: Safety function connector input terminals Connector X4: Parallel I/O connector Terminals for external regenerative resistor Connector X5: For feedback scale connection Terminals for motor Connector X6: connection For encoder connection ⊕ ⊕ ⊕ ⊛ Direction of air flowing to the internal cooling fan ⊕ ⊕ ⊕ ⊛ 233 210 90 72 Mounting bracket (If re-positioned from front end) Mounting bracket 24°1 220 235 250 Name plate **8 8** Mounting bracket Mounting bracket 5.2 2.5 (If re-positioned from front end) 90 ⊕ ⊕ ⊛ ⊕

Mass: 13.5 kg

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

H-frame (200 V/400 V)



* For connectors used to connect to the driver, refer to the A-frame table

because both frames use the same connectors.

Mass: 21.0 kg

A5 Family

Motor Specifications

Motor Contents

Features

Features/Lineup

٠L	ine-up	IP65	motor:	50	W	to	5.0	kW
----	--------	------	--------	----	---	----	-----	----

IP67 motor: 50 W to 15.0 kW

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

Motor Lineup



MSME Low inertia

Max. speed: 6000 r/min Rated speed: 3000 r/min Rated output: 50 W to

750 W(200 V)

Enclosure: IP67

Small capacity



MSMD Low inertia

Max. speed: 5000 r/min : 4500 r/min(750 W)

Rated speed: 3000 r/min Rated output: 50 W to 750 W Rated output: 200 W to 750 W

Enclosure: IP65



MHMD High inertia

Max. speed: 5000 r/min

: 4500 r/min(750 W)

Rated speed: 3000 r/min

Enclosure: IP65



Low inertia

Max. speed: 5000r /min : 4500 r/min

(from 4.0 kW)

Rated speed: 3000 r/min Rated output: 750 W(400 V),

1.0 kW to 5.0 kW

Enclosure: IP65, IP67

Middle capacity



Middle inertia

Max. speed: 3000 r/min 2000 r/min

(from 11.0 kW) Rated speed: 2000 r/min

1500 r/min (from 7.5 kW)

Rated output IP65: 400 W to 5.0 kW IP67: 400 W to 15.0 kW Enclosure: IP65, IP67



MFME (Flat type)*

Middle inertia Max. speed: 3000 r/min

Rated speed: 2000 r/min Rated output: 1.5 kW to 4.5 kW

Enclosure: IP67





MGME

(Low speed/ High torque type) Middle inertia

Max. speed: 2000 r/min Rated speed: 1000 r/min

Rated output

IP65: 0.9 kW to 3.0 kW IP67: 0.9 kW to 6.0 kW Enclosure: IP65, IP67



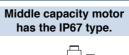
MHME High inertia

Max. speed: 3000 r/min Rated speed: 2000 r/min

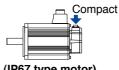
: 1500 r/min(7.5 kW)

Rated output

IP65: 1.0 kW to 5.0 kW IP67: 1.0 kW to 7.5 kW Enclosure: IP65, IP67



(IP65 type motor)



(IP67 type motor)

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

MSMD (100 V/200 V) 50 W to 750 W
MHMD (100 V/200 V) 200 W to 750 W
MSME (100 V/200 V) 50 W to 750 W
MSME (200 V) 1.0 kW to 5.0 kW
MDME (200 V) 1.0 kW to 15.0 kW
MFME (200 V) 1.5 kW to 4.5 kW
MGME (200 V) 0.9 kW to 6.0 kW
MHME (200 V) 1.0 kW to 7.5 kW P.97
MSME (400 V) 750 W to 5.0 kW P.104
MDME (400 V) 400 W to 15.0 kWP.111
MFME (400 V) 1.5 kW to 4.5 kW
MGME (400 V) 0.9 kW to 6.0 kW P.125
MHME (400 V) 1.0 kW to 7.5 kW P.130
IP67 motor dimensions
Motors with Gear Reducer
Type and Specifications P.141
Model No. designation P.142
The combination of the driver
and the motor
Table of motor specifications P.143
Torque Characteristics of Motor
P.144 Dimensions of Motor
Motor Specification Description
Environmental Conditions P.182
Notes on [Motor specification]
pageP.182
Permissible Load at Output Shaft

Built-in Holding Brake P.184

				AC1	00 V	
Matawasadal		IP65		MSMD5AZG1□	MSMD5AZS1□	
Motor model		IP67		-	-	
A !! I- ! -	Model	A5Ⅱ, A5	series	MAD	T1105	
Applicable driver *2	No.	A5IIE, A	5E series	MAD ⊘T1105 E	-	
unver	Fr	ame sym	ıbol	A-fra	ame	
Power supply	capacit	у	(kVA)	0.	.5	
Rated output			(W)	5	0	
Rated torque			(N·m)	0.	16	
Momentary Ma	ax. peal	k torque	(N·m)	0.48		
Rated current		((A(rms))	1.1		
Max. current			(A(o-p))	4.7		
Regenerative b	rake	Without	Vithout option No limit Note)2		t Note)2	
frequency (times/r	min) Note)1	DV0P4280		No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	5000		
Moment of ine	rtia	Withou	t brake	0.025		
of rotor (×10 ⁻⁴	kg·m²)	With I	orake	0.027		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			
Rotary encode	Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute	
R	esolutio	n per sing	le turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

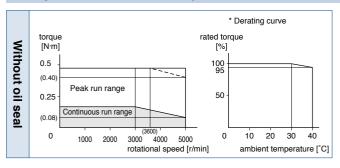
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

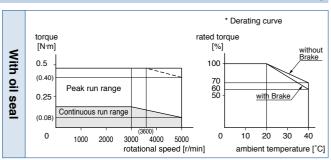
• Permissible load (For details, refer to P.183)

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

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

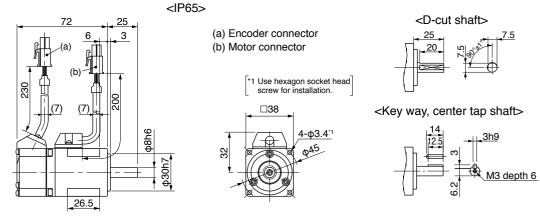
Torque characteristics (at AC100 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





Dimensions

<Without Brake> Mass: 0.32 kg



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

[Unit: mm]

<Cautions>

			AC2	00 V		
Motor model	IP65		MSMD5AZG1□	MSMD5AZS1□		
Wotor model		IP67		-	-	
Annlinghla	Model	A5II, A5 se	eries	MAD	T1505	
Applicable *2	No.	A5IIE, A5I	= series	MAD ◇T1505E	_	
diver	Fr	ame symbo	ol	A-fra	ame	
Power supply	capacit	y	(kVA)	0.	.5	
Rated output			(W)	5	0	
Rated torque			(N·m)	0.	16	
Momentary Ma	ax. peal	k torque	(N·m)	0.48		
Rated current		(A	(rms))	1.1		
Max. current		(A	(o-p))	4.7		
Regenerative b	rake	Without option		No limit Note)2		
frequency (times/r	min) Note)1	DV0P4281		No limit Note)2		
Rated rotation	al spee	d (r/min)	3000		
Max. rotationa	l speed	(r/min)	5000		
Moment of ine	rtia	Without b	orake	0.025		
of rotor (×10 ⁻⁴	kg·m²)	With bra	ake	0.027		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			
Rotary encode	Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute	
R	esolutio	n per single	turn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

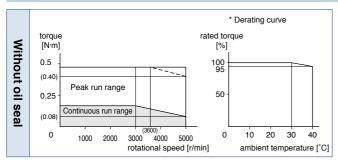
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

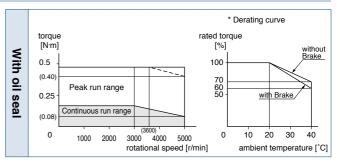
• Permissible load (For details, refer to P.183)

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

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

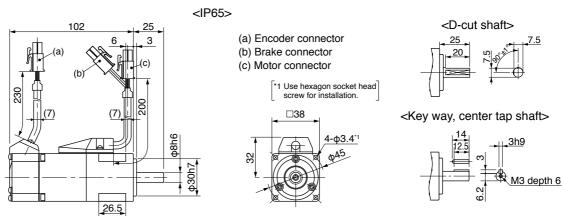
Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





Dimensions

Mass: 0.53 kg <With Brake>



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

[Unit: mm]

<Cautions>

				AC1	00 V	
Motor model	IP65		MSMD011G1□	MSMD011S1		
*1		IP67		-	-	
Amaliaabla	Model	A5II, A5	series	MAD	T1107	
Applicable *2	No.	A5IIE, A	5E series	MAD ⊘T1107E	_	
dilvei	Fr	ame sym	ıbol	A-fra	ame	
Power supply	capacit	y	(kVA)	0.	4	
Rated output			(W)	10	00	
Rated torque			(N·m)	0.0	32	
Momentary Ma	ax. peal	k torque	(N·m)	0.95		
Rated current		((A(rms))	1.7		
Max. current			(A(o-p))	7.2		
Regenerative b	rake	Without	option	No limit Note)2		
frequency (times/i	min) Note)1	DV0P4280		No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	5000		
Moment of ine	rtia	Without	t brake	0.051		
of rotor (×10 ⁻⁴	kg·m²)	With b	orake	0.054		
	Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less		
Rotary encode	Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute	
R	esolutio	n per sing	jle turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

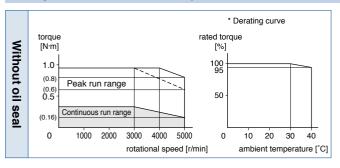
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

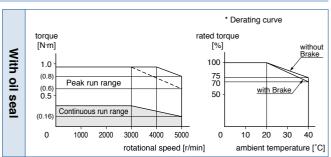
• Permissible load (For details, refer to P.183)

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

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

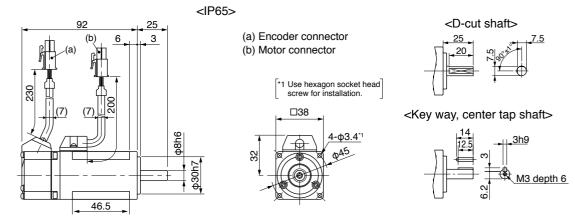
Torque characteristics (at AC100 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





Dimensions

<Without Brake> Mass: 0.47 kg



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

[Unit: mm]

<Cautions>

			AC2	00 V		
Mataumadal		IP65		MSMD012G1□	MSMD012S1	
Motor model		IP67		-	-	
Amaliaabla	Model	A5II, A5 se	eries	MAD	T1505	
Applicable driver *2	No.	A5IIE, A5I	= series	MAD ⊘T1505E	_	
unver	Fr	ame symb	ol	A-fra	ame	
Power supply	capacit	y	(kVA)	0.	.5	
Rated output			(W)	10	00	
Rated torque			(N·m)	0.0	32	
Momentary Ma	ax. peal	k torque	(N·m)	0.95		
Rated current		(A	(rms))	1.1		
Max. current		(Δ	(o-p))	4.7		
Regenerative b	rake	Without o	ption	No limit Note)2		
frequency (times/r	min) Note)1	DV0P4281		No limit Note)2		
Rated rotation	al spee	d ((r/min)	3000		
Max. rotationa	l speed	((r/min)	5000		
Moment of ine	rtia	Without b	orake	0.051		
of rotor (×10 ⁻⁴	kg·m²)	With bra	ake	0.054		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			
Rotary encode	Rotary encoder specifications Note)5			20-bit Incremental	17-bit Absolute	
R	esolutio	n per single	turn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

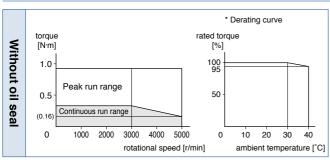
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

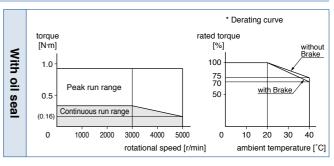
• Permissible load (For details, refer to P.183)

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

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

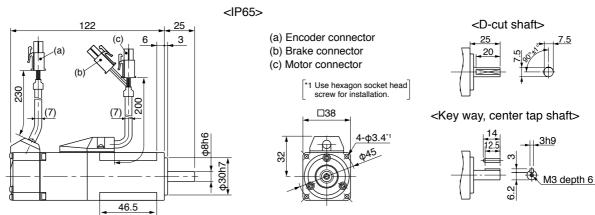
Torque characteristics (at AC200 V of power voltage)





Dimensions

Mass: 0.68 kg <With Brake>



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

[Unit: mm]

<Cautions>

			AC1	00 V	
Mataumadal	IP65		MSMD021G1□	MSMD021S1□	
Motor model		IP67	-	-	
Amaliaahla	Model	A5II, A5 series	МВО	T2110	
Applicable *2	No.	A5IIE, A5E series	MBD ⊘T2110E	_	
dilvei	Fr	ame symbol	B-fra	ame	
Power supply	capacit	y (kVA)	0	.5	
Rated output		(W)	20	00	
Rated torque		(N·m)	0.0	64	
Momentary Ma	ax. peal	k torque (N·m)	1.91		
Rated current		(A(rms))	2.5		
Max. current (A(o-p))		10.6			
Regenerative b	rake	Without option	No limit Note)2		
frequency (times/i	min) Note)1	DV0P4283	No limi	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000		
Max. rotationa	l speed	(r/min)	5000		
Moment of ine	rtia	Without brake	0.14		
of rotor (×10 ⁻⁴	kg·m²)	With brake	0.16		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute	
R	esolutio	n per single turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

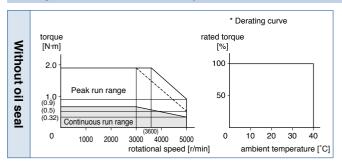
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

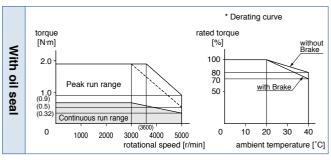
• Permissible load (For details, refer to P.183)

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

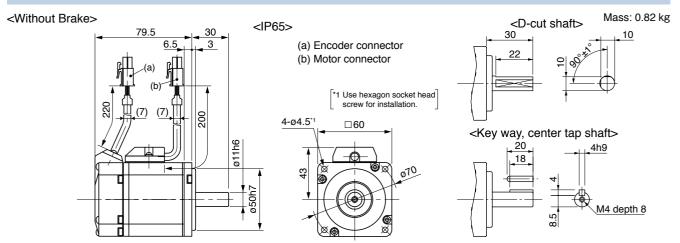
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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





Dimensions



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

[Unit: mm]

<Cautions>

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

Specifications

			AC2	00 V	
Mataumandal	IP65		MSMD022G1□	MSMD022S1□	
Motor model		IP67		-	-
Amaliaabla	Model	A5II, A5 ser	ies	MAD	T1507
Applicable *2	No.	A5IIE, A5E series		MAD ⊘T1507E	_
diver	Fr	ame symbo	I	A-fra	ame
Power supply	capacit	y ((kVA)	0.	.5
Rated output			(W)	20	00
Rated torque		((N·m)	0.0	64
Momentary Ma	ax. peal	k torque ((N·m)	1.91	
Rated current		(A(rms))	1.6	
Max. current		(A((o-p))	6.9	
Regenerative b	rake	Without op	otion	No limi	t Note)2
frequency (times/r	min) Note)1	DV0P42	83	No limi	t Note)2
Rated rotation	al spee	d (r	/min)	3000	
Max. rotationa	l speed	(r	/min)	5000	
Moment of ine	rtia	Without br	rake	0.14	
of rotor (×10 ⁻⁴	kg·m²)	With bra	ke	0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn			1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

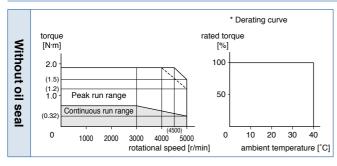
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

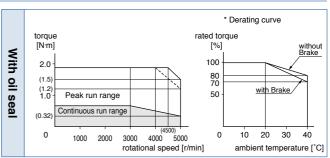
• Permissible load (For details, refer to P.183)

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

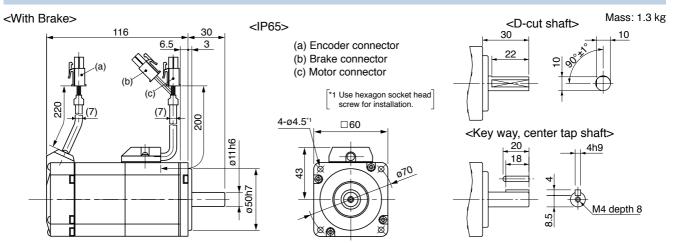
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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





Dimensions



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

[Unit: mm]

<Cautions>

				AC1	00 V
IP65		MSMD041G1□	MSMD041S1		
Motor model		IP67		-	-
A Ii I I	Model	A5II, A5	series	MCD<	T3120
Applicable *2	No.	A5IIE, A5	E series	MCD ⊘T3120E	_
dilvei	Fr	ame syml	ool	C-fr	ame
Power supply	capacit	y	(kVA)	0.	.9
Rated output			(W)	40	00
Rated torque			(N·m)	1.	.3
Momentary Ma	ax. peal	k torque	(N·m)	3.8	
Rated current		(/	A(rms))	4.6	
Max. current		(A(o-p))	19.5	
Regenerative b	rake	Without	option	No limit Note)2	
frequency (times/i	min) Note)1	DV0P4282 No limit Note)2		t Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	5000	
Moment of ine	rtia	Without	brake	0.26	
of rotor (×10 ⁻⁴	kg·m²)	With b	rake	0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute
R	esolutio	n per singl	le turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

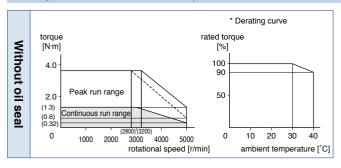
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

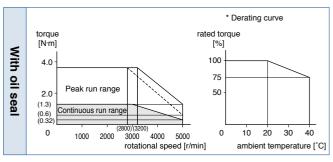
• Permissible load (For details, refer to P.183)

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

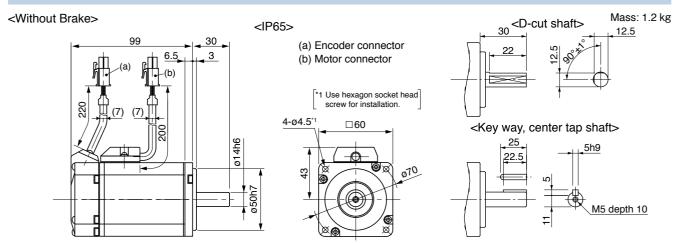
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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





Dimensions



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

[Unit: mm]

<Cautions>

A5 Family

Specifications

				AC2	00 V
IP65		MSMD042G1□	MSMD042S1□		
Motor model		IP67		-	-
Amaliaabla	Model	A5II, A5 ser	ies	MBD<	T2510
Applicable driver *2	No.	A5IIE, A5E series		MBD ⊘T2510E	-
unver	Fr	ame symbo	l	B-fra	ame
Power supply	capacit	y ((kVA)	0.	.9
Rated output			(W)	40	00
Rated torque		((N·m)	1.	.3
Momentary Ma	ax. peal	k torque ((N·m)	3.8	
Rated current		(A(ı	rms))	2.6	
Max. current		(A((o-p))	11.0	
Regenerative b	rake	Without op	otion	No limi	t Note)2
frequency (times/r	min) Note)1	DV0P42	83	No limi	t Note)2
Rated rotation	al spee	d (r.	/min)	3000	
Max. rotationa	l speed	(r.	/min)	5000	
Moment of ine	rtia	Without br	ake	0.26	
of rotor (×10 ⁻⁴	kg·m²)	With bra	ke	0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute
R	esolutio	n per single	turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

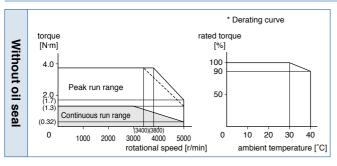
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

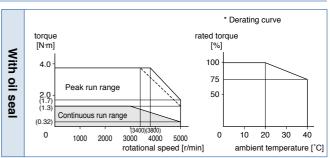
• Permissible load (For details, refer to P.183)

Radial load P-direction (N)	392
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
	Thrust load A-direction (N) Thrust load B-direction (N)

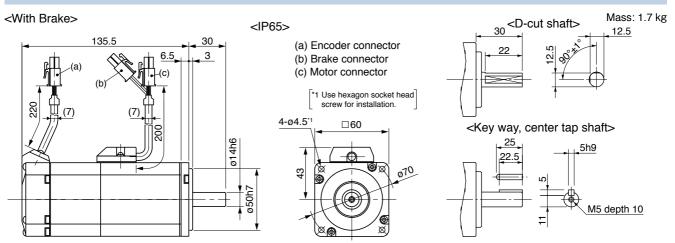
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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





Dimensions



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

[Unit: mm]

			AC2	00 V	
Motor model		MSMD082G1□	MSMD082S1□		
*1		IP67		-	-
Annlinghla	Model	A5II, A5 series		MCD<	T3520
Applicable driver *2	No.	A5IE, A5E seri	ies	MCD ⊘T3520E	_
diver	Fr	ame symbol		C-fr	ame
Power supply	capacit	y (kV/	4)	1.	.3
Rated output		(V	V)	75	50
Rated torque		(N·n	n)	2	.4
Momentary Ma	ax. peal	k torque (N·n	n)	7.1	
Rated current		(A(rms	;))	4.0	
Max. current		(A(o-p)))	17.0	
Regenerative b	rake	Without option	n	No limit Note)2	
frequency (times/r	min) Note)1	DV0P4283		No limit Note)2	
Rated rotation	Rated rotational speed (r/min)		nin) 3000		00
Max. rotationa	l speed (r/min)		n) 4500		00
Moment of ine	rtia	Without brake	Э	0.87	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake			0.97	
Recommended moment of inertia ratio of the load and the rotor Note)3)3	20 times or less		
Rotary encode	Rotary encoder specifications Note)5)5	20-bit Incremental	17-bit Absolute
R	esolutio	n per single turr	1	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

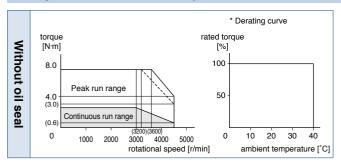
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

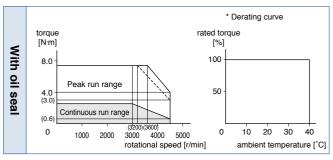
• Permissible load (For details, refer to P.183)

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

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

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





Dimensions

<IP65> 149.2[112.2] ø19h6

(a) Encoder connector

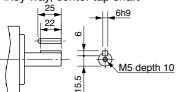
(b) Brake connector

(c) Motor connector

1 Use hexagon socket head screw for installation. 4-ø6* □80 53

Mass: Without brake/ 2.3 kg With brake/ 3.1 kg <D-cut shaft>





* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions>

MEMO

			AC1	00 V	
IP65		MHMD021G1□	MHMD021S1		
Motor model *1		IP67	-	-	
A 1: 11	Model	A5II, A5 series	MBD<	T2110	
Applicable driver *2	No.	A5IE, A5E series	MBD ⊘T2110E	_	
dilvei	Fr	ame symbol	B-fra	ame	
Power supply	capacity	y (kVA)	0	.5	
Rated output		(W)	20	00	
Rated torque		(N·m)	0.0	64	
Momentary Ma	ax. peal	k torque (N·m)	1.9	1.91	
Rated current		(A(rms))	2.5		
Max. current		(A(o-p))	10.6		
Regenerative b	rake	Without option	No limit Note)2		
frequency (times/i	min) Note)1	DV0P4283	No limit Note)2		
Rated rotation	Rated rotational speed (r/min)		3000		
Max. rotationa	al speed (r/min)		5000		
Moment of ine	Moment of inertia Without brake		0.42		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		0.45		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	esolutio	n per single turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

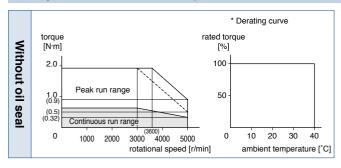
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

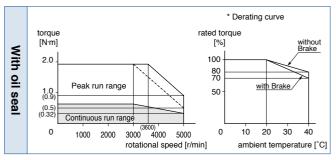
• Permissible load (For details, refer to P.183)

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

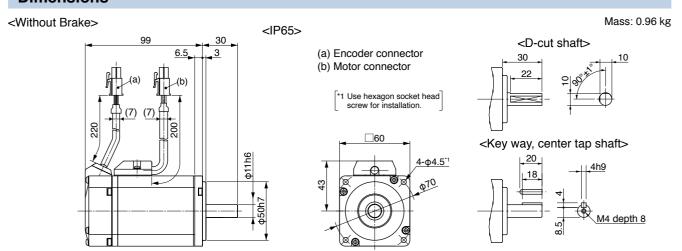
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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





Dimensions



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

[Unit: mm]

<Cautions>

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

Specifications

		AC200 V			
IP65		MHMD022G1□	MHMD022S1		
Motor model		IP67			
Amaliaabla	Model	A5II, A5 series	MAD \rightarrow T1507		
Applicable *2	No.	A5IE, A5E series	MAD ◇T1507E –		
diver	Fr	ame symbol	ame symbol A-frame		
Power supply	capacit	y (kVA)	0	.5	
Rated output		(W)	20	00	
Rated torque		(N·m)	0.	64	
Momentary M	ax. peal	k torque (N·m)	1.	1.91	
Rated current		(A(rms))	1.6		
Max. current		(A(o-p))	6.9		
Regenerative l	Regenerative brake Without option		No limit Note)2		
frequency (times/	frequency (times/min) Note)1 DV0P4283		No limit Note)2		
Rated rotation	lated rotational speed (r/min) 3000		00		
Max. rotationa	ational speed (r/min) 5000		00		
Moment of ine	Moment of inertia Without brake		0.42		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		0.45		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	esolutio	n per single turn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

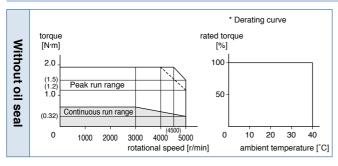
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

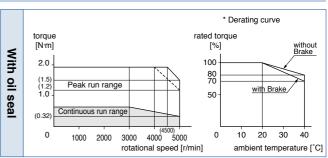
• Permissible load (For details, refer to P.183)

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

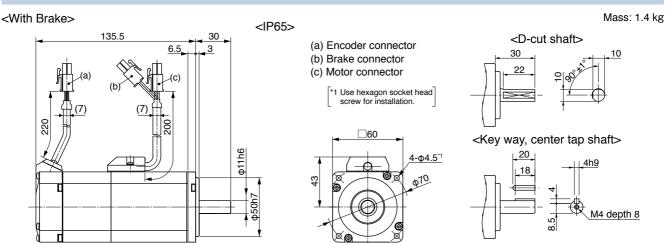
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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





Dimensions



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

[Unit: mm]

			AC1	00 V		
Matauraadal		IP65		MHMD041G1	MHMD041S1	
Motor model		IP67		-	_	
A	Model	A5II, A5	series	MCD<	T3120	
Applicable *2	No.	A5IIE, A	5E series	MCD ◇T3120E	-	
unver	Fr	ame sym	bol	C-fra	ame	
Power supply	capacit	y	(kVA)	0.	.9	
Rated output			(W)	40	00	
Rated torque			(N·m)	1.	1.3	
Momentary M	ax. peal	k torque	(N·m)	3.8		
Rated current		(A(rms))	4.6		
Max. current (A(o-p))		19	.5			
Regenerative b	rake	Without	option	No limi	t Note)2	
frequency (times/	min) Note)1	DV0P	4282	No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	5000		
Moment of ine	rtia	Without	brake	0.67		
of rotor (×10 ⁻⁴	kg·m²)	With b	rake	0.70		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute		
R	Resolution per single turn		le turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

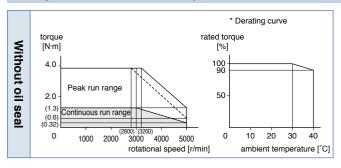
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

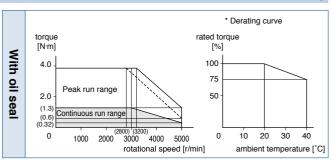
• Permissible load (For details, refer to P.183)

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

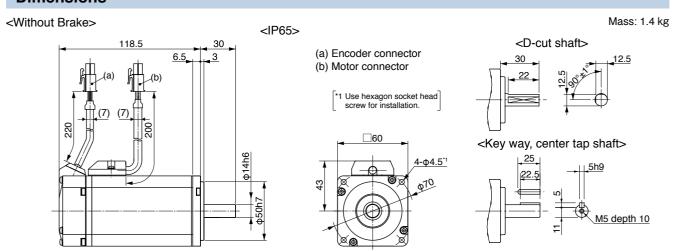
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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





Dimensions



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

[Unit: mm]

<Cautions>

A5 Family

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

Specifications

			AC2	00 V		
		IP65		MHMD042G1□	MHMD042S1	
Motor model		IP67		-	_	
Amaliaabla	Model	A5II, A5 series		MBD ◇T2510		
Applicable *2	No.	A5IIE, A5E serie	es	MBD ⊘T2510E	_	
diver	Fr	ame symbol		B-fra	ame	
Power supply	capacit	y (kVA	١)	0.	.9	
Rated output		(W	V)	40	00	
Rated torque		(N·m	1)	1.	.3	
Momentary Ma	ax. peal	k torque (N⋅m	1)	3.8		
Rated current		(A(rms))	2.6		
Max. current		(A(o-p))	11.0		
Regenerative brake Without option		า	No limi	t Note)2		
frequency (times/r	frequency (times/min) Note)1		DV0P4283		No limit Note)2	
Rated rotation	al spee	d (r/mir	า)	3000		
Max. rotationa	l speed	(r/mir	า)	5000		
Moment of ine	rtia	Without brake	•	0.67		
of rotor (×10 ⁻⁴	kg·m²)	With brake		0.70		
Recommended moment of inertia ratio of the load and the rotor Note)3)3	30 times or less		
Rotary encode	Rotary encoder specifications Note)5)5	20-bit Incremental	17-bit Absolute	
R	Resolution per single turn			1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

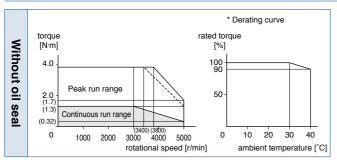
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

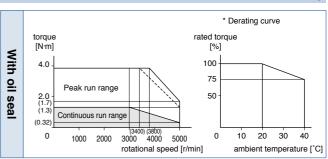
• Permissible load (For details, refer to P.183)

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

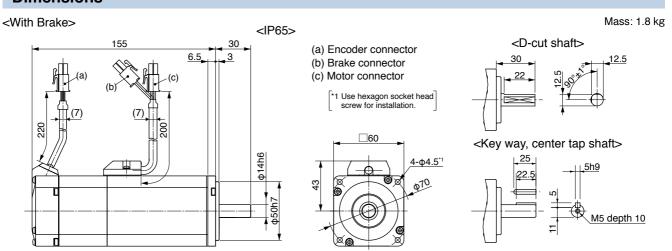
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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





Dimensions



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

[Unit: mm]

<Cautions>

			AC2	00 V	
		IP65	MHMD082G1□	MHMD082S1	
Motor model		IP67	_	_	
Amaliaabla	Model	A5II, A5 series	MCD ⊘T3520		
Applicable *2	No.	A5IE, A5E series	MCD ⊘T3520E	_	
diver	Fr	ame symbol	C-fr	ame	
Power supply	capacit	y (kVA)	1	.3	
Rated output		(W)	75	50	
Rated torque		(N·m)	2	.4	
Momentary M	ax. peal	k torque (N·m)	7.1		
Rated current		(A(rms))	4.0		
Max. current	Max. current (A(o-p))		17	17.0	
Regenerative b	rake	Without option	No lim	it Note)2	
frequency (times/	min) Note)1	DV0P4283	No limit Note)2		
Rated rotation	al spee	d (r/min)	3000		
Max. rotationa	l speed	(r/min)	4500		
Moment of ine	rtia	Without brake	1.51		
of rotor (×10 ⁻⁴	kg·m²)	With brake	1.61		
Recommended moment of inertia ratio of the load and the rotor Note)3			20 times or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

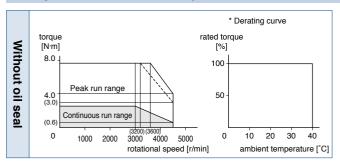
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

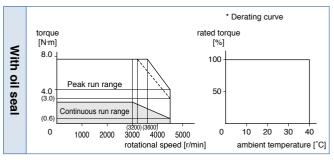
• Permissible load (For details, refer to P.183)

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

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

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





Dimensions

<IP65>
164.2[127.2]
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(b)
(c)
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- (a) Encoder connector
- (b) Brake connector(c) Motor connector
- (c) Motor connector

1 Use hexagon socket head

screw for installation.

With brake/ 3.5 kg

<D-cut shaft>

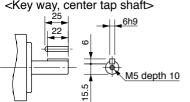
17.5

Key way, center tap shaft>

25

Above the shape of the

Mass: Without brake/ 2.5 kg



* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions> Reduce the Dimension

MEMO

			AC100 V		
Motor model		IP65		-	-
*1		IP67		MSME5AZG1□	MSME5AZS1□
Annlinghla	Model	A5II, A5 seri	es	MAD	T1105
Applicable *2	No.	A5IIE, A5E	series	MAD ⊘T1105 E	_
divei	Fr	ame symbol		A-fra	ame
Power supply	capacit	y (I	(VA)	0.	.4
Rated output			(W)	5	0
Rated torque		1)	V·m)	0.	16
Momentary Ma	ax. peal	k torque (I	V·m)	0.48	
Rated current		(A(r	ms))	1.1	
Max. current	Max. current (A(o-p))		4.7		
Regenerative b	rake	Without op	tion	No limit Note)2	
frequency (times/r	min) Note)1	DV0P4280		No limit Note)2	
Rated rotation	al spee	d (r/	min)	3000	
Max. rotationa	l speed	(r/	min)	6000	
Moment of ine	rtia	Without bra	ake	0.025	
of rotor (×10 ⁻⁴	kg·m²)	With brak	е	0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		urn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

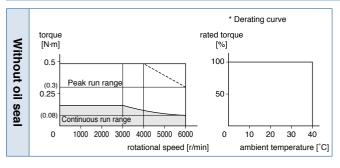
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

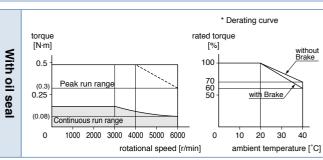
• Permissible load (For details, refer to P.183)

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

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

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





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

<IP67>

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

(13.5)

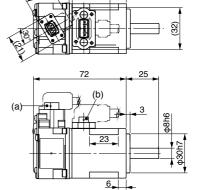
<D-cut shaft>

25

20

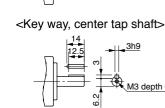
7.5

Mass: 0.31 kg



(a) Encoder connector(b) Motor connector

*1 Use hexagon socket head screw for installation.



4-φ3.4⁻¹

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

[Unit: mm]

<Cautions>

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

Specifications

			AC2	00 V
Motor model		IP65	-	-
*1		IP67	MSME5AZG1□	MSME5AZS1
Amaliaabla	Model	A5II, A5 series	MAD ◇T150 5	
Applicable *2	No.	A5IIE, A5E series	MAD ⊘T1505E	_
diver	Fı	ame symbol	A-fra	ame
Power supply	capacit	y (kVA)	0	.5
Rated output		(W)	5	0
Rated torque		(N·m)	0.	16
Momentary M	ax. pea	k torque (N·m)	0.48	
Rated current		(A(rms))	1.1	
Max. current		(A(o-p))	4	.7
Regenerative brake Without option		No limi	t Note)2	
frequency (times/i	min) Note)1	DV0P4280	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	l speed	(r/min)	6000	
Moment of ine	rtia	Without brake	0.025	
of rotor (×10 ⁻⁴	kg·m²)	With brake	0.027	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

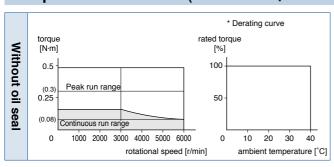
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

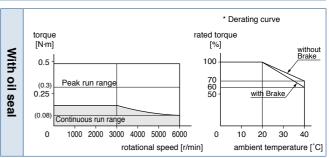
• Permissible load (For details, refer to P.183)

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

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

Torque characteristics (at AC200V of power voltage)





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

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

<D-cut shaft> <Key way, center tap shaft>

<IP67> (44.8) (28.8) (a) Encoder connector (b) Brake connector (c) Motor connector Use hexagon socket head screw for installation. 25 (b) (c) 23 M3 depth 6

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

[Unit: mm]

Mass: 0.51 kg

<Cautions>

				AC1	00 V
Matawasadal	IP65		-	-	
Motor model		IP67		MSME011G1	MSME011S1
A	Model	A5II, A5	series	MAD	T1107
Applicable driver *2	No.	A5IIE, A	5E series	MAD ⊘T1107E	-
unver	Fr	ame sym	nbol	A-fra	ame
Power supply	capacit	y	(kVA)	0	.4
Rated output			(W)	10	00
Rated torque			(N·m)	0.:	32
Momentary Ma	ax. peal	k torque	(N·m)	0.95	
Rated current		((A(rms))	1.6	
Max. current			(A(o-p))	6.9	
Regenerative b	rake	Without	option	No limi	t Note)2
frequency (times/i	min) Note)1	DV0P4280		No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	6000	
Moment of ine	rtia	Withou	t brake	0.051	
of rotor ($\times 10^{-4}$	kg·m²)	With I	orake	0.054	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less		
Rotary encode	Rotary encoder specifications Note)5		Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		gle turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

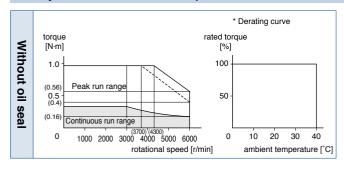
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

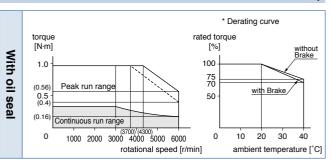
• Permissible load (For details, refer to P.183)

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

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

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

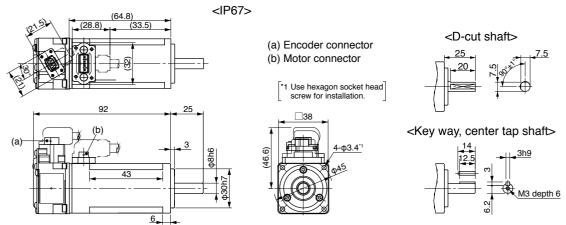




Dimensions < In Case of Without Brake, Cable direction to output shaft.>

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

Mass: 0.46 kg



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

[Unit: mm]

<Cautions>

A5 Family

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

Specifications

			AC2	00 V
Matau madal		IP65	-	-
Motor model		IP67	MSME012G1□	MSME012S1
Amaliaabla	Model	A5II, A5 series	MAD	T1505
Applicable *2	No.	A5IIE, A5E series	MAD ⊘T1505E	_
unver	Fı	ame symbol	A-fra	ame
Power supply	capacit	y (kVA)	0.	.5
Rated output		(W)	10	00
Rated torque		(N·m)	0.:	32
Momentary Ma	ax. pea	k torque (N·m)	0.95	
Rated current		(A(rms))	1.1	
Max. current		(A(o-p))	4	.7
Regenerative brake Without option		Without option	No limi	t Note)2
frequency (times/r	min) Note)1	DV0P4280	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	l speed	(r/min)	6000	
Moment of ine	rtia	Without brake	0.051	
of rotor (×10 ⁻⁴	kg·m²)	With brake	0.054	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn			131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

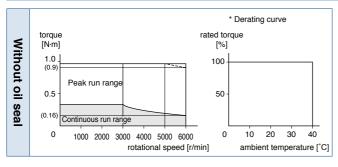
Static friction torque (N·m)	0.29 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.3
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

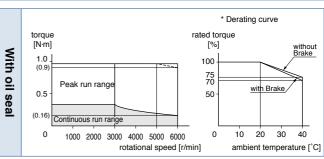
• Permissible load (For details, refer to P.183)

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

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

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





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

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

<IP67> (64.8) (28.8) (33.5) (a) Encoder connector <D-cut shaft> (b) Brake connector (c) Motor connector Use hexagon socket head screw for installation. <Key way, center tap shaft> (b) (c) 43 M3 depth 6

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

[Unit: mm]

Mass: 0.66 kg

<Cautions>

			AC1	00 V	
Matar madal	IP65		-	-	
Motor model		IP67		MSME021G1□	MSME021S1
A	Model	A5II, A5	series	MBD<	T2110
Applicable driver *2	No.	A5IIE, A	5E series	MBD ⊘T2110E	_
diver	Fr	ame sym	ıbol	B-fra	ame
Power supply	capacit	у	(kVA)	0	.5
Rated output			(W)	20	00
Rated torque			(N·m)	0.0	64
Momentary Ma	ax. peal	k torque	(N·m)	1.91	
Rated current		((A(rms))	2.5	
Max. current			(A(o-p))	10.6	
Regenerative b	rake	Without	option	No limi	t Note)2
frequency (times/i	min) Note)1	DV0P4283		No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	6000	
Moment of ine	rtia	Withou	t brake	0.14	
of rotor (×10 ⁻⁴	kg·m²)	With I	orake	0.16	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		le turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

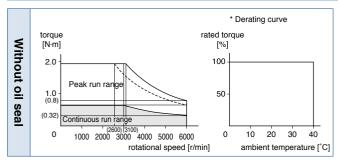
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

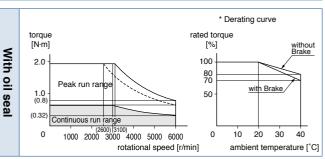
• Permissible load (For details, refer to P.183)

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

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

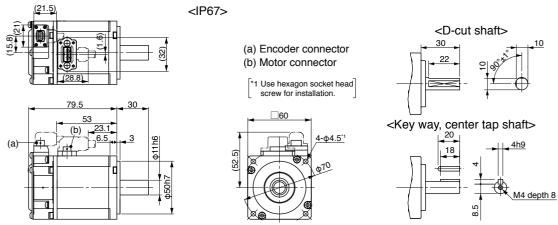
Torque characteristics (at AC100 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





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

Mass: 0.78 kg



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

[Unit: mm]

<Cautions>

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

Specifications

			AC200 V		
Motor model		IP65		-	-
Motor model *1		IP67		MSME022G1□	MSME022S1
Annlinghla	Model A5II, A5 series			MAD ◇T1507	
Applicable *2	No.	A5IIE, A5E serie	es	MAD \diamondsuit T1507E	-
unver	Fr	Frame symbol		A-frame	
Power supply	capacit	y (kVA	١)	0.	.5
Rated output		(W	/)	200	
Rated torque		(N·m	1)	0.64	
Momentary Ma	Momentary Max. peak torque (N·m)		1)	1.91	
Rated current	Rated current (A(rms))))	1.5	
Max. current		(A(o-p)))	6.5	
Regenerative brake Wi		Without option	Without option No limit Not		t Note)2
frequency (times/r	min) Note)1) Note)1 DV0P4283		No limit Note)2	
Rated rotation	al speed (r/min)		1)	3000	
Max. rotationa	Max. rotational speed (r/min) 6		60	000	
Moment of ine	Moment of inertia Without brake			0.14	
of rotor (×10 ⁻⁴ kg·m²) With brake			0.16		
Recommended moment of inertia ratio of the load and the rotor Note)3		3	30 times or less		
Rotary encoder specifications Note)5		5	20-bit Incremental	17-bit Absolute	
R	Resolution per single turn			1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

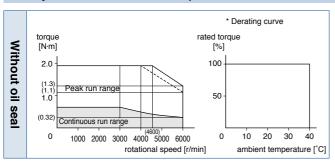
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

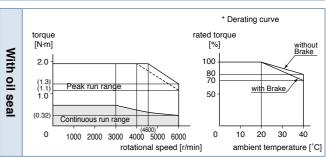
• Permissible load (For details, refer to P.183)

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

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

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





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

<IP67> <D-cut shaft> (a) Encoder connector (b) Brake connector (c) Motor connector 1 Use hexagon socket head screw for installation. <Key way, center tap shaft> 20 4-φ4.5° 4h9 18 M4 depth 8

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

[Unit: mm]

Mass: 1.2 kg

<Cautions>

			AC100 V		
Motor model	IP65		-	_	
*1		IP67		MSME041G1□	MSME041S1
A 11 11	Model	A5 I I, A5 se	eries	MCD ⊘ T3120	
Applicable driver *2	No.	A5IIE, A5I	= series	MCD ⊘T3120E	-
unver	Fr	Frame symbol		C-frame	
Power supply	supply capacity (kVA)			0.9	
Rated output			(W)	400	
Rated torque	Rated torque (N·m)			1.3	
Momentary M	Momentary Max. peak torque (N·m)		(N·m)	3.8	
Rated current (A(rms))		4.6			
Max. current	Max. current (A(o-p))		(o-p))	19.5	
Regenerative brake		Without option		No limit Note)2	
frequency (times/	min) Note)1 DV0P4282		No limit Note)2		
Rated rotation	al spee	speed (r/min)		3000	
Max. rotationa	l speed (r/min)		6000		
Moment of ine	Moment of inertia Without brake of rotor (×10 ⁻⁴ kg·m²) With brake		orake	0.26	
of rotor (×10 ⁻⁴			ake	0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times or less			
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute		
R	Resolution per single turn		turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

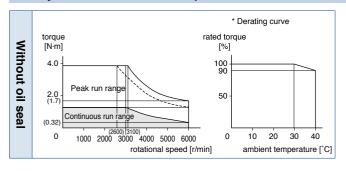
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

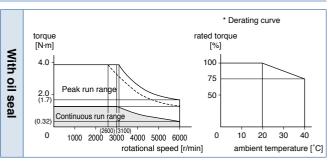
• Permissible load (For details, refer to P.183)

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

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

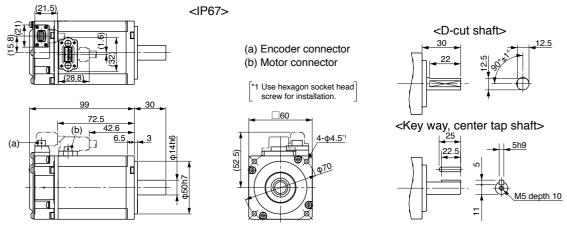
Torque characteristics (at AC100 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





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

Mass: 1.2 kg



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

[Unit: mm]

<Cautions>

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

Specifications

			AC2	00 V	
		IP65		-	_
Motor model		IP67		MSME042G1□	MSME042S1
A	Model	A5II, A5 serie	s	МВО	T2510
Applicable *2	No.	A5IIE, A5E s	eries	MBD ⊘T2510E	-
diver	Fr	ame symbol		B-fra	ame
Power supply	capacit	y (k	VA)	0	.9
Rated output			(W)	40	00
Rated torque		(N	l·m)	1.	.3
Momentary Ma	ax. peal	torque (N	l·m)	3.8	
Rated current		(A(rn	ns))	2.4	
Max. current		(A(o	-p))	10.2	
Regenerative b	rake	Without opti	ion	No limit Note)2	
frequency (times/r	min) Note)1	DV0P4283		No limit Note)2	
Rated rotation	al spee	d (r/n	nin)	3000	
Max. rotationa	l speed	(r/n	nin)	6000	
Moment of ine	rtia	Without bra	ke	0.26	
of rotor (×10 ⁻⁴	kg·m²)	With brake	Э	0.28	
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		ote)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn			1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

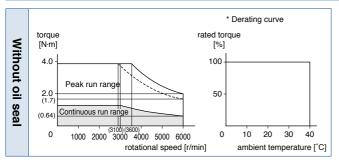
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

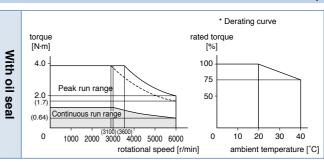
• Permissible load (For details, refer to P.183)

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

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

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





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

Mass: 1.6 kg <IP67> <D-cut shaft> (a) Encoder connector (b) Brake connector (c) Motor connector 1 Use hexagon socket head screw for installation. 109 83.9 <Key way, center tap shaft> 4-φ4.5^{*1} 5h9 M5 depth 10

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

[Unit: mm]

<Cautions>

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

				AC2	00 V
		IP65		-	-
Motor model		IP67		MSME082G1□	MSME082S1
A 1: 1-1 -	Model	A5II, A5	series	MCD ♦ T3520	
Applicable *2	No.	A5IIE, A	5E series	MCD ⊘T3520E	-
dilvei	Fr	ame sym	nbol	C-fr	ame
Power supply	capacit	y	(kVA)	1.	.3
Rated output			(W)	75	50
Rated torque			(N·m)	2	.4
Momentary Ma	ax. peal	k torque	(N·m)	7.1	
Rated current		((A(rms))	4.1	
Max. current			(A(o-p))	17.4	
Regenerative b	rake	Without	option	No limi	t Note)2
frequency (times/i	min) Note)1	DV0P	4283	No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	6000	
Moment of ine	rtia	Withou	t brake	0.87	
of rotor (×10 ⁻⁴	kg·m²)	With I	orake	0.97	
Recommended moment of inertia ratio of the load and the rotor Note)3		20 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn			1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

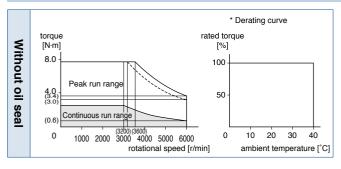
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

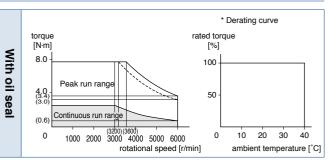
• Permissible load (For details, refer to P.183)

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

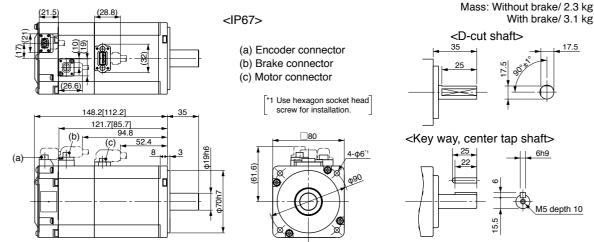
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver represents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

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





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



* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

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

A5 Family

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

Specifications

			AC2	00 V
IP65		MSME102GC□	MSME102SC□	
Motor model		IP67	MSME102G1□	MSME102S1□
A II I I	Model	A5II, A5 series	MDD<	T5540
Applicable *2	No.	A5IE, A5E series	MDD \diamondsuit T5540E	_
diver	Fr	ame symbol	D-fr	ame
Power supply	capacit	y (kVA)	1.	.8
Rated output		(W)	10	00
Rated torque		(N·m)	3.	18
Momentary Ma	ax. peal	k torque (N·m)	9.55	
Rated current		(A(rms))	6.6	
Max. current		(A(o-p))	28	
Regenerative b	rake	Without option	No limi	t Note)2
frequency (times/r	min) Note)1	DV0P4284	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	l speed	(r/min)	5000	
Moment of ine	rtia	Without brake	2.03	
of rotor (×10 ⁻⁴	kg·m²)	With brake	2.35	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	s or less
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn			131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

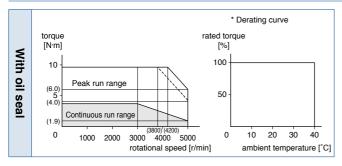
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

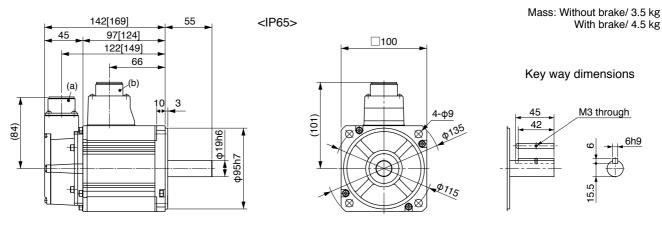
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

<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.

				AC2	00 V
Motor model	IP65		MSME152GC□	MSME152SC□	
*1		IP67		MSME152G1□	MSME152S1
A 1: 1- 1	Model	A5II, A5 series		MDD<	T5540
Applicable *2	No.	A5IIE, A5E	= series	MDD \diamondsuit T5540E	-
dilvei	Fr	ame symbo	ol	D-fra	ame
Power supply	capacit	y	(kVA)	2.	.3
Rated output			(W)	15	00
Rated torque			(N·m)	4.	77
Momentary M	ax. peal	k torque	(N·m)	14.3	
Rated current		(A	(rms))	8.2	
Max. current		(A	(o-p))	35	
Regenerative b	rake	Without o	ption	No limi	t Note)2
frequency (times/i	min) Note)1	DV0P4284		No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	l speed	(r/min)	5000	
Moment of ine	rtia	Without b	rake	2.84	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		ake	3.17	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn			1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

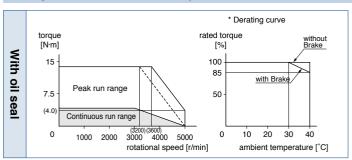
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 4.4 kg 160.5[187.5] <IP65> With brake/ 5.4 kg 45 115.5[142.5] **100** 140.5[167.5] 84.5 Key way dimensions (a) 3 M3 through 4-φ9 (101) \otimes ф19h6 田

(a) Encoder connector

(84)

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

[Unit: mm]

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

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

Specifications

				AC2	00 V
IP65		MSME202GC□	MSME202SC□		
Motor model		IP67		MSME202G1□	MSME202S1
Amaliaabla	Model	A5II, A5 series		MED<	T7364
Applicable *2	No.	A5IIE, A5E series		MED ⊘T7364E	_
divei	Fr	ame symbol		E-fra	ame
Power supply	capacit	y (k	(VA)	3.	.3
Rated output			(W)	20	00
Rated torque		1)	√m)	6.0	37
Momentary Ma	ax. peal	k torque (N	√m)	19.1	
Rated current		(A(rr	ns))	11.3	
Max. current		(A(c	p-p))	4	8
Regenerative b	rake	Without opt	ion	No limi	t Note)2
frequency (times/r	nin) Note)1	DV0P428	5	No limi	t Note)2
Rated rotation	al spee	d (r/r	min)	3000	
Max. rotationa	l speed	(r/r	min)	5000	
Moment of ine	rtia	Without bra	ake	3.68	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		е	4.01	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less		
Rotary encode	er speci	fications N	ote)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		ırn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

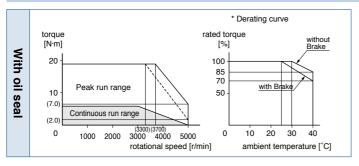
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

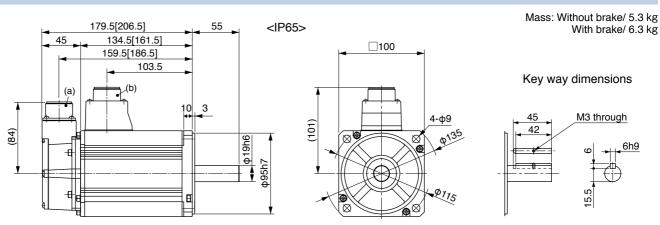
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.44.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

<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.

			AC2	00 V	
		IP65		MSME302GC□	MSME302SC□
Motor model		IP67		MSME302G1□	MSME302S1□
A Ii I I	Model	A5II, A5 series		MFD⇔	TA390
Applicable *2	No.	A5IIE, A5	E series	MFD ⊘TA390E	_
dilvei	Fr	ame syml	bol	F-fra	ame
Power supply	capacit	y	(kVA)	4.	.5
Rated output			(W)	30	00
Rated torque			(N·m)	9.9	55
Momentary Ma	ax. peal	k torque	(N·m)	28.6	
Rated current		()	A(rms))	18.1	
Max. current		(A(o-p))	77	
Regenerative b	rake	Without	option	No limi	t Note)2
frequency (times/i	min) Note)1	DV0P42	285×2	No limi	t Note)2
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	5000	
Moment of ine	rtia	Without	brake	6.50	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		rake	6.85	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less		
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		le turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

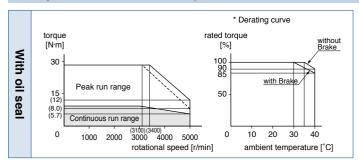
Static friction torque (N·m)	11.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

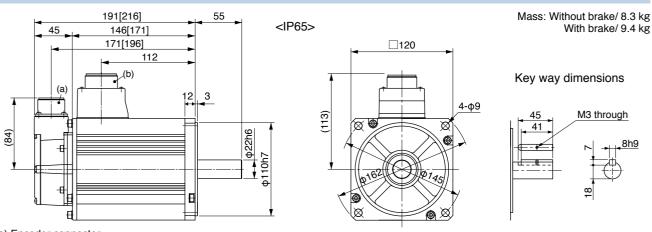
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

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

			AC2	00 V
		IP65	MSME402GC□	MSME402SC□
Motor model		IP67	MSME402G1□	MSME402S1
Amaliaabla	Model	A5II, A5 series	MFD ⊘TB3A2	
Applicable *2	No.	A5IIE, A5E series	MFD ⊘TB3A2E	_
divei	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	6	.0
Rated output		(W)	40	00
Rated torque		(N·m)	12	2.7
Momentary Ma	ax. peal	k torque (N·m)	38.2	
Rated current		(A(rms))	19.6	
Max. current		(A(o-p))	83	
Regenerative b	rake	Without option	No limi	t Note)2
frequency (times/r	min) Note)1	DV0P4285×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	l speed	(r/min)	4500	
Moment of ine	rtia	Without brake	12.9	
of rotor (×10 ⁻⁴	kg·m²)	With brake	14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less	
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

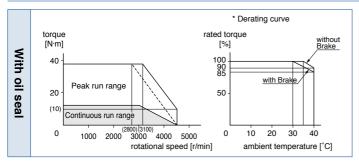
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 11.0 kg 209[237] 65 <IP65> With brake/ 12.6 kg 164[192] 189[217] □130 127 Key way dimensions (a) 4-φ9 M3 through (118) Φ24h6 (84)10h7 Ø

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

[Unit: mm]

<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.

			AC2	00 V	
IP65		IP65		MSME502GC□	MSME502SC□
Motor model *1		IP67		MSME502G1□	MSME502S1
A 15 1-1	Model	A5II, A5	series	MFD◇	TB3A2
Applicable driver *2	No.	A5IIE, A5	E series	MFD ⊘TB3A2E	-
dilvei	Fr	ame syml	ool	F-fra	ame
Power supply	capacity	y	(kVA)	7.	.5
Rated output			(W)	50	00
Rated torque			(N·m)	15	5.9
Momentary Ma	ax. peal	k torque	(N·m)	47.7	
Rated current		(/	۹(rms))	24.0	
Max. current		(A(o-p))	102	
Regenerative b	rake	Without	option	35	57
frequency (times/r	min) Note)1	DV0P42	285×2	No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	4500	
Moment of ine	rtia	Without	brake	17.4	
of rotor (×10 ⁻⁴ kg·m²) With brake		rake	18.6		
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	s or less	
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn			1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

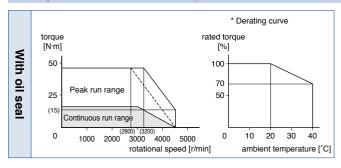
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

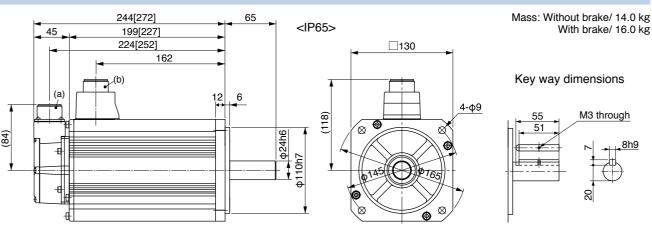
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

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

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

Specifications

			AC2	00 V	
		IP65		MDME102GC	MDME102SC
Motor model		IP67		MDME102G1□	MDME102S1
Amaliaabla	Model	A5II, A5 series		MDD ◇T3530	
Applicable *2	No.	A5IIE, A5E ser	ies	MDD ⊘T3530E	-
unver	Fı	ame symbol		D-fra	ame
Power supply	capacit	y (kV	A)	1.	.8
Rated output		(\	N)	10	00
Rated torque		1·N)	n)	4.	77
Momentary Ma	ax. pea	k torque (N·r	n)	14.3	
Rated current		(A(rms	3))	5.7	
Max. current		(A(o-r)))	2	4
Regenerative brake Without option		n	No limi	t Note)2	
frequency (times/r	min) Note)1	DV0P4284		No limit Note)2	
Rated rotation	al spee	d (r/mi	n)	2000	
Max. rotationa	l speed	(r/mi	n)	3000	
Moment of ine	rtia	Without brak	е	4.60	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake			5.90	
Recommended moment of inertia ratio of the load and the rotor Note)3		9)3	10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		9)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		า	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

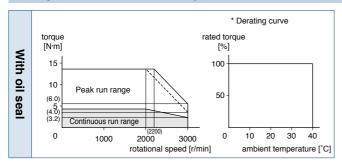
Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



55

Dimensions

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

Mass: Without brake/ 5.2 kg With brake/ 6.7 kg Key way dimensions M3 through

94[122] 119[147] 60 (a) (84)

139[167]

<IP65>

□130 (116) \boxtimes

(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

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

			AC2	00 V	
IP65		MDME152GC	MDME152SC		
Motor model		IP67	MDME152G1□	MDME152S1	
A Ii I I	Model	A5II, A5 series	MDD	T5540	
Applicable *2	No.	A5IIE, A5E series	MDD ◇T5540E	_	
dilvei	Fr	ame symbol	D-fr	ame	
Power supply	capacit	y (kVA)	2	.3	
Rated output		(W)	15	00	
Rated torque		(N·m)	7.	16	
Momentary Ma	ax. peal	k torque (N·m)	21.5		
Rated current		(A(rms))	9.4		
Max. current		(A(o-p))	4	40	
Regenerative b	Regenerative brake Without option		No lim	No limit Note)2	
frequency (times/i	min) Note)1	DV0P4284	No limit Note)2		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	6.70		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		7.99		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

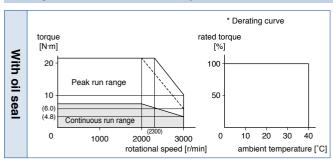
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

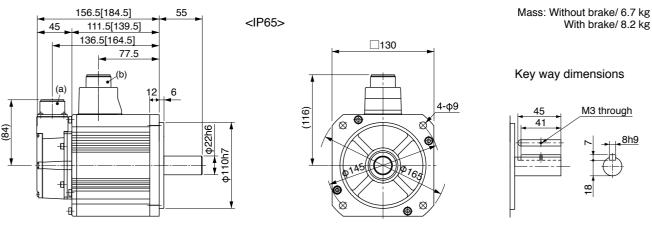
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

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

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

Specifications

			AC2	00 V	
Motor model	IP65		MDME202GC□	MDME202SC	
Wotor model *1		IP67	MDME202G1	MDME202S1	
Annlinghla	Model	A5II, A5 series	MED ◇T7364		
Applicable *2	No.	A5IIE, A5E series	MED ⊘T7364E	_	
unver	Fr	ame symbol	E-fra	ame	
Power supply	capacit	y (kVA)	3	.3	
Rated output		(W)	20	00	
Rated torque		(N·m)	9.	55	
Momentary Ma	ax. peal	k torque (N·m)	28.6		
Rated current		(A(rms))	11.5		
Max. current		(A(o-p))	4	49	
Regenerative brake Without option		No limi	t Note)2		
frequency (times/r	min) Note)1	DV0P4285	No limi	t Note)2	
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	8.72		
of rotor (×10 ⁻⁴ kg·m²) With brake		10.0			
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

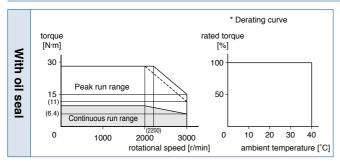
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 8.0 kg 174[202] 55 <IP65> With brake/ 9.5 kg 129[157] 154[182] □130 95 Key way dimensions (a) 6 4-φ9 M3 through (116) (84) \boxtimes

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

[Unit: mm]

<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.

			AC2	00 V
		IP65	MDME302GC□	MDME302SC
Motor model *1		IP67	MDME302G1	MDME302S1
A 1: 1 1	Model	A5II, A5 series	MFD<	TA390
Applicable driver *2	No.	A5IIE, A5E series	MFD ⊘TA390E	_
unver	Fr	ame symbol	F-fr	ame
Power supply	capacit	y (kVA)	4	.5
Rated output		(W)	30	00
Rated torque		(N·m)	14	l.3
Momentary Ma	ax. peal	k torque (N·m)	43.0	
Rated current		(A(rms))	17.4	
Max. current		(A(o-p))	74	
Regenerative b	Regenerative brake Without opti		No limit Note)2	
frequency (times/r	min) Note)1	DV0P4285×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	12.9	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

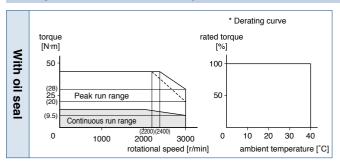
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

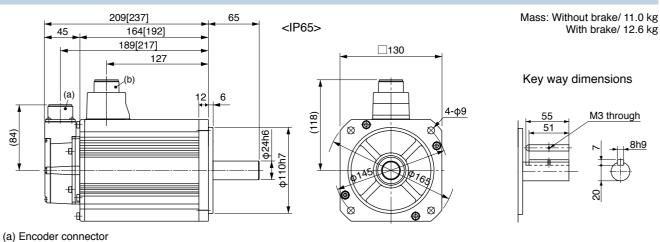
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

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

A5 Family

Specifications

			AC2	00 V		
Mataumandal	1		MDME402GC□	MDME402SC		
Motor model		IP67		MDME402G1□	MDME402S1	
Amaliaabla	Model	A5II, A5 seri	es	MFD♦	TB3A2	
Applicable *2	No.	A5IIE, A5E series N		MFD ⊘TB3A2E	_	
dilvei	Fr	ame symbol		F-fra	F-frame	
Power supply	capacit	y (I	kVA)	6.	.0	
Rated output			(W)	40	00	
Rated torque		(1	N·m)	19).1	
Momentary Ma	ax. peal	k torque (I	N·m)	57.3		
Rated current		(A(r	ms))	21.0		
Max. current (A(o-p))		89				
Regenerative brake Without option		No limi	t Note)2			
frequency (times/min) Note)1 DV0P4285		5×2	No limit Note)2			
Rated rotation	al spee	d (r/	min)	2000		
Max. rotationa	l speed	(r/	min)	3000		
Moment of ine	Moment of inertia Without brake		ake	37.6		
of rotor (×10 ⁻⁴ kg·m²) With brake		ке	42.9			
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less				
Rotary encode	er speci	fications N	Note)5	20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		urn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

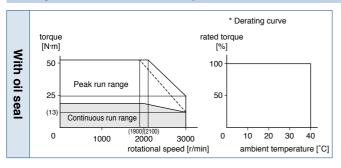
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



70

3.2

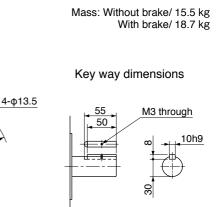
Dimensions

178[207]

133[162] 158[187]

96

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



(a) Encoder connector

84)

(b) Motor/Brake connector

(a)

* Figures in [] represent the dimensions with brake.

(140)

□176

[Unit: mm]

<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.

14.3h7

<IP65>

			AC2	00 V	
Motor model	IP65		MDME502GC	MDME502SC	
*1		IP67		MDME502G1	MDME502S1
Amaliaabla	Model	A5II, A5	series	MFD⇔	TB3A2
Applicable *2	No.	A5IIE, A5	5E series	MFD ⊘TB3A2E	_
diver	Fr	Frame symbol		F-fra	ame
Power supply	capacit	y	(kVA)	7.	.5
Rated output			(W)	50	00
Rated torque			(N·m)	23	3.9
Momentary Ma	ax. peal	k torque	(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		DV0P4	285×2	No limit Note)2	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia	Without	brake	48.0	
of rotor (×10 ⁻⁴ kg·m²) With brake		rake	53.3		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	esolutio	n per sing	le turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

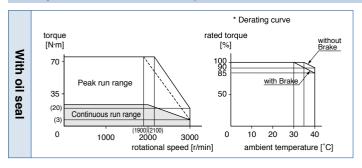
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 18.6 kg <IP65> With brake/ 21.8 kg 197[226] 70 152[181] 177[206] **□176** 115 Key way dimensions (b) 18 3.2 4-φ13.5 (a) **Ф35h6** M3 through (140) Ø 3h7 4 • \boxtimes Ø

(a) Encoder connector

84

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

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

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

Specifications

			AC2	00 V
Motor model		_	_	
*1		IP67	MDME752G1□	MDME752S1
Amaliaabla	Model	A5II, A5 series	MGD⇔	TC3B4
Applicable *2	No.	A5IIE, A5E series	_	_
diver	Fı	rame symbol	G-fr	ame
Power supply	capacit	y (kVA)	1	1
Rated output		(W)	75	00
Rated torque		(N·m)	47	7.8
Momentary Ma	ax. pea	k torque (N·m)	119	
Rated current		(A(rms))	44.0	
Max. current (A(o-p))		16	165	
Regenerative brake Without option		No limi	t Note)2	
		DV0P4285×3	No limit Note)2	
Rated rotation	al spee	d (r/min)	1500	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	Moment of inertia Without brake		101	
of rotor (×10 ⁻⁴ kg·m²) With brake		107		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn			131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

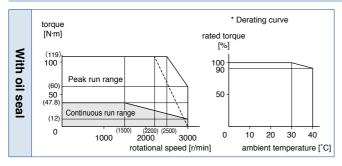
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

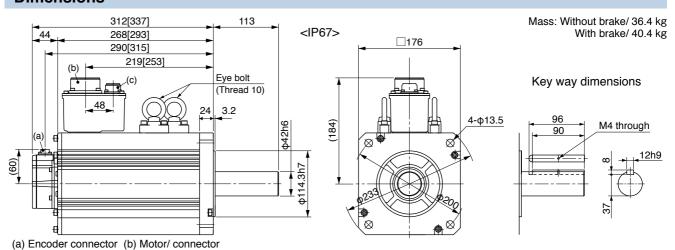
During assembly During operation	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

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

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



Dimensions



(c) Brake connector (only with brake)

* Figures in [] represent the dimensions with brake.

[Unit: mm]

Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

•

Specifications

		AC2	00 V		
Motor model		IP65	-	-	
*1		IP67	MDMEC12G1□	MDMEC12S1	
Amalianda	Model	A5II, A5 series	MHD ⊘TC3B 4		
Applicable *2	No.	A5IE, A5E series	_	_	
diver	Fı	ame symbol	H-fr	H-frame	
Power supply	capacit	y (kVA)	1	7	
Rated output		(W)	110	000	
Rated torque		(N·m)	70	70.0	
Momentary Ma	ax. pea	k torque (N·m)	175		
Rated current	Rated current (A(rms))		54.2		
Max. current (A(o-p))		203			
Regenerative brake Without option		No limit Note)2			
frequency (times/r	frequency (times/min) Note)1 DV0PM20058		No limit Note)2		
Rated rotation	al spee	d (r/min)	1500		
Max. rotationa	l speed	(r/min)	2000		
Moment of ine	Moment of inertia Without brake		212		
of rotor (×10 ⁻⁴ kg·m²) With brake		220			
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less			
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	esolutio	n per single turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

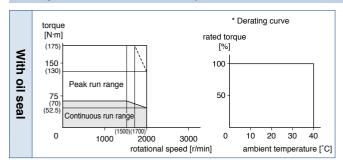
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

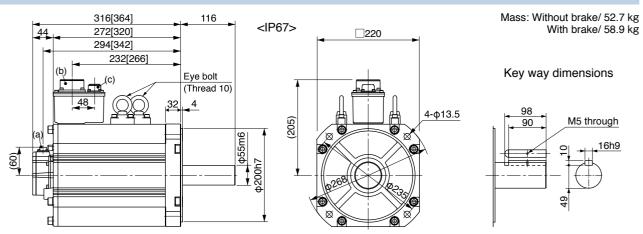
During assembly During operation	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	1764
	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

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

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



Dimensions



(a) Encoder connector (b) Motor/ connector

(c) Brake connector (only with brake)

* Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

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

A5 Family

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

Specifications

			AC2	00 V
Motor model		IP65	-	-
*1		IP67	MDMEC52G1□	MDMEC52S1
Amaliaabla	Model	A5II, A5 series	MHD◇	TC3B4
Applicable *2	No.	A5IE, A5E series	_	_
diver	Fr	ame symbol	H-fr	ame
Power supply	capacit	y (kVA)	2	2
Rated output		(W)	150	000
Rated torque		(N·m)	95	5.5
Momentary Ma	ax. peal	k torque (N·m)	224	
Rated current		(A(rms))	66.1	
Max. current	Max. current (A(o-p))		236	
Regenerative brake		Without option	No limit Note)2	
frequency (times/r	min) Note)1	DV0PM20058	No limit Note)2	
Rated rotation	al spee	d (r/min)	1500	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	302	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		311	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

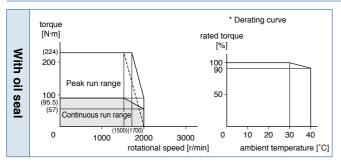
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

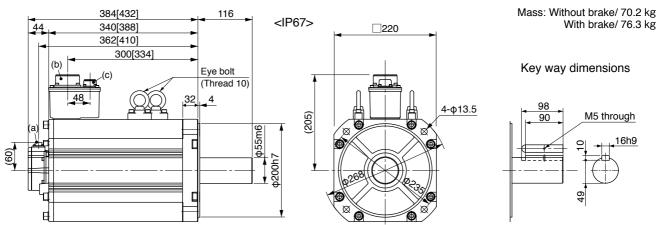
Radial load P-direction (N)	4508
Thrust load A-direction (N)	1470
Thrust load B-direction (N)	1764
Radial load P-direction (N)	2254
Thrust load A, B-direction (N)	686
_	Thrust load A-direction (N) Thrust load B-direction (N) Radial load P-direction (N)

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

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



Dimensions



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

[Unit: mm]

<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.

		AC200 V		
Motor model		IP65	-	_
*1		IP67	MFME152G1□	MFME152S1
Amaliaabla	Model	A5II, A5 series	MDD	T5540
Applicable *2	No.	A5IIE, A5E series	MDD \diamondsuit T5540E	_
diver	Fr	ame symbol	D-fr	ame
Power supply	capacit	y (kVA)	2	.3
Rated output		(W)	15	00
Rated torque		(N·m)	7.	16
Momentary Ma	ax. peal	k torque (N·m)	21.5	
Rated current		(A(rms))	7.5	
Max. current	Max. current (A(o-p))		32	
Regenerative b	rake	Without option	100	
frequency (times/r	min) Note)1	DV0P4284	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	18.2	
of rotor (×10 ⁻⁴	kg·m²)	With brake	23.5	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

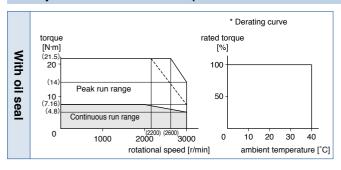
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	35 or less
Exciting current (DC) (A)	0.83±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

Mass: Without brake/ 9.5 kg <IP67> With brake/ 12.5 kg 142[167] 65 98[123] 120[145] **□176** 64 Key way dimensions (b) 3.2 18 4-φ13.5 M3 through (140) Ø 60 14.3h7 Ð \boxtimes \boxtimes

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

[Unit: mm]

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

			AC200 V	
Mataumandal		IP65	-	-
Motor model		IP67	MFME252G1□	MFME252S1
Amaliaabla	Model	A5II, A5 series	MED<	T7364
Applicable *2	No.	A5IIE, A5E series	MED ⊘T7364E	_
diver	Fr	ame symbol	E-fra	ame
Power supply	capacit	y (kVA)	3.	.8
Rated output		(W)	25	00
Rated torque		(N·m)	11	.9
Momentary Ma	ax. peal	k torque (N·m)	30.4	
Rated current		(A(rms))	13.4	
Max. current	Max. current (A(o-p))		57	
Regenerative b	rake	Without option	75	
frequency (times/r	nin) Note)1	DV0P4285	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	35.8	
of rotor (×10 ⁻⁴	kg·m²)	With brake	45.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

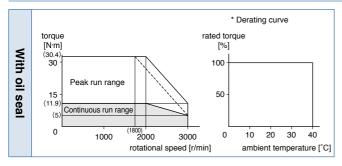
Static friction torque (N·m)	21.6 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

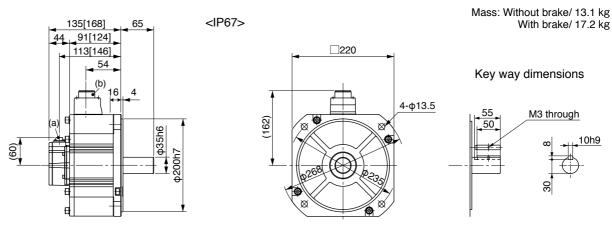
During assembly During operation	Radial load P-direction (N)	1862
	Thrust load A-direction (N)	686
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	294

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

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



Dimensions



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

[Unit: mm]

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

			AC200 V	
Mataumadal		IP65	-	-
Motor model *1		IP67	MFME452G1□	MFME452S1
A 15 1-1	Model	A5II, A5 series	MFD⇔	TB3A2
Applicable *2	No.	A5IIE, A5E series	MFD ⊘TB3A2E	_
divei	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	6	.8
Rated output		(W)	45	00
Rated torque		(N·m)	21	.5
Momentary Ma	ax. peal	k torque (N·m)	54.9	
Rated current		(A(rms))	24.7	
Max. current		(A(o-p))	105	
Regenerative b	rake	Without option	67	
frequency (times/r	nin) Note)1	DV0P4285×2	375	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	63.1	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		70.9	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

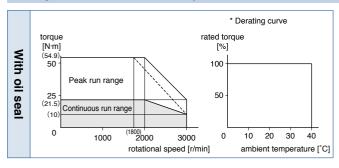
Static friction torque (N·m)	31.4 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

Mass: Without brake/ 18.2 kg <IP67> 155[188] With brake/ 23.1 kg 111[144] 133[166] 220 Key way dimensions 4-φ13.5 M3 through (162)Ø

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

[Unit: mm]

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

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

Specifications

				AC2	00 V
		IP65		MGME092GC□	MGME092SC□
Motor model		IP67		MGME092G1□	MGME092S1□
Annlinghla	Model	el A5II, A5 series		MDD<	T5540
Applicable *2	No.	A5IIE, A5	E series	MDD ⊘T5540E	_
unver	Fr	ame syml	ool	D-fra	ame
Power supply	capacit	y	(kVA)	1.	.8
Rated output			(W)	90	00
Rated torque			(N·m)	8.	59
Momentary Ma	ax. peal	k torque	(N·m)	19.3	
Rated current		(/	A(rms))	7.6	
Max. current		(A(o-p))	24	
Regenerative b	Regenerative brake Without option		option	No limi	t Note)2
frequency (times/r	min) Note)1	DV0P4	DV0P4284 No limit Note)2		t Note)2
Rated rotation	al spee	d	(r/min)	1000	
Max. rotationa	l speed		(r/min)	2000	
Moment of ine	rtia	Without	brake	6.70	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		rake	7.99	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		le turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

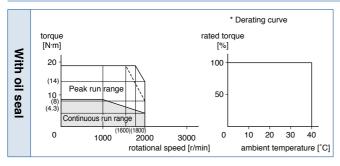
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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)	686
	Thrust load A, B-direction (N)	196

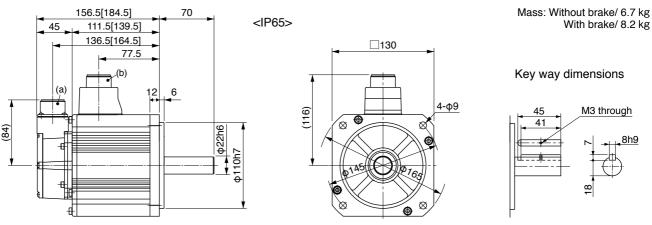
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

<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.

				AC2	00 V
		IP65		MGME202GC□	MGME202SC□
Motor model		IP67		MGME202G1□	MGME202S1
Amaliaabla	Model	A5II, A5	series	MFD◇	TA390
Applicable *2	No.	A5IIE, A	5E series	MFD ⊘TA390E	_
diver	Fr	ame sym	bol	F-fra	ame
Power supply	capacit	y	(kVA)	3	.8
Rated output			(W)	20	00
Rated torque			(N·m)	19	0.1
Momentary Ma	ax. peal	k torque	(N·m)	47.7	
Rated current		(.	A(rms))	17.0	
Max. current		((A(o-p))	60	
Regenerative b	Regenerative brake Without		option	No limit Note)2	
frequency (times/r	min) Note)1	DV0P4	285×2	No limit Note)2	
Rated rotation	al spee	d	(r/min)	1000	
Max. rotationa	l speed		(r/min)	2000	
Moment of ine	rtia	Without	brake	30.3	
of rotor (×10 ⁻⁴ kg·m²) With brake		rake	35.6		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn		le turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

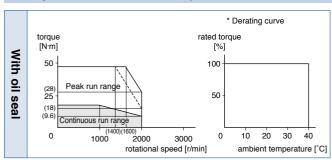
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



80

14.3h7

Dimensions

164.5[193.5]

119.5[148.5] 144.5[173.5]

82.5

18 3.2

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

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

Key way dimensions

M3 through

10h9

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

[Unit: mm]

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

<IP65>

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

Specifications

			AC2	00 V	
		IP65	MGME302GC□	MGME302SC□	
Motor model		IP67	MGME302G1□	MGME302S1□	
Amaliaahla	Model	A5II, A5 series	MFD ♦TB3A2		
Applicable *2	No.	A5IIE, A5E series	MFD ⊘TB3A2E	_	
unver	Fr	ame symbol	F-fra	ame	
Power supply	capacit	y (kVA)	4.	.5	
Rated output		(W)	30	00	
Rated torque		(N·m)	28	3.7	
Momentary Ma	ax. peal	k torque (N·m)	71.7		
Rated current		(A(rms))	22.6		
Max. current		(A(o-p))	8	80	
Regenerative brake Without option		No limi	t Note)2		
frequency (times/r	min) Note)1	DV0P4285×2	No limit Note)2		
Rated rotation	al spee	d (r/min)	1000		
Max. rotationa	l speed	(r/min)	2000		
Moment of ine	rtia	Without brake	48.4		
of rotor (×10 ⁻⁴ kg·m²) With brake		53.7			
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

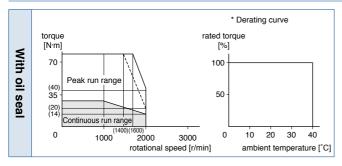
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



210.5[239.5]

165.5[194.5] 190.5[219.5]

128.5

18 3.2

П

Dimensions

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

Mass: Without brake/ 20.0 kg With brake/ 23.5 kg Key way dimensions M3 through 50

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

(140)

[Unit: mm]

<a>Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

80

Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

<IP65>

3h7

□176

4-φ13.5

			AC2	00 V
Matanasadal		IP65	-	_
Motor model		IP67	MGME452G1□	MGME452S1
Amaliaabla	Model	A5II, A5 series	MFD⇔	TB3A2
Applicable *2	No.	A5IIE, A5E series	MFD ⊘TB3A2E	_
dilvei	Fr	ame symbol	F-fr	ame
Power supply	capacit	y (kVA)	7	.5
Rated output		(W)	45	00
Rated torque		(N·m)	43	3.0
Momentary Ma	ax. peal	k torque (N·m)	107	
Rated current		(A(rms))	29.7	
Max. current		(A(o-p))	110	
Regenerative b	Regenerative brake Without option		No lim	t Note)2
frequency (times/i	frequency (times/min) Note)1 DV0P4285×2		No limit Note)2	
Rated rotation	al spee	d (r/min)	1000	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	79.1	
of rotor (×10 ⁻⁴ kg·m²) With brake		84.4		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

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

(This brake will be released when it is energized.)

(Do not use this for braking the motor in motion.)

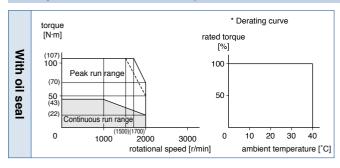
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

Mass: Without brake/ 29.4 kg 266[291] 113 <IP67> With brake/ 33.0 kg 222[247] □176 244[269] Key way dimensions Eye bolt (b) (Thread 10) 3.2 96 4-φ13.5 ф42h6 M4 through (140)14.3h7 Ð \boxtimes \boxtimes

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

[Unit: mm]

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

A5 Family

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

Specifications

			AC2	00 V	
Motor model		IP65	-	_	
*1		IP67	MGME602G1□	MGME602S1□	
A	Model	A5II, A5 series	MGD◇	TC3B4	
Applicable driver *2	No.	A5IE, A5E series	_	_	
divoi	Fr	ame symbol	G-fr	ame	
Power supply	capacit	y (kVA)	9.	.0	
Rated output		(W)	60	00	
Rated torque		(N·m)	57	' .3	
Momentary Ma	ax. peal	k torque (N·m)	143		
Rated current		(A(rms))	38.8		
Max. current		(A(o-p))	14	149	
Regenerative b	rake	Without option	No limi	No limit Note)2	
frequency (times/r	min) Note)1	DV0P4285×4	No limit Note)2		
Rated rotation	al spee	d (r/min)	1000		
Max. rotationa	l speed	(r/min)	2000		
Moment of ine	rtia	Without brake	101		
of rotor (×10 ⁻⁴	kg·m²)	With brake	107		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute	
R	Resolution per single turn			131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

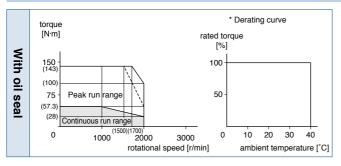
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

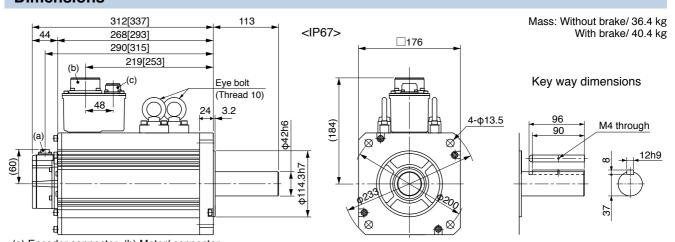
During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
accomory	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1764
	Thrust load A, B-direction (N)	588

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

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



Dimensions



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

* Figures in [] represent the dimensions with brake.

[Unit: mm]

<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.

			AC2	00 V	
		IP65		MHME102GC	MHME102SC
Motor model		IP67		MHME102G1□	MHME102S1
A 15 1-1	Model	A5II, A5	series	MDD ♦ T3530	
Applicable *2	No.	A5IIE, A	5E series	MDD ⊘T3530E	_
dilvei	Fr	ame sym	bol	D-fra	ame
Power supply	capacit	y	(kVA)	1.	.8
Rated output			(W)	10	00
Rated torque			(N·m)	4.	77
Momentary Ma	ax. peal	k torque	(N·m)	14.3	
Rated current		(.	A(rms))	5.7	
Max. current		((A(o-p))	24	
Regenerative b	rake	Without	option	83	
frequency (times/i	min) Note)1	DV0P4284		No limit Note)2	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia	Without	brake	24.7	
of rotor (×10 ⁻⁴	kg·m²)	With b	rake	26.0	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times	or less	
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		le turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

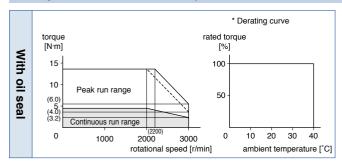
Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

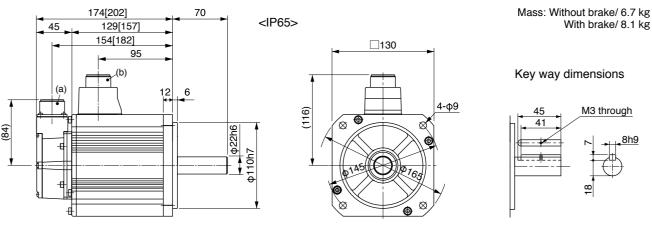
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



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

[Unit: mm]

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

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

Specifications

			AC2	00 V	
IP65		IP65	MHME152GC	MHME152SC	
Motor model		IP67	MHME152G1□	MHME152S1	
Amaliaabla	Model	A5II, A5 series	MDD<	T5540	
Applicable *2	No.	A5IIE, A5E series	MDD \diamondsuit T5540E	_	
dilvei	Fr	ame symbol	D-fr	ame	
Power supply	capacit	y (kVA)	2	.3	
Rated output		(W)	15	00	
Rated torque		(N·m)	7.	16	
Momentary Ma	ax. peal	k torque (N·m)	21.5		
Rated current		(A(rms))	9.4		
Max. current	Max. current (A(o-p))		4	40	
Regenerative b	rake	Without option	2	2	
frequency (times/r	min) Note)1	DV0P4284	130		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	37.1		
of rotor (×10 ⁻⁴	kg·m²)	With brake	38.4		
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times	or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

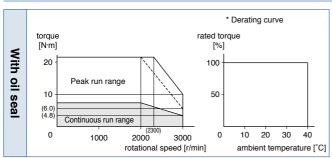
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

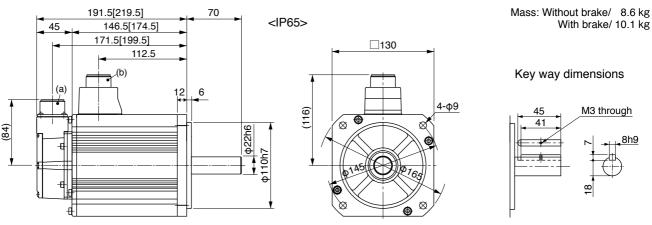
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



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

[Unit: mm]

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

			AC2	00 V	
Madamaradal		IP65		MHME202GC	MHME202SC
Motor model		IP67		MHME202G1□	MHME202S1
Amaliaahla	Model	A5II, A5	series	MED<	T7364
Applicable *2	No.	A5IIE, A	5E series	MED ⊘T7364E	_
dilvei	Fr	ame sym	bol	E-fra	ame
Power supply	capacit	у	(kVA)	3	.3
Rated output			(W)	20	00
Rated torque			(N·m)	9.	55
Momentary Ma	ax. peal	k torque	(N·m)	28.6	
Rated current		(A(rms))	11.1	
Max. current			(A(o-p))	47	
Regenerative b	rake	Without	option	45	
frequency (times/i	min) Note)1	DV0P	4285	142	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia	Without	t brake	57.8	
of rotor (×10 ⁻⁴	kg·m²)	With b	orake	59.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times	or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		le turn	1048576	131072

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

(This brake will be released when it is energized.)

(Do not use this for braking the motor in motion.)

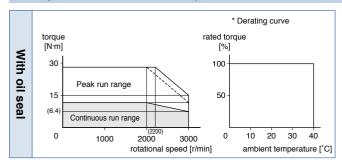
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



80

3h7

Dimensions

178[207]

133[162] 158[187]

96

18 3.2

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

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

Key way dimensions

Key way dimensions

M3 through

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

[Unit: mm]

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

<IP65>

			AC2	00 V	
		IP65		MHME302GC□	MHME302SC□
Motor model		IP67		MHME302G1□	MHME302S1
Amaliaabla	Model	A5II, A5 series		MFD◇	TA390
Applicable *2	No.	A5IIE, A5E se	eries	MFD ⊘TA390E	_
dilvei	Fr	ame symbol		F-fra	ame
Power supply	capacit	y (k\	VA)	4.	.5
Rated output		(W)	30	00
Rated torque		(N	·m)	14	.3
Momentary Ma	ax. peal	k torque (N	·m)	43.0	
Rated current		(A(rm	ıs))	16.0	
Max. current		(A(o-	p))	68	
Regenerative brake Without option		1	9		
		DV0P4285>	< 2	14	12
Rated rotation	al spee	d (r/m	nin)	2000	
Max. rotationa	l speed	(r/m	nin)	3000	
Moment of ine	rtia	Without bral	ke	90.5	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake)	92.1	
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times	or less		
Rotary encode	Rotary encoder specifications Note)5		te)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		rn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

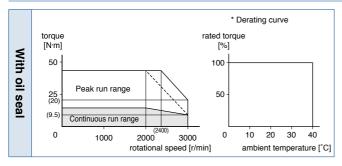
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



80

18 3.2

0

197[226]

152[181]

177[206] 115

Dimensions

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

Mass: Without brake/ 16.0 kg With brake/ 19.2 kg Key way dimensions M3 through 50

(a) Encoder connector

84

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

(140)

□176

4-φ13.5

[Unit: mm]

<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.

<IP65>

14.3h7

			AC2	00 V
IP65		MHME402GC□	MHME402SC□	
Motor model		IP67	MHME402G1	MHME402S1
A 1: 1-1 -	Model	A5II, A5 series	MFD⇔	TB3A2
Applicable *2	No.	A5IE, A5E series	MFD ⊘TB3A2E	-
dilvei	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	6	.0
Rated output		(W)	40	00
Rated torque		(N·m)	19).1
Momentary Ma	ax. peal	k torque (N·m)	57.3	
Rated current		(A(rms))	21.0	
Max. current		(A(o-p))	89	
Regenerative b	Regenerative brake Without option		1	7
frequency (times/i	min) Note)1	DV0P4285×2	125	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	112	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		114	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times	or less
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

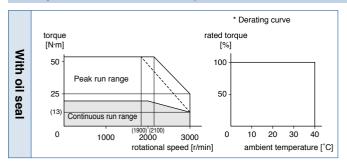
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

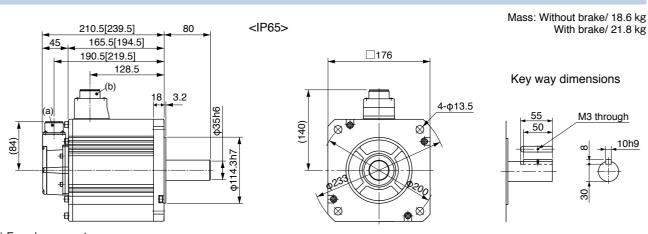
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

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

A5 Family

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

Specifications

		AC2	00 V		
		IP65	MHME502GC	MHME502SC	
Motor model		IP67	MHME502G1□	MHME502S1	
A	Model	A5II, A5 series	MFD⇔	TB3A2	
Applicable *2	No.	A5IIE, A5E series	MFD ⊘TB3A2E	-	
diver	Fr	ame symbol	F-fra	ame	
Power supply	capacit	y (kVA)	7.	.5	
Rated output		(W)	50	00	
Rated torque		(N·m)	23	3.9	
Momentary Ma	ax. peal	k torque (N·m)	71.6		
Rated current		(A(rms))	25.9		
Max. current		(A(o-p))	11	110	
Regenerative b	Regenerative brake Without opti		1	0	
frequency (times/r	nin) Note)1	DV0P4285×2	76		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	162		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		164		
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times	or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

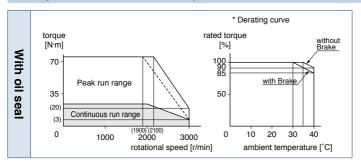
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 23.0 kg 239.5[268.5] <IP65> 80 With brake/ 26.2 kg 194.5[223.5] 219.5[248.5] □176 157.5 Key way dimensions 3.2 18 4-φ13.5 M3 through (140)50 84 .3h7 \boxtimes Ø

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

[Unit: mm]

<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.

		AC2	00 V	
		IP65	-	-
Motor model *1		IP67	MHME752G1	MHME752S1
	Model	A5II, A5 series	MGD◇	тсзв4
Applicable driver *2	No.	A5IE, A5E series	_	_
diver	Fr	ame symbol	G-fr	ame
Power supply	capacit	y (kVA)	1	1
Rated output		(W)	75	00
Rated torque		(N·m)	47	' .8
Momentary Ma	ax. peal	k torque (N·m)	119	
Rated current		(A(rms))	44.0	
Max. current		(A(o-p))	165	
Regenerative b	rake	Without option	No limit Note)2	
frequency (times/r	nin) Note)1	DV0P4285×4	No limit Note)2	
Rated rotation	al spee	d (r/min)	1500	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	273	
of rotor (×10 ⁻⁴ kg·m²) With brake		279		
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times	or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
Resolution per single turn		1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

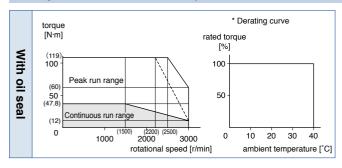
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.41±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

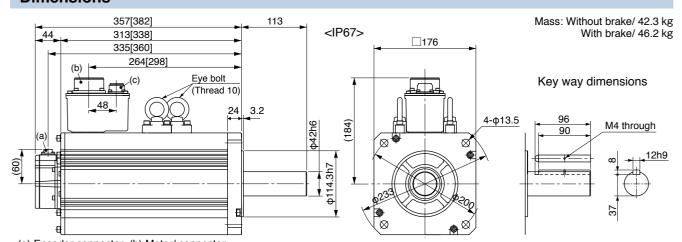
During assembly During operation	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

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

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



Dimensions



(a) Encoder connector (b) Motor/ connector

(c) Brake connector (only with brake)

* Figures in [] represent the dimensions with brake.

[Unit: mm]

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

A5 Family

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

Specifications

			AC4	00 V	
		IP65		MSME084GC□	MSME084SC□
Motor model		IP67		MSME084G1□	MSME084S1
Amaliaabla	Model	A5II, A5 series		MDD ⊘ T2412	
Applicable *2	No.	A5IIE, A5E se	eries	MDD \diamondsuit T2412E	_
divei	Fr	ame symbol		D-fr	ame
Power supply	capacit	y (k'	VA)	1.	.6
Rated output		((W)	75	50
Rated torque		(N	·m)	2.:	39
Momentary Ma	ax. peal	k torque (N	·m)	7.16	
Rated current		(A(rm	າຣ))	2.4	
Max. current		(A(o-	-p))	10	
Regenerative b	rake	Without opti	on	No limi	t Note)2
frequency (times/r	nin) Note)1	DV0PM200	48	No limit Note)2	
Rated rotation	al spee	d (r/m	nin)	3000	
Max. rotationa	l speed	(r/m	nin)	5000	
Moment of ine	rtia	Without bra	ke	1.61	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake)	1.93	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		te)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		rn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

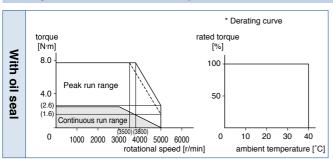
Static friction torque (N·m)	2.5 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.70±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 3.1 kg With brake/ 4.1 kg Key way dimensions M3 through

132.5[159.5] <IP65> 45 87.5[114.5] 112.5[139.5] 56.5[53.5] (84)Ф19h6

•

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

101)[(103)]

□100

4-Φ9

[Unit: mm]

<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.

			AC4	00 V
		IP65	MSME104GC□	MSME104SC
Motor model *1		IP67	MSME104G1□	MSME104S1
A 1: 1 1	Model	A5II, A5 series	MDD<	T3420
Applicable driver *2	No.	A5IE, A5E series	MDD ⊘T3420E	-
dilvei	Fr	ame symbol	D-fr	ame
Power supply	capacit	y (kVA)	1.	.8
Rated output		(W)	10	00
Rated torque		(N·m)	3.	18
Momentary Ma	ax. peal	c torque (N·m)	9.55	
Rated current		(A(rms))	3.3	
Max. current		(A(o-p))	14	
Regenerative b	rake	Without option	No limit Note)2	
frequency (times/r	nin) Note)1	DV0PM20048	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	l speed	(r/min)	5000	
Moment of ine	rtia	Without brake	2.03	
of rotor (×10 ⁻⁴	kg·m²)	With brake	2.35	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	s or less
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

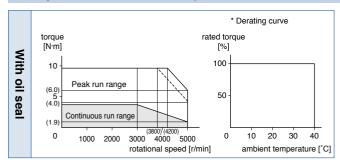
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

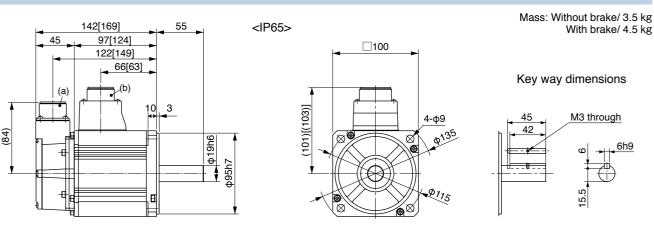
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.44.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



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

[Unit: mm]

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

			AC4	00 V	
		IP65	MSME154GC□	MSME154SC□	
Motor model *1		IP67	MSME154G1□	MSME154S1	
	Model	A5II, A5 series	MDD<	T3420	
Applicable driver *2	No.	A5IIE, A5E series	MDD \diamondsuit T3420E	_	
unver	Fr	ame symbol	D-fra	ame	
Power supply	capacit	y (kVA)	2	.3	
Rated output		(W)	15	00	
Rated torque		(N·m)	4.	77	
Momentary Ma	ax. peal	k torque (N·m)	14.3		
Rated current		(A(rms))	4.2		
Max. current		(A(o-p))	1	18	
Regenerative brake Without option		No limi	t Note)2		
frequency (times/r	min) Note)1	DV0PM20048	No limit Note)2		
Rated rotation	al spee	d (r/min)	3000		
Max. rotationa	l speed	(r/min)	5000		
Moment of ine	rtia	Without brake	2.84		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		3.17		
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn		1048576	131072		

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

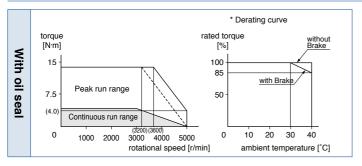
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

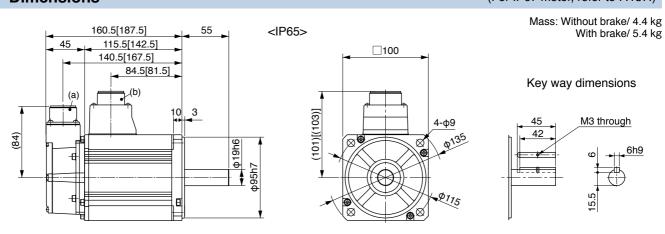
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.44.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

<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.

			AC4	00 V		
Matanasadal		IP65		MSME204GC□	MSME204SC□	
Motor model		IP67		MSME204G1□	MSME204S1	
A 15 1 1	Model	A5II, A5	A5 series MEDT4430		T4430	
Applicable driver *2	No.	A5IIE, A5	E series	MED ⊘T4430E	_	
diver	Fr	ame syml	ool	E-fra	ame	
Power supply	capacit	y	(kVA)	3.	.3	
Rated output			(W)	20	00	
Rated torque			(N·m)	6.0	37	
Momentary Ma	ax. peal	k torque	(N·m)	19.1		
Rated current		()	A(rms))	5.7		
Max. current		(A(o-p))	24		
Regenerative b	rake	Without	option	No limi	No limit Note)2	
frequency (times/r	min) Note)1	DV0PM	20049	No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	5000		
Moment of ine	rtia	Without	brake	3.68		
of rotor (×10 ⁻⁴	kg·m²)	With b	rake	4.01		
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute		
R	Resolution per single turn		1048576	131072		

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

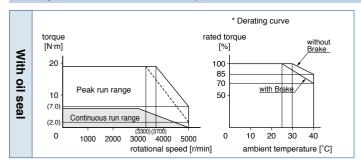
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

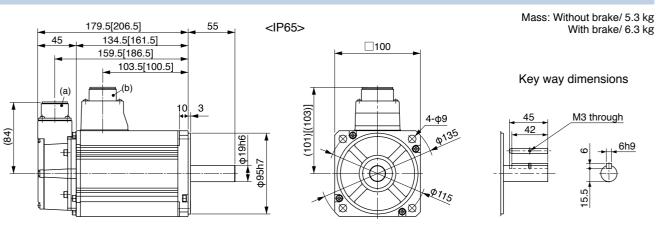
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver represents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

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



Dimensions

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



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

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

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

Specifications

		AC4	00 V		
		IP65	MSME304GC□	MSME304SC□	
Motor model *1		IP67	MSME304G1□	MSME304S1	
A It's Is Is	Model	A5II, A5 series	MFD<	T5440	
Applicable driver *2	No.	A5IIE, A5E series	MFD ⊘T5440 E	-	
unver	Fr	ame symbol	F-fra	ame	
Power supply	capacit	y (kVA)	4.	.5	
Rated output		(W)	30	00	
Rated torque		(N·m)	9.	55	
Momentary Ma	ax. peal	k torque (N·m)	28.6		
Rated current		(A(rms))	9.2		
Max. current	Max. current (A(o-p))		3	39	
Regenerative brake Without option		No limi	t Note)2		
frequency (times/min) Note)1 DV0PM		DV0PM20049×2	No limit Note)2		
Rated rotation	Rated rotational speed (r/min)		3000		
Max. rotationa	l speed	(r/min)	5000		
Moment of ine	rtia	Without brake	6.50		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		6.85		
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

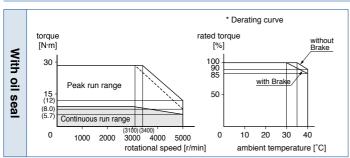
Static friction torque (N·m)	11.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

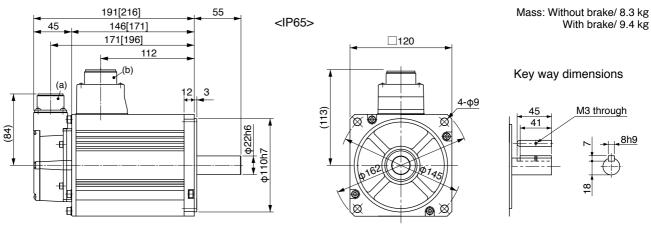
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

			AC4	00 V	
Matanasadal		IP65		MSME404GC□	MSME404SC□
Motor model		IP67		MSME404G1□	MSME404S1
A Ii I I	Model	A5II, A5 series		MFD◇	TA464
Applicable *2	No.	A5IIE, A5E se	ries	MFD \diamondsuit TA464E	_
dilvei	Fı	ame symbol		F-fra	ame
Power supply	capacit	y (k\	/A)	6	.8
Rated output		(W)	40	00
Rated torque		(N·	m)	12	2.7
Momentary Ma	ax. pea	k torque (N-	m)	38.2	
Rated current		(A(rm	s))	9.9	
Max. current		(A(o-	p))	42	
Regenerative b	rake	Without option	on	No limi	t Note)2
frequency (times/i	min) Note)1	DV0PM20049)×2	No limit Note)2	
Rated rotation	al spee	d (r/m	in)	3000	
Max. rotationa	l speed	(r/m	in)	4500	
Moment of ine	rtia	Without brak	е	12.9	
of rotor (×10 ⁻⁴	kg·m²)	With brake		14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		te)5	20-bit Incremental	17-bit Absolute
R	esolutio	n per single tur	'n	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

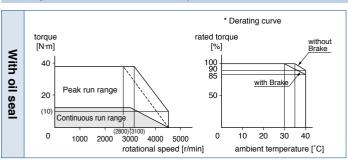
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

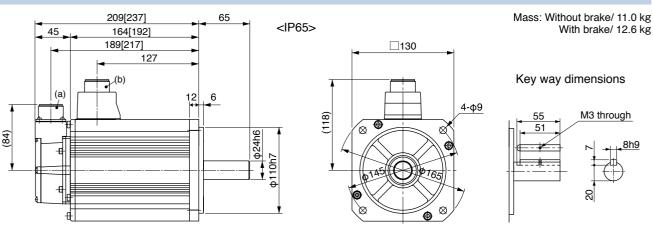
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



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

[Unit: mm]

A5 Family

Specifications

			AC4	00 V
Matanasadal		IP65	MSME504GC□	MSME504SC□
Motor model		IP67	MSME504G1□	MSME504S1
A madi a a la la	Model	A5II, A5 series	MFD⇔	TA464
Applicable *2	No.	A5IIE, A5E series	MFD \diamondsuit TA464E	_
dilvei	Fı	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	7.	.5
Rated output		(W)	50	00
Rated torque		(N·m)	15	i.9
Momentary M	ax. pea	k torque (N·m)	47.7	
Rated current		(A(rms))	12.0	
Max. current		(A(o-p))	51	
Regenerative b	Regenerative brake Without option		35	57
frequency (times/min) Note)1 DV0PM		DV0PM20049×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	ıl speed	(r/min)	4500	
Moment of ine	ertia	Without brake	17.4	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		18.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			15 times or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

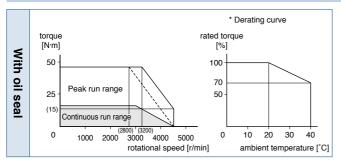
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 14.0 kg 244[272] 65 <IP65> With brake/ 16.0 kg 199[227] 224[252] □130 162 Key way dimensions (a) 12 6 4-φ9 M3 through (118) ø (84)**⊅110h7**

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

[Unit: mm]

			AC4	00 V
Motor model		IP65	MDME044GC	MDME044SC
*1		IP67	MDME044G1	MDME044S1
Amaliaabla	Model	A5II, A5 series	MDD<	T2407
Applicable *2	No.	A5IIE, A5E series	MDD ⊘T2407E	_
diver	Fr	ame symbol	D-fr	ame
Power supply	capacit	y (kVA)	0.	.9
Rated output		(W)	40	00
Rated torque		(N·m)	1.9	91
Momentary Ma	ax. peal	k torque (N·m)	5.73	
Rated current		(A(rms))	1.2	
Max. current		(A(o-p))	4.9	
Regenerative b	rake	Without option	No limit Note)2	
frequency (times/r	min) Note)1	DV0PM20048	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	1.61	
of rotor (×10 ⁻⁴	kg·m²)	With brake	1.93	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

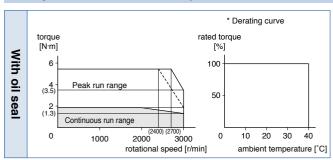
Static friction torque (N·m)	2.5 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.70±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

(a) Encoder connector

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

Mass: Without brake/ 3.1 kg With brake/ 4.1 kg Key way dimensions M3 through

[Unit: mm]

87.5[114.5] 112.5[139.5] 56.5[53.5] (a)

132.5[159.5]

(b) Motor/Brake connector

100 101)[(103)] 4-φ9 (XX

* Figures in [] represent the dimensions with brake.

<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.

<IP65>

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

			AC4	00 V
		IP65	MDME064GC	MDME064SC
Motor model		IP67	MDME064G1□	MDME064S1
A 1: 1- 1	Model	A5II, A5 series	MDD<	T2407
Applicable *2	No.	A5IE, A5E series	MDD ⊘T2407E	_
diver	Fr	ame symbol	D-fr	ame
Power supply	capacit	y (kVA)	1.	.2
Rated output		(W)	60	00
Rated torque		(N·m)	2.8	86
Momentary Ma	ax. peal	k torque (N·m)	8.59	
Rated current		(A(rms))	1.5	
Max. current		(A(o-p))	6.5	
Regenerative b	rake	Without option	No limit Note)2	
frequency (times/r	min) Note)1	DV0PM20048	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	2.03	
of rotor (×10 ⁻⁴	kg·m²)	With brake	2.35	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn			131072

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

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

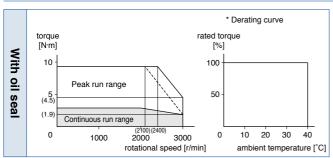
Static friction torque (N·m)	2.5 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.70±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 3.5 kg 142[169] <IP65> With brake/ 4.5 kg 97[124] □100 122[149] 66[63] Key way dimensions (a) 101)[(103)] M3 through 4-Φ9 Ð

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

[Unit: mm]

			AC4	00 V	
Matanasadal		IP65		MDME104GC	MDME104SC
Motor model		IP67		MDME104G1□	MDME104S1
Amalianda	Model	A5II, A5	series	MDD<	T2412
Applicable *2	No.	A5IIE, A5	E series	MDD \diamondsuit T2412E	_
divei	Fr	ame syml	bol	D-fra	ame
Power supply	capacit	y	(kVA)	1.	.8
Rated output			(W)	10	00
Rated torque			(N·m)	4.	77
Momentary Ma	ax. peal	k torque	(N·m)	14.3	
Rated current		()	A(rms))	2.8	
Max. current		(A(o-p))	12	
Regenerative b	rake	Without	option	No limit Note)2	
frequency (times/r	nin) Note)1	DV0PM	20048	No limit Note)2	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia	Without	brake	4.60	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		rake	5.90	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		le turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

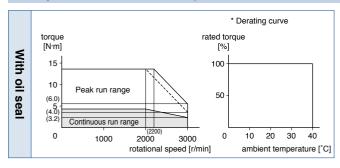
Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

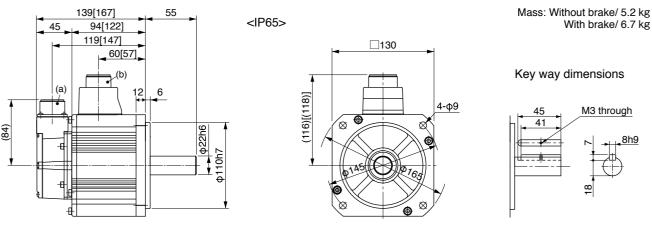
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.44.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

			AC4	00 V	
Motor model	IP65		MDME154GC	MDME154SC	
Wotor model *1		IP67	MDME154G1□	MDME154S1	
Amaliaahla	Model	A5II, A5 series	MDD<	T3420	
Applicable *2	No.	A5IIE, A5E series	MDD ⊘T3420E	_	
unver	Fr	ame symbol	D-fr	ame	
Power supply	capacit	y (kVA)	2	.3	
Rated output		(W)	15	00	
Rated torque		(N·m)	7.	16	
Momentary Ma	ax. peal	k torque (N·m)	21.5		
Rated current		(A(rms))	4.7		
Max. current		(A(o-p))	2	20	
Regenerative brake Without option		No limi	t Note)2		
frequency (times/r	min) Note)1	DV0PM20048	No limi	t Note)2	
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	6.70		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		7.99		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

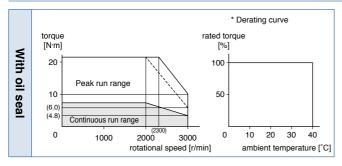
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

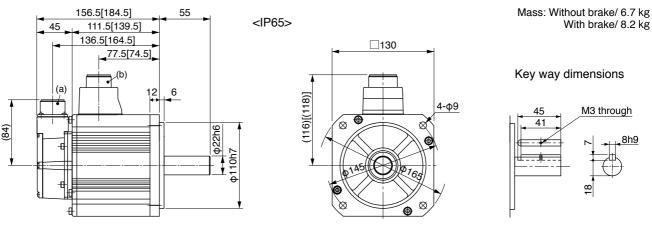
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.44.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

			AC4	00 V	
Matanasadal		IP65		MDME204GC	MDME204SC
Motor model		IP67		MDME204G1□	MDME204S1
Amaliaabla	Model	A5II, A5	series	MED<	T4430
Applicable *2	No.	A5IIE, A5	E series	MED ⊘T4430 E	-
diver	Fr	ame symb	ool	E-fra	ame
Power supply	capacit	y	(kVA)	3	.3
Rated output			(W)	20	00
Rated torque			(N·m)	9.	55
Momentary Ma	ax. peal	k torque	(N·m)	28.6	
Rated current		(/	A(rms))	5.9	
Max. current		(.	A(o-p))	25	
Regenerative b	rake	Without	option	No limit Note)2	
frequency (times/r	nin) Note)1	DV0PM20049 No limit Note)2		t Note)2	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia	Without	brake	8.72	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		rake	10.0	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn		e turn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

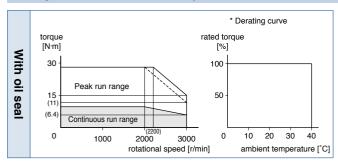
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

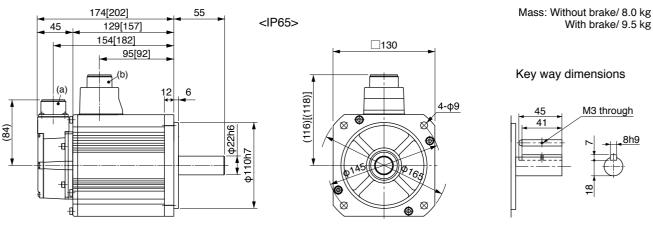
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

A5 Family

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

Specifications

			AC4	00 V
Matanasadal		IP65	MDME304GC□	MDME304SC□
Motor model		IP67	MDME304G1□	MDME304S1
A 15 1-1	Model	A5II, A5 series	MFD T5440	
Applicable *2	No.	A5IIE, A5E series	MFD ◇T5440E	_
unver	Fı	rame symbol	F-fra	ame
Power supply	capacit	y (kVA)	4.	.5
Rated output		(W)	30	00
Rated torque		(N·m)	14	1.3
Momentary Ma	ax. pea	k torque (N·m)	43.0	
Rated current		(A(rms))	8.7	
Max. current	Max. current (A(o-p))		37	
Regenerative brake Without option		No limi	t Note)2	
frequency (times/min) Note)1		DV0PM20049×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	12.9	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

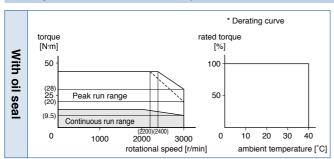
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

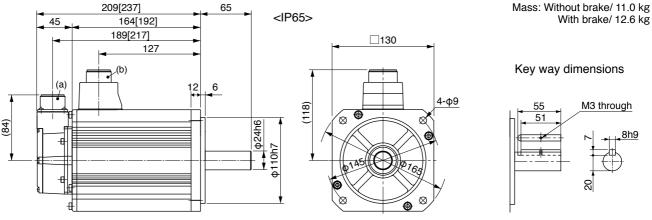
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

			AC4	00 V	
Matanasadal		IP65	MDME404GC□	MDME404SC	
Motor model		IP67	MDME404G1□	MDME404S1	
A	Model	A5II, A5 series	MFD \diamondsuit TA464		
Applicable *2	No.	A5IE, A5E series	MFD ◇TA464E	_	
diver	Fı	ame symbol	F-fra	ame	
Power supply	capacit	y (kVA)	6	.8	
Rated output		(W)	40	00	
Rated torque		(N·m)	19).1	
Momentary M	ax. pea	k torque (N·m)	57.3		
Rated current		(A(rms))	10.6		
Max. current	Max. current (A(o-p))		4	45	
Regenerative brake Without option		No limi	t Note)2		
. •		DV0PM20049×2	No limit Note)2		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	37.6		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		42.9		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute	
R	esolutio	n per single turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

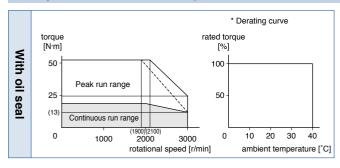
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

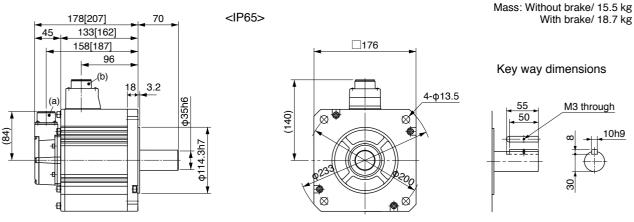
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



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

[Unit: mm]

A5 Family

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

Specifications

			AC4	00 V
IP65		MDME504GC□	MDME504SC	
Motor model		IP67	MDME504G1	MDME504S1
Amaliaahla	Model	A5II, A5 series	MFD ◇TA46 4	
Applicable *2	No.	A5IIE, A5E series	MFD ◇TA464E	_
unver	Fı	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	7.	.5
Rated output		(W)	50	00
Rated torque		(N·m)	23	3.9
Momentary Ma	ax. pea	k torque (N·m)	71.6	
Rated current		(A(rms))	13.0	
Max. current	Max. current (A(o-p))		55	
Regenerative brake Without option		12	20	
, •		DV0PM20049×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	Moment of inertia Without brake		48.0	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		53.3	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

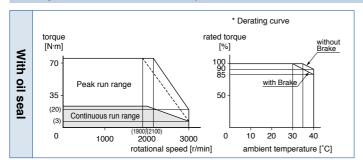
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



70

14.3h7

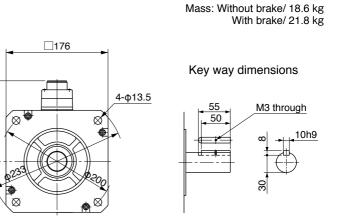
18 3.2

Dimensions

197[226]

152[181]

177[206] 115 (For IP67 motor, refer to P.139.)



(a) Encoder connector

84)

(b) Motor/Brake connector

(a)

* Figures in [] represent the dimensions with brake.

(140)

[Unit: mm]

<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.

<IP65>

			AC4	00 V
Matarmadal	IP65		_	_
Motor model		IP67	MDME754G1	MDME754S1
A 1: 1-1 -	Model	A5II, A5 series	MGD ⊘TB4A2	
Applicable *2	No.	A5IIE, A5E series	_	_
dilvei	Fı	ame symbol	G-fr	ame
Power supply	capacit	y (kVA)	1	1
Rated output		(W)	75	00
Rated torque		(N·m)	47	7.8
Momentary Ma	ax. pea	k torque (N·m)	119	
Rated current		(A(rms))	22	
Max. current	Max. current (A(o-p))		83	
Regenerative brake Without option		No limi	t Note)2	
		DV0PM20049×3	No limit Note)2	
Rated rotation	al spee	d (r/min)	1500	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	101	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		107	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

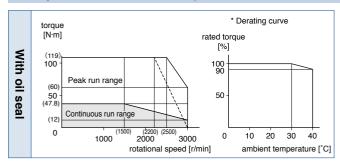
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

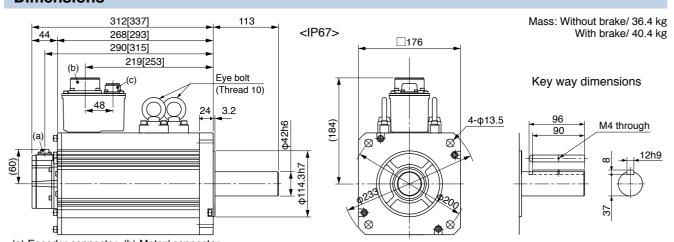
During assembly During operation	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

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

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



Dimensions



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

* Figures in [] represent the dimensions with brake.

[Unit: mm]

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

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

A5 Family

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

Specifications

		AC4	00 V	
Mataria		IP65	-	-
Motor model		IP67	MDMEC14G1	MDMEC14S1
A 1: 1- 1	Model	A5II, A5 series	MHD♦	TB4A2
Applicable *2	No.	A5IIE, A5E series	_	_
unver	Fr	ame symbol	H-fr	ame
Power supply	capacity	y (kVA)	1	7
Rated output		(W)	110	000
Rated torque		(N·m)	7	0
Momentary Ma	ax. peal	k torque (N·m)	175	
Rated current		(A(rms))	27.1	
Max. current		(A(o-p))	101	
Regenerative b	rake	Without option	No limit Note)2	
frequency (times/r	min) Note)1	DV0PM20059	No limit Note)2	
Rated rotation	al spee	d (r/min)	1500	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	212	
of rotor (×10 ⁻⁴	kg·m²)	With brake	220	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

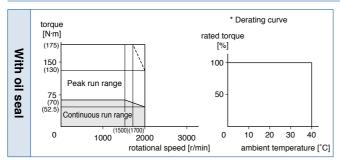
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

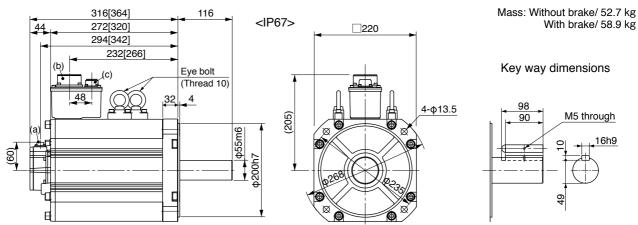
During assembly During operation	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	1764
	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

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

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



Dimensions



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

[Unit: mm]

			AC4	00 V
Matanasadal		IP65	-	-
Motor model *1		IP67	MDMEC54G1	MDMEC54S1
Annlinghla	Model	A5II, A5 series	MHD◇	TB4A2
Applicable *2	No.	A5IIE, A5E series	_	_
dilvei	Fr	ame symbol	H-fr	ame
Power supply	capacity	y (kVA)	2	2
Rated output		(W)	150	000
Rated torque		(N·m)	95	i.5
Momentary Ma	ax. peal	k torque (N·m)	224	
Rated current		(A(rms))	33.1	
Max. current		(A(o-p))	118	
Regenerative b	rake	Without option	No limit Note)2	
frequency (times/r		DV0PM20059	No limit Note)2	
Rated rotation	al spee	d (r/min)	1500	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	302	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		211	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

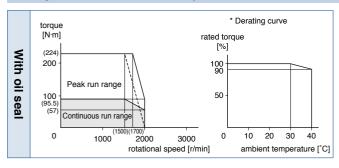
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

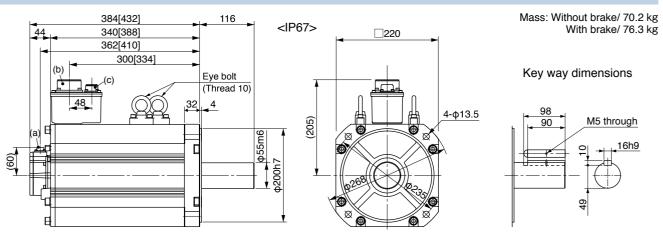
During assembly During operation	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	1764
	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

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

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



Dimensions



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

[Unit: mm]

			AC4	00 V
Motor model		IP65	-	_
*1		IP67	MFME154G1□	MFME154S1
	Model	A5II, A5 series	MDD<	T3420
Applicable *2	No.	A5IIE, A5E series	MDD ⊘T3420E	_
diver	Fr	ame symbol	D-fr	ame
Power supply	capacit	y (kVA)	2	.4
Rated output		(W)	15	00
Rated torque		(N·m)	7.	16
Momentary Ma	ax. peal	k torque (N·m)	21.5	
Rated current		(A(rms))	3.8	
Max. current		(A(o-p))	16	
Regenerative b	rake	Without option	100	
frequency (times/r	min) Note)1	DV0PM20048 No limit Note)2		t Note)2
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	18.2	
of rotor (×10 ⁻⁴	kg·m²)	With brake	23.5	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

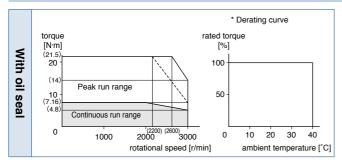
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	35 or less
Exciting current (DC) (A)	0.83±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

Mass: Without brake/ 9.5 kg <IP67> 142[167] With brake/ 12.5 kg 98[123] 120[145] □176 64 Key way dimensions (b) 3.2 4-φ13.5 M3 through (140)3h7 Ð

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

[Unit: mm]

			AC4	00 V	
Motor model		IP65	-	_	
*1		IP67	MFME254G1□	MFME254S1	
A 1: 1-1 -	Model	A5II, A5 series	MED<	T4430	
Applicable *2	No.	A5IE, A5E series	MED ⊘T4430E	_	
divei	Fr	ame symbol	E-fra	ame	
Power supply	capacit	y (kVA)	3.	.9	
Rated output		(W)	25	00	
Rated torque		(N·m)	11	11.9	
Momentary Ma	ax. peal	k torque (N·m)	30.4		
Rated current		(A(rms))	6.7		
Max. current	Max. current (A(o-p))		2	29	
Regenerative b	rake	Without option	75		
frequency (times/i	min) Note)1	DV0PM20049	No limit Note)2		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	35.8		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m ²)		45.2		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolutio		n per single turn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

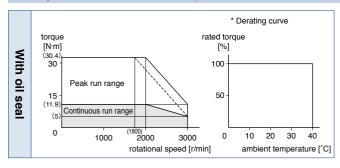
Static friction torque (N·m)	21.6 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

Mass: Without brake/ 13.1 kg <IP67> 135[168] 65 With brake/ 17.2 kg 44 91[124] 113[146] 220 Key way dimensions (b) 4-φ13.5 M3 through (162)Ø

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

[Unit: mm]

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

Specifications

		AC4	00 V		
Motor model		IP65	-	-	
*1		IP67	MFME454G1□	MFME454S1	
Amaliaabla	Model	A5II, A5 series	MFD◇	TA464	
Applicable *2	No.	A5IIE, A5E series	MFD \diamondsuit TA464E	_	
diver	Fr	ame symbol	F-fra	ame	
Power supply	capacit	y (kVA)	6	.9	
Rated output		(W)	45	00	
Rated torque		(N·m)	21	.5	
Momentary Ma	ax. peal	k torque (N·m)	54.9		
Rated current		(A(rms))	12.4		
Max. current	Max. current (A(o-p))		5	53	
Regenerative b	rake	Without option	67		
frequency (times/r	nin) Note)1	DV0PM20049×2	375		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	63.1		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		70.9		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times or less			
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	esolutio	n per single turn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

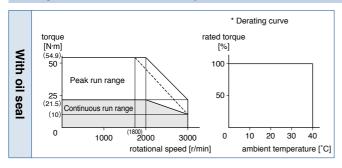
Static friction torque (N·m)	31.4 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	100 or less
Exciting current (DC) (A)	0.75±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

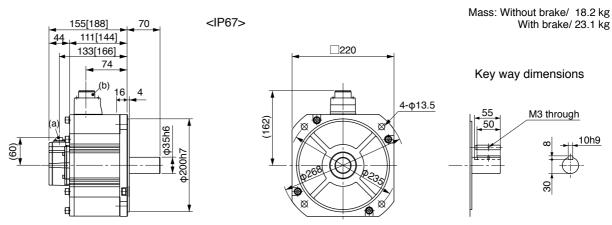
During assembly	Radial load P-direction (N)	1862
	Thrust load A-direction (N)	686
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	294

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

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



Dimensions



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

[Unit: mm]

		AC4	00 V	
Matanasadal		IP65	MGME094GC□	MGME094SC□
Motor model *1		IP67	MGME094G1□	MGME094S1□
Annlinghla	Model	A5II, A5 series	MDD<	T3420
Applicable *2	No.	A5IIE, A5E series	MDD ⊘T3420E	_
divei	Fr	ame symbol	D-fr	ame
Power supply	capacity	y (kVA)	1.	.8
Rated output		(W)	90	00
Rated torque		(N·m)	8.	59
Momentary Ma	ax. peal	k torque (N·m)	19.3	
Rated current		(A(rms))	3.8	
Max. current	Max. current (A(o-p))		12	
, regenerative brane		Without option	No limit Note)2	
		DV0PM20048	No limit Note)2	
Rated rotation	al spee	d (r/min)	1000	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	6.70	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m ²) With brake		7.99	
	Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

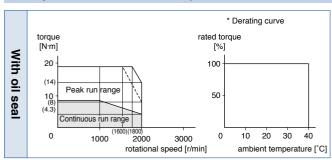
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

During assembly 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)	686
	Thrust load A, B-direction (N)	196

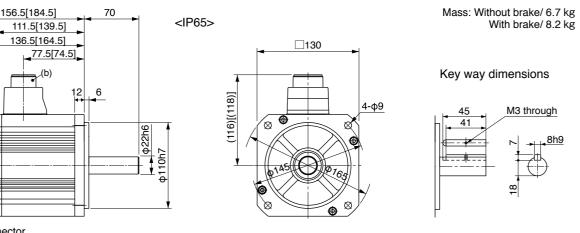
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.44.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



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

(a)

(84)

* Figures in [] represent the dimensions with brake.

[Unit: mm]

A5 Family

Specifications

			AC4	00 V
NA-4		IP65	MGME204GC□	MGME204SC□
Motor model		IP67	MGME204G1□	MGME204S1
A 1: 1- 1	Model	A5II, A5 series	MFD<	T5440
Applicable *2	No.	A5IIE, A5E series	MFD ◇T5440 E	_
diver	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	3.	.8
Rated output		(W)	20	00
Rated torque		(N·m)	19).1
Momentary Ma	ax. peal	k torque (N·m)	47.7	
Rated current		(A(rms))	8.5	
Max. current	Max. current (A(o-p))		30	
Regenerative b	rake	Without option	No limit Note)2	
frequency (times/min) Note)1		DV0PM20049×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	1000	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	30.3	
of rotor (×10 ⁻⁴	kg·m²)	With brake	35.6	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

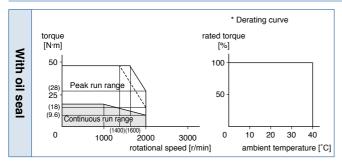
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



80

3.2

3h7

Dimensions

164.5[193.5]

119.5[148.5] 144.5[173.5]

82.5

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

Mass: Without brake/ 14.0 kg With brake/ 17.5 kg Key way dimensions M3 through 50

(a) Encoder connector

84

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

(140)

□176

4-φ13.5

[Unit: mm]

<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.

<IP65>

			AC4	00 V
Matanasadal		IP65	MGME304GC□	MGME304SC□
Motor model		IP67	MGME304G1□	MGME304S1
Amalianda	Model	A5II, A5 series	MFD⇔	TA464
Applicable driver *2	No.	A5IIE, A5E series	MFD \diamondsuit TA464E	_
divei	Fı	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	4.	.5
Rated output		(W)	30	00
Rated torque		(N·m)	28	3.7
Momentary Ma	ax. pea	k torque (N·m)	71.7	
Rated current		(A(rms))	11.3	
Max. current	Max. current (A(o-p))		40	
Regenerative b	rake	Without option	No limit Note)2	
frequency (times/min) Note)		DV0PM20049×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	1000	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	48.4	
of rotor (×10 ⁻⁴	kg·m²)	With brake	53	3.7
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

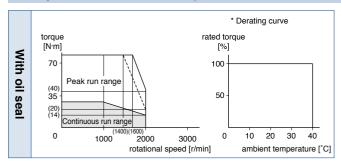
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

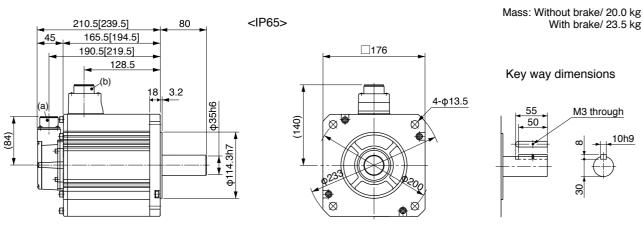
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \diamondsuit in number of applicable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

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



Dimensions

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



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

[Unit: mm]

A5 Family

Specifications

			AC400 V	
Matarraadal		IP65	-	-
Motor model		IP67	MGME454G1□	MGME454S1
A 1: 1- 1	Model	A5II, A5 series	MFD◇	TA464
Applicable *2	No.	A5IIE, A5E series	MFD \diamondsuit TA464E	-
unver	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	7.	.5
Rated output		(W)	45	00
Rated torque		(N·m)	43	3.0
Momentary Ma	ax. peal	k torque (N·m)	107	
Rated current		(A(rms))	14.8	
Max. current	Max. current (A(o-p))		55	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0PM20049×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	1000	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	79.1	
of rotor (×10 ⁻⁴ kg·m ²)		With brake	84	1.4
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	s or less
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn			131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

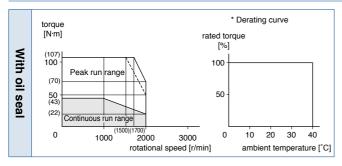
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

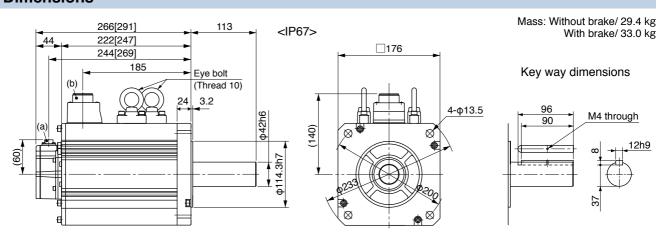
	Radial load P-direction (N)	2058
During assembly	Thrust load A-direction (N)	980
docombry	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1470
	Thrust load A, B-direction (N)	490

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

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



Dimensions



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

[Unit: mm]

		AC4	00 V		
Matarmadal	IP65		-	_	
Motor model		IP67	MGME604G1□	MGME604S1	
A 1: 1-1 -	Model	A5II, A5 series	MGD ⊘TB4A2		
Applicable *2	No.	A5IIE, A5E series	_	_	
divei	Fı	ame symbol	G-fr	ame	
Power supply	capacit	y (kVA)	9	.0	
Rated output		(W)	60	00	
Rated torque		(N·m)	57	7.3	
Momentary Ma	ax. pea	k torque (N·m)	143		
Rated current		(A(rms))	19.4		
Max. current		(A(o-p))	7	74	
Regenerative brake Without option		No lim	it Note)2		
		DV0PM20049×3	No limit Note)2		
Rated rotation	al spee	d (r/min)	1000		
Max. rotationa	l speed	(r/min)	2000		
Moment of ine	rtia	Without brake	101		
of rotor (×10 ⁻⁴	kg·m²)	With brake	107		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times	10 times or less	
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

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

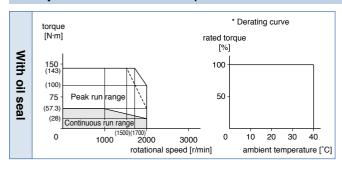
• Permissible load (For details, refer to P.183)

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

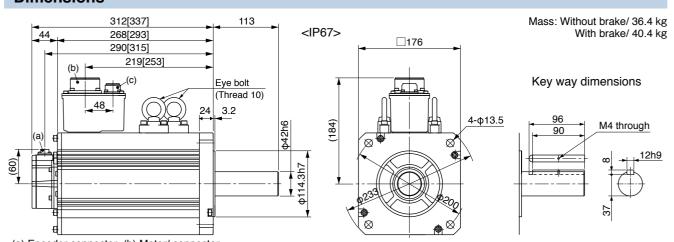
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.46.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver represents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

[Unit: mm]

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



Dimensions



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

* Figures in [] represent the dimensions with brake.

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

Specifications

			AC4	00 V
Motor model		IP65	MHME104GC□	MHME104SC
wotor model *1		IP67	MHME104G1	MHME104S1
Amalianda	Model	A5II, A5 series	MDD ⇔T2412	
Applicable *2	No.	A5IIE, A5E series	MDD \diamondsuit T2412E	_
divei	Fr	ame symbol	D-fra	ame
Power supply	capacit	y (kVA)	1.	.8
Rated output		(W)	10	00
Rated torque		(N·m)	4.	77
Momentary Ma	ax. peal	k torque (N·m)	14.3	
Rated current		(A(rms))	2.9	
Max. current	Max. current (A(o-p))		12	
Regenerative b	Regenerative brake Without option		83	
frequency (times/min) Note)1		DV0PM20048	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	24.7	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		26.0	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

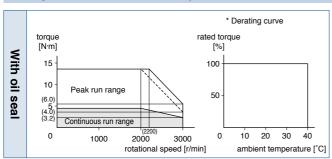
Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 6.7 kg 174[202] 70 <IP65> With brake/ 8.1 kg 129[157] 154[182] 130 95[92] Key way dimensions (a) 6 (116)[(118)] 4-φ9 M3 through (84) \boxtimes

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

[Unit: mm]

			AC4	00 V	
Mataumadal	IP65		MHME154GC	MHME154SC	
Motor model		IP67	MHME154G1	MHME154S1	
A 15 1-1	Model	A5II, A5 series	MDD ⇔ T3420		
Applicable *2	No.	A5IIE, A5E series	MDD ⊘T3420E	_	
dilvei	Fr	ame symbol	D-fr	ame	
Power supply	capacit	y (kVA)	2	.3	
Rated output		(W)	15	00	
Rated torque		(N·m)	7.	16	
Momentary Ma	ax. peal	k torque (N·m)	21.5		
Rated current		(A(rms))	4.7		
Max. current		(A(o-p))	20		
Regenerative b	rake	Without option	2	22	
frequency (times/i	min) Note)1	DV0PM20048	130		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	37.1		
of rotor (×10 ⁻⁴	kg·m²)	With brake	38.4		
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less		
Rotary encode	er speci	fications Note)5	20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

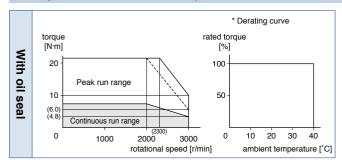
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

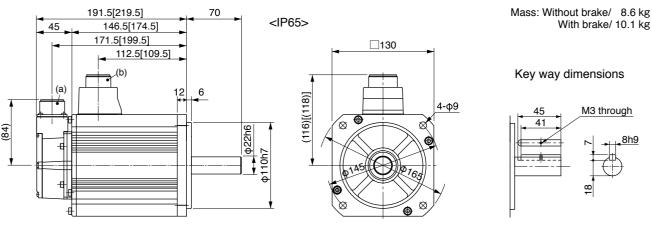
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.44.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver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

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



Dimensions

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



(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

A5 Family

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

Specifications

			AC4	00 V
		IP65	MHME204GC	MHME204SC
Motor model		IP67	MHME204G1□	MHME204S1
A	Model	A5II, A5 series	MED<	T4430
Applicable *2	No.	A5IE, A5E series	MED ⊘T4430 E	-
divei	Fr	ame symbol	E-fra	ame
Power supply	capacity	y (kVA)	3.	.3
Rated output		(W)	20	00
Rated torque		(N·m)	9.	55
Momentary Ma	ax. peal	k torque (N·m)	28.6	
Rated current		(A(rms))	5.5	
Max. current		(A(o-p))	24	
Regenerative b	rake	Without option	45	
frequency (times/r	min) Note)1	DV0PM20048	142	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	57.8	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		59.6	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times	or less
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
Resolution per single turn			1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

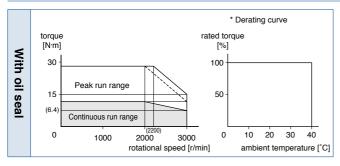
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

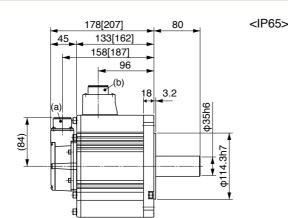
Torque characteristics (at AC400 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

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

Mass: Without brake/ 12.2 kg With brake/ 15.5 kg Key way dimensions M3 through 50



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

4-φ13.5 (140)

□176

* Figures in [] represent the dimensions with brake.

[Unit: mm]

			AC4	00 V	
Motor model	IP65		MHME304GC	MHME304SC	
Wiotor model		IP67		MHME304G1□	MHME304S1
Amaliandala	Model	A5II, A5 series		MFD◇	T5440
Applicable *2	No.	A5IIE, A5E se	eries	MFD ◇T5440 E	_
divei	Fı	ame symbol		F-fra	ame
Power supply	capacit	y (k'	VA)	4.	.5
Rated output		((W)	30	00
Rated torque		(N	·m)	14	.3
Momentary M	ax. pea	k torque (N	·m)	43.0	
Rated current		(A(rm	າຣ))	8.0	
Max. current		(A(o-	-p))	34	
Regenerative b	rake	Without opti	on	19	
frequency (times/	min) Note)1	DV0PM2004	9×2	142	
Rated rotation	al spee	d (r/m	nin)	2000	
Max. rotationa	l speed	(r/m	nin)	3000	
Moment of ine	rtia	Without bra	ke	90.5	
of rotor (×10 ⁻⁴	kg·m²)	With brake	9	92.1	
Recommended moment of inertia ratio of the load and the rotor Note)3			ote)3	5 times	or less
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		rn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

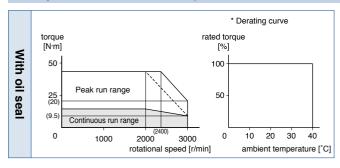
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

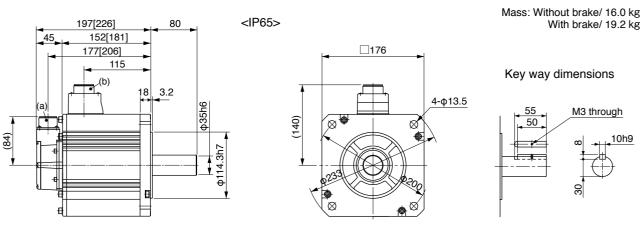
- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 ♦ in number of applicable driver represents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

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



Dimensions

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



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

[Unit: mm]

			AC4	00 V	
IP65		IP65		MHME404GC	MHME404SC
Motor model		IP67		MHME404G1□	MHME404S1
Amaliaabla	Model	A5II, A5 series		MFD◇	TA464
Applicable *2	No.	A5IIE, A5E se	eries	MFD \diamondsuit TA464E	_
dilvei	Fı	ame symbol		F-fra	ame
Power supply	capacit	y (k\	/A)	6	.8
Rated output		(W)	40	00
Rated torque		(N	·m)	19).1
Momentary Ma	ax. pea	k torque (N	·m)	57.3	
Rated current		(A(rm	ıs))	10.5	
Max. current		(A(o-	p))	45	
Regenerative b	rake	Without option	on	1	7
frequency (times/r	nin) Note)1	DV0PM20049	20049×2 125		25
Rated rotation	al spee	d (r/m	nin)	2000	
Max. rotationa	l speed	(r/m	nin)	3000	
Moment of ine	rtia	Without brak	ке	112	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake)	114	
Recommended moment of inertia ratio of the load and the rotor Note)3			te)3	5 times	or less
Rotary encode	Rotary encoder specifications Note)5		te)5	20-bit Incremental	17-bit Absolute
Resolution per single turn		rn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

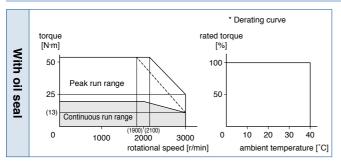
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

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

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



Dimensions

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

Mass: Without brake/ 18.6 kg <IP65> 210.5[239.5] With brake/ 21.8 kg 80 165.5[194.5] 190.5[219.5] **□176** 128.5 Key way dimensions 3.2 4-φ13.5 M3 through (140)50 14.3h7 Ħ øØ

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

[Unit: mm]

			AC4	00 V	
Matanasadal		IP65		MHME504GC	MHME504SC
Motor model		IP67		MHME504G1□	MHME504S1
A 15 1-1	Model	A5 I I, A5 se	eries	MFD<	TA464
Applicable *2	No.	A5IIE, A5E	series	MFD \diamondsuit TA464E	_
dilvei	Fı	ame symbo	ol	F-fra	ame
Power supply	capacit	y	(kVA)	7.	.5
Rated output			(W)	50	00
Rated torque			(N·m)	23	3.9
Momentary Ma	ax. pea	k torque	(N·m)	71.6	
Rated current		(A	(rms))	13.0	
Max. current		(A	(o-p))	55	
Regenerative b	rake	Without o	ption	10	
frequency (times/i	min) Note)1	DV0PM20	049×2	76	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without b	rake	162	
of rotor (×10 ⁻⁴	kg·m²)	With bra	ake	164	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times	or less	
Rotary encode	Rotary encoder specifications Note)5		Note)5	20-bit Incremental	17-bit Absolute
R	Resolution per single turn		turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

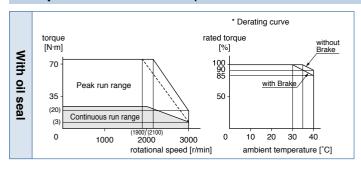
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

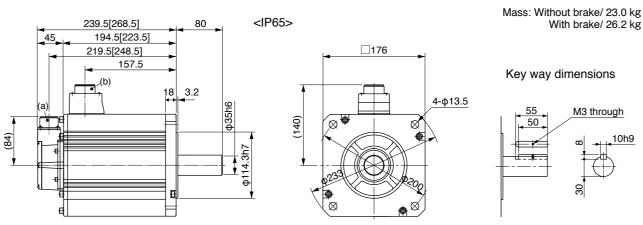
- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.16.
- *3 \Diamond in number of applicable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

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



Dimensions

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



(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

			AC400 V					
N A - A - · · · · · · · · · · · · · · · · · ·		IP65		-	_			
Motor model		IP67		MHME754G1□	MHME754S1			
A 1: 1- 1 -	Model	A5II, A5 series		MGD ⊘TB4A2				
Applicable *2	No.	A5IIE, A5I	= series					
divei	Fr	ame symb	ol	G-frame	ame			
Power supply	capacit	y	(kVA)	9.	.0			
Rated output			(W)	75	00			
Rated torque			(N·m)	47	'.8			
Momentary Ma	ax. peal	k torque	(N·m)	119				
Rated current		(A	(rms))	22.0				
Max. current		(Δ	(o-p))	83				
Regenerative b	rake	Without o	ption	No limit Note)2				
frequency (times/r	min) Note)1	DV0PM20	049×3	No limi	t Note)2			
Rated rotation	al spee	d ((r/min)	1500				
Max. rotationa	l speed	((r/min)	3000				
Moment of ine	rtia	Without b	orake	273				
of rotor (×10 ⁻⁴	kg·m²)	With bra	ake	279				
Recommende ratio of the loa			5 times or less					
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute			
R	esolutio	n per single	turn	1048576 131072				

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

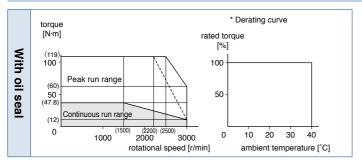
Static friction torque (N·m)	58.8 or more			
Engaging time (ms)	150 or less			
Releasing time (ms) Note)4	50 or less			
Exciting current (DC) (A)	1.4±10 %			
Releasing voltage (DC) (V)	2 or more			
Exciting voltage (DC) (V)	24±2.4			

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

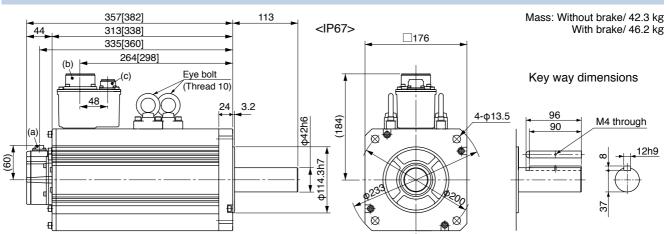
During assembly	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During operation	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

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

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



Dimensions



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

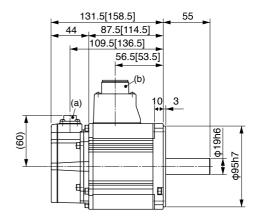
* Figures in [] represent the dimensions with brake.

[Unit: mm]

IP67 motor (MSME 200 V/ 400 V type)

• MSME084 1 *

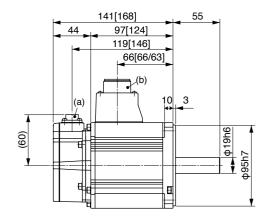
[Unit: mm]



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

• MSME10□□1 *

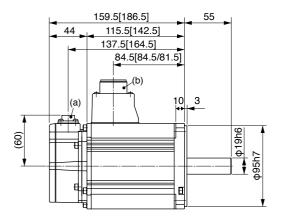
[Unit: mm]



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

MSME15□□1 *

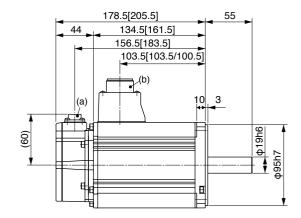
[Unit: mm]



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

MSME20□□1 *

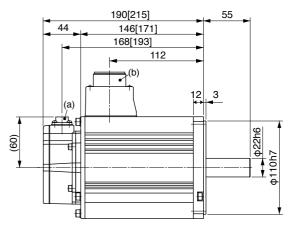
[Unit: mm]



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

• MSME30 □ 1 *

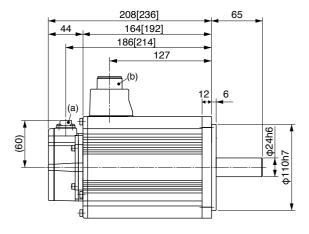
[Unit: mm]



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

MSME40□□1 *

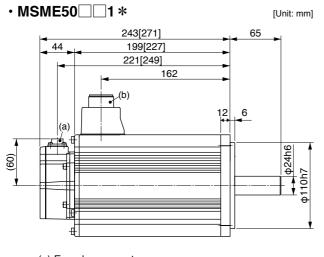
[Unit: mm]



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

^{*} For motor specifications, refer to IP65 motor page.

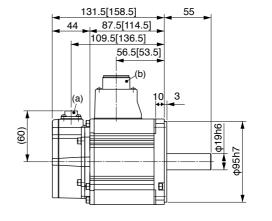
IP67 motor (MSME 200 V/ 400 V type) MDME 200 V/ 400 V type)



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

MDME044□1 *

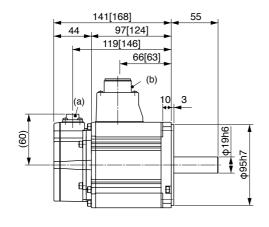
[Unit: mm]



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

MDME064□1 *

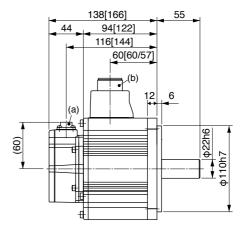
[Unit: mm]



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

MDME10□□1 *

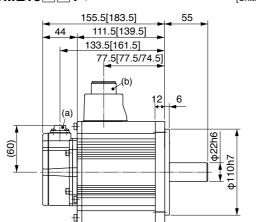
[Unit: mm]



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

• MDME15 □ □ 1 *

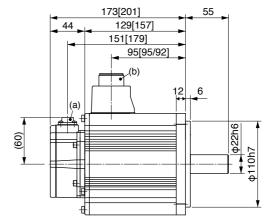
[Unit: mm]



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

MDME20□□1 *

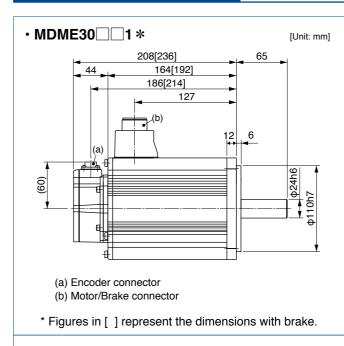
[Unit: mm]

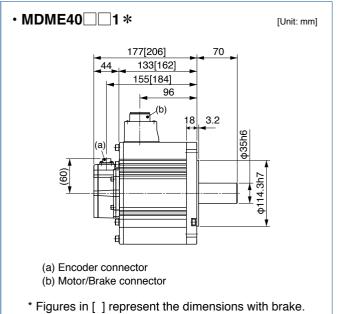


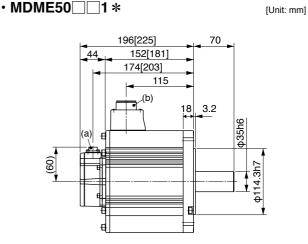
- (a) Encoder connector (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake. If you find two figures in [] ,left figure is for 200 V and right figure is for 400 V.

^{*} For motor specifications, refer to IP65 motor page.

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





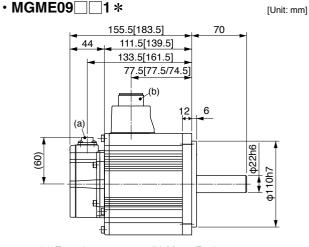




(a) Encoder connector

• MGME20 □ 1 *

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

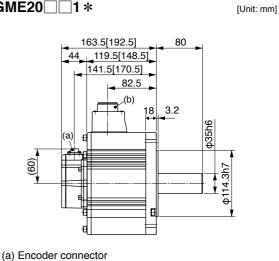


- (a) Encoder connector (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake. If you find two figures in [] ,left figure is for 200 V and right figure is for 400 V.

209.5[238.5]

165.5[194.5]

187.5[216.5] 128.5



MGME30 □ □ 1 *

(09)

[Unit: mm]

80

ф35h6

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

* Figures in [] represent the dimensions with brake.

(b) Motor/Brake connector

139

^{*} For motor specifications, refer to IP65 motor page.

IP67 motor (MHME 200 V/ 400 V type)

• MHME10 1 * [Unit: mm] 173[201] 70 44 129[157] 151[179] 95[95/92] (b) 12 6

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

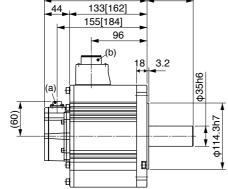
• MHME15 1 * [Unit: mm] 190.5[218.5] 70 44 146.5[174.5] 168.5[196.5] 112.5[112.5/109.5] (a) (b) 12 6

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

• MHME20□□1 *



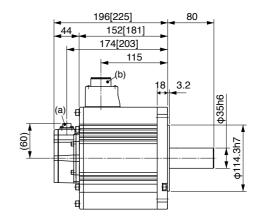
[Unit: mm]



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

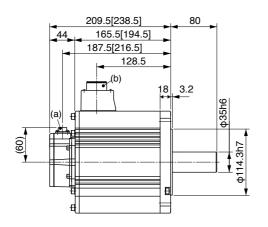


[Unit: mm]



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

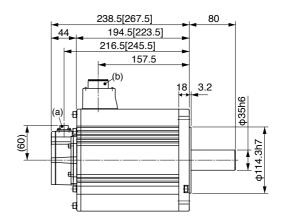
• MHME40 1 * [Unit: mm]



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

• MHME50 □ □ 1 *

[Unit: mm]



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

^{*} For motor specifications, refer to IP65 motor page.

Motors with Gear Reducer Type and Specifications

Motor Types with Gear Reducer



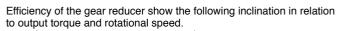


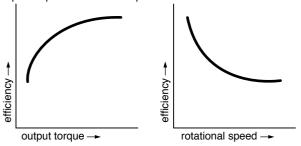


MSMD 100 W to 750 W 200 W to 750 W

Reduction		Type of			
ratio	100	200	400	750	reducer
1/5	•	•	•	•	
1/9	•	•	•	•	For high
1/15	•	•	•	•	precision
1/25	•	•	•	•	

^{*} MHMD 100 W is not prepared.





Specifications of Motor with Gear Reducer

	Items	Specifications					
	Backlash	3 minutes or smaller (initial value) at output shaft of the reducer					
	Composition of gear	Planetary gear					
	Gear efficiency	65 % to 85 %					
Coor reduces	Lubrication	Grease lubrication					
Gear reducer Rotational direction at or	Rotational direction at output shaft	Same direction as the motor output shaft					
	Mounting method	Flange mounting					
	Permissible moment of inertia of the load (conversion to the motor shaft)	10 times or smaller than rotor moment of inertia of the motor					
	Protective structure	IP44 (at gear reducer)					
	Ambient temperature	0 °C to 40 °C (free from condensation)					
Environment	Rotational direction at output shaft Mounting method Permissible moment of inertia of the load (conversion to the motor shaft) Protective structure Ambient temperature Same direction as the motor of the motor as the motor of the motor of the load (conversion to the motor shaft) 10 times or smaller than rotor momer IP44 (at gear reduced of the motor of the load (conversion to the motor shaft) Protective structure O °C to 40 °C (free from conversion to the motor of the load (conversion to the lo	85 %RH (free from condensation) or less					
Environment	Vibration resistance	49 m/s² or less (at motor frame)					
	Impact resistance	98 m/s² or less					

Model Designation/ The Combination of the Driver and the Motor Motors with Gear Reducer

A5 Family

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

Model Designation M 0 N Motor rated output Motor types with gear reducer Symbol Type Symbol Specifications Motor output (W) Type of reducer Reduction 100 W Low inertia Symbol MSMD ratio 400 750 200 100 W to 750 W 200 W 02 1N 1/5 Low inertia 04 400 W **MSME** 100 W to 750 W 1/9 2N For high 750 W 80 precision High inertia 1/15 lacktriangle• 3N MHMD 200 W to 750 W 4N 1/25 • Voltage specifications * MHMD 100 W is not prepared. Symbol Rated output 100 V **Motor structure** 2 200 V Shaft Holding brake Symbol Key way without with Rotary encoder specifications 3 Symbol Format Pulse counts Resolution Wire 4 Incremental 20-bit 1048576 5

7

Absolute

S

The Combination of the Driver and the Motor with gear reducer

131072

17-bit

	100	V	200 V			
Motor output	Part No. of motor	Single phase, 100 V	Part No. of motor	Single/3-phase, 200 V		
	with gear reducer	Part No. of driver	with gear reducer	Part No. of driver		
100 W	MSME011□□□N	MADHT1107 MADKT1107	MSME012□□□N	MADHT1505 MADKT1505		
100 vv	MSMD011□□□N	MADHT1107E MADKT1107E	MSMD012□□□N	MADHT1505E MADKT1505E		
200 W	MSME021 \Rightarrow N	MBDHT2110 MBDKT2110	MSME022 N	MADHT1507 MADKT1507		
200 W	MHMD021 N	MBDHT2110E MBDKT2110E	MHMD022	MADHT1507E MADKT1507E		
400 W	MSME041	MCDHT3120 MCDKT3120	MSME042□□□N MSMD042□□□N	MBDHT2510 MBDKT2510		
400 W	MSMD041 N MHMD041 N	MCDHT3120E MCDKT3120E	MHMD042	MBDHT2510E MBDKT2510E		
750 W	_	_	MSME082□□□N MSMD082□□□N	MCDHT3520 MCDKT3520		
750 99		_	MHMD082	MCDHT3520E MCDKT3520E		

^{*} Motor specifications enter to $\square\square\square$ of the motor model number. Refer to "Model designation".

^{*} S: can be used in incremental.

Table of Motor Specifications

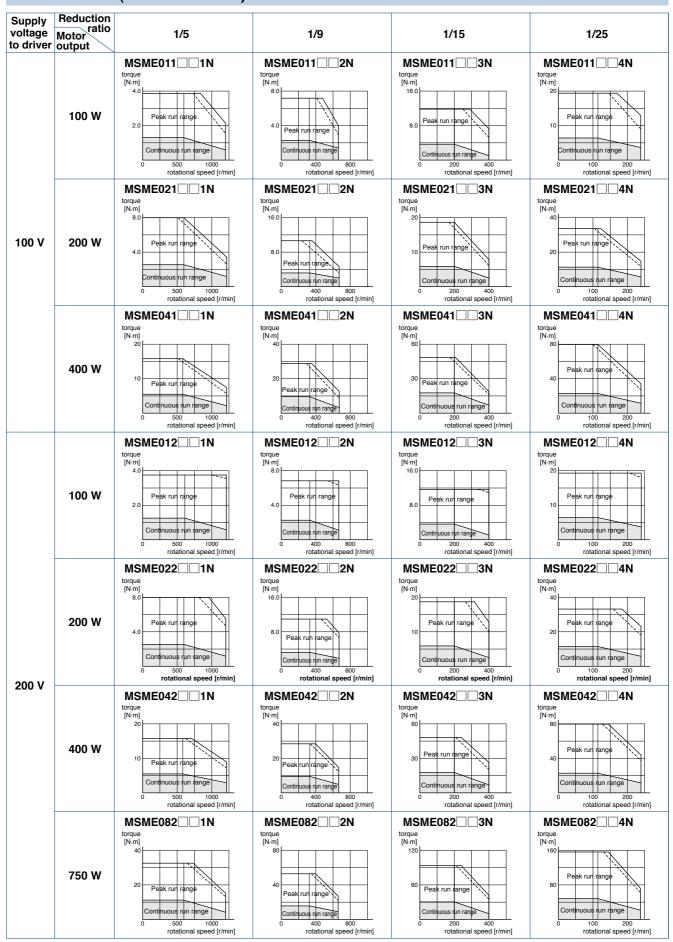
Table of Motor Specifications

Model		Motor Output	Reduction ratio	Output	Rated speed	Max. speed	Rated torque	Peak max. torque	Moment (motor + conveto moto	reducer/ erted er shaft)	Mass		Permissible radial load	Permissible thrust load
				(W)	(r/min)	(r/min)	(N·m)	(N·m)	J(×10 ⁻⁴		(k		(N)	(N)
	MSME01 1N	(W)	1/5	75	600	1200	1.18	3.72	0.091	0.094	1.0	1.2	490	245
	MSME01 2N		1/9	80	333	666	2.25	6.86	0.0853	0.0883	1.0	1.2	588	294
	MSME01 3N	100	1/15	80	200	400	3.72	11.4	0.086	0.089	1.15	1.35	784	392
	MSME01 4N		1/25	80	120	240	6.27	19.0	0.0885	0.0915	2.15	2.35	1670	833
	MSME02 1N		1/5	170	600	1200	2.65	8.04	0.258	0.278	1.5	1.92	490	245
=	MSME02 C 2N		1/9	132	333	666	3.72	11.3	0.408	0.428	2.48	2.9	1180	588
MSME	MSME02 3N	200	1/15	132	200	400	6.27	18.8	0.44	0.46	2.88	3.3	1470	735
	MSME02 4N		1/25	140	120	240	11.1	33.3	0.428	0.448	2.88	3.3	1670	833
₩ •	MSME04		1/5	340	600	1200	5.39	16.2	0.623	0.643	2.9	3.3	980	490
Low inertia	MSME04 2N		1/9	332	333	666	9.51	28.5	0.528	0.548	2.9	3.3	1180	588
rtia	MSME04 3N	400	1/15	332	200	400	15.8	47.5	0.56	0.58	3.3	3.7	1470	735
	MSME04 4N		1/25	332	120	240	26.4	79.2	0.56	0.58	4.4	4.8	2060	1030
	MSME082 □□ 1N		1/5	672	600	1200	10.7	32.1	1.583	1.683	4.4	5.2	980	490
	MSME082 2N		1/9	635	333	666	18.2	54.7	1.52	1.62	5.7	6.5	1470	735
	MSME082 □□ 3N	750	1/15	635	200	400	30.4	91.2	1.57	1.67	6.1	6.9	1760	882
	MSME082 □□ 4N		1/25	635	120	240	50.7	152	1.52	1.62	6.1	6.9	2650	1320
	MSMD01		1/5	75	600	1000	1.18	3.72	0.091	0.094	1.02	1.23	490	245
	MSMD01 2N		1/9	80	333	555	2.25	6.86	0.0853	0.0883	1.02	1.23	588	294
	MSMD01 3N	100	1/15	80	200	333	3.72	11.4	0.086	0.089	1.17	1.38	784	392
	MSMD01 4N		1/25	80	120	200	6.27	19.0	0.0885	0.0915	2.17	2.38	1670	833
	MSMD02 1N		1/5	170	600	1000	2.65	8.04	0.258	0.278	1.54	2.02	490	245
3	MSMD02 2N		1/9	132	333	555	3.72	11.3	0.408	0.428	2.52	3	1180	588
MSMD	MSMD02 3N	200	1/15	132	200	333	6.27	18.8	0.44	0.46	2.92	3.4	1470	735
	MSMD02 4N		1/25	140	120	200	11.1	33.3	0.428	0.448	2.92	3.4	1670	833
Low inertia	MSMD04 🗆 🗆 1N		1/5	340	600	1000	5.39	16.2	0.623	0.643	2.9	3.4	980	490
iner	MSMD04 □□□ 2N	400	1/9	332	333	555	9.51	28.5	0.528	0.548	2.9	3.4	1180	588
tä	MSMD04 □□□ 3N	400	1/15	332	200	333	15.8	47.5	0.56	0.58	3.3	3.8	1470	735
	MSMD04 □□□ 4N		1/25	332	120	200	26.4	79.2	0.56	0.58	4.4	4.9	2060	1030
	MSMD082 □□ 1N		1/5	672	600	900	10.7	32.1	1.583	1.683	4.4	5.2	980	490
	MSMD082 □□ 2N	750	1/9	635	333	500	18.2	54.7	1.52	1.62	5.7	6.5	1470	735
	MSMD082 □□ 3N	750	1/15	635	200	300	30.4	91.2	1.57	1.67	6.1	6.9	1760	882
	MSMD082 □□ 4N		1/25	635	120	180	50.7	152	1.52	1.62	6.1	6.9	2650	1320
	MHMD02 🗆 🗆 1N		1/5	170	600	1000	2.65	8.04	0.538	0.568	1.68	2.12	490	245
	MHMD02 🗆 🗆 2N	200	1/9	132	333	555	3.72	11.3	0.688	0.718	2.66	3.1	1180	588
	MHMD02 🗆 🗆 3N	200	1/15	132	200	333	6.27	18.8	0.72	0.75	3.06	3.5	1470	735
₹	MHMD02 🗆 🗆 4N		1/25	140	120	200	11.1	33.3	0.708	0.738	3.06	3.5	1670	833
MHMD	MHMD04 🗆 🗆 1N		1/5	340	600	1000	5.39	16.2	1.033	1.063	3.1	3.5	980	490
	MHMD04 🗆 🗆 2N	400	1/9	332	333	555	9.51	28.5	0.938	0.968	3.1	3.5	1180	588
gh i	MHMD04 🗆 🗆 3N	+00	1/15	332	200	333	15.8	47.5	0.97	1.0	3.5	3.9	1470	735
High inertia	MHMD04 🗆 🗆 4N		1/25	332	120	200	26.4	79.2	0.97	1.0	4.6	5.0	2060	1030
tia	MHMD082 🗆 🗆 1N		1/5	672	600	900	10.7	32.1	2.223	2.323	4.6	5.4	980	490
	MHMD082 🗆 🗆 2N	750	1/9	635	333	500	18.2	54.7	2.16	2.26	5.9	6.7	1470	735
	MHMD082 □□ 3N	, 50	1/15	635	200	300	30.4	91.2	2.21	2.31	6.3	7.1	1760	882
	MHMD082 🗆 🗆 4N		1/25	635	120	180	50.7	152	2.16	2.26	6.3	7.1	2650	1320

 $^{^{\}star}$ Motor specifications enter to $\square\square\square$ of the motor model number. Refer to "Model designation".

MSME series (100 W to 750 W)

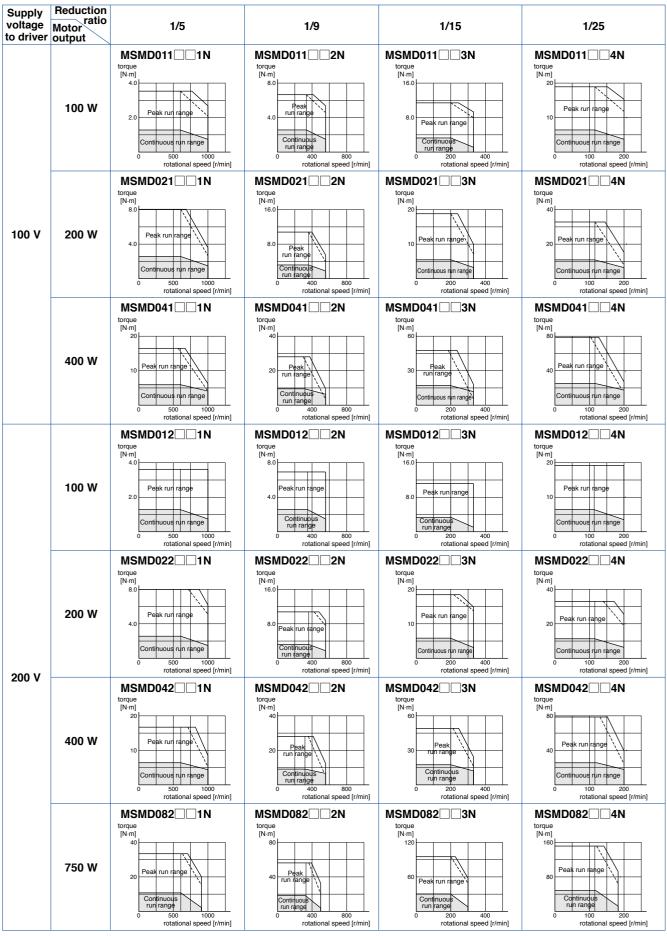
Torque Characteristics of Motor



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

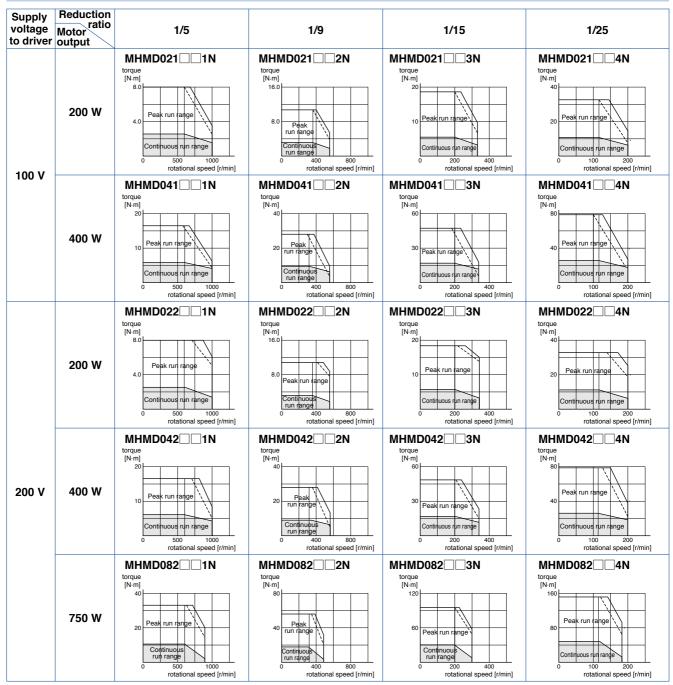
Torque Characteristics of Motor

MSMD series (100 W to 750 W)



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

MHMD series (200 W to 750 W)

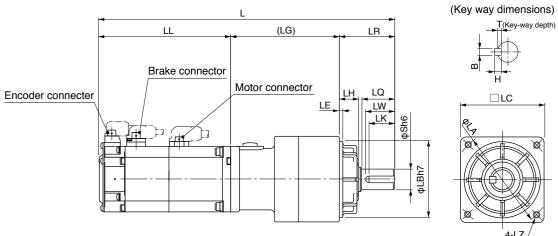


Dotted line represents the torque at 10 % less supply voltage.

Dimensions of Motor

MSME series

[Unit: mm]



*	The	figure	represents	the	dimensions	with	brake
	1116	IIquie	represents	uie	UIIIIEIISIUIS	VVILII	DIAN

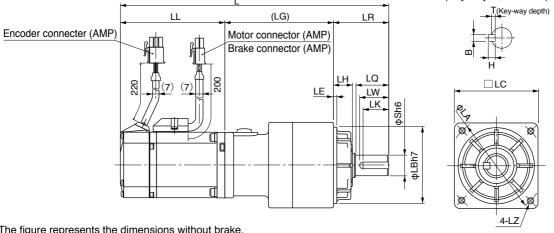
Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	s	LH	LZ	LW	(LG)	LE	Key way B×H×LK	Т			
MSME01		1/5	191.5	92						12										
			221.5	122										67.5						
MSME01 = 2N		1/9	191.5	92	32	20	52	50	60		10	M5 Depth	18			4×4×16	2.5			
	100		221.5	122								12								
MSME01		1/15	202	92 122										78						
			234	92								M6								
MSME01		1/25	264	122	50	30	78	70	90	19	17	Depth 20	26	92		6×6×22	3.5			
			184	79.5								M5								
MSME02 1N		1/5	220.5	116	32	2 20	52	50	60	12	10	Depth 12	18	72.5		4×4×16	2.5			
MONTOO		4 /0	219	79.5										00.5	2					
MSME02 2N	200	1/9	255.5	116										89.5	3					
MSME02 3N	200		200	200	1/15	229.5	79.5											1		
WSWE02SN		1/13	266	116										100						
MSME02			1/25	229.5	79.5										100					
		20	266	116	50	30	78	70	90	19	17	M6 Depth	26			6×6×22	3.5			
MSME04□□□1N	_	1/5	238.5	99								20		89.5						
			275	135.5																
MSME04□□□2N		1/9	238.5 275	99 135.5																
	400		249	99																
MSME04□□□3N		1/15	285.5	135.5										100						
			264	99								M8								
MSME04 U 4N		1/25	300.5	135.5	61	40	98	90	115	24	18	Depth 20	35	104	5	8×7×30	4			
			255.7	112.2								M6			_					
MSME082□□1N		1/5	291.7	148.2	50	30	78	70	90	19	17	Depth 20	26	93.5	3	6×6×22	3.5			
MCME000 CON		4 /0	270.7	112.2										07.5						
MSME082□□2N	750	1/9	306.7	148.2										97.5						
MSME082 3N	730	1/15	283.2	112.2	61	40	98	an	115	24	18	M8 Depth	35		5	8×7×30	4			
MSME082□□3N MSME082□□4N		1/10	319.2	148.2	01	40	90	90	110	15 24	24 18	Depth 20	J	110	J	0.7.830				
		1/25	283.2	112.2										110						
		.,,20	319.2	148.2																

Upper column: without brake Lower column: with brake

[Unit: mm]

MSMD series

(Key way dimensions)



^{*} The figure represents the dimensions without brake.

Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	s	LH	LZ	LW	(LG)	LE	Key way B×H×LK	Т				
MSMD01□□□1N		1/5	191.5	92						12	10										
IIIOIIIDOT		170	221.5	122										67.5							
MSMD01 2N		1/9	191.5	92	32	20	52	50	60			M5 Depth 12	18	07.0		4×4×16	2.5				
	100		221.5	122						. –											
MSMD01 = 3N		1/15	202	92										78							
			232	122								140									
MSMD01 = 4N		1/25	234	92	50	30	78	70	90	19	17	M6 Depth	26	92		6×6×22	3.5				
			264	122								20									
MSMD02 1N		1/5	184	79.5	32	20	52	50	60	12	10	M5 Depth	18	72.5		4×4×16	2.5				
		_	220.5	116								12				_					
MSMD02 2N	200	1/9	219	79.5										89.5	3						
		200	200	200	200	200	200	255.5	116												
MSMD02□□□3N		1/15	229.5	79.5																	
			266	116										100							
MSMD02		1	1/25	229.5	79.5																
			266	116	50	30	78	70	90	19	17	M6 Depth	26			6×6×22	3.5				
MSMD04			1/5	238.5	99								20								
			275	135.5										89.5							
MSMD04□□□2N		1/9	238.5	99																	
	400		275	135.5																	
MSMD04□□□3N		1/15	249	99										100							
			285.5	135.5								M8									
MSMD04□□□4N		1/25	264	99	61	40	98	90	115	24	18	Depth	35	104	5	8×7×30	4				
			300.5	135.5								20 M6									
MSMD082□□1N		1/5	255.7	112.2	50	30	78	70	90	19	17	Depth	26	93.5	3	6×6×22	3.5				
			292.7	149.2								20									
MSMD082□□2N		1/9	270.7	112.2										97.5							
	750		307.7	149.2								Mg					4				
MSMD082□□3N		1/15	283.2	112.2	61	40	98	90	115	24	18	M8 Depth 20	35		5	8×7×30					
			320.2	149.2										110							
MSMD082□□4N		1/25	283.2	112.2									11								
			320.2	149.2																	

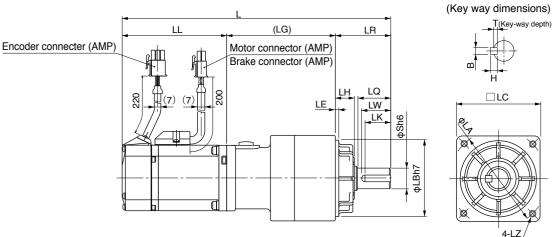
Upper column: without brake

Lower column: with brake

Dimensions of Motor

MHMD series

[Unit: mm]



* The figure r	represents the	dimensions	without brake
----------------	----------------	------------	---------------

Model	Motor output (W)	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	S	LH	LZ	LW	(LG)	LE	Key way B×H×LK	Т
MUMDOOFFIAN			203.5	99					60	12	10	M5					
MHMD02 1N		1/5	240	135.5	32	20	52	50				Depth 12	18	72.5		4×4×16	2.5
MHMD02		1/9	238.5	99										89.5			
	200	1/8	275	135.5										69.5			
MHMD02		1/15	249	99													
WII IIWIDOZ SIN		1/13	285.5	135.5										100			
MHMD02		1/25	249	99										100	3		
		0	285.5	135.5	50	30	78	70	90	19	17	M6 Depth	26			6×6×22	3.5
MHMD04□□□1N		1/5	258	118.5								20					
			294.5	155										89.5			
MHMD04□□□2N	400	1/9	258	118.5													
			294.5	155													
MHMD04□□□3N		1/15	268.5	118.5										100			
			305 283.5	155 118.5		40				5 24	18	M8 Depth				-	
MHMD04□□□4N		1/25			61		98	90	0 115				35	104	5	8×7×30	4
			320	155								20					
MHMD082□□1N		1/5	270.7	127.2	50	30	78	70	90	19	17	M6 Depth	26	93.5	3	6×6×22	3.5
			307.7	164.2								20					
MHMD082□□2N		1/9	285.7	127.2										97.5			
MHMD082 3N	750	170	322.7	164.2										07.0			
		1/15	298.2	127.2	61	40	98	90	115	24	18	M8 Depth	35		5	8×7×30	4
			335.2	164.2						15 24	10	20		110	-		4
MHMD082□□4N		1/25	298.2	127.2										110			
			335.2	164.2													

Upper column: without brake

Lower column: with brake

MEMO

Features

- Line-up IP65 motor: 200 W to 5.0 kW
- Max speed: 5000 r/min (MSMJ, MHMJ)
- · Low inertia (MSME) to High inertia (MHME).
- 20-bit incremental encoder (1048576 pulse)
- 17-bit absolute encoder (131072 pulse).

[Please note]

Motors displayed at P.151 to P.181 are Special Order Product. Please contact us for more information.

Motor Lineup

Small capacity

Middle capacity



Low inertia

Max. speed : 5000 r/min

: 4500 r/min (750 W)

Rated speed: 3000 r/min Rated output: 200 W to 750 W

Enclosure : IP65



High inertia

Max. speed : 5000 r/min

: 4500 r/min (750 W)

Rated speed: 3000 r/min Rated output: 200 W to 750 W

Enclosure : IP65



MGME (200 V)

MSMJ (200 V)

MSME (200 V)

MDME (200 V)

0.9 kW to 3.0 kW P.170

Special Order Product **Motor Contents**

200 W to 750 W P.155

1.0 kW to 5.0 kW P.158

1.0 kW to 5.0 kW P.164

MHMJ (200 V)

200 W to 750 W P.173

MHME (200 V)

1.0 kW to 5.0 kW P.176



Low inertia

Max. speed : 5000 r/min

: 4500 r/min

(from 4.0 kW)

Rated speed: 3000 r/min Rated output: 1.0 kW to 5.0 kW

Enclosure : IP65



Middle inertia

Max. speed : 3000 r/min Rated speed: 2000 r/min

Rated output: IP65 1.0 kW to 5.0 kW

Enclosure : IP65



MGMF

(Low speed/ High torque type) High inertia

Max. speed : 2000 r/min Rated speed: 1000 r/min

Rated output: IP65 0.9 kW to 3.0 kW

Enclosure



MHMF High inertia

Max. speed : 3000 r/min Rated speed: 2000 r/min

Rated output: IP65 1.0 kW to 5.0 kW

Enclosure : IP65

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

Special specifications

Special specifications

M: Special Order Product

MSME, MDME, MGME, MHME

MSMJ, MHMJ

Servo Motor

Symbol Type MSMJ Low inertia (200 W to 750 W) MSME Low inertia (1.0 kW to 5.0 kW) MDME Middle inertia (1.0 kW to 5.0 kW) MGME High inertia (0.9 kW to 3.0 kW) MHMJ High inertia (200 W to 750 W) MHME High inertia (1.0 kW to 5.0 kW)

Motor rated output

Symbol	Rated output
02	200 W
04	400 W
80	750 W
09	0.9 kW
10	1.0 kW
15	1.5 kW
20	2.0 kW
30	3.0 kW
40	4.0 kW
50	5.0 kW

Voltage specifications

 M S M E 5 0 2 G C C M *

2: 200 V

Rotary encoder specifications

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

^{*} S: can be used in incremental.

<Cautions>

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

Motor specifications

MSMJ, MHMJ

	Sh	aft	Holding	g brake	Oil seal		
Symbol	Round	Key-way, center tap	without	with	without	with	
Α	•		•		•		
В	•			•	•		
С	•		•			•	
D	•			•		•	
S		•	•		•		
Т		•		•	•		
U		•	•			•	
V		•		•		•	

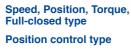
MSME, MDME, MGME, MHME

Symbol	Sh	aft	Holding	g brake	Oil seal		
Symbol	Round	Key-way	without	with	without	with	
С	•		•			•	
D	•			•		•	
G		•	•			•	
Н		•		•		•	

Design order

Symbol	Specifications
С	IP65 motor (MSME, MDME, MGME, MHME)
1	IP65 motor (MSMJ, MHMJ)

Servo Driver



МА

D K T 1

0 5 3 0 5 E

* * * *

Special specifications

Special specifications

Only position control

Frame symbol *

Symbol	Frame
MAD	Frame A
MBD	Frame B
MCD	Frame C
MDD	Frame D
MED	Frame E
MFD	Frame F

Series

Symbol	Velocity, Position, Torque, Full-Closed type	Position control type
K	A5 II series	A5 II E series

Supply voltage specifications

Symbol	Specifications
3	3-phase, 200 V
5	Single/3-phase, 200 V

- Power device Max. current rating

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

Current detector current rating

Specifications
7.5 A
10 A
20 A
30 A
40 A
64 A
90 A
120 A

Special Order Product 0.2 kW to 5.0 kW

Table of Part Numbers and Options: 0.2 kW to 5.0 kW

		Motor Driver						Power				
					,	A5II series	A5IIE series		capacity	Encode	r Cable	
ı	Motor series	Power supply	Output (W)	Part No. Note) 1	Snec Speed, Position,\ /Position control\ F		Frame	(at rated load (kVA)	20-bit Incremental Note) 3	17-bit Absolute Note) 2,3		
	MSMJ (Leadwire type) 3000 r/min		200	MSMJ022 □ 1 *	155	MADKT1507	MADKT1507E	A-frame	1	MFECA	MFECA	
		Single	400	MSMJ042 □ 1 *	156	MBDKT2510	MBDKT2510E	B-frame	Approx. 0.9	0**0EAM	0**0EAE Note) 4	
		phase/ 3-phase	750	MSMJ082 □ 1 *	157	MCDKT3520	MCDKT3520E	C-frame	Approx. 1.3			
Low		200 V	1000	MSME102 □ C * M	158	MDDKT5540	MDDKT5540E	D-frame	Approx. 1.8	1.8		
Low inertia			1500	MSME152 □ C * M	159	MDDKT5540	MDDKT5540E	D mano	Approx. 2.3			
-	MSME 3000 r/min		2000	MSME202 ☐ C * M	160	MEDKT7364	MEDKT7364E	E-frame	Approx. 3.3			
	0000 1/1111111	3-phase	3000	MSME302 ☐ C * M	161	MFDKTA390	MFDKTA390E		Approx. 4.5			
		200 V	4000	MSME402 □ C * M	162	MFDKTB3A2	MFDKTB3A2E	F-frame	Approx. 6			
			5000	MSME502 ☐ C * M	163	MFDKTB3A2	MFDKTB3A2E		Approx. 7.5			
	MDME 2000 r/min	Single phase/ 3-phase 200 V	1000	MDME102 □ C * M	164	MDDKT3530	MDDKT3530E	Approx. 1.8	8			
Middle			1500	MDME152 □ C * M	165	MDDKT5540	MDDKT5540E	2	Approx. 2.3	MFECA 0**0ESD	MFECA 0**0ESE	
lle in		3-phase 200 V	2000	MDME202 □ C * M	166	MEDKT7364	MEDKT7364E	E-frame	Approx. 4.5			
inertia			3000	MDME302 □ C * M	167	MFDKTA390	MFDKTA390E					
			4000	MDME402 □ C * M	168	MFDKTB3A2	MFDKTB3A2E	F-frame	Approx. 6			
			5000	MDME502 ☐ C * M	169	MFDKTB3A2	MFDKTB3A2E		Approx. 7.5			
	MGME /I ow speed/\ 3	Single phase/ 3-phase 200 V	900	MGME092 □ C * M	170	MDDKT5540	MDDKT5540E	D-frame	Approx. 1.8			
	type /	3-phase	2000	MGME202 □ C * M	171	MFDKTA390	MFDKTA390E	F-frame	Approx. 3.8			
	1000 r/min	min 200 V	3000	MGME302 □ C * M	172	MFDKTB3A2	MFDKTB3A2E	1 -liaille	Approx. 4.5			
	MHMJ /Leadwire\		200	MHMJ022 □ 1 *	173	MADKT1507	MADKT1507E	A-frame	Approx. 0.5	MFECA	MFECA	
Η̈́C	(type)	Single	400	MHMJ042 □ 1 *	174	MBDKT2510	MBDKT2510E	B-frame	Approx. 0.9	0**0EAM	0**0EAE Note) 4	
High inertia	3000 1/111111	phase/ 3-phase	750	MHMJ082 ☐ 1 *	175	MCDKT3520	MCDKT3520E	C-frame	Approx. 1.3		Note) 4	
ertia		200 V	1000	MHME102 □ C * M	176	MDDKT3530	MDDKT3530E	D-frame	Approx. 1.8			
			1500	MHME152 □ C * M	177	MDDKT5540	MDDKT5540E	D-irame	Approx. 2.3			
	MHME 2000 r/min		2000	MHME202 □ C * M	178	MEDKT7364	MEDKT7364E	E-frame	Approx. 3.3	MFECA 0**0ESD	MFECA 0**0ESE	
	2000 1/111111	3-phase	3000	MHME302 □ C * M	179	MFDKTA390	MFDKTA390E		Approx. 4.5			
		200 V	4000	MHME402 □ C * M	180	MFDKTB3A2	MFDKTB3A2E	F-frame	Approx. 6			
			5000	MHME502 □ C * M	181	MFDKTB3A2	MFDKTB3A2E		Approx. 7.5			

Note) 1 Rotary encoder specifications: ☐ Motor specification: * (refer to P.152)

Note) 2 Because A5IE series drivers (dedicated for position control) do not support the 17-bit absolute specification, only 20-bit incremental type can be used in combination.

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

Note) 4 When you use a 17-bit absolute encoder as an incremental encoder, please use the encoder cable MFECA0**0EAD.

Note) 5 Other combinations exist, and refer to P.210 for details.

Note) 6 Reactor should be prepared by the user.

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

	Option	nal parts					
	Motor	Cable	Brake Cable	External	_		
	without Brake Note) 3	with Brake Note) 3	Note) 3	Regenerative Resistor	Reactor Single phase 3-phase	Noise Filter Single phase 3-phase	
	MFMCA 0**0EED	-	MFMCB 0**0GET	DV0P4283	DV0P227 DV0P220 DV0P228	DV0P4170 DV0PM20042	
					DV0P220	DV0PM20042	
	MFMCD 0**2ECD	MFMCA 0**2FCD		DV0P4284	DV0P228 DV0P222 DV0PM20047 DV0P222	DV0P4220	
			_	DV0P4285 Note) 5	DV0P223	DV0PM20043	
				11010)	DV0P224		
	MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P225	DV0P3410	
	U SECT	0 3501		xz III parallei	 Note) 6 DV0P228		
	MFMCD 0**2ECD	-	_	DV0P4284	DV0P222 DV0PM20047 DV0P222	DV0P4220	
				DV0P4285 Note) 5	DV0P223	DV0PM20043	
	MFMCA 0**3ECT			DV0P4285 ×2 in parallel	DV0P224		
					DV0P225	DV0P3410	
					_ Note) 6		
	MFMCD 0**2ECD	MFMCA **2FCD		DV0P4284	DV0P228 DV0P221	DV0P4220	
	MFMCA	MFMCA		DV0P4285	DV0P223	DV0D0440	
	0**3ECT	0**3FCT		×2 in parallel	DV0P224	DV0P3410	
					DV0P227	DV0P4170	
	MFMCA 0**0EED	_	MFMCB 0**0GET	DV0P4283	DV0P220 DV0P228	DV0PM20042	
					DV0P220	DV0PM20042	
	MFMCD 0**2ECD	MFMCA 0**2FCD		DV0P4284	DV0P228 DV0P222 DV0PM20047 DV0P222	DV0P4220	
	MFMCE 0**2ECD	MFMCE 0**2FCD	_	DV0P4285 Note) 5	DV0P223	DV0PM20043	
					DV0P224		
	MFMCA 0**3ECT	MFMCA 0**3FCT		DV0P4285 ×2 in parallel	DV0P225	DV0P3410	
					Note) 6		

• Options

	Title		Part No.	Pag	
Interface Cable			DV0P4360		
			DV0P4120		
			DV0P4121		
Interface Conve	rsion Cab	le	DV0P4130	19	
			DV0P4131		
			DV0P4132	1	
Connector Kit	A-frame	Single row type	DV0PM20032		
for Power Supply Input	to D-frame	Double row type	DV0PM20033	20	
Connection	E-frame	,	DV0PM20044		
Connector Kit	A-frame	to D-frame	DV0PM20034		
for Motor	E-frame		DV0PM20046		
Connection Connector Kit for Regenerative			DV0PM20046	20	
Resistor	L-liane			00	
			DV0P4290	20	
			DV0P4310	20	
Connector Kit fo		_	DV0P4320		
Motor/Encoder (OIIDECTIO	11	DV0P4330	20	
			DV0P4340		
			DV0P4380	20	
	RS485, I	RS232	DV0PM20024		
	Safety		DV0PM20025	198	
	Interface	1	DV0P4350		
Connector Kit	External	Scale	DV0PM20026		
	Encoder		DV0PM20010	19	
	Analog Monitor Signal		DV0PM20031	- 100	
Battery For Abso	_		DV0P2990		
	Jule Elicodei			207	
Battery Box	A fuerre		DV0P4430	\vdash	
	A-frame		DV0PM20027	208	
Mounting	B-frame		DV0PM20028		
Bracket	C-frame		DV0PM20029		
	D-frame		DV0PM20030		
			MFECA0**0EAD	18	
	without Battery Box		MFECA0**0EAM	10	
Encoder Cable			MFECA0**0ESD	18	
			MFECA0**0EAE	18	
	with Batt	ery Box	MFECA0**0ESE	19	
			MFMCA0**0EED	19	
			MFMCD0**2ECD	192	
	without E	Brake	MFMCE0**2ECD		
Motor Cable			MFMCA0**3ECT	19	
				_	
	with Bral	ке	MFMCA0**2FCD	19	
.			MFMCA0**3FCT	19	
Brake Cable	ı		MFMCB0**0GET	19	
	A-frame				
F. dames!	B-frame		DV0P4283		
External Regenerative	C-frame			21	
Resistor	D-frame		DV0P4284	۱۱ک	
 -	E-frame		DV0D4005		
	F-frame		DV0P4285		
Reactor	DV0P22	0, DV0P221, 3, DV0P224, 7 DV0P228		20	
	DV0P41	70, DV0PM2	0042	25	
Naisa Eiu	DV0P4220, DV0PM2		00-10	O.E.	
Noise Filter	DV0P3410			25	
Noise Filter		-	DV0D 1100		
Noise Filter Surge Absorber	Single pl	-	DV0P4190	25	
	Single pl 3-phase	nase	DV0P4190 DV0P1450 DV0P1460	25 25	

Motor Specifications

Special Order Product

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

Please contact us for more information.

Specifications

			AC2	00 V		
Motor model		IP65		MSMJ022G1□	MSMJ022S1□	
Motor model		IP67		-	-	
Amaliaabla	Model	A5II series	i	MADK	T1507	
Applicable *2	No.	A5IIE seri	es	MADKT1507E	_	
diver	Fr	ame syml	ool	A-fra	ame	
Power supply	capacit	y	(kVA)	0.	.5	
Rated output			(W)	20	00	
Rated torque			(N·m)	0.	64	
Momentary Ma	ax. peal	k torque	(N·m)	1.91		
Rated current		(/	A(rms))	1.6		
Max. current		(A(o-p))	6.9		
Regenerative b	nerative brake		option	No limit Note)2		
frequency (times/r	min) Note)1	DV0P4	DV0P4283 No limit Note)2		t Note)2	
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	5000		
Moment of ine	rtia	Without	brake	0.14		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m ²) With br		rake	0.	16	
	Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less		
Rotary encode	er speci	fications	Note)5	20-bit Incremental	17-bit Absolute	
R	esolutio	n per singl	e turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

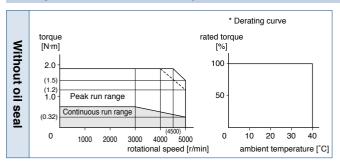
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

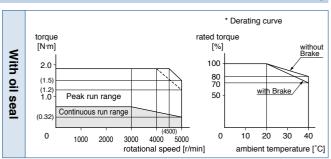
• Permissible load (For details, refer to P.183)

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

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

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





Dimensions

Mass: Without brake/ 0.82 kg
With brake/ 1.3 kg

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

1 Use hexagon socket head screw for installation.

4-04.5'1 60

Key way, center tap shaft>

* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

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

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

Specifications

			AC2	00 V		
Motor model	IP65		MSMJ042G1□	MSMJ042S1□		
Wotor model *1		IP67	_	_		
Amaliaabla	Model	A5II series	MBDK	T2510		
Applicable *2	No.	A5IIE series	MBDKT2510E	_		
diver	Fr	ame symbol	B-fr	ame		
Power supply	capacit	y (kVA)	0	.9		
Rated output		(W)	4	00		
Rated torque		(N·m)	1	.3		
Momentary Ma	ax. peal	k torque (N·m)	3	.8		
Rated current		(A(rms))	2	2.6		
Max. current		(A(o-p))	11.0			
Regenerative b	rake	Without option	No lim	No limit Note)2		
frequency (times/r	min) Note)1	DV0P4283	No lim	No limit Note)2		
Rated rotation	al spee	d (r/min)	3000			
Max. rotationa	l speed	(r/min)	50	5000		
Moment of ine	rtia	Without brake	0.	26		
of rotor (×10 ⁻⁴	kg·m²)	With brake	0.	28		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 time	s or less		
Rotary encode	Rotary encoder specifications Note)5			17-bit Absolute		
R	esolutio	n per single turn	1048576	131072		

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

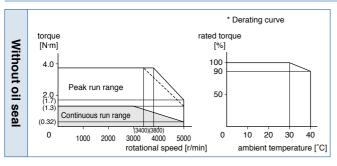
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

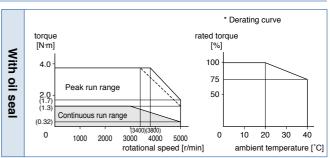
• Permissible load (For details, refer to P.183)

	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147
assembly	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





Dimensions

Mass: Without brake/ 1.2 kg With brake/ 1.7 kg <IP65> 30 (a) Encoder connector 3 (b) Brake connector (c) Motor connector Use hexagon socket he screw for installation. 4-ø4.5* □60 <Key way, center tap shaft> 43

* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Special Order Product

Motor Specifications

200 V MSMJ 750 W [Low inertia, Small capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
Matayanadal	IP65		MSMJ082G1□	MSMJ082S1□	
Motor model		IP67		-	-
Amaliaahla	Model	A5II serie	s	MCDKT3520	
Applicable *2	No.	A5IE series		MCDKT3520E	_
diver	Fr	ame sym	bol	C-fra	ame
Power supply	capacit	y	(kVA)	1.	.3
Rated output			(W)	75	50
Rated torque			(N·m)	2.	.4
Momentary Ma	ax. peal	k torque	(N·m)	7.1	
Rated current		(A(rms))	4.0	
Max. current			(A(o-p))	17.0	
Regenerative b	Regenerative brake Without option		No limit Note)2		
frequency (times/i	min) Note)1	DV0P	4283	No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	4500	
Moment of ine	rtia	Without	t brake	0.87	
of rotor (×10 ⁻⁴	kg·m²)	With b	orake	0.97	
Recommended moment of inertia ratio of the load and the rotor Note)3		20 times or less			
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		le turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

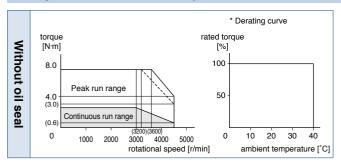
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

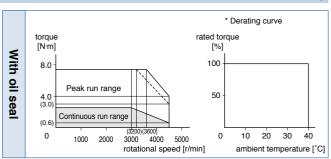
• Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	686
	Thrust load A-direction (N)	294
	Thrust load B-direction (N)	392
	Radial load P-direction (N)	392
	Thrust load A, B-direction (N)	147

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





Dimensions

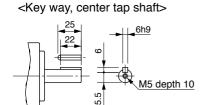
<IP65>

- (a) Encoder connector
- (b) Brake connector
- (c) Motor connector

*1 Use hexagon socket head screw for installation.

4-ø6*1 □ 80

Mass: Without brake/ 2.3 kg With brake/ 3.1 kg



* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Please contact us for more information.

200 V MSME 1.0 kW [Low inertia, Middle capacity]

Specifications

			AC2	00 V
		IP65	MSME102GC□M	MSME102SC□M
Motor model		IP67	_	_
A	Model	A5II series	MDDK	T5540
Applicable *2	No.	A5IE series	MDDKT5540E	-
divei	Fr	ame symbol	D-fr	ame
Power supply	capacit	y (kVA)	1.	.8
Rated output		(W)	10	00
Rated torque		(N·m)	3.	18
Momentary M	ax. peal	k torque (N·m)	9.55	
Rated current		(A(rms))	6.6	
Max. current (A(o-p))		2	28	
Regenerative b	orake	Without option	No limit Note)2	
frequency (times/	min) Note)1	DV0P4284	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	ıl speed	(r/min)	5000	
Moment of ine	ertia	Without brake	2.03	
of rotor (×10 ⁻⁴	kg·m²)	With brake	2.35	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less		
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn		n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

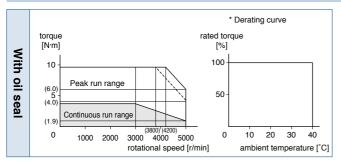
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

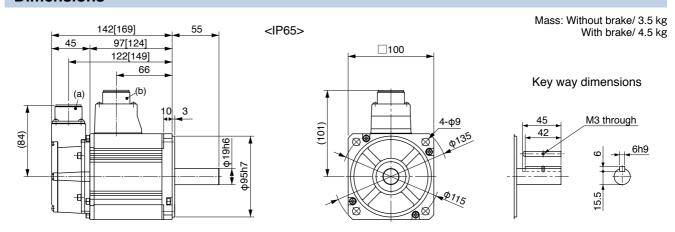
During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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.

Special Order Product

Motor Specifications

200 V MSME 1.5 kW [Low inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	200 V	
N4-4		IP65	MSME152GC□M	MSME152SC□M	
Motor model		IP67	-	_	
Amaliaabla	Model	A5II series	MDDKT5540		
Applicable *2	No.	A5IIE series	MDDKT5540E	_	
diver	Fr	ame symbol	D-fr	ame	
Power supply	capacit	y (kVA	2	3	
Rated output		(W	15	500	
Rated torque		(N·m	4.	77	
Momentary Ma	ax. peal	k torque (N·m	14.3		
Rated current		(A(rms)	8.2		
Max. current		(A(o-p)	3	35	
Regenerative b	rake	Without option	No lim	No limit Note)2	
frequency (times/r	min) Note)1	DV0P4284	No limit Note)2		
Rated rotation	al spee	d (r/min	3000		
Max. rotationa	l speed	(r/min	5000		
Moment of ine	rtia	Without brake	2.84		
of rotor (×10 ⁻⁴	kg·m²)	With brake	3.17		
Recommended moment of inertia ratio of the load and the rotor Note)3		15 time	s or less		
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute		
R	Resolution per single turn		1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

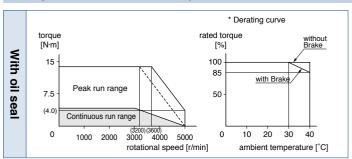
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

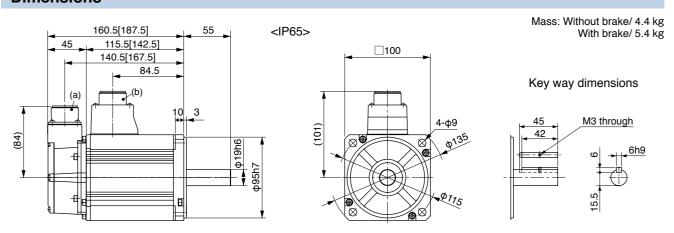
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

200 V MSME 2.0 kW [Low inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
Matawasadal	IP65		MSME202GC□M	MSME202SC□M	
Motor model		IP67		-	_
A	Model	A5II serie	s	MEDKT7364	
Applicable *2	No.	A5IIE series		MEDKT7364E	_
diver	Fı	ame sym	ıbol	E-fra	ame
Power supply	capacit	y	(kVA)	3.	.3
Rated output			(W)	20	00
Rated torque			(N·m)	6.:	37
Momentary Ma	ax. pea	k torque	(N·m)	19.1	
Rated current		((A(rms))	11.3	
Max. current			(A(o-p))	48	
Regenerative b	Regenerative brake Wit		option	No limi	it Note)2
frequency (times/	min) Note)1	DV0P4285		No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	5000	
Moment of ine	rtia	Withou	t brake	3.68	
of rotor (×10 ⁻⁴	kg·m²)	With I	orake	4.01	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times or less			
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	esolutio	n per sing	gle turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

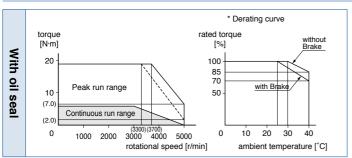
Static friction torque (N·m)	7.8 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

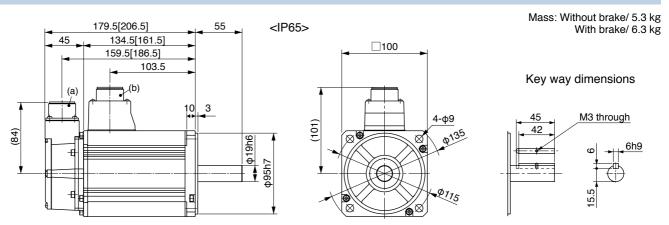
During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.44.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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

Special Order Product

200 V MSME 3.0 kW [Low inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	00 V
Motor model	IP65		MSME302GC□M	MSME302SC□M
Wotor model *1		IP67	_	-
Amaliaabla	Model	A5II series	MFDK	TA390
Applicable *2	No.	A5IE series	MFDKTA390E	_
diver	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	4.	.5
Rated output		(W)	30	00
Rated torque		(N·m)	9.	55
Momentary Ma	ax. peal	k torque (N·m)	28.6	
Rated current		(A(rms))	18.1	
Max. current		(A(o-p))	77	
Regenerative b	Regenerative brake		No limit Note)2	
frequency (times/r	min) Note)1	DV0P4285×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	l speed	(r/min)	5000	
Moment of ine	rtia	Without brake	6.50	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		7.85	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

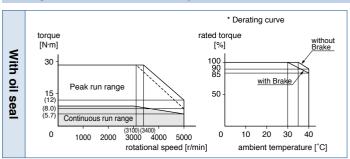
Static friction torque (N·m)	11.8 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

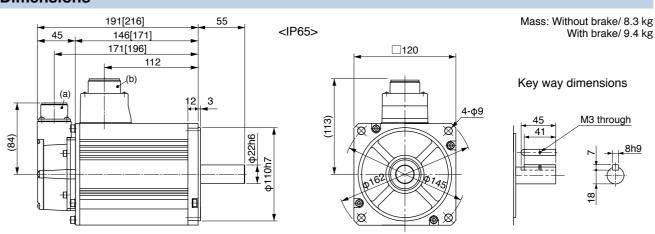
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Redu

Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Please contact us for more information.

200 V MSME 4.0 kW [Low inertia, Middle capacity]

Specifications

			AC2	00 V
		IP65	MSME402GC□M	MSME402SC□M
Motor mode) 1	IP67	_	-
A I! In I .	Model	A5II series	MFDK	TB3A2
Applicable driver *	No.	A5IIE series	MFDKTB3A2E	-
dilvei	F	rame symbol	F-fra	ame
Power supp	ly capacit	y (kVA)	6	.0
Rated outpo	ut	(W)	40	00
Rated torqu	ie	(N·m)	12	2.7
Momentary	Max. pea	k torque (N·m)	38.2	
Rated curre	nt	(A(rms))	19.6	
Max. current (A(o-p))		8	3	
Regenerative brake V		Without option	No limit Note)2	
frequency (tim	nes/min) Note)1	DV0P4285×2	No limit Note)2	
Rated rotati	onal spee	d (r/min)	3000	
Max. rotation	nal speed	(r/min)	4500	
Moment of	inertia	Without brake	12.9	
of rotor (×10 ⁻⁴ kg·m ²)		With brake	14.2	
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less	
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn		n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

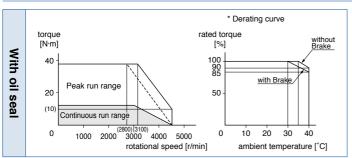
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

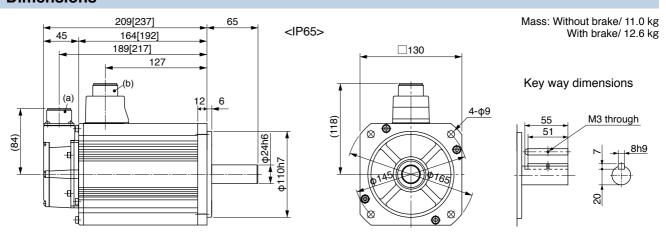
	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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.

Special Order Product

Motor Specifications

200 V MSME 5.0 kW [Low inertia, Middle capacity]

Please contact us for more information.

Specifications

		AC2	00 V	
Motor model	IP65		MSME502GC□M	MSME502SC□M
Wotor model *1		IP67	_	_
Amaliaabla	Model	A5I series	MFDK	TB3A2
Applicable *2	No.	A5IE series	MFDKTB3A2E	_
diver	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	7.	.5
Rated output		(W)	50	00
Rated torque		(N·m)	15	5.9
Momentary Ma	ax. peal	c torque (N·m)	47.7	
Rated current		(A(rms))	24.0	
Max. current		(A(o-p))	102	
Regenerative b	rake	Without option	357	
frequency (times/r	min) Note)1	DV0P4285×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	3000	
Max. rotationa	l speed	(r/min)	4500	
Moment of ine	rtia	Without brake	17.4	
of rotor (×10 ⁻⁴	kg·m²)	With brake	18	3.6
Recommended moment of inertia ratio of the load and the rotor Note)3		15 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
Resolution per single turn		n per single turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

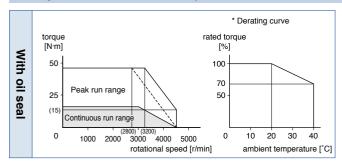
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

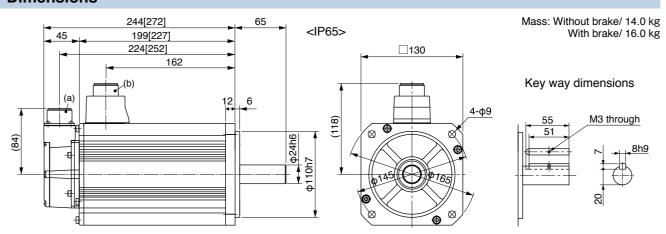
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

200 V MDME 1.0 kW [Middle inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
Mataumandal	IP65		MDME102GC□M	MDME102SC□M	
Motor model		IP67	_	_	
A madia abla	Model	A5II series	MDDK	T3530	
Applicable *2	No.	A5IIE series	MDDKT3530E	_	
diver	Fr	ame symbol	D-fr	ame	
Power supply	capacit	y (kVA	1	.8	
Rated output		(W	10	00	
Rated torque		(N·m	4.	77	
Momentary Ma	ax. peal	k torque (N·m	14	14.3	
Rated current		(A(rms)	5.7		
Max. current		(A(o-p)	2	24	
Regenerative b	rake	Without option	No limit Note)2		
frequency (times/r	min) Note)1	DV0P4284 No limit		t Note)2	
Rated rotation	al spee	d (r/min	2000		
Max. rotationa	l speed	(r/min	3000		
Moment of ine	rtia	Without brake	4.	60	
of rotor (×10 ⁻⁴	kg·m²)	With brake	5.90		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 time	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single tu		1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

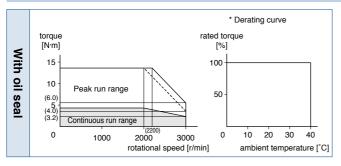
Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

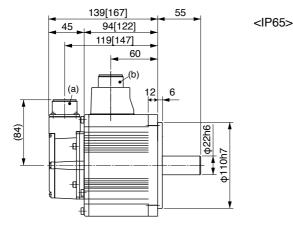
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



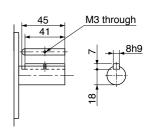
Dimensions



□130 (116)

Mass: Without brake/ 5.2 kg With brake/ 6.7 kg

Key way dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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

Special Order Product

200 V MDME 1.5 kW [Middle inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
N4-4		IP65		MDME152GC□M	MDME152SC□M
Motor model *1		IP67		-	-
Annlinghla	Model	A5II series	S	MDDK	T5540
Applicable *2	No.	A5IE series		MDDKT5540E	_
divoi	Fr	ame sym	bol	D-fr	ame
Power supply	capacity	y	(kVA)	2	.3
Rated output			(W)	15	00
Rated torque			(N·m)	7.	16
Momentary Ma	ax. peal	k torque	(N·m)	21.5	
Rated current		(.	A(rms))	9.4	
Max. current	Max. current (A(o-p))		40		
Regenerative b	rake	Without option No limit Note)2		t Note)2	
frequency (times/r	min) Note)1	DV0P4284		No limit Note)2	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia	Without	brake	6.70	
of rotor (×10 ⁻⁴	kg·m²)	With b	rake	7.99	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		le turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

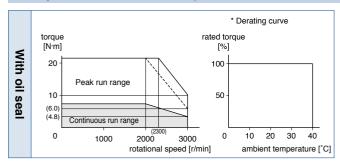
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

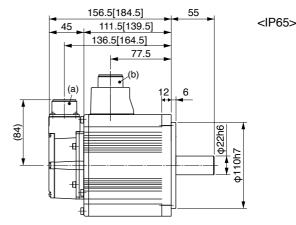
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



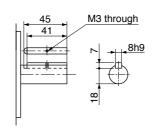
Dimensions



□130 4-φ9 (116)

Mass: Without brake/ 6.7 kg With brake/ 8.2 kg

Key way dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Please contact us for more information.

200 V MDME 2.0 kW [Middle inertia, Middle capacity]

Specifications

			AC2	00 V	
Matau madal		IP65	MDME202GC□M	MDME202SC□M	
Motor model		IP67	-	-	
A 1: 1- 1 -	Model	A5II series	MEDKT7364		
Applicable *2	No.	A5IIE series	MEDKT7364E	_	
diver	Fr	ame symbol	E-fra	ame	
Power supply	capacit	y (kVA)	3.	3	
Rated output		(W)	20	00	
Rated torque		(N·m)	9.	9.55	
Momentary M	ax. peal	k torque (N·m)	28.6		
Rated current		(A(rms))	11.5		
Max. current (A(o-p))		4	9		
Regenerative b	orake	Without option	No limit Note)2		
frequency (times/	min) Note)1	DV0P4285	No limit Note)2		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	ıl speed	(r/min)	3000		
Moment of ine	ertia	Without brake	8.72		
of rotor (×10 ⁻⁴	kg·m²)	With brake	10.0		
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less		
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute		
Resolution per single turn		1048576	131072		

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

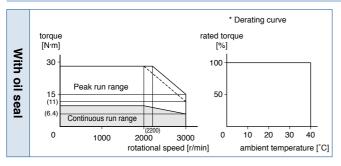
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

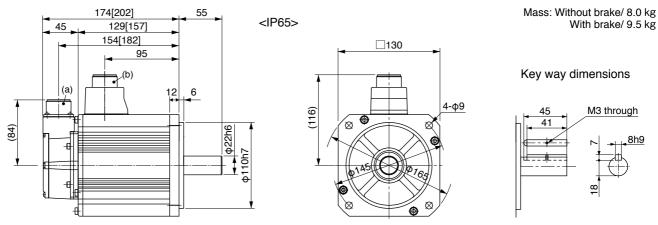
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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 2

Special Order Product

200 V MDME 3.0 kW [Middle inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
M-4		IP65	MDME302GC□M	MDME302SC□M	
Motor model		IP67	-	_	
Annlinghla	Model	A5II series	MFDK	TA390	
Applicable *2	No.	A5IIE series	MFDKTA390E	_	
diver	Fr	ame symbol	F-fr	ame	
Power supply	capacity	y (kVA	4	.5	
Rated output		(W	30	000	
Rated torque		(N·m	14	1.3	
Momentary Ma	ax. peal	k torque (N⋅m	43	43.0	
Rated current		(A(rms)	17.4		
Max. current (A(o-p))		7	74		
Regenerative b	Regenerative brake		No limit Note)2		
frequency (times/r	min) Note)1	DV0P4285×2	No limit Note)2		
Rated rotation	al spee	d (r/min	2000		
Max. rotationa	l speed	(r/min	3000		
Moment of ine	rtia	Without brake	12.9		
of rotor (×10 ⁻⁴	kg·m²)	With brake	14.2		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 time	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

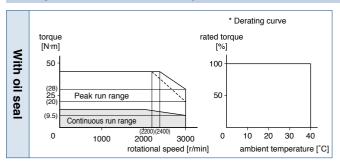
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

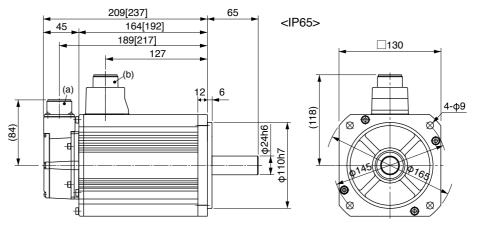
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)

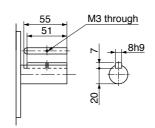


Dimensions



Mass: Without brake/ 11.0 kg With brake/ 12.6 kg

Key way dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Please contact us for more information.

A5 Family

200 V MDME 4.0 kW [Middle inertia, Middle capacity]

Specifications

			AC2	00 V	
NA-4		IP65		MDME402GC□M	MDME402SC□M
Motor mode		IP67		-	-
A !! - -	Model	A5 I series		MFDKTB3A2	
Applicable ** driver **	No.	A5IIE series		MFDKTB3A2E	-
unver	Fr	ame syml	bol	F-fra	ame
Power supp	ly capacit	y	(kVA)	6	.0
Rated outpu	t		(W)	40	00
Rated torque	Э		(N·m)	19).1
Momentary	Max. peal	k torque	(N·m)	57.3	
Rated curre	nt	()	A(rms))	21.0	
Max. curren	Max. current (A(o-p))		8	89	
Regenerative	e brake	Without option		No limit Note)2	
frequency (time	es/min) Note)1	DV0P4285×2		No limit Note)2	
Rated rotation	onal spee	d	(r/min)	2000	
Max. rotation	nal speed		(r/min)	3000	
Moment of in	nertia	Without brake		37.6	
of rotor (×10) ⁻⁴ kg·m²)	With brake		38.6	
	Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary enco	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per s		n per sing	le turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

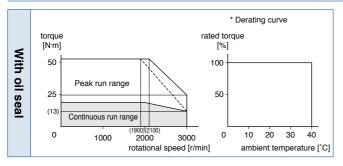
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

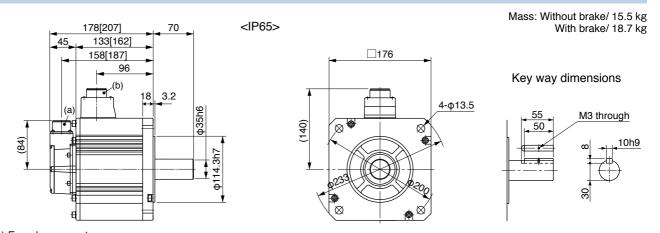
During assembly During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



(a) Encoder connector (b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

<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

Special Order Product

200 V MDME 5.0 kW [Middle inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	00 V
Matanasadal		IP65	MDME502GC□M	MDME502SC□M
Motor model		IP67	_	-
Amalianda	Model	A5II series	MFDKTB3A2	
Applicable *2	No.	A5IE series	MFDKTB3A2E	_
diver	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	7.	.5
Rated output		(W)	50	00
Rated torque		(N·m)	23	3.9
Momentary Ma	ax. peal	k torque (N·m)	71.6	
Rated current		(A(rms))	25.9	
Max. current		(A(o-p))	110	
Regenerative brake Without option		Without option	12	20
frequency (times/i	frequency (times/min) Note)1		No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	48.0	
of rotor (×10 ⁻⁴	kg·m²)	With brake	48.8	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

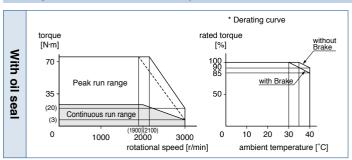
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

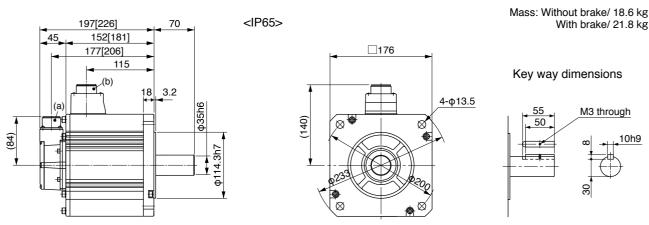
During assembly During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Please contact us for more information.

A5 Family

Specifications

			AC2	00 V	
M-4		IP65	MGME092GC□M	MGME092SC□M	
Motor model		IP67	_	-	
A li l- l -	Model	A5II series	MDDKT5540		
Applicable *2	No.	A5IE series	MDDKT5540E	_	
diver	Fr	ame symbol	D-fr	ame	
Power supply	capacit	y (kVA)	1.	.8	
Rated output		(W)	90	00	
Rated torque		(N·m)	8.8	59	
Momentary M	ax. peal	k torque (N·m)	19.3		
Rated current		(A(rms))	7.6		
Max. current	Max. current (A(o-p))		2	24	
Regenerative b	Regenerative brake Without option		No limi	t Note)2	
frequency (times/	min) Note)1	DV0P4284 No limit Note)2		t Note)2	
Rated rotation	al spee	d (r/min)	1000		
Max. rotationa	ıl speed	(r/min)	2000		
Moment of ine	ertia	Without brake	6.70		
of rotor (×10 ⁻⁴	kg·m²)	With brake	7.99		
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	esolutio	n per single turn	1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

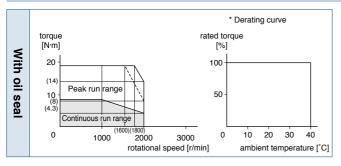
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

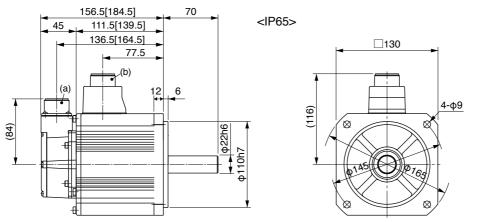
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	686
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)

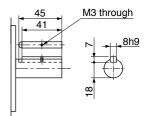


Dimensions



Mass: Without brake/ 6.7 kg With brake/ 8.2 kg

Key way dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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.

Special Order Product

Motor Specifications

200 V MGME 2.0 kW [Middle inertia, Middle capacity]

Please contact us for more information.

Specifications

		AC2	00 V	
Motor model	IP65		MGME202GC□M	MGME202SC□M
*1		IP67	_	_
Annlinghla	Model	A5I series	MFDKTA390	
Applicable *2	No.	A5IE series	MFDKTA390E	_
diver	Fr	ame symbol	F-fra	ame
Power supply	capacity	y (kVA)	3	.8
Rated output		(W)	20	00
Rated torque		(N·m)	19).1
Momentary Ma	ax. peal	c torque (N·m)	47.7	
Rated current		(A(rms))	17.0	
Max. current	Max. current (A(o-p))		60	
Regenerative brake		Without option	No limit Note)2	
frequency (times/r	min) Note)1	DV0P4285×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	1000	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	30.3	
of rotor (×10 ⁻⁴	kg·m²)	With brake	31.4	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

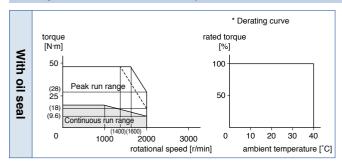
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	Radial load P-direction (N)	1176
	Thrust load A, B-direction (N)	490

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

Mass: Without brake/ 14.0 kg
With brake/ 17.5 kg

4-φ13.5

Mass: Without brake/ 14.0 kg
With brake/ 17.5 kg

Key way dimensions

Mass: Without brake/ 14.0 kg
With brake/ 17.5 kg

(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

200 V MGME 3.0 kW [Middle inertia, Middle capacity]

Please contact us for more information.

Specifications

		AC2	00 V	
M-4		IP65	MGME302GC□M	MGME302SC□M
Motor model		IP67	-	-
Analiaabla	Model	A5 I series	MFDK	TB3A2
Applicable *2	No.	A5IE series	MFDKTB3A2E	-
diver	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	4.	.5
Rated output		(W)	30	00
Rated torque		(N·m)	28	3.7
Momentary Ma	ax. peal	k torque (N·m)	71.7	
Rated current		(A(rms))	22.6	
Max. current	Max. current (A(o-p))		80	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2	
		DV0P4285×2	No limit Note)2	
Rated rotation	al spee	d (r/min)	1000	
Max. rotationa	l speed	(r/min)	2000	
Moment of ine	rtia	Without brake	48.4	
of rotor (×10 ⁻⁴	kg·m²)	With brake	49.2	
Recommended moment of inertia ratio of the load and the rotor Note)3		10 times	s or less	
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute
R	esolutio	n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

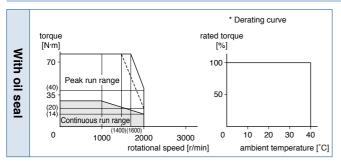
Static friction torque (N·m)	58.8 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	1.4±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

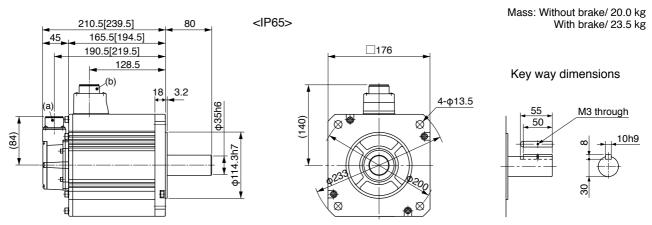
During assembly During operation	Radial load P-direction (N)	2058
	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
	Radial load P-direction (N)	1470
	Thrust load A, B-direction (N)	490

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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.

Special Order Product

Motor Specifications

200 V MHMJ 200 W [High inertia, Small capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
		IP65		MHMJ022G1□	MHMJ022S1
Motor model		IP67		-	-
A 15 1- 1	Model	A5II series	3	MADK	T1507
Applicable *2	No.	A5IIE seri	es	MADKT1507E	_
diver	Fr	ame sym	bol	A-fra	ame
Power supply	capacity	y	(kVA)	0.	.5
Rated output			(W)	20	00
Rated torque			(N·m)	0.	64
Momentary Ma	ax. peal	k torque	(N·m)	1.91	
Rated current		(,	A(rms))	1.6	
Max. current	Max. current (A(o-p))		6.9		
Regenerative b	Regenerative brake Without option		option	No limit Note)2	
frequency (times/r	nin) Note)1	DV0P	4283	No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	5000	
Moment of ine	rtia	Without	brake	0.42	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		rake	0.45	
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		le turn	1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

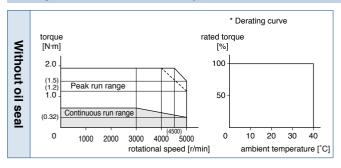
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

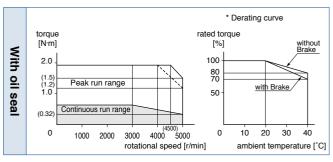
• Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



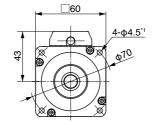


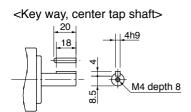
Dimensions

135.5[99] 30 <IP65>

- (a) Encoder connector
- (b) Brake connector
- (c) Motor connector

*1 Use hexagon socket head screw for installation.





Mass: Without brake/ 0.96 kg

With brake/ 1.4 kg

* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

200 V MHMJ 400 W [High inertia, Small capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
Matanasadal		IP65	MHMJ042G1□	MHMJ042S1□	
Motor model		IP67	_	_	
A madia abla	Model	A5II series	MBDK	MBDKT2510	
Applicable *2	No.	A5IIE series	MBDKT2510E	_	
diver	Fr	ame symbol	B-fr	ame	
Power supply	capacit	y (kVA)	0	.9	
Rated output		(W)	40	00	
Rated torque		(N·m)	1	.3	
Momentary Ma	ax. peal	k torque (N·m)	3	3.8	
Rated current		(A(rms)	2.6		
Max. current	Max. current (A(o-p))		11	11.0	
Regenerative brake Without option		No lim	it Note)2		
frequency (times/min) Note)1		DV0P4283	No limit Note)2		
Rated rotation	al spee	d (r/min)	3000		
Max. rotationa	l speed	(r/min)	50	5000	
Moment of ine	rtia	Without brake	0.67		
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		0.70		
Recommended moment of inertia ratio of the load and the rotor Note)3		30 times	s or less		
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
Resolution per single turn			1048576	131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

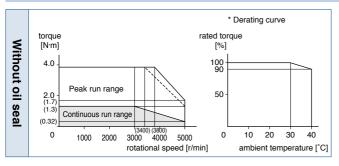
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

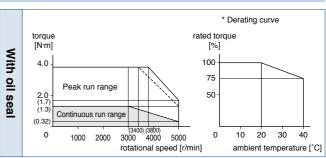
• Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98
	•	

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.42.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





Dimensions

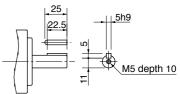
<IP65> 30 6.5 _3 Ф14h6

- (a) Encoder connector
- (b) Brake connector
- (c) Motor connector

screw for installation 4-φ4.5^{*1}

Use hexagon socket head

<Key way, center tap shaft>



Mass: Without brake/ 1.4 kg

With brake/ 1.8 kg

* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Motor Specifications

Special Order Product

200 V MHMJ 750 W [High inertia, Small capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
Motor model		IP65	MHMJ082G1□	MHMJ082S1□	
*1		IP67	_	_	
Amaliaabla	Model	A5I series	MCDK	MCDKT3520	
Applicable *2	No.	A5IE series	MCDKT3520E	_	
diver	Fr	ame symbol	C-fr	ame	
Power supply	capacit	y (kVA)	1.	.3	
Rated output		(W)	75	50	
Rated torque		(N·m)	2	.4	
Momentary Ma	ax. peal	k torque (N·m)	7.1		
Rated current	Rated current (A(rms))		4.0		
Max. current (A(o-p))		17.0			
Regenerative brake Without option		No limit Note)2			
frequency (times/i	frequency (times/min) Note)1		No limit Note)2		
Rated rotation	al spee	d (r/min)	3000		
Max. rotationa	l speed	(r/min)	4500		
Moment of ine	rtia	Without brake	1.51		
of rotor (×10 ⁻⁴	kg·m²)	With brake	1.61		
Recommended moment of inertia ratio of the load and the rotor Note)3		20 times or less			
Rotary encode	Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn			131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

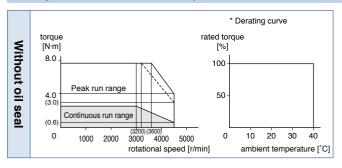
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

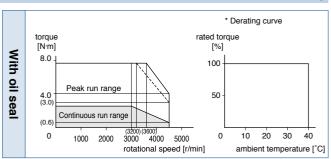
• Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	686
	Thrust load A-direction (N)	294
	Thrust load B-direction (N)	392
	Radial load P-direction (N)	392
	Thrust load A, B-direction (N)	147

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)





Dimensions

<IP65> 164.2[127.2] 220

(a) Encoder connector

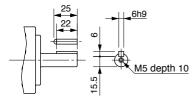
(b) Brake connector

(c) Motor connector

Use hexagon socket head screw for installation.

Mass: Without brake/ 2.5 kg With brake/ 3.5 kg

<Key way, center tap shaft>



* Figures in [] represent the dimensions without brake.

[Unit: mm]

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Specifications

			AC2	00 V
		IP65	MHME102GC□M	MHME102SC□M
Motor model		IP67	_	_
A madia abla	Model	A5II series	MDDK	T3530
Applicable *2	No.	A5IE series	MDDKT3530E	_
diver	Fr	ame symbol	D-fr	ame
Power supply	capacity	y (kVA)	1.	.8
Rated output		(W)	10	00
Rated torque		(N·m)	4.	77
Momentary Ma	ax. peal	k torque (N·m)	14.3	
Rated current		(A(rms))	5.7	
Max. current		(A(o-p))	24	
Regenerative b	rake	Without option	83	
frequency (times/r	min) Note)1	DV0P4284	No limit Note)2	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	24.7	
of rotor (×10 ⁻⁴	kg·m²)	With brake	26.0	
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	esolutio	n per single turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

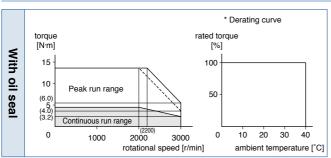
Static friction torque (N·m)	4.9 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	70 or less
Exciting current (DC) (A)	0.59±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

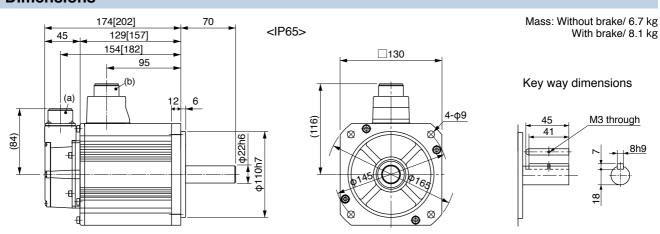
During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
assembly	Thrust load B-direction (N)	686
During operation	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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

Special Order Product

200 V MHME 1.5 kW [High inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC200 V	
Mataumandal		IP65	MHME152GC□M	MHME152SC□M
Motor model *1		IP67	_	-
Amaliaabla	Model	A5I series	MDDKT5540	
Applicable *2	No.	A5IE series	MDDKT5540E	_
diver	Fr	ame symbol	D-fr	ame
Power supply	capacity	y (kVA)	2	.3
Rated output		(W)	15	00
Rated torque		(N·m)	7.	16
Momentary Ma	ax. peal	k torque (N·m)	21.5	
Rated current		(A(rms))	9.4	
Max. current		(A(o-p))	40	
Regenerative b	rake	Without option	22	
frequency (times/r	min) Note)1	DV0P4284 130		30
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	37.1	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		38.4	
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per single turn		1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

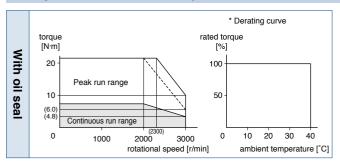
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

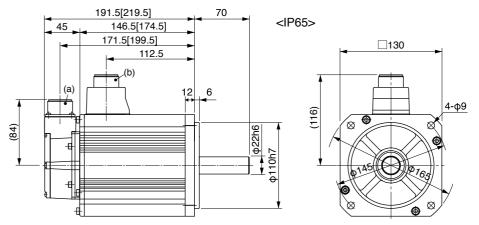
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)

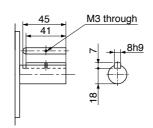


Dimensions



Mass: Without brake/ 8.6 kg With brake/ 10.1 kg

Key way dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

200 V MHME 2.0 kW [High inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
Mataxaadal		IP65		MHME202GC□M	MHME202SC□M
Motor model *1		IP67		-	_
Amaliaabla	Model	del A5II series		MEDKT7364	
Applicable *2	No.	A5IIE series		MEDKT7364E	_
diver	Fr	ame sym	ıbol	E-fra	ame
Power supply	capacit	y	(kVA)	3.	.3
Rated output			(W)	20	00
Rated torque			(N·m)	9.	55
Momentary Ma	ax. peal	k torque	(N·m)	28.6	
Rated current		((A(rms))	11.1	
Max. current			(A(o-p))	47	
Regenerative b	rake	Without option		45	
frequency (times/r	nin) Note)1	DV0P4285 142		12	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia	Withou	t brake	57.8	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		orake	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		
R	Resolution per single turn		gle turn	1048576	131072

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

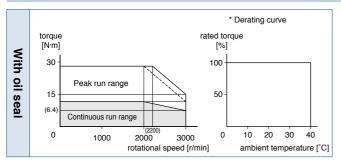
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

During assembly During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.43.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

Mass: Without brake/ 12.2 kg <IP65> 178[207] 80 With brake/ 15.5 kg 133[162] 158[187] 96 Key way dimensions 18 3.2 4-φ13.5 M3 through (140)84 14.3h7 Ð

- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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

Special Order Product

200 V MHME 3.0 kW [High inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC200 V	
Motor model		IP65	MHME302GC□M	MHME302SC□M
*1		IP67	_	-
Annlinable	Model	A5II series	MFDKTA390	
Applicable *2	No.	A5IE series	MFDKTA390E	_
divei	Fr	ame symbol	F-fra	ame
Power supply	capacit	y (kVA)	4	.5
Rated output		(W)	30	00
Rated torque		(N·m)	14	l.3
Momentary Ma	ax. peal	k torque (N·m)	43.0	
Rated current		(A(rms))	16.0	
Max. current		(A(o-p))	68	
Regenerative b	rake	Without option	19	
frequency (times/r	min) Note)1	DV0P4285×2	DV0P4285×2 142	
Rated rotation	al spee	d (r/min)	2000	
Max. rotationa	l speed	(r/min)	3000	
Moment of ine	rtia	Without brake	90.5	
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m²) With brake		92.1	
Recommended moment of inertia ratio of the load and the rotor Note)3		5 times or less		
Rotary encoder specifications Note)5		20-bit Incremental	17-bit Absolute	
R	Resolution per s		1048576	131072

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

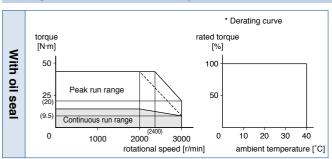
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

Mass: Without brake/ 16.0 kg <IP65> 197[226] 80 With brake/ 19.2 kg 152[181] 177[206] 115 Key way dimensions 18 3.2 4-φ13.5 M3 through (140) 3h7 П \boxtimes \boxtimes

- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Please contact us for more information.

200 V MHME 4.0 kW [High inertia, Middle capacity]

Specifications

					00 V	
		IP65		MHME402GC□M	MHME402SC□M	
Motor model *1		IP67		_	_	
Amaliaabla	Model	A5II serie	s	MFDK	TB3A2	
Applicable *2	No.	A5IIE se	ries	MFDKTB3A2E	_	
diver	Fr	ame sym	ıbol	F-fra	ame	
Power supply	capacity	y	(kVA)	6	.0	
Rated output			(W)	40	00	
Rated torque			(N·m)	19).1	
Momentary Ma	ax. peal	k torque	(N·m)	57.3		
Rated current		((A(rms))	21.0		
Max. current			(A(o-p))	89		
Regenerative b	rake	Without option		17		
frequency (times/r	nin) Note)1	DV0P4285×2		125		
Rated rotation	al spee	d	(r/min)	2000		
Max. rotationa	speed		(r/min)	3000		
Moment of ine	rtia	Withou	t brake	112		
of rotor (×10 ⁻⁴	kg·m²)	With I	orake	114		
Recommender ratio of the loa			5 times or less			
Rotary encoder specifications Note)5			20-bit 17-bit Incremental Absolute			
R	Resolution per single turn				131072	

• Brake specifications (For details, refer to P.183) This brake will be released when it is energized. Do not use this for braking the motor in motion.

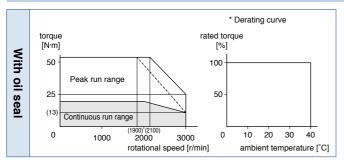
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

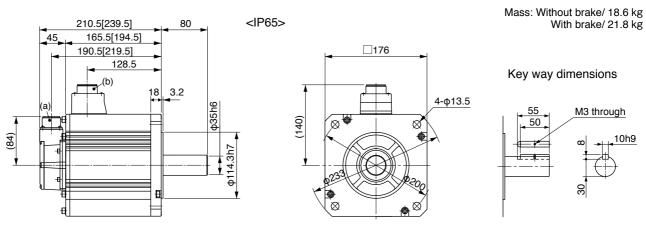
	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
document	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions



- (a) Encoder connector
- (b) Motor/Brake connector
- * Figures in [] represent the dimensions with brake.

[Unit: mm]

<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.

Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

Special Order Product

Motor Specifications

200 V MHME 5.0 kW [High inertia, Middle capacity]

Please contact us for more information.

Specifications

			AC2	00 V	
Motor model		IP65	MHME502GC□M	MHME502SC□M	
*1		IP67	-	-	
Annliaghla	Model	A5II series	MFDK	TB3A2	
Applicable *2	No.	A5IE series	MFDKTB3A2E	-	
diver	Fr	ame symbol	F-fra	ame	
Power supply	capacit	y (kVA)	7.	.5	
Rated output		(W)	50	00	
Rated torque		(N·m)	23	3.9	
Momentary Ma	ax. peal	k torque (N·m)	71.6		
Rated current		(A(rms))	25.9		
Max. current		(A(o-p))	110		
Regenerative b	rake	Without option	10		
frequency (times/r	nin) Note)1	DV0P4285×2	76		
Rated rotation	al spee	d (r/min)	2000		
Max. rotationa	l speed	(r/min)	3000		
Moment of ine	rtia	Without brake	162		
of rotor (×10 ⁻⁴	kg·m²)	With brake	16	64	
Recommender ratio of the loa			5 times or less		
Rotary encode	Rotary encoder specifications Note)5			17-bit Absolute	
R	esolutio	n per single turn	1048576	131072	

Brake specifications (For details, refer to P.183)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.

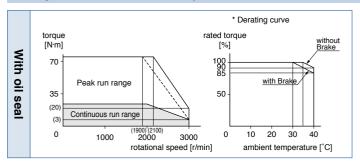
Static friction torque (N·m)	24.5 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.3±10 %
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.183)

During assembly	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
During operation	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note 1 to Note 5, refer to P.182, P.183.
- · Dimensions of Driver, refer to P.45.
- *1 Motor specifications:
- *2 The product that the end of driver model designation has "E" is "Position control type". Detail of model designation, refer to P.152.

Torque characteristics (at AC200 V of power voltage < Dotted line represents the torque at 10 % less supply voltage.>)



Dimensions

Mass: Without brake/ 23.0 kg <IP65> 239.5[268.5] 80 With brake/ 26.2 kg 194.5[223.5] 219.5[248.5] 157.5 Key way dimensions (b) 3.2 4-φ13.5 M3 through (140)14.3h7 Ħ \boxtimes \boxtimes

(a) Encoder connector

(b) Motor/Brake connector

* Figures in [] represent the dimensions with brake.

[Unit: mm]

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required.

Dimensions are subject to change without notice. Contact us or a dealer for the latest information.

Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

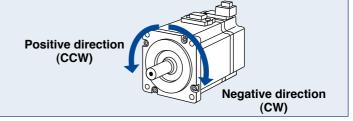
Environmental Conditions

Item		Conditions		
Ambient ter	mperature *1	0 °C to 40 °C (free from freezing)		
Ambient hu	midity	20 % to 85 % RH (free from condensation)		
Storage ter	nperature *2	-20 °C to 65 °C (Max.temperature guarantee: 80 °C for 72 hours free from condensation '5)		
Storage hu	midity	20 % to 85 % RH (free from condensation 5)		
Vibration	Motor only	50 W to 5.0 kW : Lower than 49 m/s² (5 G) at running, 24.5 m/s² (2.5 G) at stall 6.0 kW to 15.0 kW : Lower than 24.5 m/s² (2.5 G) at running, 24.5 m/s² (2.5 G) at stall		
Impact	Motor only	Lower than 98 m/s² (10 G)		
		MSMD, MHMD, MSMJ, MHMJ (except rotating portion of output shaft and readwire end.)		
Enclosure rating (Motor	IP65 *3	M * ME (IP65 motor: 0.9 kW or more) (except rotating portion of output shaft and connecting pin part of the motor connector and the encoder connector)		
only) IP67 *3*4		M * ME IP67 motor (except rotating portion of output shaft and connecting pin part of the motor connector and the encoder connector)		
Alti	tude	Lower than 1000 m		

- *1 Ambient temperature to be measured at 5 cm away from the motor.
- *2 Permissible temperature for short duration such as transportation.
- *3 These motors conform to the test conditions specified in EN standards (EN60529, EN60034-5). Do not use these motors in application where water proof performance is required such as continuous wash-down operation.
- *4 This condition is applied when the connector mounting screw are tightened to the recommended tightening torque.
- *5 Air containing water vapor will become saturated with water vapor as the temperature falls, causing dew.

<Note>

Initial setup of rotational direction: positive = CCW and negative = CW. Pay an extra attention.



Notes on [Motor specification] page

Note) 1. [At AC100 V of power voltage]

Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/ rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC115 V (at 100 V of the main voltage). If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/115) relative to the value in the table.
- When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

[At AC200 V of power voltage]

Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/ rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC230 V (at 200 V of the main voltage).
 If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/230) relative to the value in the table.
- When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.

Motor Specification Description

[At AC400 V of power voltage]

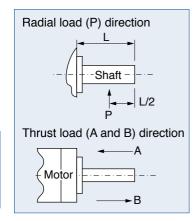
Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.

- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/ rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC460 V (at 400 V of the main voltage).
 If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/460) relative to the value in the table.
- When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
- Note) 2. If the effective torque is within the rated torque, there is no limit in generative brake.
- Note) 3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
- Note) 4. Releasing time values represent the ones with DC-cutoff using a varistor.
- Note) 5. The 17-bit absolute encoder can also be used as a 17-bit incremental encoder.

Permissible Load at Output Shaft

The radial load is defined as a load applied to the output shaft in the right-angle direction. This load is generated when the gear head is coupled to the machine using a chain, belt, etc., but not when the gear head is directly connected to the coupling. As shown in the right figure, the permissible value is determined based on the load applied to the L/2 position of the output shaft. The thrust load is defined as a load applied to the output shaft in the axial direction.

Because the radial load and thrust load significantly affect the life of the bearing, take care not to allow the load during operation to exceed the permissible radial load and thrust load shown in the table below.



Built-in Holding Brake

In the applications where the motor drives the vertical axis, this brake would be used to hold and prevent the work (moving load) from falling by gravity while the power to the servo is shut off.

Use this built-in brake for "Holding" purpose only, that is to hold the stalling status. Never use this for "Brake" purpose to stop the load in motion.

Output Timing of BRK-OFF Signal

- For the brake release timing at power-on, or braking timing at Servo-OFF/Servo-Alarm while the motor is in motion, refer to the Operating Instructions (Overall).
- With the parameter, Pr4.38 (Setup of mechanical brake action while the motor is in motion), you can set up a time between when the motor enters to a free-run from energized status and when BRK-OFF signal turns off (brake will be engaged), when the Servo-OFF or alarm occurs while the motor is in motion. For details, download a copy of the instruction manual from our website.

<Note>

- 1. The lining sound of the brake (chattering and etc.) might be generated while running the motor with built-in brake, however this does not affect any functionality.
- 2. Magnetic flux might be generated through the motor shaft while the brake coil is energized (brake is open). Pay an extra attention when magnetic sensors are used nearby the motor.

· Specifications of Built-in Holding Brake

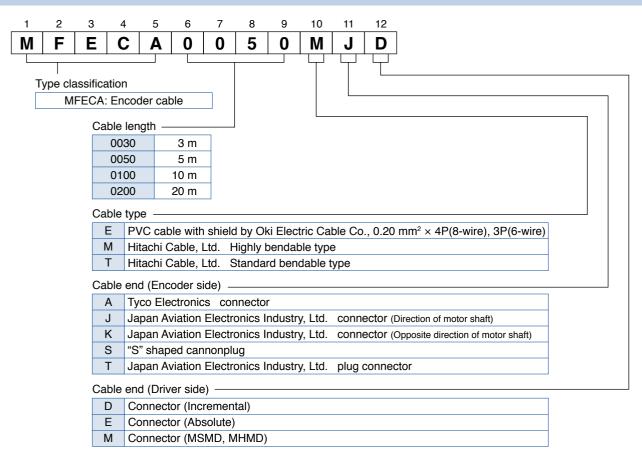
Motor series	Motor output	Static friction torque N·m	Rotor inertia × 10 ⁻⁴ kg·m ²	Engaging time ms	Releasing time ms	Exciting current DC A (at cool-off)	Releasing voltage DC V Exciting voltage DC V	Permissible work (J) per one braking	Permissible total work × 10³ J	Permissible angular acceleration rad/s²
	50 W, 100 W	0.29 or more	0.002	35 or less	20 or less	0.3	1 V or more	39.2	4.9	
MSMD	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36		137	44.1	30000
	750 W	2.45 or more	0.075	70 or less	20 or less	0.42	24 ±1.2	196	147	
	50 W, 100 W	0.29 or more	0.002	35 or less	20 or less	0.3	1 V or more	39.2	4.9	
	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36		137	44.1	30000
	750 W(200 V)	2.45 or more	0.075	70 or less	20 or less	0.42	24 ±1.2	196	147	
	750 W(400 V)	2.5 or more				0.7				
MSME	1.0 kW, 1.5 kW, 2.0 kW	7.8 or more	0.33	50 or less	15 or less (100)	0.81	2 V or more	392	490	10000
	3.0 kW	11.8 or more		80 or less			24 ±2.4			10000
	4.0 kW, 5.0 kW	16.2 or more	1.35	110 or less	50 or less (130)	0.9		1470	2200	
	400 W(400 V), 600 W(400 V)	2.5 or more		50 or less	15 or less	0.7		392	490	
	1.0 kW	4.9 or more	1.35	80 or less	70 or less (200)	0.59		588	780	10000
	1.5 kW, 2.0 kW	7, 2.0 kW 13.7 or more 100 or less 50 or le	50 or less	0.79	2 V or more	1176	1500			
MDME	3.0 kW	16.2 or more		110 or less	(130)	0.9	24 ±2.4	1470	2200	
	4.0 kW, 5.0 kW	W 24.5 or more 4.7	80 or less	25 or less (200)	1.3		1372	2900	5440	
	7.5 kW	58.8 or more		150 or less	50 or less	1.4				5000
	11.0 kW, 15.0 kW	100 or more	7.1	300 or less	140 or less	1.08		2000	4000	3000
	1.5 kW	7.8 or more	4.7	80 or less	35 or less	0.83	2 V or more	1372 2900 1500		
MFME	2.5 kW	21.6 or more	8.75	150 or less	100 or less	0.75			1500	10000
	4.5 kW	31.4 or more	0.75	150 01 1633	100 01 1633	0.73	24 ±2.4	1470	2200	
	0.9 kW	13.7 or more	1.35	100 or less	50 or less (130)	0.79		1176	1500	10000
MGME	2.0 kW	24.5 or more		80 or less	25 or less (200)	1.3	2 V or more			5440
	3.0 kW	58.8 or more	4.7	150 or less	50 or less (130)	1.4	24 ±2.4	1372	2900	3440
	4.5 kW, 6.0 kW				50 or less					5000
MHMD MSMJ	200 W, 400 W	1.27 or more	0.018	50 or less	15 or less	0.36	1 V or more	137	44.1	30000
MHMJ	750 W	2.45 or more	0.075	70 or less	20 or less	0.42	24 ±1.2	196	147	
	1.0 kW	4.9 or more	1.05	80 or less	70 or less (200)	0.59		588	780	10000
МНМЕ	1.5 kW	13.7 or more	1.35	100 or less	50 or less (130)	0.79	2 V or more	1176	1500	10000
	2.0 kW~5.0 kW	24.5 or more	4.7	80 or less	25 or less (200)	1.3	24 ±2.4	1372	2900	5440
	7.5 kW	58.8 or more	-	150 or less	50 or less	1.4				5000

- Releasing time values represent the ones with DC-cutoff using a varistor.

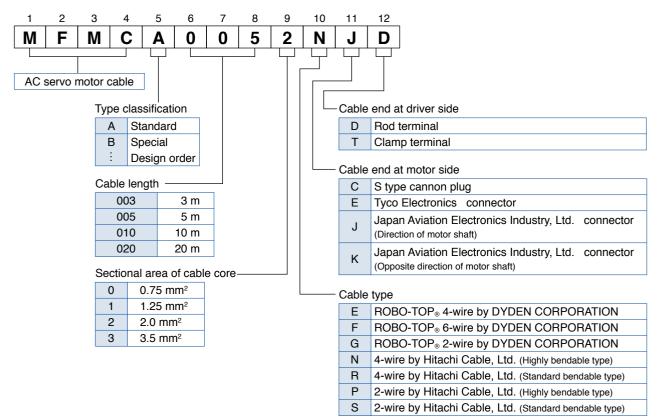
 Values in () represent those measured by using a diode (V03C by Hitachi, Ltd.)
- · Above values (except static friction torque, releasing voltage and excitation current) represent typical values.
- Backlash of the built-in holding brake is kept ±1° or smaller at ex-factory point.
- Service life of the number of acceleration/deceleration with the above permissible angular acceleration is more than 10 million times. (Life end is defined as when the brake backlash drastically changes.)

Cable part No. Designation

Encoder Cable



Motor Cable, Brake Cable



ROBO-TOP® is a trade mark of DYDEN CORPORATION

Specifications of Motor connector

 When the motors of <MSMD, MHMD, MSMJ, MHMJ> are used, they are connected as shown below.

Connector: Made by Tyco Electronics (The figures below show connectors for the motor.)





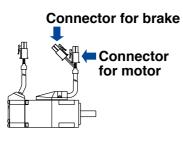
			1	_	
	3	2	1		
	6	5	4		
172168-1 20-bit Incremental					
20		5 2168		ntal	

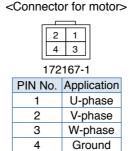
PIN No.	Application
1	NC
2	PS
3	PS
4	E5V
5	E0V
6	FG(SHIELD)

-			1	,	
	3	2	1		
	6	5	4		
	9	8	7		
172169-1 17-bit Absolute					

PIN No.	Application
1	BAT+
2	BAT-
3	FG(SHIELD)
4	PS
5	PS
6	NC
7	E5V
8	E0V
9	NC

<Remarks> Do not connect anything to NC.







172165-1

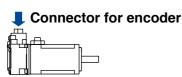
PIN No.	Application	* Ele
1	Brake	is a
2	Brake	

* Electromagnetic brake is a nonpolar device.

 When the motors of <MSME (50 W to 750 W (200 V))> are used, they are connected as shown below.

Connector: Made by Japan Aviation Electronics Industry, Ltd. (The figures below show connectors for the motor.)

* Do not remove the gasket supplied with the junction cable connector. Securely install the gasket in place. Otherwise, the degree of protection of IP67 will not be guaranteed.

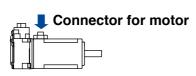




20-bit Incremental		17-bit <i>A</i>	Absolute
Application		PIN No.	Application
FG(SHIELD)		1	FG(SHIELD)
_		2	BAT-
E0V		3	E0V
PS		4	PS
_		5	BAT+
E5V		6	E5V
PS		7	PS
	Application FG(SHIELD) E0V PS E5V	Application FG(SHIELD) - E0V PS - E5V	Application FG(SHIELD) - 2 E0V 3 PS 4 - 5 E5V 6

Tightening torque of the screw (M2) 0.19 N·m to 0.21 N·m

* Be sure to use only the screw supplied with the connector, to avoid damage.



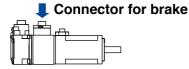


PIN No.	Application
1	U-phase
2	V-phase
3	W-phase
PF	Ground

Tightening torque of the screw (M2) 0.085 N·m to 0.095 N·m (screwed to plastic)

* Be sure to use only the screw supplied with the connector, to avoid damage.

[Motor with brake]





PIN No.	Application	
1	Brake	* Electrom
2	Brake	a nonnol

* Electromagnetic brake is a nonpolar device.

Tightening torque of the screw (M2) 0.19 N·m to 0.21 N·m

* Be sure to use only the screw supplied with the connector, to avoid damage.

Specifications of Motor connector

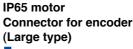
• When the motors of <MSME (750 W(400 V), 1.0 kW to 5.0 kW), MDME, MGME, MHME> are used, they are connected as shown below.

Connector: Made by Japan Aviation Electronics Industry, Ltd. (The figures below show connectors for the motor.)

Connector for encoder

<Encoder connector for IP65 motor>

<Encoder connector for IP67 motor>





N/MS3102A20-29P

20-bit Incremental



17-bit Absolute



JN2AS10ML3-R

PIN No.	Application	PIN No.	Application	PIN
Α	NC	Α	NC	1
В	NC	В	NC	2
С	NC	С	NC	3
D	NC	D	NC	4
Е	NC	Е	NC	5
F	NC	F	NC	
G	E0V	G	E0V	7
Н	E5V	Н	E5V	8
J	FG(SHIELD)	J	FG(SHIELD)	Ę
K	PS	K	PS	1
L	PS	L	PS	
M	NC	М	NC	
N	NC	N	NC	
П	NIC	_	NIC	

R

S

20-bit Incremental		17-bit A	Absolute
PIN No. Application		PIN No.	Application
1	E0V	1	E0V
2	NC	2	NC
3	PS	3	PS
4	E5V	4	E5V
5	NC	5	BAT-
6	NC	6	BAT+
7	PS	7	PS
8	NC	8	NC
9	FG(SHIELD)	9	FG(SHIELD)
10	NC	10	NC

(Small type)

Connector for encoder



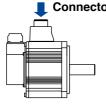
IP67 motor

<Remarks>

Do not connect anything to NC.

Connector for motor/brake

[0.9 kW to 5.0 kW]



NC

NC

NC

Connector for motor/brake

<with Brake>

MSME 3.0 kW to 5.0 kW

MDME 3.0 kW to 5.0 kW

MFME* 2.5 kW, 4.5 kW

MGME 2.0 kW to 4.5 kW

MHME 2.0 kW to 5.0 kW

NC

BAT-

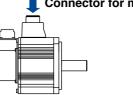
BAT+

Вош⊕Но ç

JL04V-2E24-11PE-B-R

F ⊕

[400 V] MSME 750 W,



[200 V]



1.0 kW to 5.0 kW

1.0 kW to 5.0 kW

MDME 400 W, 600 W,

MFME* 1.5 kW to 4.5 kW

MGME 0.9 kW to 4.5 kW MHME 1.0 kW to 5.0 kW

<without Brake> Ď Ă

II 04V-2F20-4PF-B-F

JLU4V	-2E20-4PE-B-R
MSME	750 W(400 V),
	1.0 kW to 2.0 kW
MDME	400 W (400 V),
	600 W (400 V),
	1.0 kW to 2.0 kW
MGME	0.9 kW

MHME 1.0 kW to 1.5 kW JL04HV-2E22-22PE-B-R

Δ			_	had	
PIN N	ο.	Apı	pli	cat	ion
MHME	2.0) kW	to	5.0	kW.
MGME		kW			
MDME	3.0	kW	to	5.0	kW
MSME	3.0	kW	to	5.0	kW

MHME 2.0	kW to 5.0 kW
PIN No.	Application
Α	U-phase
В	V-phase
С	W-phase
D	Ground

R

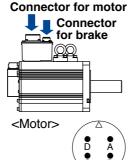
JL04V-2E20-18PE-B-R [200 V]

MSME	1.0 kW to 2.0 kW
MDME	1.0 kW to 2.0 kW
MFME*	1.5 kW
MGME	0.9 kW
MHME	1.0 kW to 1.5 kW

PIN No.	Application
G	Brake
Н	Brake
Α	NC
F	U-phase
I	V-phase
В	W-phase
Е	Ground
D	Ground
С	NC

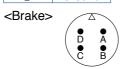
PIN No. Application Brake В Brake С NC D U-phase V-phase W-phase F G Ground Ground NC

[6.0 kW or more]



	2E32-17PE-B-R
MDME	7.5 kW to 15.0 kW 6.0 kW 7.5 kW
MGME	6.0 kW
MHME	7.5 kW

PIN No.	Application
Α	U-phase
В	V-phase
С	W-phase
D	Ground



N/MS3102A 14S-2P

MDME 7.5 kW to 15.0 kW MGME 6.0 kW MHME 7.5 kW

PIN No.	Application
Α	Brake
В	Brake
С	NC
D	NC

* Electromagnetic brake

* MFME is common to with or without brake.

<Remarks>

Do not connect anything to NC.

[Unit: mm]

Encoder Cable

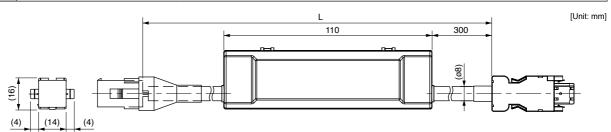
* It doesn't correspond to IP65 and IP67.

Part No.	MFECA0 * * 0EAM	Compatible motor output		50 W to 750 W, 200 W to 750 W,		
Specifications	For 20-bit incremental encoder (Without battery box)					

Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	172160-1	Tugo Floatronico
Connector pin	170365-1	Tyco Electronics
Cable	0.20 mm ² ×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030EAM
5	MFECA0050EAM
10	MFECA0100EAM
20	MFECA0200EAM

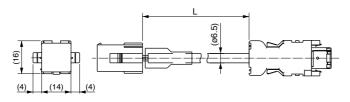
Part No.	MFECA0 * * 0EAE	Compatible motor output		50 W to 750 W, 200 W to 750 W,		
Specifications	For 17-bit absolute encoder (With battery box)					



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	172161-1	Type Fleetveries
Connector pin	170365-1	Tyco Electronics
Cable	0.20 mm ² ×4P (8-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.	
3	MFECA0030EAE	
5	MFECA0050EAE	
10	MFECA0100EAE	
20	MFECA0200EAE	

Part No.	MFECA0 * * 0EAD	Compatible motor output		•		200 W to 750 W 200 W to 750 W
Specifications	For 17-bit incremental encoder (Without battery box)					

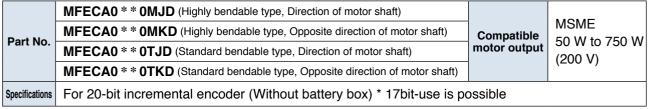


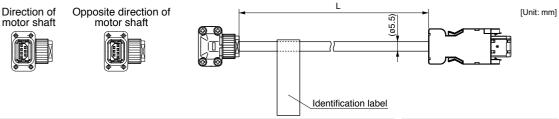
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	172161-1	Tugo Floatronico
Connector pin	170365-1	Tyco Electronics
Cable	0.20 mm ² ×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.	
3	MFECA0030EAD	
5	MFECA0050EAD	
10	MFECA0100EAD	
20	MFECA0200EAD	

Encoder Cable

* It doesn't correspond to IP65 and IP67.

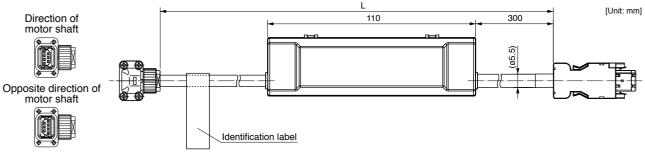




Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	JN6FR07SM1	Japan Aviation
Connector pin	LY10-C1-A1-10000	Electronics Ind.
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.

Part No.(ex.)	
MFECA0030MJD	
MFECA0050MJD	
MFECA0100MJD	
MFECA0200MJD	

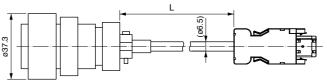
	MFECA0 * * 0MJE (Highly bendable type, Direction of motor shaft)		140145
Part No.	MFECA0 * * 0MKE (Highly bendable type, Opposite direction of motor shaft)	Compatible	MSME 50 W to 750 W
Part NO.	MFECA0 * * 0TJE (Standard bendable type, Direction of motor shaft)	motor output	(200 V)
	MFECA0 * * OTKE (Standard bendable type, Opposite direction of motor shaft)		(200 1)
Specifications	For 17-bit absolute encoder (With battery box)		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	JN6FR07SM1	Japan Aviation
Connector pin	LY10-C1-A1-10000	Electronics Ind.
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.

L (m)	Part No.(ex.)
3	MFECA0030MJE
5	MFECA0050MJE
10	MFECA0100MJE
20	MFECA0200MJE

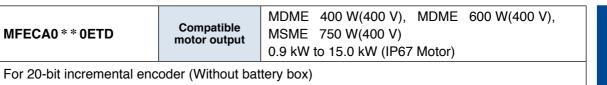
Part No.	MFECA0 * * 0ESD	Compatible motor output	MDME 400 W(400 V), MDME 600 W(400 V) MSME 750 W(400 V) 0.9 kW to 15.0 kW (IP65 Motor)
Specifications	For 20-bit incremental encoder (Without battery box)		



L (m)	Part No.
3	MFECA0030ESD
5	MFECA0050ESD
10	MFECA0100ESD
20	MFECA0200ESD

Title	Part No. Manufacturer	
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation
Cable clamp	N/MS3057-12A	Electronics Ind.
Cable	0.2 mm ² ×3P (6-wire)	Oki Electric Cable Co., Ltd.

[Unit: mm]



MFECA0 * * 0ETD

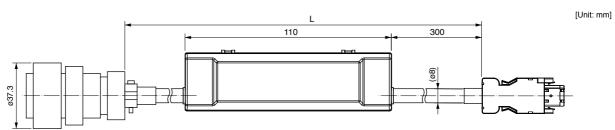
Part No.

Specifications

Title	Part No.	Manufacturer	
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	
Shell kit	3E306-3200-008	(or equivalent)	
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation	
Connector pin	JN1-22-22S-PKG100	Electronics Ind.	
Cable	0.2 mm ² ×3P (6-wire)	e) Oki Electric Cable Co., Ltd.	

L (m)	Part No.	
3	MFECA0030ETD	
5	MFECA0050ETD	
10	MFECA0100ETD	
20	MFECA0200ETD	

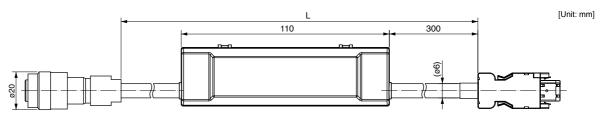
Part No.	MFECA0 * * 0ESE	Compatible motor output	0.9 kW to 5.0 kW (IP65 Motor)
Specifications	For 17-bit absolute encoder (With battery box)		



Title	Part No. Manufacturer		
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	
Shell kit	3E306-3200-008	(or equivalent)	
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation	
Cable clamp	N/MS3057-12A	Electronics Ind.	
Cable	0.2 mm² ×4P (8-wire) Oki Electric Cable Co		

Part No.	
MFECA0030ESE	
MFECA0050ESE	
MFECA0100ESE	
MFECA0200ESE	

Part No.	MFECA0 * * 0ETE	Compatible motor output	MDME 400 W(400 V), MDME 600 W(400 V) MSME 750 W(400 V) 0.9 kW to 15.0 kW (IP67 Motor)
Specifications	For 17-bit absolute encoder (With battery box)		



Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation
Connector pin	JN1-22-22S-PKG100	Electronics Ind.
Cable	0.2 mm ² ×3P (6-wire)	Oki Electric Cable Co., Ltd.

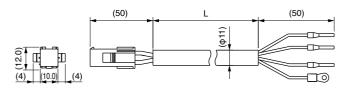
L (m)) Part No.	
3	MFECA0030ETE	
5 MFECA0050ETE		
10	MFECA0100ETE	
20 MFECA0200ETE		

Motor Cable (without Brake)

* It doesn't correspond to IP65 and IP67.



[Unit: mm]



Title	Part No.	Manufacturer
Connector	172159-1	Tugo Floatronico
Connector pin	170366-1	Tyco Electronics
Rod terminal	AI0.75-8GY	Phoenix Contact
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 0.75mm ² 4-wire	DYDEN CORPORATION

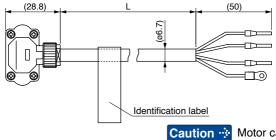
L (m)	Part No.	
3	MFMCA0030EED	
5	MFMCA0050EED	
10	MFMCA0100EED	
20	MFMCA0200EED	

	MFMCA0 * * 0NJD (Highly bendable type, Direction of motor shaft)		MSME 50 W to 750 W(200V)
Part No.	MFMCA0 * * 0NKD (Highly bendable type, Opposite direction of motor shaft)	Applicable	MSME 200 W to 750 W(200V)
Part No.		model	MSME 50 W to 750 W(200V)
	MFMCA0 * * 0RKD (Standard bendable type, Opposite direction of motor shaft)		MSME 200 W to 750 W(200V)

[Unit: mm]

[Unit: mm]



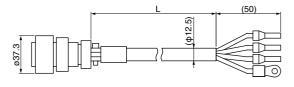


Motor cable for opposite direction of motor shaft cannot be used with a motor 50W and 100W.

Title	Part No.	Manufacturer	
Connector	JN8FT04SJ1	Japan Aviation	
Connector pin	ST-TMH-S-C1B-3500	Electronics Ind.	
Rod terminal	AI0.75-8GY	Phoenix Contact	
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	
Cable	AWG18 4-wire (ø6.7)	Hitachi Cable, Ltd.	

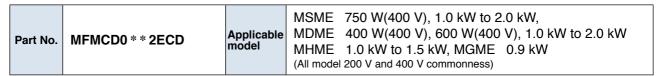
L (m)	Part No.(ex.)	
3	MFMCA0030NJD	
5 MFMCA0050NJD		
10	MFMCA0100NJD	
20	MFMCA0200NJD	

Part No. MFMCA0 * * 2ECD Appli mode	MFME 1.5 kW(200 V)
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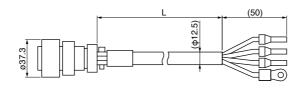


Title	Part No.	Manufacturer	
Connector	JL04V-6A20-18SE-EB-R	Japan Aviation Electronics Ind.	
Cable clamp	JL04-2022CK(14)-R		
Rod terminal	NTUB-2	LC T Mfa Co Ltd	
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.	
Cable	ROBO-TOP 600V 2.0mm ² 4-wire	DYDEN CORPORATION	

L (m)	Part No.	
3	MFMCA0032ECD	
5 MFMCA0052EC		
10	MFMCA0102ECD	
20 MFMCA0202ECD		



[Unit: mm]

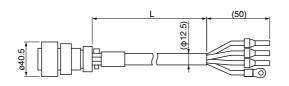


Title	Part No.	Manufacturer	
Connector	JL04V-6A20-4SE-EB-R	Japan Aviation Electronics Ind.	
Cable clamp	JL04-2022CK(14)-R		
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.	
Nylon insulated round terminal	N2-M4	J.S.1 Wilg. Co., Ltd.	
Cable	ROBO-TOP 600 V 2.0 mm ² 4-wire	DYDEN CORPORATION	

L (m)	Part No.
3	MFMCD0032ECD
5	MFMCD0052ECD
10	MFMCD0102ECD
20	MFMCD0202ECD

Part No.	N/IEN/IC.EU. * * 7EC.I.)	Applicable model	MHME 2.0 kW (200 V and 400 V commonness)
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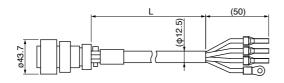
[Unit: mm]



Title	Part No.	Manufacturer
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.
Rod terminal	NTUB-2	LC T Mfg. Co. Ltd
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600 V 2.0 mm ² 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCE0032ECD
5	MFMCE0052ECD
10	MFMCE0102ECD
20	MFMCE0202ECD

Part No.	MFMCF0 * * 2ECD	Applicable model	MFME	1.5 kW(400 V), 2.5 kW(200 V and 400 V commonness)
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Title	Part No.	Manufacturer	
Connector	JL04V-6A24-11SE-EB-R	Japan Aviation	
Cable clamp	JL04-2428CK(17)-R	Electronics Ind.	
Rod terminal	NTUB-2	LC T Mfa Co Ltd	
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.	
Cable	ROBO-TOP 600 V 2.0 mm ² 4-wire	DYDEN CORPORATION	

L (m)	Part No.
3	MFMCF0032ECD
5	MFMCF0052ECD
10	MFMCF0102ECD
20	MFMCF0202ECD

Options

Motor Cable (without Brake)

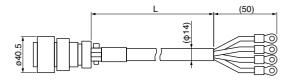
* It doesn't correspond to IP65 and IP67.

Part No. MFMCA0 * * 3ECT

Applicable model

MSME 3.0 kW to 5.0 kW, MDME 3.0kW to 5.0 kW MHME 3.0 kW to 5.0 kW, MGME 2.0kW to 4.5 kW (All model 200 V and 400 V commonness)

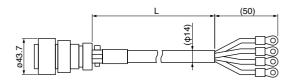
[Unit: mm]



Title	Part No.	Manufacturer
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600 V 3.5 mm ² 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCA0033ECT
5	MFMCA0053ECT
10	MFMCA0103ECT
20	MFMCA0203ECT

Part No.	INTERVICATION SPECIAL	Applicable model	MFME 4.5 kW (200 V and 400 V commonness)
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Title	Part No.	Manufacturer
Connector	JL04V-6A24-11SE-EB-R	Japan Aviation
Cable clamp	JL04-2428CK(17)-R	Electronics Ind.
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600 V 3.5 mm ² 4-wire	DYDEN CORPORATION

L (m)	Part No.
3	MFMCD0033ECT
5	MFMCD0053ECT
10	MFMCD0103ECT
20	MFMCD0203ECT

Options

* It doesn't correspond to IP65 and IP67.

Motor Cable (with Brake)

MSME 1.0 kW to 2.0 kW(200 V), MDME 1.0 kW to 2.0 kW(200 V), Applicable model MFMCA0 * * 2FCD MFME 1.5 kW(200 V), Part No. MHME 1.0 kW(200 V) to 1.5 kW(200 V) MGME 0.9 kW(200V)

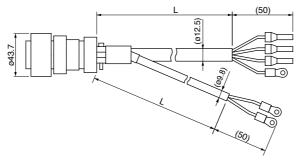
> (50)(ø12.5)

[Unit: mm]

Title		Part No.	Manufacturer	
Connector		JL04V-6A20-18SE-EB-R	Japan Aviation	
Cable clam)	JL04-2022CK(14)-R	Electronics Ind.	
Rod termina	al	NTUB-2	J.S.T Mfg. Co., Ltd.	
Nylon insulated	Earth	N2-M4	LC TMfc Co Ltd	
round terminal Brake		N1.25-M4	J.S.T Mfg. Co., Ltd.	
Cable		ROBO-TOP 600 V 0.75 mm ² and ROBO-TOP 600 V 2.0 mm ² 6-wire	DYDEN CORPORATION	

L (m)	Part No.	
3	MFMCA0032FCD	
5	MFMCA0052FCD	
10	MFMCA0102FCD	
20	MFMCA0202FCD	

Part No.		Applicable model	MSME 750 W(400 V) to 2.0 kW(400 V), MDME 400 W(400 V) to 2.0 kW(400 V), MFME 1.5 kW(400 V), 2.5 kW(200 V/400 V), MGME 0.9 kW(400 V) MHME 1.0 kW(400 V), 1.5 kW(400 V), 2.0 kW(200 V/400 V)
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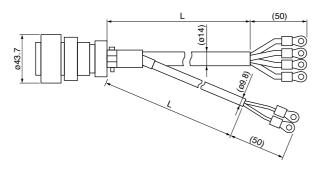
Title		Part No.	Manufacturer	
Connector		JL04V-6A24-11SE-EB-R	Japan Aviation	
Cable clamp		JL04-2428CK(17)-R	Electronics Ind.	
Rod termina	al	NTUB-2	J.S.T Mfg. Co., Ltd.	
Nylon insulated	Earth	N2-M4	LC T Mfa Co Ltd	
round terminal	Brake	N1.25-M4	J.S.T Mfg. Co., Ltd.	
Cable		ROBO-TOP 600 V 0.75 mm ² and ROBO-TOP 600 V 2.0 mm ² 6-wire	DYDEN CORPORATION	

L (m)	Part No.		
3	MFMCE0032FCD		
5	MFMCE0052FCD		
10	MFMCE0102FCD		
20	MFMCE0202FCD		

Options

Motor Cable (with Brake) * It doesn't correspond to IP65 and IP67.

Part No.		Applicable model	MFME MGME		MHME W	3.0 kW to 5.0 kW 3.0 kW to 5.0 kW	
----------	--	------------------	--------------	--	-----------	--------------------------------------	--



Title		Part No.	Manufacturer	
Connector		JL04V-6A24-11SE-EB-R	Japan Aviation	
Cable clam	p	JL04-2428CK(17)-R	Electronics Ind.	
Nylon insulated	Earth	N5.5-5	J.S.T Mfg. Co., Ltd.	
round terminal	Brake	N1.25-M4	J.S. 1 Wilg. Co., Ltd.	
Cable		ROBO-TOP 600 V 0.75 mm ² and ROBO-TOP 600 V 3.5 mm ² 6-wire	DYDEN CORPORATION	

L (m)	Part No.	
3	MFMCA0033FCT	
5	MFMCA0053FCT	
10	MFMCA0103FCT	
20	MFMCA0203FCT	

[Unit: mm]

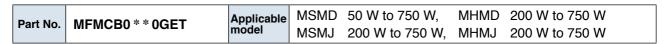
Brake Cable

* It doesn't correspond to IP65 and IP67.

Connector pin

Nylon insulated round terminal

Cable



(40) (50) (φ9.8)

(5.6)		
Title	Part No.	Manufacturer
Connector	172157-1	Tugo Floatronico
	470000 4 470000 4	Tyco Electronics

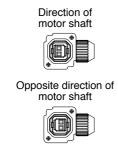
170366-1, 170362-1 N1.25-M4

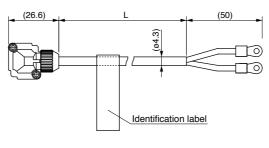
L (m)	Part No.		
3	MFMCB0030GET		
5	MFMCB0050GET		
10	MFMCB0100GET		
20	MFMCB0200GET		

	MFMCB0 * * 0PJT (Highly bendable type, Direction of motor shaft)		
Part No.	MFMCB0 * * 0PKT (Highly bendable type, Opposite direction of motor shaft)	Applicable	MSME 50 W to 750 W
Part No.	MFMCB0 * * 0SJT (Standard bendable type, Direction of motor shaft)	model	(200 V)
	MFMCB0 * * 0SKT (Standard bendable type, Opposite direction of motor shaft)		(200 1)

ROBO-TOP 600 V 0.75 mm² 2-wire DYDEN CORPORATION

J.S.T Mfg. Co., Ltd.





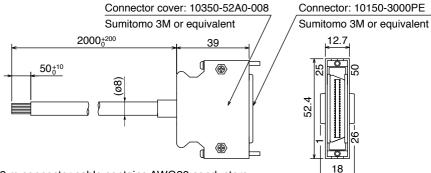
Title	Part No.	Manufacturer
Connector	JN4FT02SJMR	Japan Aviation
Connector pin	ST-TMH-S-C1B-3500	Electronics Ind.
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	AWG22 2-wire (ø4.3)	Hitachi Cable, Ltd.

L (m)	Part No.		
3	MFMCB0030PJT		
5	MFMCB0050PJT		
10	MFMCB0100PJT		
20	MFMCB0200PJT		

Interface Cable

Cable for Interface

Part No. DV0P4360



This 2 m connector cable contains AWG28 conductors.

· Table for wiring

Pin No.	color	Pin No.	color	Pin No.	color	Pin No.	color	Pin No.	color
1	Orange (Red1)	11	Orange (Black2)	21	Orange (Red3)	31	Orange (Red4)	41	Orange (Red5)
2	Orange (Black1)	12	Yellow (Black1)	22	Orange (Black3)	32	Orange (Black4)	42	Orange (Black5)
3	Gray (Red1)	13	Gray (Red2)	23	Gray (Red3)	33	Gray (Red4)	43	Gray (Red5)
4	Gray (Black1)	14	Gray (Black2)	24	Gray (Black3)	34	White (Red4)	44	White (Red5)
5	White (Red1)	15	White (Red2)	25	White (Red3)	35	White (Black4)	45	White (Black5)
6	White (Black1)	16	Yellow (Red2)	26	White (Black3)	36	Yellow (Red4)	46	Yellow (Red5)
7	Yellow (Red1)	17	Yel (Blk2)/Pink (Blk2)	27	Yellow (Red3)	37	Yellow (Black4)	47	Yellow (Black5)
8	Pink (Red1)	18	Pink (Red2)	28	Yellow (Black3)	38	Pink (Red4)	48	Pink (Red5)
9	Pink (Black1)	19	White (Black2)	29	Pink (Red3)	39	Pink (Black4)	49	Pink (Black5)
10	Orange (Red2)	20	_	30	Pink (Black3)	40	Gray (Black4)	50	Gray (Black5)

<Remarks>

Color designation of the cable e.g.) Pin-1 Cable color : Orange (Red1) : One red dot on the cable The shield of this cable is connected to the connector shell but not to the terminal.

Interface Conversion Cable

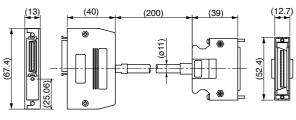
Part No. DV0P4120, 4121, 4130, 4131, 4132

Interface cables for old product (XX series or V series) can be connected to the current product by using the connector conversion cable shown below.

DV0P4120	MINAS XX → A5II, A5 series (A4, A series) for position control/ velocity control
DV0P4121	MINAS XX → A5II, A5 series (A4, A series) for torque control
DV0P4130	MINAS V → A5II, A5 series (A4, A series) for position control
DV0P4131	MINAS V → A5II, A5 series (A4, A series) for velocity control
DV0P4132	MINAS V → A5II, A5 series (A4, A series) for torque control

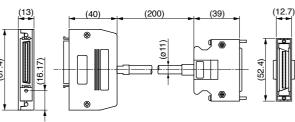
^{*} For details of wiring, contact our sales department.

Converts 36-pin configuration to 50-pin.



[DV0P4120, 4121]





[Unit: mm]

[DV0P4130, 4131, 4132]

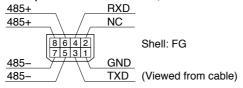
Connector Kit for Communication Cable (for RS485, RS232) (Excluding A5IE, A5E Series)

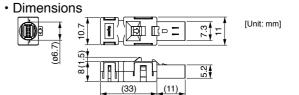
Part No. DV0PM20024

Components

Title	Part No.	Manufacturer	Note
Connector	2040008-1	Tyco Electronics	For Connector X2 (8-pins)

• Pin disposition of connector, connector X2





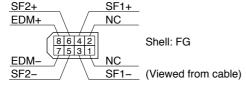
Connector Kit for Safety (Excluding A5IE, A5E Series)

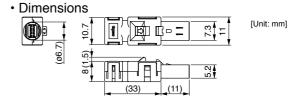
Part No. DV0PM20025

Components

Title	Part No.	Manufacturer	Note
Connector	2013595-1	Tyco Electronics	For Connector X3 (8-pins)

Pin disposition of connector, connector X3





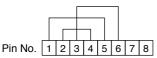
Safety bypass plug (Excluding A5IE, A5E Series)

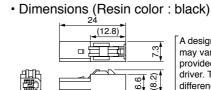
Part No. DV0PM20094

Components

Title	Part No.	Manufacturer	Note
Connector	CIF-PB08AK-GF1R	J.S.T Mfg. Co., Ltd.	For Connector X3

 Internal wiring (Wiring of the following has been applied inside the plug.)





A design and color may vary from the plug provided together with driver. There is no difference in function.

[Unit: mm]

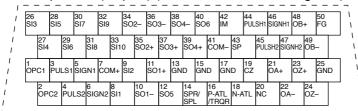
Connector Kit for Interface

Part No. DV0P4350

Components

Title	Part No.	Number	Manufacturer	Note
Connector	10150-3000PE	1	Sumitomo 3M	For Connector X4
Connector cover	10350-52A0-008	1	(or equivalent)	(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 operating manual.
- 3) Do not connect anything to NC pins in the above table.

<Remarks>

• For crimp tool etc., necessary to produce a cable, access the web site of the manufacturer or consult with the manufacturer for details. For inquiries of manufacturer, refer to P.213 "List of Peripheral Equipments".

Connector Kit

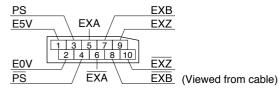
Connector Kit for External Scale (Excluding A5IE, A5E Series)

Part No. DV0PM20026

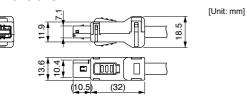
Components

Title	Part No.	Manufacturer	Note
Connector	MUF-PK10K-X	J.S.T Mfg. Co., Ltd.	For Connector X5 (10-pins)

• Pin disposition of connector, connector X5



Dimensions



Connector Kit for Encoder

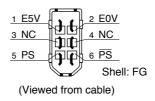
Part No.	DV0PM20010
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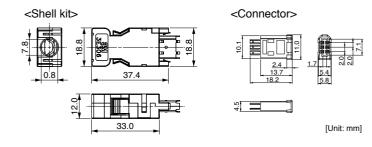
Components

Title	Part No.	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	For Connector X6	
Shell kit	3E306-3200-008	(or equivalent)	For Connector A6	

• Pin disposition of connector, connector X6







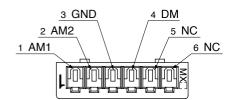
Connector Kit for Analog Monitor Signal

Part No.	DV0PM20031
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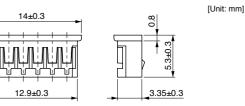
Components

Title	Part No.	Number	Manufacturer	Note
Connector	510040600	1	Malaulaa	For Connector X7 (6-pins)
Connector pin	500118100	6	Molex Inc	

• Pin disposition of connector, connector X7



Dimensions



<Remarks>

Connector X1: use with commercially available cable.

· Configuration of connector X1: USB mini-B



Connector Kit for Power Supply Input

Part No. DV0PM20032 (For A-frame to C-frame 100 V, A-frame to D-frame 200 V: Single row type)

Components

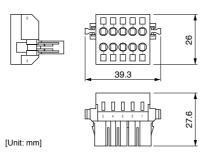
Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT	2		

Part No. DV0PM20033 (For A-frame to D-frame 200 V: Double row type)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGSA-C	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT	2		

Dimensions



* When connection multiple axes in series, make sure the sum of the current value does not exceed the rated current (11.25 A) of DV0PM20033.

Remarks 🔆

When using drivers MDDKT5540 *** or MDDHT5540 *** in single-phase power supply, do not use DV0PM20033.

Driver part No.	Power supply	Rated input current
MADHT1105 *** MADKT1105 ***	Single phase 100 V	1.7 A
MADHT1107 *** MADKT1107 ***	Single phase 100 V	2.6 A
MADHT1505 *** MADKT1505 ***	Single phase/3-phase 200 V	1.6 A/0.9 A
MADHT1507 *** MADKT1507 ***	Single phase/3-phase 200 V	2.4 A/1.3 A
MBDHT2110 *** MBDKT2110 ***	Single phase 100 V	4.3 A
MBDHT2510 *** MBDKT2510 ***	Single phase/3-phase 200 V	4.1 A/2.4 A
MCDHT3120 *** MCDKT3120 ***	Single phase 100 V	7.6 A
MCDHT3520 *** MCDKT3520 ***	Single phase/3-phase 200 V	6.6 A/3.6 A
MDDHT3530 *** MDDKT3530 ***	Single phase/3-phase 200 V	9.1 A/5.2 A
MDDHT5540 *** MDDKT5540 ***	Single phase/3-phase 200 V	14.2 A/8.1 A

Part No. DV0PM20044 (For E-frame 200 V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT-L	2		

Part No. DV0PM20051 (For D-frame 400 V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAYGSA-M	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT-L	2		

Part No. DV0PM20052 (For E-frame 400 V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAYGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XA
Handle lever	J-FAT-OT-L	2		

Connector Kit

Connector Kit for Control Power Supply Input

Part No. | **DV0PM20053** (For D, E-frame 400 V)

· Components

Title	Part No.	Number	Manufacturer	Note
Connector	02MJFAT-SAGF	1	J.S.T Mfg. Co., Ltd.	For Connector XD
Handle lever	MJFAT-0T	1		

Connector Kit for Regenerative Resistor Connection (E-frame)

Part No. DV0PM20045 (For E-frame 200 V/400 V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	04JFAT-SAXGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XC
Handle lever	J-FAT-OT-L	2		* Jumper wire is included.

Part No. DV0PM20055 (For D-frame 400 V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	04JFAT-SAXGSA-M	1	J.S.T Mfg. Co., Ltd.	For Connector XC
Handle lever	J-FAT-OT-L	2		

Connector Kit for Motor Connection (Driver side)

Part No. DV0PM20034 (For A-frame to C-frame 100 V, A-frame to D-frame 200 V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	06JFAT-SAXGF	1	J.S.T Mfg. Co., Ltd.	For Connector XB
Handle lever	J-FAT-OT	2		* Jumper wire is included.

Part No. DV0PM20046 (For E-frame 200 V/400 V)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAXGSA-L	1	J.S.T Mfg. Co., Ltd.	For Connector XB
Handle lever	J-FAT-OT-L	2		

Part No. DV0PM20054 (For D-frame 400 V)

· Components

Title	Part No.	Number	Manufacturer	Note
Connector	03JFAT-SAXGSA-M	1	J.S.T Mfg. Co., Ltd.	For Connector XB
Handle lever	J-FAT-OT-L	2		

Connector Kit

* When IP65 or IP67 are necessary, the customer must give appropriate processing.

Connector Kit for Motor/Encoder Connection

Port No	DV0P4290	Applicable	MSMD 50 W to 750 W, MHMD 200 W to 750 W
Part NO.	DV0F4290	model	(absolute encoder type)

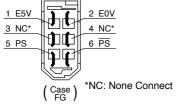
Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 /6 pine)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)
Connector	172161-1	1	Tyco Electronics	For Encoder cable
Connector pin	170365-1	9	Tyco Electronics	(9-pins)
Connector	172159-1	1	Tyco Electronics	For Motor cable
Connector pin	170366-1	4	Tyco Electronics	(4-pins)

• Pin disposition of connector, • Pin disposition of connector connector X6

for encoder cable

• Pin disposition of connector for motor cable



 -11-11			-
1	2	3	į
BAT+	BAT-	FG	i
4	_5_	6	- ;
PS	PS	NC	-
7	8	9	- 1
E5V	E0V	NC	1
 			_ ;







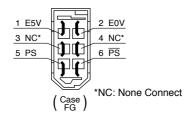
When you connect the battery for absolute encoder, refer to P.207, "When you make your own cable for 17-bit absolute encoder"

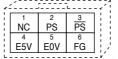
				50 W to 750 W,		
Part No.	DV0P4380	Applicable	MSMJ	200 W to 750 W,	MHMJ	200 W to 750 W
				ental encoder type		

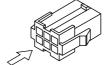
Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Corniector Ao (o-pins)
Connector	172160-1	1	Tyco Electronics	For Encoder cable
Connector pin	170365-1	6	Tyco Electronics	(6-pins)
Connector	172159-1	1	Tyco Electronics	For Motor cable
Connector pin	170366-1	4	Tyco Electronics	(4-pins)

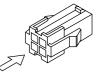
- connector X6
- Pin disposition of connector, Pin disposition of connector for encoder cable
- Pin disposition of connector for motor cable











Connector Kit

* When IP65 or IP67 are necessary, the customer must give appropriate processing.

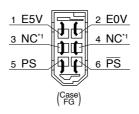
Part No.	DV0PM20035	Applicable model	MSME	50 W to 400 W(100 V), 50 W to 750 W(200 V)
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· Components

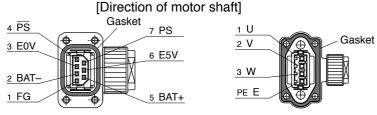
Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	ell kit 3E306-3200-008		(or equivalent)	For Connector A6 (6-pins)
Encoder connector	JN6FR07SM1	1	Japan Aviation	For Encoder cable
Socket contact	LY10-C1-A1-10000	7	Electronics Ind.	(7-pins)
Motor connector	JN8FT04SJ1	1	Japan Aviation	For Motor cable
Socket contact	ST-TMH-S-C1B-3500	4	Electronics Ind.	(4-pins)

• Pin disposition of connector, • Pin disposition of connector connector X6

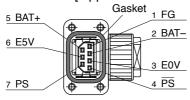
- for encoder cable
- Pin disposition of connector for motor cable

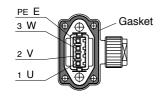


*1 NC: None Connect



[Opposite direction of motor shaft]





* Pins 2 and 5 are left unused (NC) with an incremental encoder.

Remarks 🔆 Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.

Part No.	DV0PM20036	Applicable model	<ip67 motor=""> MSME 750 W (400 V), 1.0 kW to 2.0 kW, MDME 400 W (400 V), 600 W (400 V), 1.0 kW to 2.0 kW MHME 1.0 kW to 1.5 kW, MGME 0.9 kW (All model 200 V and 400 V commonness)</ip67>	Without brake
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· Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1 (or equivalent)		For Connector A6 (6-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Freedor coble
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable
Motor connector	JL04V-6A-20-4SE-EB-R	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	FOI MOLOI CADIE

<Remarks>

• For crimp tool etc., necessary to produce a cable, access the web site of the manufacturer or consult with the manufacturer for details. For inquiries of manufacturer, refer to P.213 "List of Peripheral Equipments".

Part No. DV0P4310		<ip65 motor=""> MSME 750 W (400 V), 1.0 kW to 2.0 kW MDME 400 W (400 V), 600 W (400 V), 1.0 kW to 2.0 kW MHME 1.0 kW to 1.5 kW, MGME 0.9 kW</ip65>	Without brake
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Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1 (or equivalent)		For Connector X6 (6-pins)	
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Encoder Cable	
Motor connector	N/MS3106B20-4S	1	Japan Aviation	For Motor cobla	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Motor cable	

Part No. DV0PM20037 Applicable MSME 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW	
MHME 2.0 kW to 5.0 kW, MGME 2.0 kW to 4.5 kW (All model 200 V and 400 V commonness)	brake

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector Ao (o-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable
Motor connector	JL04V-6A22-22SE-EB-R	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	FOI MOLOI Cable

		<ip65 n<="" th=""><th>notor></th><th></th><th></th><th>\\/ithout</th></ip65>	notor>			\\/ithout	
Part No.		Applicable model	MSME	3.0 kW to 5.0 kW,	MDME	3.0 kW to 5.0 kW	Without brake
		MHME	2.0 kW to 5.0 kW,	MGME	2.0 kW to 4.5 kW	Diake	

Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector Ao (o-pins)	
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Freedor coble	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Encoder cable	
Motor connector	N/MS3106B22-22S	1	Japan Aviation	For Motor cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	FOI MOIOI CADIE	

Part No.	DV0PM20038	Applicable model	<ip67 motor=""> MSME 1.0 kW to 2.0 kW, MDME 1.0 kW to 2.0 kW MFME 1.5 kW (Common to with/ without brake), MHME 1.0 kW to 1.5 kW, MGME 0.9 kW (All model 200 V)</ip67>	With brake
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Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector A6 (6-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder Cable
Motor connector	JL04V-6A20-18SE-EB-R	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	FOI WIOLOI CADIE

Connector Kit

* When IP65 or IP67 are necessary, the customer must give appropriate processing.

Part No.	P4330 Applicable model	<ip65 motor=""> MSME 750 W (400 V), 1.0 kW to 2.0 kW MDME 400 W (400 V), 600 W (400 V), 1.0 kW to 2.0 kW MHME 1.0 kW to 1.5 kW, MGME 0.9 kW</ip65>	With brake	
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Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector Ao (o-pins)
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Encoder cable
Motor connector	N/MS3106B20-18S	1	Japan Aviation	For Motor cable
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For wolor cable

Part No.	DV0PM20039	Applicable model	<ip67 motor=""> (200V) MSME 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW MFME 2.5 kW to 4.5 kW (Common to with/ without brake), MHME 2.0 kW to 5.0 kW, MGME 2.0 kW to 4.5 kW (400V) MSME 750 W to 5.0 kW, MDME 400 W to 5.0 kW MFME 1.5 kW to 4.5 kW (Common to with/ without brake), MHME 1.0 kW to 5.0 kW, MGME 0.9 kW to 4.5 kW</ip67>	With brake
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· Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Confidence (6-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable
Motor connector	JL04V-6A24-11SE-EB-R	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2428CK(17)-R	1	Electronics Ind.	For Motor cable

	Applicable	<ip65 motor=""></ip65>						
Part No	DV0P4340	Applicable model	MSME 3.0 kW to 5.0 kW, MDME 3.0 kW to 5.0 kW MHME 2.0 kW to 5.0 kW, MGME 2.0 kW to 4.5 kW	With brake				

Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector A6 (6-pins)	
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	For Encoder cable	
Motor connector	N/MS3106B24-11S	1	Japan Aviation	For Motor cable	
Cable clamp	N/MS3057-16A	1	Electronics Ind.	For iviotor cable	

<Remarks>

• For crimp tool etc., necessary to produce a cable, access the web site of the manufacturer or consult with the manufacturer for details. For inquiries of manufacturer, refer to P.213 "List of Peripheral Equipments".

Part No.	DV0PM20056 Applica model		Without brake	
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Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV			For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector Ao (o-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable
Motor connector	JL04V-6A32-17SE-EB-R	1	Japan Aviation	For Motor cable
Cable clamp	JL04-32CK(24)-R *	1	Electronics Ind.	For Motor Cable

^{*} Cable cover size: Φ22 to Φ25. Cable core material is not specified. The user can select the cable compatible with the connector to be used.

Part No.	DV0PM20057	Applicable model	<ip67 motor=""> MDME 7.5 kW to 15.0 kW MGME 6.0 kW, MHME 7.5 kW</ip67>	With brake
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Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV			For Connector V6 (6 pine)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	For Encoder cable
Motor connector	JL04V-6A32-17SE-EB-R	1	Japan Aviation	Fau Matau aabla
Cable clamp	JL04-32CK(24)-R *	1	Electronics Ind.	For Motor cable
Brake connector	N/MS3106B14S-2S	1	Japan Aviation	For Brake cable
Cable clamp	N/MS3057-6A	1	Electronics Ind.	For Brake Cable

^{*} Cable cover size: Φ 22 to Φ 25. Cable core material is not specified. The user can select the cable compatible with the connector to be used.

Connector Kit for Motor/Brake Connection

Part No.	1)VOPIVIZOO40	Applicable model	MSME	50 W to 750 W
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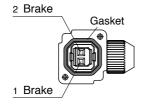
· Components

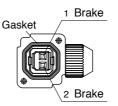
Title	Part No.	Number	Manufacturer	Note
Connector	JN4FT02SJM-R	1	Japan Aviation	For brake cable
Socket contact	ST-TMH-S-C1B-3500	2	Electronics Ind.	FOI DIAKE CADIE

• Pin disposition of connector for brake cable

[Direction of motor shaft]

[Opposite direction of motor shaft]





<Remarks>

Secure the gasket in place without removing it from the connector.

Otherwise, the degree of protection of IP67 will not be guaranteed.

<Remarks>

• For crimp tool etc., necessary to produce a cable, access the web site of the manufacturer or consult with the manufacturer for details. For inquiries of manufacturer, refer to P.213 "List of Peripheral Equipments".

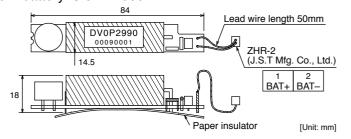
Battery for Absolute Encoder

* A5IIE, A5E series does not support to absolute encoder.

Battery for Absolute Encoder

Part No. DV0P2990

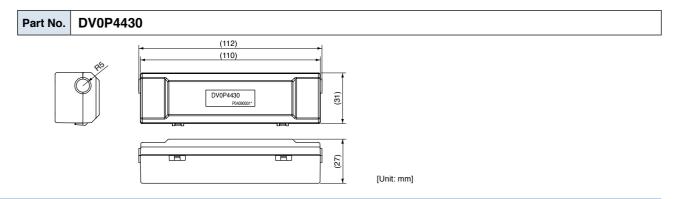
Lithium battery: 3.6 V 2000 mAh



<Caution>

This battery is categorized as hazardous substance, and you may be required to present an application of hazardous substance when you transport by air (both passenger and cargo airlines).

Battery Box for Absolute Encoder



When waking a cable for 17-bit absolute encoder by yourself

When you make your own cable for 17-bit absolute encoder, connect the optional battery for absolute encoder, DV0P2990 as per the wiring diagram below. Connector of the battery for absolute encoder shall be provided by customer as well.

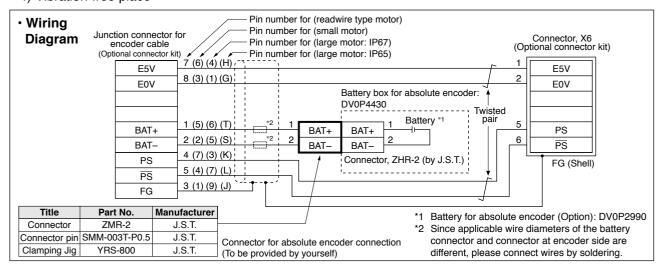
<Caution>

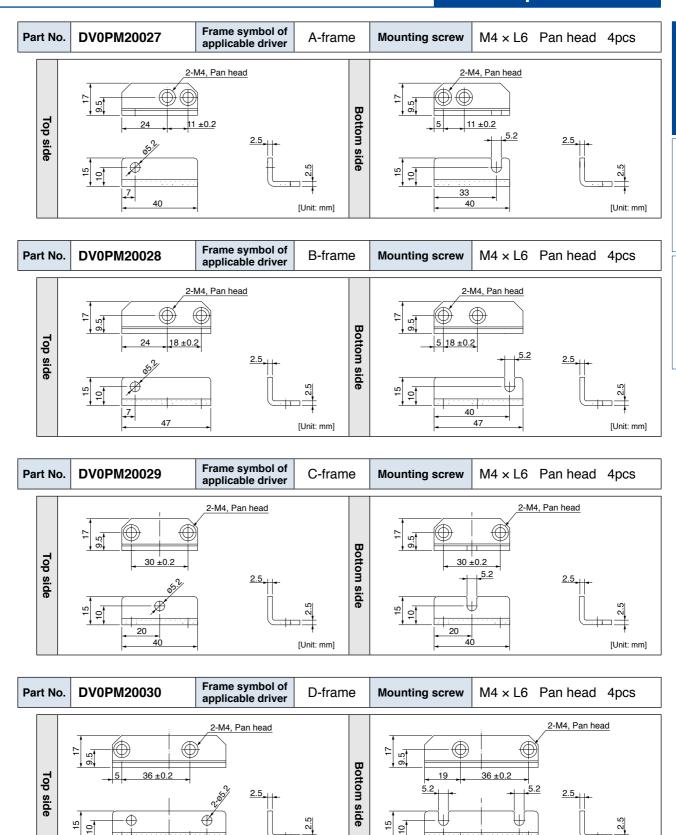
Install and fix the battery securely. If the installation and fixing of the battery is not appropriate, it may cause the wire breakdown or damage of the battery.

Refer to the instruction manual of the battery for handling the battery.

Installation Place of Battery

- 1) Indoors, where the products are not subjected to rain or direct sun beam.
- 2) Where the products are not subjected to corrosive atmospheres such as hydrogen sulfide, sulfurous acid, chlorine, ammonia, chloric gas, sulfuric gas, acid, alkaline and salt and so on, and are free from splash of inflammable gas, grinding oil, oil mist, iron powder or chips and etc.
- 3) Well-ventilated and humid and dust-free place.
- 4) Vibration-free place





<Caution>

40 ±0.2

10

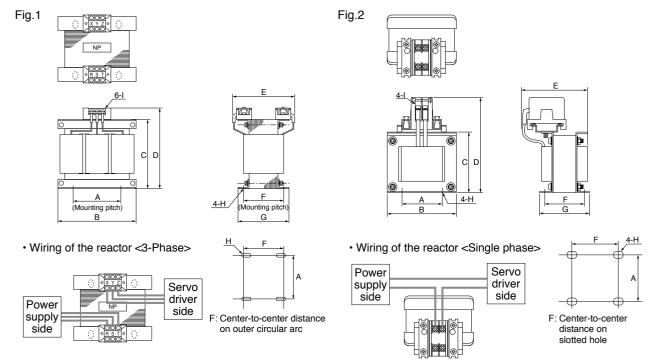
For E, F and G-frame, it is possible to make both a front end and back end mounting by changing the mounting direction of L-shape bracket (attachment).

[Unit: mm]

10

40 ±0.2 60

Reactor



[Unit: mm]

	Part No.	Α	В	С	D	E(Max)	F	G	н	ı	Inductance (mH)	Rated current (A)
	DV0P220	65±1	125±1	(93)	136мах	155	70+3/-0	85±2	4-7φ×12	M4	6.81	3
	DV0P221	60±1	150±1	(113)	155мах	130	60+3/-0	75±2	4-7φ×12	M4	4.02	5
Eig 1	DV0P222	60±1	150±1	(113)	155мах	140	70+3/-0	85±2	4-7φ×12	M4	2	8
Fig.1	DV0P223	60±1	150±1	(113)	155мах	150	79+3/-0	95±2	4-7φ×12	M4	1.39	11
	DV0P224	60±1	150±1	(113)	160мах	155	84+3/-0	100±2	4-7φ×12	M5	0.848	16
	DV0P225	60±1	150±1	(113)	160мах	170	100+3/-0	115±2	4-7φ×12	M5	0.557	25
	DV0P227	55±0.7	80±1	66.5±1	110мах	90	41±2	55±2	4-5φ×10	M4	4.02	5
Fig.2	DV0P228	55±0.7	80±1	66.5±1	110мах	95	46±2	60±2	4-5φ×10	M4	2	8
	DV0PM20047	55±0.7	80±1	66.5±1	110мах	105	56±2	70±2	4-5φ×10	M4	1.39	11

^{*} For application, refer to P.21 to P.28 and P.153 to P.154 "Table of Part Numbers and Options".

Harmonic restraint

Harmonic restraint measures are not common to all countries. Therefore, prepare the measures that meet the requirements of the destination country.

With products for Japan, on September, 1994, "Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system" and "Guidelines for harmonic restraint on household electrical appliances and general-purpose articles" established by the Agency for Natural Resources and Energy of the Ministry of Economy, Trade and Industry (the ex-Ministry of International Trade and Industry). According to those guidelines, the Japan Electrical Manufacturers' Association (JEMA) have prepared technical documents (procedure to execute harmonic restraint: JEM-TR 198, JEM-TR 199 and JEM-TR 201) and have been requesting the users to understand the restraint and to cooperate with us. On January, 2004, it has been decided to exclude the general-purpose inverter and servo driver from the "Guidelines for harmonic restraint on household electrical appliances and general-purpose articles". After that, the "Guidelines for harmonic restraint on household electrical appliances and general-purpose articles" was abolished on September 6, 2004. We are pleased to inform you that the procedure to execute the harmonic restraint on general-purpose inverter and servo driver was modified as follows.

- 1. All types of the general-purpose inverters and servo drivers used by specific users are under the control of the "Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system". The users who are required to apply the guidelines must calculate the equivalent capacity and harmonic current according to the guidelines and must take appropriate countermeasures if the harmonic current exceeds a limit value specified in a contract demand. (Refer to JEM-TR 210 and JEM-TR 225.)
- 2. The "Guidelines for harmonic restraint on household electrical appliances and general-purpose articles" was abolished on September 6, 2004. However, based on conventional guidelines, JEMA applies the technical documents JEM-TR 226 and JEM-TR 227 to any users who do not fit into the "Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system" from a perspective on enlightenment on general harmonic restraint. The purpose of these guidelines is the execution of harmonic restraint at every device by a user as usual to the utmost extent.

<Remarks> When using a reactor, be sure to install one reactor to one servo driver.

			Spec					
Part No.	Manufacturer's	Resistance	cable core outside diameter	Waight	Rated power (reference) *1		Activation	
Part No.	part No.	nesistance		Weight	Free air	with fan 1 m/s	temperature of built-in thermal protector	
		Ω	mm	kg	W	W		
DV0P4280	RF70M	50		0.1	10	25		
DV0P4281	RF70M	100		0.1	10	25		
DV0P4282	RF180B	25	ф1.27	0.4	17	50	140±5 °C	
DV0P4283	RF180B	50	Ψ1.27 AWG18 \	0.2	17	50	B-contact	
DV0P4284	RF240	30	stranded	0.5	40	100	Open/Close capacity	
DV0P4285	RH450F	20	\ wire /	1.2	52	130	(resistance load)	
DV0PM20048	RF240	120		0.5	35	80	1 A 125 VAC 6000 times	
DV0PM20049	RH450F	80		1.2	65	190	0.5 A 250 VAC 10000 times	
DV0PM20058	RH450F × 6	3.3	— *2	16	_ *3	780		
DV0PM20059	RH450F × 6	13.3	— *2	16	_ *3	1140		

Manufacturer: Iwaki Musen Kenkyusho

A built-in thermal fuse and a thermal protector are provided for safety.

The circuit should be so designed that the power supply will be turned off as the thermal protector operates.

The built-in thermal fuse blows depending on changes in heat dissipation condition, operating temperature limit, power supply voltage or load.

Mount the regenerative resistor on a machine operating under aggressive regenerating condition (high power supply voltage, large load inertia, shorter deceleration time, etc.) and make sure that the surface temperature will not exceed 100 °C.

Attach the regenerative resistor to a nonflammable material such as metal.

Cover the regenerative resistor with a nonflammable material so that it cannot be directly touched.

Temperatures of parts that may be directly touched by people should be kept below 70 °C.

*2 Terminal block with screw tightening torque as shown below.

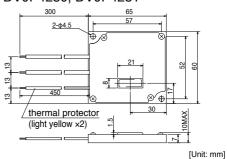
T1, T2, 24 V, 0 V, E : M4 : 1.2 N·m to 1.4 N·m R1, R2 : M5 : 2.0 N·m to 2.4 N·m

Use the cable with the same diameter as the main circuit cable. (Refer to P.19).

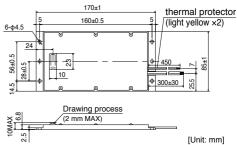
*3 With built-in fan which should always be operated with the power supply connected across 24 V and 0 V.

	Power supply					
Frame	Single phase, 100 V	Single phase, 200 V 3-phase, 200 V	3-phase, 400 V			
А	DV0P4280	DV0P4281 (50 W, 100 W) DV0P4283 (200 W)	_			
В	DV0P4283	DV0P4283				
С	DV0P4282	DV0F4203				
D		DV0P4284	DV0PM20048			
E		DV0P4284 × 2 in parallel or DV0P4285	DV0PM20049			
F	_	DV0P4285 × 2 in parallel	DV0PM20049 × 2 in parallel			
G	G	DV0P4285 × 3 in parallel	DV0PM20049 × 3 in parallel			
Н		DV0P4285 × 6 in parallel or DV0PM20058	DV0PM20049 × 6 in parallel or DV0PM20059			

DV0P4280, DV0P4281

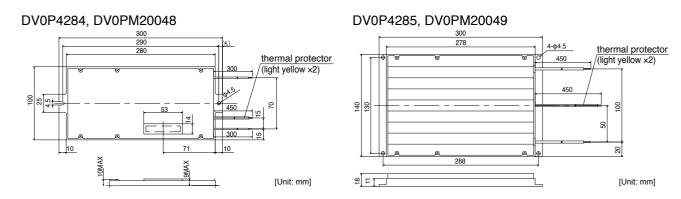


DV0P4282, DV0P4283

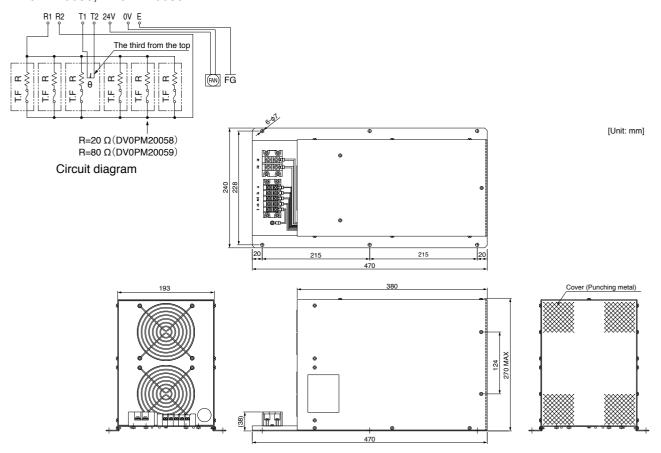


^{*1} Power with which the driver can be used without activating the built-in thermal protector.

External Regenerative Resistor



DV0PM20058, DV0PM20059



<Caution when using external regenerative resistor>

Regenerative resistor gets very hot.

Configure a circuit so that a power supply shuts down when built-in thermal protector of the regenerative resistor works. Because it is automatic reset thermal protector, please apply a self-holding circuit to the outside in order to maintain safety in case of sudden activation. During the failure of the driver, the surface temperature of the regenerative resistor may exceed the operating temperature before thermal protector starts to work.

Built-in thermal fuse of regenerative resistor is intended to prevent from ignition during the failure of the driver and not intended to suppress the surface temperature of the resistor.

- Be attached the regenerative resistance to non-combustible material such as metal.
- Built-in thermal fuse of regenerative resistor is intended to prevent from ignition during the failure of the driver and not intended to suppress the surface temperature of the resistor.
- Do not install the regenerative resistor near flammable materials.

Surge Absorber for Motor Brake

A5 Family Options

	Motor	Part No.	Manufacturer	
MSMD	50 W to 750 W	Z15D271	SEMITEC Corporation	
MSMJ	200 W to 750 W	or TNR15G271K	or NIPPON CHEMI-CON	
	50 W to 750 W	INN 13G27 IN	CORPORATION	
MSME	750 W (400 V) 1.0 kW to 5.0 kW	Z15D151	SEMITEC Corporation	
	400 W (400 V), 600 W (400 V)		·	
MDME	1.0 kW to 3.0 kW	NVD07SCD082	KOA Corporation	
WIDINE	4.0 kW to 7.5 kW	Z15D151	SEMITEC Corporation	
	11 kW, 15 kW			
MFME	1.5 kW	NVD07SCD082	KOA Corporation	
IVIFIVIE	2.5 kW, 4.5 kW			
MGME	0.9 kW to 6.0 kW	Z15D151	SEMITEC Corporation	
MHMD MHMJ	200 W to 750 W	Z15D271 or TNR15G271K	SEMITEC Corporation or NIPPON CHEMI-CON CORPORATION	
MHME	1.0 kW, 1.5 kW	NVD07SCD082	KOA Corporation	
IVITIVIE	2.0 kW to 7.5 kW	Z15D151	SEMITEC Corporation	

List of Peripheral Equipments

Manufacturer	Tel No. / Home Page	Peripheral components		
Panasonic Corporation Eco Solutions Company	http://panasonic.net/es/	Circuit breaker		
Panasonic Corporation Automotive & Industrial Systems Company	http://panasonic.net/id/	Surge absorber Switch, Relay		
Iwaki Musen Kenkyusho Co., Ltd.	+81-44-833-4311 http://www.iwakimusen.co.jp/	Regenerative resistor		
KOA Corporation	+81-42-336-5300 http://www.koanet.co.jp/en/index.htm			
NIPPON CHEMI-CON CORPORATION	+81-3-5436-7711 http://www.chemi-con.co.jp/e/index.html	Surge absorber for holding brake		
SEMITEC Corporation	+81-3-3621-2703 http://www.semitec.co.jp/english2/	Ü		
KK-CORP.CO.JP	+81-184-53-2307 http://www.kk-corp.co.jp/			
MICROMETALS (Nisshin Electric Co., Ltd.)	+81-4-2934-4151 http://www.nisshin-electric.com/	Noise filter for signal lines		
TDK Corporation	+81-3-5201-7229 http://www.global.tdk.com/	3		
Okaya Electric Industries Co. Ltd.	+81-3-4544-7040 http://www.okayaelec.co.jp/english/index.html	Surge absorber Noise filter		
Japan Aviation Electronics Industry, Ltd.	+81-3-3780-2717 http://www.jae.co.jp/e-top/index.html			
Japan Molex Inc.	+81-462-65-2313 http://www.molex.co.jp			
J.S.T. Mfg. Co., Ltd.	+81-45-543-1271 http://www.jst-mfg.com/index_e.php			
Sumitomo 3M	+81-3-5716-7290			
Tyco Electronics	+81-44-844-8052 http://www.te.com/ja/home.html			
DYDEN CORPORATION	+81-3-5805-5880 http://www.dyden.co.jp/english/index.htm	Cable		
DR. JOHANNES HEIDENHAIN GmbH	+81-3-3234-7781 http://www.heidenhain.de/de_EN/company/contact/			
Fagor Automation S.Coop.	+34-943-719-200 http://www.fagorautomation.com			
GSI Group Japan Corporation Encoder Group	+81-3-5753-2464 http://www.gsig.co.jp/microe/ (Japanese)			
Magnescale Co., Ltd.	+81-463-92-7971 http://www.mgscale.com/mgs/language/english/	External scale		
Mitutoyo Corporation	+81-44-813-8234 http://www.mitutoyo.co.jp/eng/			
Nidec Sankyo Corporation	+81-3-5740-3006 http://www.nidec-sankyo.co.jp/			
Renishaw plc	+44 1453 524524 www.renishaw.com			
Schaffner EMC, Inc.	+81-3-5712-3650 http://www.schaffner.jp/			
TDK-Lambda Corporation	+81-3-5201-7140 http://www.tdk-lambda.com/	Noise filter		

^{*} The above list is for reference only. We may change the manufacturer without notice.

MEMO

Compact Servo Only for

Ultra compact position control type

MINAS E Series



Best Fit to Small Drives

- Further evolution in down-sizing, by 47 % in size. (Note)
- Exclusively designed for position control.

(Note) Compared to MUDS043A1

Easy to Handle, Easy to Use

- DIN-rail mounting unit (option) improves handling/installation.
- User-friendly Console makes the setup easy.
- High functionality Real-Time Auto-Gain Tuning enables adjustment-free operation.



High-Speed Positioning with Resonance Suppression Filters

- Built-In notch filter suppresses resonance of the machine.
- Built-in adaptive filter detect resonance frequency and suppress vibration.

Smoother operation for Low Stiffness Machine

Damping control function suppresses vibration during acceleration/deceleration

Position Control.

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. Easy to Handle, Easy to Use

High-functionality Real-Time Auto-Gain Tuning (Note 1)

- Offers real automatic gain tuning for low and high stiffness machines with a combination of an adaptive filter.
- Supports the vertical axis application where the load torque is different in rotational direction.

DIN-rail mounting unit (option)

- DIN-rail mounting unit allows parallel mounting with small control devices such as PLC.
- Easy to mount and easy to dismount.

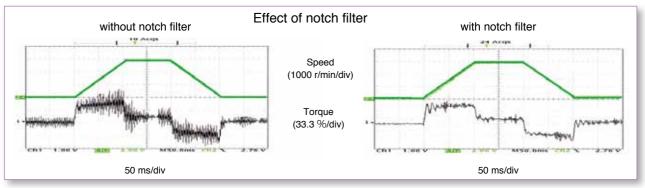
Further Reduction of Vibration

Adaptive filter (Note1)

- Makes the notch filter frequency automatically follow the machine resonance frequency in real-time auto-gain tuning.
- Suppression of "Judder" noise of the machine, which is caused by variation of the machines or resonance frequency due to aging, can be expected.

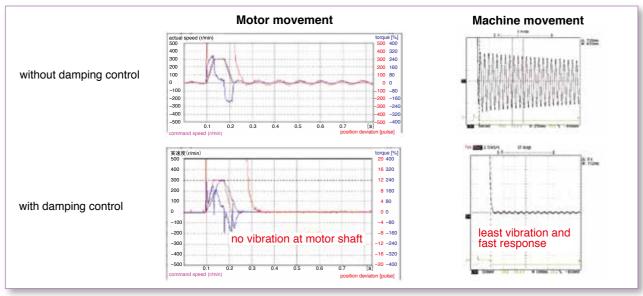
Notch filter (Note1)

- 1-channel notch filter is equipped in the driver independent from adaptive filter.
- Each of 2 filters can set up frequency and notch width, and frequency in 1Hz unit. Suppression of "Judder" noise of the machine which has multiple resonance points can be expected.



Damping control (Note1)

You can suppress vibration occurring at both starting and stopping in low stiffness machine, by manually setting up vibration frequency in 0.1 Hz unit. Note) Only applies to manual adjustment



(Note1) Select at positioning action mode

- At high speed positioning mode (Pr02=0) Select either one of notch filter, damping control or high-functionality real-time auto- gain tuning.
 Not possible to use them all at the same time.
 Adaptive filter cannot be used.
- At high-functionality positioning mode (Pr02=1) All of notch filter, damping control, high-functionality real-time auto-gain tuning and adaptive filter can be used at the same time

. Further Flexibility and Multiplicity

Console (Option)

- You can set up parameters, copy and make a JOG run.
- Convenient for maintenance at site.
- Refer to P.241, Options.

Command control modes

- Offers 2 command modes, "Position control" and "Internal velocity control".
- You can make a 4-speed running at preset values with parameter at internal velocity control mode.

Inrush current suppressing function

- Inrush suppressing resistor, which prevent the circuit breaker shutdown of the power supply caused by inrush current at power-on, is equipped in this driver.
- Prevents unintentional shutdown of the power supply circuit breaker in multi axis application and does not give load to the power line.

Regeneration discharging function

- Discharges the regenerative energy with external resistor, where energy is generated while stopping the load with large moment of inertia, or use in up-down operation, and is returned to the driver from the motor.
- No regenerative resistor is installed in the driver.
- It is highly recommended to install an external regenerative resistor (option).

Built-in dynamic brake

- You can select the dynamic brake action which short the servo motor windings of U, V and W, at Servo-OFF, CW/ CCW over- travel inhibition, power shutdown and trip.
- You can select the action sequence depending on the machine requirement.

Setup support software (Option)

With the setup support software, "PANATERM" via RS232 / RS485 communication port, you can monitor the running status of the driver and set up parameters.

Note) Refer to P.236 for setup support software.

Key-way shaft and tapped shaft end

- Easy pulley attachment and easy maintenance
- Attache screw to the tapped shaft to prevent key or pulley from being pulled out.

Wave-form graphic function

- With the setup support software, "PANATERM", you can monitor the "Command speed", "Actual speed", "Torque", "Position deviation" and "Positioning complete signal".
- Helps you to analyze the machine and shorten the setup time.

Note) Refer to P.236 for setup support software.

Frequency analyzing function

- You can confirm the response frequency characteristics of total machine mechanism including the servo motor with the setup support software, "PANATERM".
- Helps you to analyze the machine and shorten the setup time.

Note) Refer to P.236 for setup support software.

Torque limit switching function

- You can select 2 preset torque limit value from external input.
- Use this function for tension control or press-hold control.

Conformity to CE and UL Standards







Subject		Standard conformed	
Motor	IEC60034-1	IEC60034-5 UL1004 CSA22.2 No.100	Conforms to Low-Voltage
	EN50178	UL508C CSA22.2 No.14	Directives
	EN55011	Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	
	EN61000-6-2	Immunity for Industrial Environments	
Matau	EC61000-4-2	Electrostatic Discharge Immunity Test	
Motor and driver	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	Conforms to references
unven	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test	by EMC Directives
	IEC61000-4-5	Lightening Surge Immunity Test	
	IEC61000-4-6	High Frequency Conduction Immunity Test	
	IEC61000-4-11	Instantaneous Outage Immunity Test	

: International Electrotechnical Commission

: Europaischen Normen **EMC**: Electromagnetic Compatibility Underwriters Laboratories CSA: Canadian Standards Association

Pursuant to at the directive 2004/108/EC, article 9(2)

Panasonic Testing Centre Panasonic Service Europe.

a division of Panasonic Marketing Europe GmbH

Winsbergring 15,22525 Hamburg, F.R. Germany

^{*} When exporting this product, follow statutory provisions of the destination country.



Motor Line-up

	Rated rotational		encoder	Brake	Gear					
Motor series	Rated output (kW)	speed (Max. (speed) (r/min)	2500 P/r incremental	17bit absolute/ incremental	Holding	High precision	UL/ CSA	Enclosure	Features	Applications
MUMA										
	0.05 to 0.4 0.05 0.1 0.2 0.4	3000 (5000)	0	_	0	0	0	IP65 Except shaft throughhole and connector	Small capacity Ultra low inertia	SMT machines Inserters High repetitive positioning application

$\overline{\text{MINAS}\,E}$ Series **Model Designation**

Servo Motor



Symbol	Туре			
MUMA	Ultra low inertia (50 W to 400 W)			

Motor rated output

Symbol	Rated output
5A	50 W
01	100 W
02	200 W
04	400 W

Voltage specifications

Symbol	Specifications
1	100 V
2	200 V
Z	100 V/200 V common (50 W only)

* Motor with oil seal is manufactured by order.

Design order

Symbol

S

Τ

Symbol	Specifications
1	Standard

Motor structure

Shaft

Key-way,

center tap

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

See P.227 for motor specifications

Holding brake

with

without

Oil seal

without

with*

Motor with gear reducer

U M A 0 1 1 P 3 1

Motor rated output Symbol Rated output Symbol Type 01 100 W Ultra low inertia **MUMA** (100 W to 400 W) 02 200 W 400 W 04

Voltage specifications

_	
Symbol	Specifications
1	100 V
2	200 V

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

Gear reduction ration, gear type

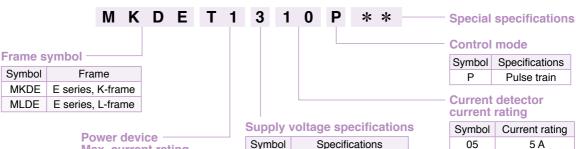
	Gear	Motor output (W)				
Symbol	reduction ratio	100	200	400	Gear type	
1N	1/5	•	•	•	Fau biala	
2N	1/9	•	•	•	For high accuracy	
4N	1/25	•	•	•	accuracy	

Motor structure

Symbol	Shaft	Holding brake	
Syllibol	Key-way	without	with
3	•	•	
4	•		•

See P.232 for motor with gear reducer specifications

Servo Driver



Max. current rating

	3
Symbol	Current rating
T1	10 A
T2	15 A

Symbol Specifications Single phase, 100 V 1 2 Single phase, 200 V 3 3-phase, 200 V Single/3-phase, 200 V 5

10 A 10

See P.223 for driver specifications

Overall Wiring/ Driver and List of Applicable Peripheral Equipments

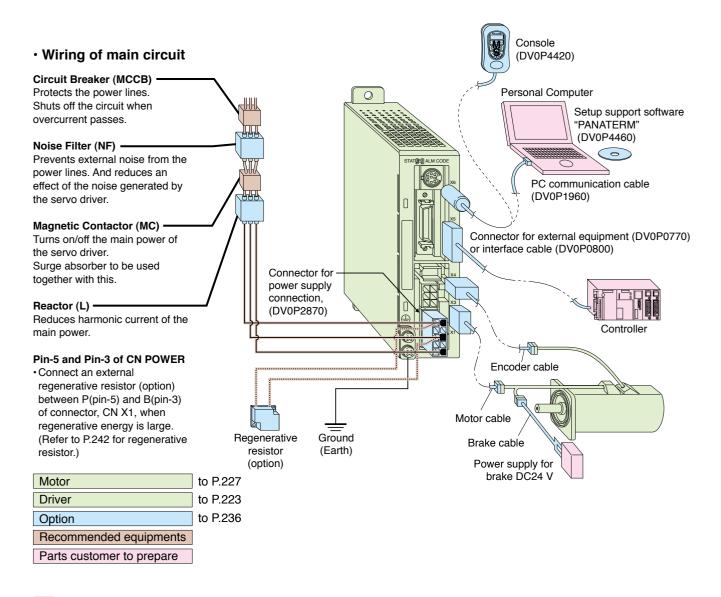


Table of Part Numbers and Options

			2500P/r, Inc				
Power supply	Output (W)	Motor Note) 1	Rating/Spec. (page)	Driver	Dimensions (Frame (symbol)	Encoder Cable	Motor Cable
Single	50	MUMA5AZP1 🗌	227	MKDET1105P	226 (K)		
phase	100	MUMA011P1 🗌	227	MKDET1110P	226 (K)		
100 V	200	MUMA021P1 🗌	227	MLDET2110P	226 (L)	MFECA0**0EAM MFMCA0**0AEB	DEAM MFMCA0 * * 0AEB
	50	MUMA5AZP1 🗌	229	MKDET1505P	226 (K)		
Single	100	MUMA012P1 🗌	229	MKDET1505P	226 (K)		
phase 200 V	200	MUMA022P1	229	MLDET2210P	226 (L)		
	400	MUMA042P1 🗌	229	MLDET2510P	226 (L)		
	50	MUMA5AZP1	229	MKDET1505P	226 (K)		
	100	MUMA012P1	229	MKDET1505P	226 (K)		
3-phase 200 V	200	MUMA022P1	229	MKDET1310P	226 (K)		
200 1	400	MUMA042P1		MLDET2510P	206 (1)		
	400	IVIOIVIAU42P1	229	MLDET2310P	226 (L)		

Note) 1 Motor model number suffix:

S: Key way with center tap, without brake

T: Kew way with center tap, with brake

Note) 2 ** represents cable length. For details, refer to P.237.

List of recommended peripheral equipments Motor Power

_	Мо	tor	Power			Magnetic	
Power supply	Series	Output	capacity (at rated) output	Circuit Breaker (Rated current)	Noise Filter	Contactor (Composition)	Wire diameter (L1, L2, L3, U, V and W)
Single		50 W	0.3 kVA	(5 A)		40.4	
phase,		100 W	0.4 kVA	(5 A)		10 A (3P+1a)	
100 V		200 W	0.5 kVA	(10 A)		(or Fra)	
		50 W	50 W				
Single		100 W	0.3 kVA	(5 A)		15 A	
phase, 200 V	MUMA	200 W	0.5 kVA		DV0P4160	(3P+1a)	0.75 mm ² to 0.85 mm ² AWG18
		400 W	0.9 kVA	(10 A)			AWGIO
		50 W	0.01970				
3-phase		100 W	0.3 kVA	(5 A)		10 A (3P+1a)	
200 V		200 W	0.5 kVA				
		400 W	0.9 kVA	(10 A)			

- * Select the single and 3-phase common specifications corresponding to the power supplies.
- To conform to EC Directives, install a circuit breaker which conforms to IEC and UL Standards (Listed, ® marked) between noise filter and power supply.
- For details of the noise filters, refer to P.256.

<Remarks>

Option

 Use a copper conductor cables with temperature rating of 60 °C or higher for main power connector and ground terminal wiring.

Use a cable for ground with diameter of 2.0 \mbox{mm}^2 (AWG14) or larger.

<u> </u>			
Brake Cable Note) 2	External Regenerative Resistor	Reactor	Noise Filter
	DV0P2890	DV0P227	
		DV0P228	
MFMCB0 * * 0GET			DV0P4160

DV0P2891

DV0P220

Carrying page

	Ontion			Part No.	Carrying
Options					page
Console				DV0P4420	241
Setup Support Software,			Japanese	DV0P4460	236
PANATERM			English	DV0F4400	230
RS232 Commu (for Connection				DV0P1960	241
Interface Cable)			DV0P0800	241
Connector Kit f	or Exte	rr	nal Equipment	DV0P0770	240
Connector Kit f	or Moto	or	and Encoder	DV0P3670	239
Connector Kit f	or Driv	er	Power Supply	DV0P2870	239
Encoder Cable			MFECA0 * * 0EAM		238
Motor Cable			MFMCA0 * *	238	
Brake Cable			MFMCB0 * *	238	
Cable Set (3 m) (Note 3)		DV0P37300	238	
Cable Set (5 m) (Note 3)		DV0P39200		238
DIN Rail Mount	Unit		DV0P3811		242
External	100 V	,	50 Ω 10 W	DV0P2890	0.40
Regenerative Resistor	200 V	,	100 Ω 10 W	DV0P2891	242
			100 V	DV0P227	
Reactor			100 V	DV0P228	243
			200 V	DV0P220	
Noise Filter				DV0P4160	256
Surge Absorbe			gle phase V, 200 V	DV0P4190	256
	3-	-p	hase 200 V	DV0P1450	
Noise Filter for	Signal	٧	Vire	DV0P1460	256

(Note 3) Cable set (3 m) contains,

- 1) Interface cable: DV0P0800
- 2) Encoder cable (3 m): MFECA0030EAM
- 3) Motor cable (3 m) : MFMCA0030AEB
- 4) Connector kit for driver power supply connection : DV0P2870 Cable set (5 m) contains,
 - 1) Interface cable: DV0P0800
 - 2) Encoder cable (5 m) : MFECA0050EAM
 - 3) Motor cable (5 m) : MFMCA0050AEB
 - 4) Connector kit for driver power supply connection : DV0P2870

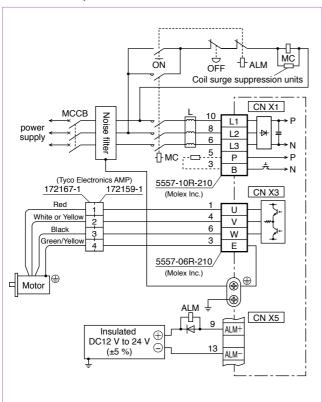
Driver Specifications

	Īп	Sing	lle phase, 100 V	Single phase, 100 V to 115 V +10 % 50 Hz/60 Hz		
	Input power	Sing	le phase, 200 V	Single phase, 200 V to 240 V +10 % 50 Hz/60 Hz		
	/er	3-ph	ase, 200 V	3-phase, 200 V to 240 V +10 % 50 Hz/60 Hz		
	En	Tem	perature	Operating: 0 °C to 55 °C, Storage: –20 °C to 65 °C (Max.temperature guarantee 80 °C for 72 hours <nomal temperature="">)</nomal>		
	Environment	Hum	nidity	Both operating and storage : 90 %RH or less (free from condensation)		
	nme	Altitu	ude	1000 m or lower		
	크 Vibration			5.88 m/s ² or less, 10 Hz to 60 Hz (No continuous use at resonance frequency)		
Bas	With	stand	voltage	Should be 1500 VAC (Sensed current: 20 mA) for 1 minute between Primary and Ground.		
ic S		trol me		IGBT PWM Sinusoidal wave drive		
peci	Enco	oder fe	eedback	2500 P/r (10000 resolution) incremental encoder		
ficat	" O	Inpu	t	7 inputs (1) Servo-ON, (2) Alarm clear and other inputs vary depending on the control mode.		
Basic Specifications	Control signal	Outp		4 outputs (1) Servo alarm, (2) Alarm, (3) Release signal of external brake and other outputs vary depending on the control mode.		
		Inpu	t	2 inputs Supports both line driver I/F and open collector I/F.		
	Pulse signal	Out		4 outputs Feed out the encoder pulse (A, B and Z-phase) in line driver.		
				Z-phase pulse is also feed out in open collector.		
	Communication function I Display LED		cation function RS232	1:1 communication to a host with RS232 interface is enabled.		
	Disp	Regeneration		(1) Status LED (STATUS), (2) Alarm code LED (ALM-CODE)		
	Reg			No built-in regenerative resistor (external resistor only)		
	Dyna	amic b	orake	Built-in		
	Cont	trol mo	ode	3 modes of (1) High-speed position control, (2) Internal velocity control and (3) High-functionality positioning control are selectable with parameter.		
		Control input		(1) CW over-travel inhibition, (2) CCW over-travel inhibition, (3) Deviation counter clear, (4) Gain switching, (5) Electronic gear switching		
		Control output		(1) Positioning complete (In-position)		
	Position control		Max. command pulse frequency	Line driver : 500 kpps, Open collector : 200 kpps		
	n contr	Pulse input	Type of input pulse train	Differential input. Selectable with parameter, ((1) CW/CCW, (2) A and B-phase, (3) Command and Direction)		
	<u>o</u>		Electronic gear /Division/Multiplication of command pulse	Setup of electronic gear ratio Setup range of (1-10000) $\times 2^{(0-17)}/(1-10000)$		
			Smoothing filter	Primary delay filter or FIR type filter is selectable to the command input.		
	Internal speed	Con	trol input	(1) CW over-travel inhibition, (2) CCW over-travel inhibition, (3) Selection 1 of internal command speed,(4) Selection 2 of internal command speed,(5) Speed zero clamp		
	nal	Con	trol output	(1) Speed arrival (at-speed)		
	spec	Inter	rnal speed command	Internal 4-speed is selectable with control input.		
П	ed control	Soft	-start/down function	Individual setup of acceleration and deceleration are enabled, with 0 s to 10 s/1000 r/min. Sigmoid acceleration/deceleration is also enabled.		
Functions	<u></u>	Zero	o-speed clamp	0-clamp of internal speed command with speed zero clamp input is enabled.		
ions		Auto-ga	Real-time	Estimates the load inertia in real-time in actual operation and sets up the gain automatically corresponding to the machine stiffness. Useable at (1) High-response position control, (2) Internal speed control and (3) High-functionality position control.		
		Auto-gain tuning	Normal mode	Estimates the load inertia with an action command inside of the driver, and sets up the gain automatically corresponding to setup of the machine stiffness. Useable at (1) High-response position control, (2) Internal speed control and (3) High-functionality position control.		
		Mas inpu	king of unnecessary t	Masking of the following input signal is enabled. (1) Over-travel inhibition, (2) Speed zero clamp, (3) Torque limit switching		
	Common	puls	sion of encoder feedback e	1 P/r to 2500 P/r (encoder pulses count is the max.).		
	ōn	Protective function	Hardware error	Over-voltage, under-voltage, over-speed over-load, over-heat, over-current and encoder error etc.		
			Software error	Excess position deviation, command pulse division error, EEPROM error etc.		
		Trac	eability of alarm data	Traceable up to past 14 alarms including the present one.		
			nping control function	Manual setup with parameter		
		Setup	Manual	Console		
		늄	Setup support software	PANATERM (Supporting OS : Windows98, Windows ME, Windows2000, and WindowsXP)		

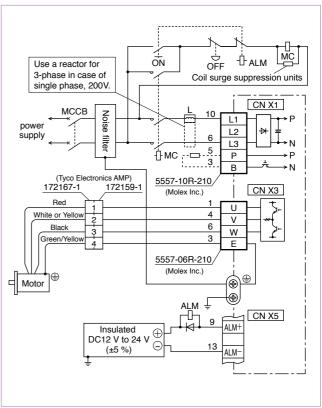
Standard Wiring Example of Main Circuit/ Encorder Wiring Diagram

Standard Wiring Example of Main Circuit

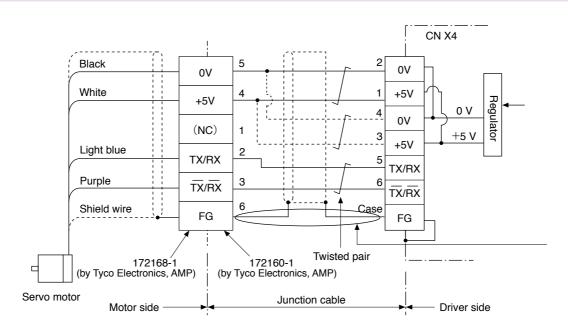
3-Phase, 200 V



Single Phase, 100 V / 200 V



Encorder Wiring Diagram

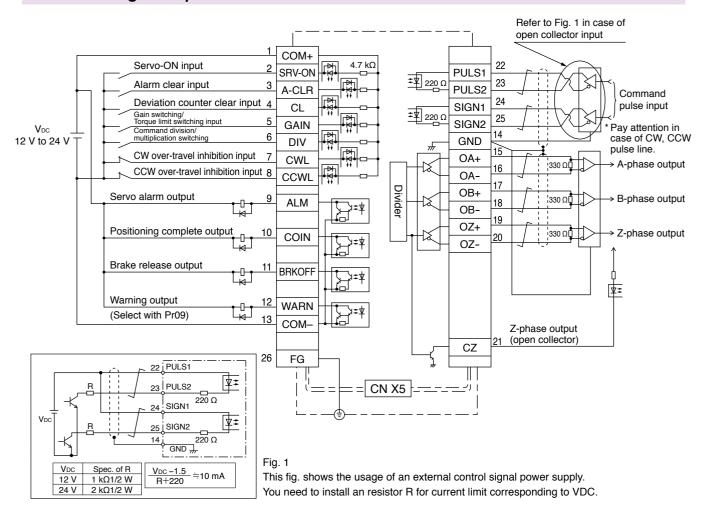


When you make your own junction cable for encoder (Refer to P.239, P.240 "Options" for connector.)

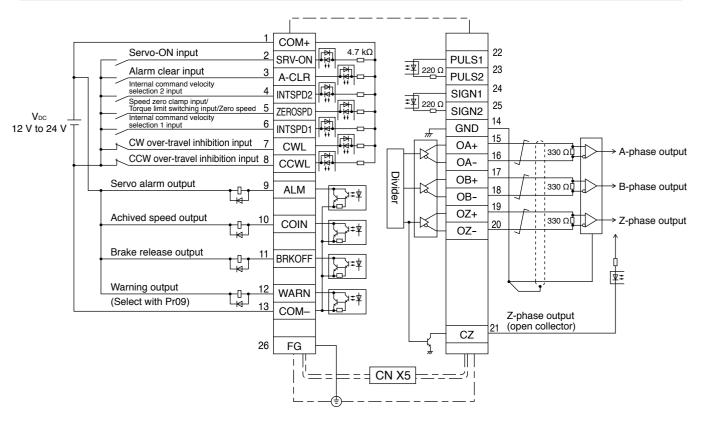
- 1) Refer the wiring diagram.
- 2) Use the twisted pair wire with shield, with core diameter of 0.18 mm² (AWG24) or larger, with higher bending resistance.
- 3) Use the twisted pair wire for the corresponding signal and power supply.
- 4) Shielding
 - Connect the shield of the driver to the case of CN X4.
 - Connect the shield of the motor to Pin-6.

Control Circuit Standard Wiring Example

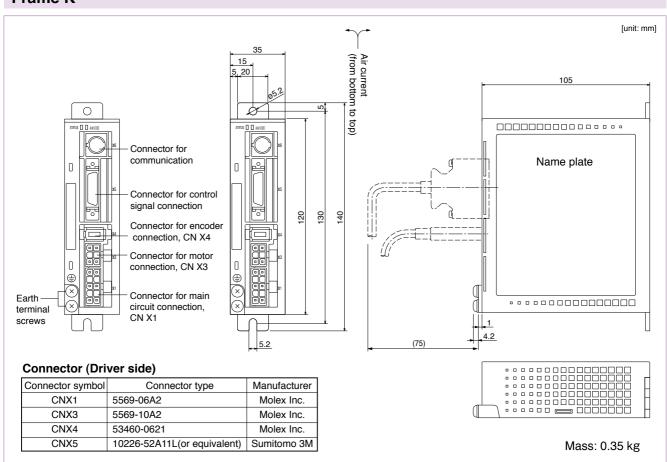
CN X 5 Wiring Example at Position Control Mode



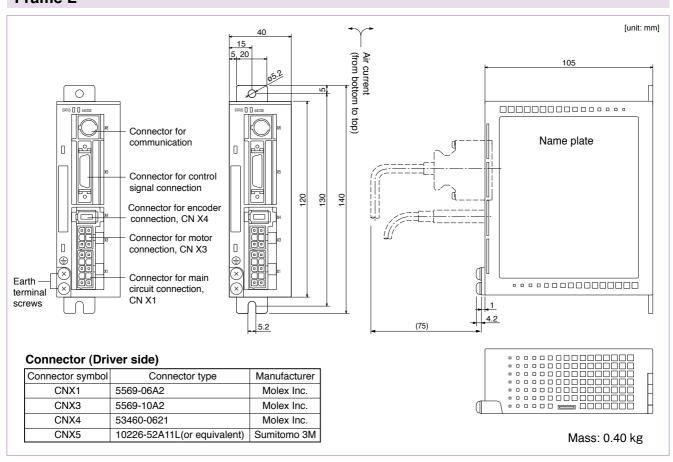
CN X 5 Wiring Example at Internal Velocity Control Mode



Frame K



Frame L



E Series

Motor Specifications

100 V **MUMA** 50 W to 200 W

				AC100 V			
Motor model		MUMA	5AZP1□	011P1	021P1		
		Model No.	MKDET1105P	MKDET1110P	MLDET2110P		
Applicable dri	ver	Frame symbol	Fram	ne K	Frame L		
Power supply	ower supply capacity (kVA)		0.3	0.4	0.5		
Rated output	(W)		50	100	200		
Rated torque	(N·m)		0.16	0.32	0.64		
Momentary M	ax. peak to	orque (N·m)	0.48	0.95	1.91		
Rated current	(Arms)		1.0	1.6	2.5		
Max. current ((Ao-p)		4.3	6.9	11.7		
Regenerative	brake	Without option		No limit Note)2			
frequency (times/min)	Note)1	DV0P2890	No limit Note)2				
Rated rotation	nal speed (r/min)	3000				
Max. rotationa	al speed (r	/min)	5000				
Moment of ine	ertia	Without brake	0.021	0.021 0.032			
of rotor (×10 ⁻⁴ kg·m²)		With brake	0.026	0.036	0.13		
Recommende of the load an		of inertia ratio Note)3	30 times or less				
			2500 P/r				
Rotary encod	ler specific	ations	Incremental				
	Resolutio	n per single turn	10000				
Protective en	closure rat	ing	IP65 (except rotating portion of output shaft and lead wire end)				
	Ambient	temperature	0 °C to 40 °C (free from freezing), Storage : –20 °C to 65 °C (Max.temperature guarantee 80 °C for 72 hours <nomal humidity="">)</nomal>				
	Ambient	humidity	85 %RH or lower (free from condensing)				
Environment	Installati	on location	Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust				
	Altitude			1000 m or lower			
	Vibration	resistance		49 m/s² or less			
Mass (kg), ()	represents I	nolding brake type	0.4 (0.6)	0.5 (0.7)	0.96 (1.36)		
Brake speci	fications	(This brake will	be released when it is energize	d. Do not use this for braking t	the motor in motion.)		
Static friction	torque (N	m)	0.2	1.27			
Engaging tim	e (ms)		25	5	50		
Releasing tim	ne (ms)	Note)4	20 (3	30)	15 (100)		

Brake specifications (This brake will be released when it is energized. Do not use this for braking the motor in motion.)							
Static friction torque (N m)	0.29	1.27					
Engaging time (ms)	25	50					
Releasing time (ms) Note)4	20 (30)	15 (100)					
Exciting current (DC) (A)	0.26	0.36					
Releasing voltage							
Exciting voltage DV 24 V ±10 %							

Permissible	load		
	Radial load P-direction (N)	147	392
During assembly	Thrust load A-direction (N)	88	147
	Thrust load B-direction (N)	117	196
	Radial load P-direction (N)	68	245
During operation	Thrust load A-direction (N)	58	98
	Thrust load B-direction (N)	58	98

For motor dimensions, refer to P.231, and for the diver, refer to P.226.

Model Designation

5 e.g.)

Symbol Type Ultra low inertia MUMA (50 W to 200 W)

Motor rated output Symbol Rated output 5A 50 W 01 100 W 200 W 02

Voltage specifications Symbol Specifications 100 V 1 100/200 V Ζ (50 W only)

Design order 1: Standard

Motor structure

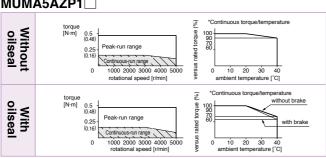
	Shaft	Holding	brake	Oil s	eal
Symbol	Key-way, center tap	without	with	without	with
S	•	•		•	
Т	•		•	•	

Rotary encoder specifications

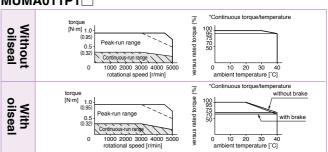
Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

Torque Characteristics [at AC100 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]

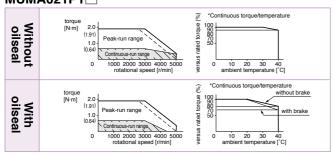
MUMA5AZP1



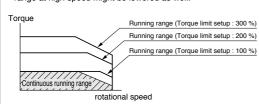
MUMA011P1

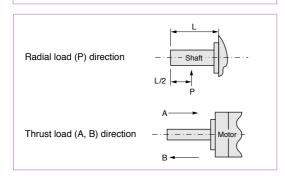


MUMA021P1



*When you lower the torque limit setup (Pr5E and 5F), running range at high speed might be lowered as well.





- Note) 1. Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.
 - If the load is connected, frequency will be defined as 1/(m+1), where m =(load moment of inertia) / (rotor moment of inertia).
 - · When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
 - Power supply voltage is AC115 V (at 100 V of the main voltage). If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/115) relative to the value in the table.
 - · When regeneration occurs continuosly such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
 - 2. If the effective torque is within the rated torque, there is no limit in regenerative brake
 - 3. Consult us or a dealer if the load moment of inertia exceeds the specified
 - 4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D151 by SEMITEC Corporation or equivalent).
 -) represents the actually measured value using a diode (200 V, 1 A or equivalent)

200 V MUMA 50 W to 400 W

Low inertia
Small drives

			AC200 V					
Motor model		MUMA	5AZP1□	012P1	022P1□	042P1		
			MKDET1310F		MKDET1310P	MLDET2310P		
Applicable drive	er	Model No.	MKDE	Г1505Р	MKDET2210P	MLDET2510P		
		Frame symbol	Fra	me K	Frame K Frame L	Frame L		
Power supply c	apacity (I	kVA)	0.3	0.3	0.5	0.9		
Rated output (V	V)		50	100	200	400		
Rated torque (N	۱·m)		0.16	0.32	0.64	1.3		
Momentary Ma	x. peak to	orque (N · m)	0.48	0.95	1.91	3.8		
Rated current (Arms)		1.0	1.0	1.6	2.5		
Max. current (A	.o-p)		4.3	4.3	7.5	11.7		
Regenerative b		Without option	No limit Note)2					
irequericy (tim	Note)1	DV0P2891	No limit Note)2					
Rated rotationa	l speed (r/min)	3000					
Max. rotational	speed (r/	/min)	5000					
Moment of iner	tia Without brake		0.021	0.032	0.10	0.17		
of rotor (×10 ⁻⁴ kg·m²)		With brake	0.026	0.036	0.13	0.20		
Recommended of the load and			30 times or less					
Rotary encoder	specifica	ations	2500 P/r					
	оросшос		Incremental					
	Resoluti	ion per single turn		10	000			
Protective encl	osure rati	ing	IP65 (except rotating portion of output shaft and lead wire end)					
	Ambien	nt temperature	0 °C to 40 °C (free from freezing), Storage : –20 °C to 65 °C (Max.temperature guarantee 80 °C for 72 hours <nomal humidity="">)</nomal>					
	Ambien	nt humidity	85 %RH or lower (free from condensing)					
Environment	Installa	tion location	Indoors (no direct	sunlight), free from corro	sive gas, inflammable gas	s, oil mist and dust		
	Altitude	•	1000 m or lower					
	Vibratio	on resistance	49 m/s ² or less					
Mass (kg), () re	presents I	holding brake type	0.4 (0.6)	0.5 (0.7)	0.96 (1.36)	1.5 (1.9)		

Brake specifications (This brake will be released when it is energized. Do not use this for braking the motor in motion.)										
Static friction torque (N · m)	0.29	1.27								
Engaging time (ms)	25	50								
Releasing time (ms) Note)4	20 (30)	15 (100)								
Exciting current (DC) (A)	0.26 0.36									
Releasing voltage	DC 1 V or more									
Exciting voltage DV 24 V ±10 %										

Permissible load									
During assembly	Radial load P-direction (N)	147	392						
	Thrust load A-direction (N)	88	147						
	Thrust load B-direction (N)	117	196						
	Radial load P-direction (N)	68	245						
During operation	Thrust load A-direction (N)	58	98						
	Thrust load B-direction (N)	58	98						

For motor dimensions, refer to P.231, and for the driver, refer to P.226.

Note) Driver for 50 W and 100 W has a common power supply of single phase and 3-phase 200 V.

Driver for 200 W, the upper row is the power supply of 3-phase 200 V, and lower is the power supply of single-phase 200 V.

Driver for 400 W, the upper row is the power supply of 3-phase 200 V, and lower is the common power supply of single-phase and 3-phase 200 V.

Model Designation

e.g.) M U M A 5 A Z P 1 S

Symbol Type

Ultra low inertia (50 W to 400 W)

Motor rated output

Symbol Rated output

5A 50 W

01 100 W

02 200 W

04 400 W

Voltage specifications

Symbol Specifications

2 200 V

Z 100/200 V
(50 W only)

Design order 1 : Standard

Motor structure

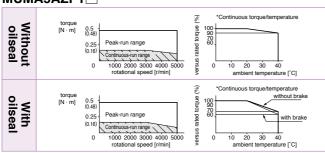
	Symbol	Shaft	Holding	brake	Oil s	eal
		Key-way, center tap	without	with	without	with
	S	•	•		•	
	Т	•		•	•	

Rotary encoder specifications

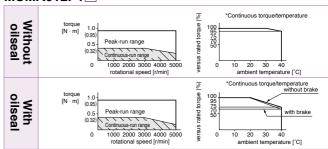
Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

Torque Characteristics [at AC200 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]

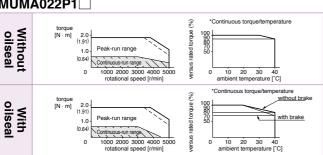
MUMA5AZP1



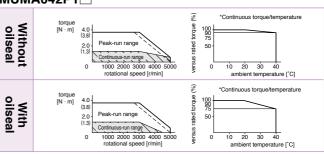
MUMA012P1



MUMA022P1

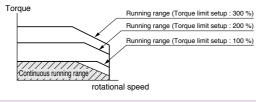


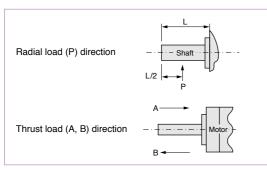
MUMA042P1



*When you lower the torque limit setup (Pr5E and 5F), running range at high speed might be lowered as well.

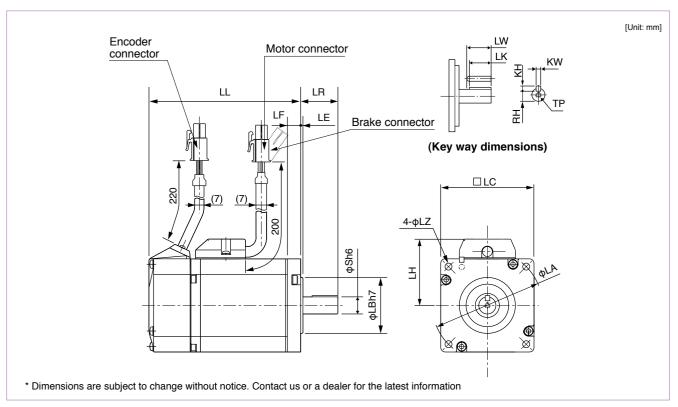
Torque





- Note) 1. Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.
 - If the load is connected, frequency will be defined as 1/(m+1), where m = (load moment of inertia) / (rotor moment of inertia).
 - When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
 - Power supply voltage is AC240 V (at 200 V of the main voltage).
 If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/240) relative to the value in the table.
 - When regeneration occurs continuously such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
 - 2. If the effective torque is within the rated torque, there is no limit in regenerative brake
 - Consult us or a dealer if the load moment of inertia exceeds the specified value.
 - Specified releasing time is obtained with the use of surge absorber for brake (Z15D151 by SEMITEC Corporation or equivalent).
 - () represents the actually measured value using a diode (200 V, 1 A or equivalent)

MUMA 50 W to 400 W



[Unit: mm]

			MUMA series (Ultra low inertia)							
Motor output			50 W	100 W	200 W	400 W				
Motor model MUMA			5A□P1□	01□P1□	02□P1□	04□P1□				
Rotary encoder specifications		2500 P/r Incremental	2500 P/r Incremental	2500 P/r Incremental	2500 P/r Incremental					
LL		Without brake	75.5	92.5	96	123.5				
LL		With brake	107 124 129		129	156.5				
	LR		24	24	30	30				
	S		8	8	11	14				
	LA		LA		48	48	70	70		
LB			22	22	50	50				
LC			42	42	60	60				
	LE		2	2	3	3				
	LF		7	7	7	7				
	LH		34	34	43	43				
	LZ		3.4	3.4	4.5	4.5				
	LW		14	14	20	25				
	LK		12.5	12.5	18	22.5				
	ΚW		3h9	3h9	4h9	5h9				
Key way	КН		3	3	4	5				
	RH		6.2	6.2	8.5	11				
	TP		M3 × 6 (depth)	M3 × 6 (depth)	M4 × 8 (depth)	M5 × 10 (depth)				
Mana (kg)		Without brake	0.40	0.50	0.96	1.5				
Mass (kg)		With brake	0.60	0.70	1.36	1.9				
Connector/F	Plug spec	cifications		refer to Options	, P.239, P.240.					

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required.

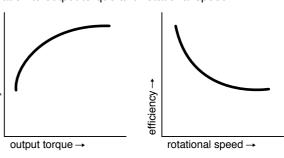
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

MINAS E Series Motors with Gear Reducer

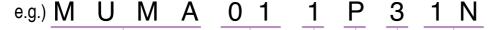
Motor Types with Gear Reducer

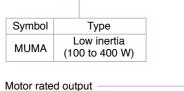
Reduction	Мо	Motor output (W)							
ratio	100	200	400	reducer					
1/5	•	•	•						
1/9	•	•	•	For high precision					
1/25	•	•	•	precision					

Efficiency of the gear reducer shows the following inclination in relation to output torque and rotational speed.



Model No. Designation





400 W

 Symbol
 Rated output

 01
 100 W

 02
 200 W

04

Voltage specifications

Symbol Specifications

1 100 V

2 200 V

Rotary encoder specifications

cymiae raise seame raise seame rine	- 1		oodo. opoomodiiomo			
		Symbol	Format	Pulse counts	Pulse counts	Wire
P Incremental 2500 P/r 10000 5		Р	Incremental	2500 P/r	10000	5

Motor types with gear reducer

Symbol	Reduction	Mo	tor out	put	Type of
Syllibol	ratio	100	200	400	reducer
1N	1/5	•	•	•	
2N	1/9	•	•	•	For High precision
4N	1/25	•	•	•	precision

Motor structure

Symbol	Shaft	Holding	brake	
Symbol	Key-way	without	with	
3	•	•		
4	•		•	

Specifications of Motor with Gear Reducer

	Motor type	MUMA		
	Backlash	3 minutes or smaller (initial value) at output shaft of the reducer		
	Composition of gear	Planetary gear		
	Gear efficiency	65 % to 85 %		
0	Rotational direction at output shaft (of reducer)	Same direction as the motor output shaft		
Gear	Composition of gear	Planetary gear		
reducer	Mounting method	Flange mounting		
	Permissible moment of inertia of the load	10 times or smaller than rotor moment of inertia of the mot-		
	(conversion to the motor shaft)	To times or smaller than rotor moment of inertia of the motor		
	Protective structure	IP44 (at gear reducer)		
	Ambient temperature	0 °C to 40 °C		
F	Ambient humidity	85 %RH (free from condensation) or less		
Environment	Vibration resistance	49 m/s ² or less (at motor frame)		
	Impact resistance	98 m/s² or less		

E Series

Motors with Gear Reducer

Table of Motor Specifications/ The Combination of the Driver and the Motor

Table of Motor with Gear Reducer Specifications

	Motor		MUMA with gear reducer												
Model	Output	Output	Output	Reduction	Output	Rated speed	Max.		Peak max. torque		of inertia cer/converted or shaft		ass	Permissible radial load	Permissible thrust load
		ratio		speed	speed	torque			w/o brake	w/ brake	w/o brake	w/ brake	radiai load	tillustiload	
	(W)		(W)	(r/min)	(r/min)	(N·m)	(N·m)	J (× 10	⁻⁴kg·m²)	(k	g)	(N)	(N)		
MUMA01□P□1N		1/5	75	600	1000	1.18	3.72	0.072	0.076	1.05	1.25	490	245		
MUMA01□P□2N	100	1/9	80	333	555	2.25	6.86	0.0663	0.0703	1.05	1.25	588	294		
MUMA01 P 4N		1/25	80	120	200	6.27	19.0	0.0645	0.0685	2.20	2.40	1670	833		
MUMA02□P□1N		1/5	170	600	1000	2.65	8.04	0.218	0.248	1.68	2.08	490	245		
MUMA02□P□2N	200	1/9	132	333	555	3.72	11.3	0.368	0.398	2.66	3.06	1180	588		
MUMA02 P 4N		1/25	140	120	200	11.1	33.3	0.388	0.418	2.66	3.06	1670	833		
MUMA042P□1N		1/5	340	600	1000	5.39	16.2	0.533	0.563	3.2	3.6	980	490		
MUMA042P□2N	400	1/9	332	333	555	9.51	28.5	0.438	0.468	3.2	3.6	1180	588		
MUMA042P□4N		1/25	332	120	200	26.4	79.2	0.470	0.500	4.7	5.1	2060	1030		

For dimensions, refer to P.235.

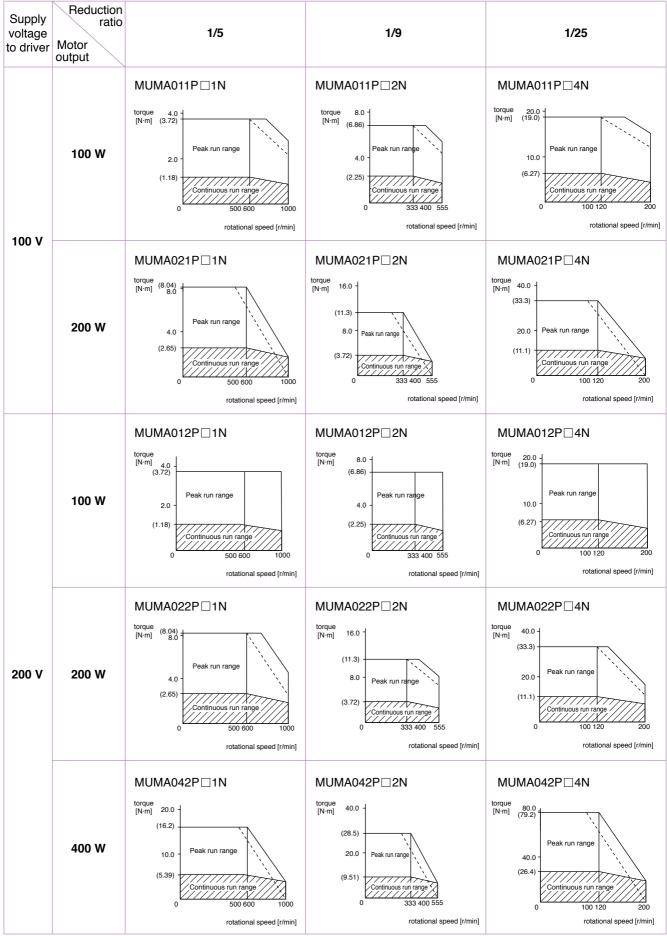
The Combination of the Driver and the Motor with Gear Reducer

Combination w	ith driver	10	0 V	200 V				
Encoder	Motor	Part No. of motor	Single phase, 100 V	Part No. of motor	3-phase, 200 V	Single phase, 200 V		
Ericoder	output	with gear reducer	Part No. of driver	with gear reducer	Part No. of driver	Part No. of driver		
	100 W MUMA011P□□N		MKDET1110P	MUMA012P□□N	MKDET1505P	MKDET1505P		
2500 P/r		MUMA021P□□N	MLDET2110P	MUMA022P□□N	MKDET1310P	MLDET2210P		
Incremental		400 W		MUMAGAGD	MLDET2510P	MLDET2510P		
	400 00	_	_	MUMA042P□□N	MLDET2310P	WILDL 12310F		

For dimensions, refer to P.235.

For High Precision (MUMA Series 100 W to 400 W)

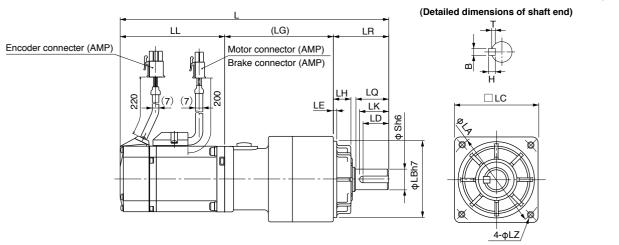
Torque Characteristics



Dotted line represents the torque at 10 % less supply voltage.

MUMA series with Gear Reducer

[Unit: mm]



2500 P/r Encoder

[Unit: mm]

Model	Motor output	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	s	LH	LZ	LK	(LG)	LE	Key way B×H×LD	Т		
MUMA01 P 1N		1/5	192	92.5															
WOWAUTETIN		173	223.5	124	32	20	52	50	60	12	10	10 M5 18 67.5	15 19 67.5	4×4×16 2.5					
MUMA01 P2N	100 14/	1/9	192	92.5	32	20	52	50	60	12	10	(Depth: 12)	10	67.5		4x4x10	2.5		
WOWAUT_FZN	100 W	179	223.5	124											3				
MUMA01□P□4N		1/25	234.5	92.5	50	30	78	70	90	10	9 17	M6 (Depth: 20)	26	92		6600	0.5		
MOMAUT_F_4N		1/23	266	124	50	30	/6	70	90	19						6×6×22	3.5		
MUMA02□P□1N		1/5	200.5	96	32	20	52	50	60	12	10	M5	18	8 72.5		4×4×16	2.5		
IVIOIVIAU2F_ IN		175	233.5	129	32	20	52	50	60	12	10	(Depth: 12)							
MUMA02□P□2N	000 14/	1/9	235.5	96										00.5					
IVIOIVIAU2F_ZIN	200 W	179	268.5	129										89.5	,				
MUMA02□P□4N		1/25	246	96										400			3.5		
MUMAU2_P_4N		1/25	279	129		00	70	70	00	40	47	M6	00	100	-				
MUMACAOD TAN		1/5	263	123.5	50	30	78	70	90	19	17	(Depth: 20)	(Depth: 20)	89.5		6×6×22			
MUMA042P□1N		1/5	296	156.5															
MUMA O 4 O D CON		4.40	263	123.5															
MUMA042P□2N	400 W	1/9	296	156.5															
MUNACAOD CAN	1	4 /05	288.5	123.5	0.1	40	00	-00	445	0.4	40	M8			_				
MUMA042P□4N		1/25	321.5	156.5	61	40	98	90	115	24	18	(Depth: 20)	35	104	5	8×7×30	4		

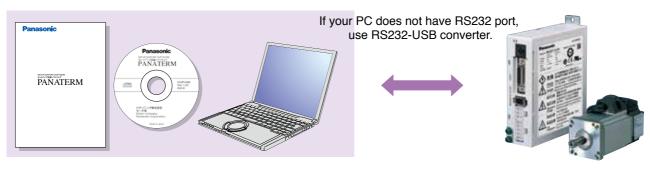
Upper column : without brake Lower column : with brake

Setup Support Software

Setup Support Software "PANATERM" for MINAS series AC Servo Motor & Driver

Part No. DV0P4460 (Japanese/English version)

The PANATERM assists users in setting parameters, monitoring control conditions, setup support, and analyzing mechanical operation data on the PC screen, when installed in a commercially available personal computer, and connected to the MINAS A4 series, E series through the RS232 serial interface.



Basic Function

Parameter setup

- After a parameter is defined on the screen, it will be sent to the driver immediately.
- Once you register parameters you frequently use, they can be easily set up on the screen.

Monitoring Control Conditions

Monitor

- · Control conditions: Control mode, velocity, torque, error and warning
- Driver input signal
- Load conditions: Total count of command/feedback pulses, Load ratio, Regenerative resistor load ratio

Alarm

- Displays the numbers and contents of the current alarm and up to 14 error events in the past.
- Clears the numbers and contents of the current alarm and up to 14 error events in the past.

Setup

Auto tuning

· Gain adjustment and inertia ratio measurement

Graphic waveform display

 The graphic display shows command velocity, actual velocity, torque, and error waveforms.

Absolute encoder setup

- · Clears absolute encoder at the origin.
- Displays single revolution/multi-revolution data.
- · Displays absolute encoder status.

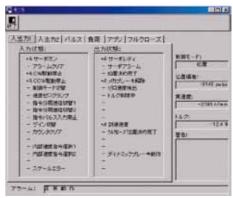
Analysis of Mechanical Operation Data

Frequency analysis

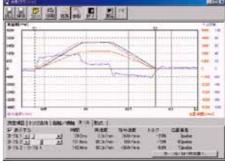
 Measures frequency characteristics of the machine, and displays Bode diagram.

■ Can not use with A5 family.

Parameter



Monitor



Graphic waveform display

Hardware configuration

[Personal computer] • CPU : Pentium 100MHz or more • Memory : 16 MB or more (32 MB recommended)

- · Hard disk capacity (vacancy of 25 MB or more recommended) · OS: Windows® 98, Windows® Me, Windows® 2000, Windows® XP (US version)
- Communication speed of serial communication port : 2400 bps or more (The software may not operate normally using USB-to-Serial adapter.)

 [Display] Resolution : 640*480 (VGA) or more (desirably 1024*768) Number of colors : 256 colors or more

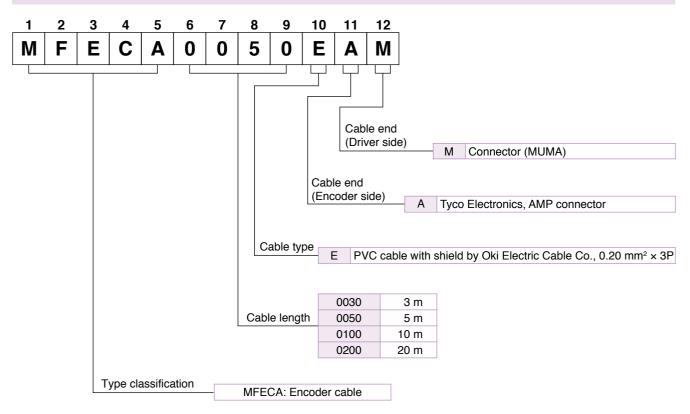
[CD-ROM drive] · CD-ROM drive operable on the above-mentioned personal computer

E Series

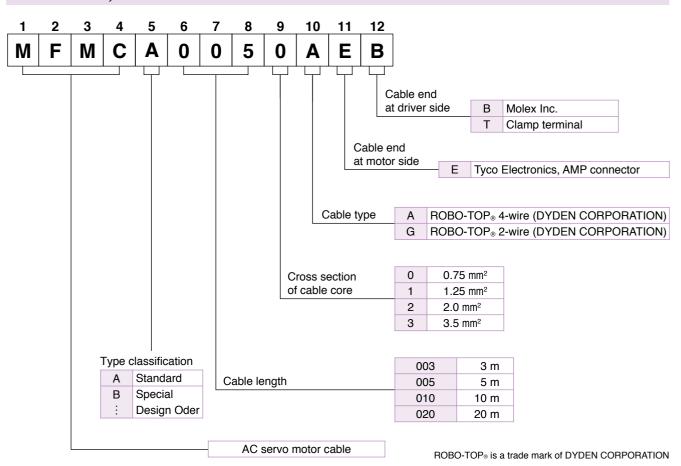
Options

Cable part No. Designation





Motor Cable, Brake Cable



Cable

Options

Cable Set (3 m)

Part No. DV0P37300

1) Interface cable: DV0P0800

2) Encoder cable (3 m): MFECA0030EAM3) Motor cable (3 m): MFMCA0030AEB

4) Connector kit for driver power supply connection : DV0P2870

Cable Set (5 m)

Part No. DV0P39200

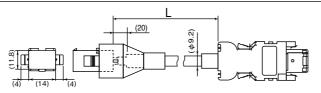
1) Interface cable: DV0P0800

2) Encoder cable (5 m): MFECA0050EAM3) Motor cable (5 m): MFMCA0050AEB

4) Connector kit for driver power supply connection : DV0P2870

Encoder Cable

Part No. MFECA0 * * 0EAM



[Unit: mm]

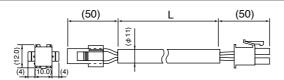
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100KV	Sumitomo 3M
Shell kit	3E306-3200-008	or equivalent
Connector	172160-1	Tyco Electronics
Connector Pin	170365-1	Tyco Electronics
Cable	$0.20 \text{ mm}^2 \times 3P$	Oki Electric Cable Co., Ltd.

L (m)	Part No.
3	MFECA0030EAM
5	MFECA0050EAM
10	MFECA0100EAM
20	MFECA0200EAM

Motor Cable (ROBO-TOP_® 105 °C 600 V . DP)

 $\mathsf{ROBO}\text{-}\mathsf{TOP}_{\scriptscriptstyle{\circledcirc}}$ is a trade mark of DYDEN CORPORATION

Part No. MFMCA0 * * 0AEB



[Unit: mm]

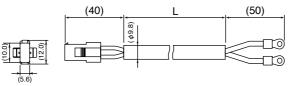
Title	Part No.	Manufacturer
Connector	172159-1	Tuon Floatronica
Connector Pin	170362-1, 170366-1 Tyco Electronics	
Connector	5557-06R-210	Molex Inc
Connector Pin	5556T	MOIEX IIIC
Cable	ROBO-TOP 600 V 0.75 mm ²	Daiden Co.,Ltd.

L (m)	Part No.
3	MFMCA0030AEB
5	MFMCA0050AEB
10	MFMCA0100AEB
20	MFMCA0200AEB

Brake Cable (ROBO-TOP® 105 °C 600V . DP)

ROBO-TOP_® is a trade mark of DYDEN CORPORATION





[Unit: mm]

Title	Part No.	Manufacturer
Connector	172157-1	Tugo Floatronico
Connector Pin	170362-1, 170366-1	Tyco Electronics
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600 V 0.75 mm ²	Daiden Co.,Ltd.

L (m)	Part No.
3	MFMCB0030GET
5	MFMCB0050GET
10	MFMCB0100GET
20	MFMCB0200GET

Connector Kit

Connector Kit for Power Supply Connection

Part No.	DV0P2870
1 alt 110.	DVUFZUIU

Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector (10 pins)	5557-10R-210	1	Molex Inc.	For connector, CN X1
Connector pin	5556PBTL	6	Widlex IIIC.	(10 pins)

Pin configuration of connector CN X1

1	, · 					_,
17	40					1 .
1	10	9	8	/	р	i
	L1	(NC)	L2	(NC)	L3	11
:	5	4	3	2	1	1
i	Р	(NC)	В	(NC)	Е	H



Recommended manual crimping tool (to be prepared by customer)

D. J.M.	0 - 1-1 1 1
Part No.	Cable material
57026-5000	UL1007
57027-5000	UL1015

<Cautions>

- 1. The above pin disposition is shown when viewed from the terminal inserting direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Refer to P.224 for wiring and connection.
- 3. Do not connect anything to pins marked "NC".

Connector Kit for Motor/Encoder Connection

Part No.

This option is required when you make your own encoder cable and motor cable. (Brake cable is required for brake.)

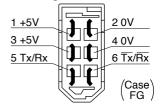
Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For connector, CN X4
Shell kit	3E306-3200-008	1	or equivalent	(6 pins)
Connector (6 pins)	172160-1	1	Tyco Electronics	For junction to encoder cable
Connector pin	170365-1	6	Tyco Electronics	(6 pins)
Connector (4 pins)	172159-1	1	Type Fleetrenies	For junction to motor power cable
Connector pin	170366-1	4	Tyco Electronics	(4 pins)
Connector (6 pins)	5557-06R-210	1	Molex Inc.	For connector, CN X3
Connector pin	5556PBTL	4	Willex IIIC.	(6 pins)

<Remarks>

We may use parts equivalent to the above for shell and connector cover.

Pin configuration of connector CN X4 plug



Recommended manual crimping tool (to be prepared by customer)

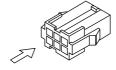
Title	Part No.	Manufacturer	Cable material	
For encoder cable junction	755330-1	Tyco Electronics	_	
For motor power cable junction	755331-1	Tyco Electronics		
For Connector CN X3	57026-5000	Molex Inc.	UL1007	
For Connector CN X3	57027-5000	WOIEX INC.	UL1015	

<Remarks>

- 1. The above pin configuration is shown when viewed from the pin-soldering direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Connect the shield of the wire to the case (FG) without fail.
- 3. For wiring and connection, refer to P.224.

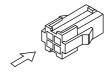
Pin configuration of encoder cable junction

1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1	_/
i	1	2	3	1
1	NC NC	TX/RX	TX/RX	1
	4	5	6	į
1	+5V	οV	FG	-

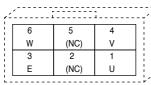


Pin configuration of motor power cable junction

کے	/ <u></u> -		- (
- 1	1	2	
į	U	٧	-
	3	4	
i	W	Е	i
- 1			1.7



Pin configuration of mating connector to CN X3 connector





<Cautions>

- 1. The above pin configuration is shown when viewed from the terminal inserting direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Refer to P.224 for wiring and connection.

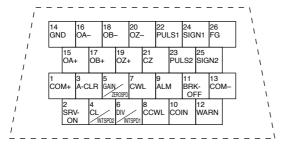
Connector Kit for External Peripheral Equipment

Part No. DV0P0770

Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector	10126-3000PE	1	Sumitomo 3M	For connector, CN X5
Connector cover	10326-52A0-008	1	or equivalent	(26 pins)

Pin configuration of connector CN X5 (26 pins) (viewed from the soldering side)



<Cautions>

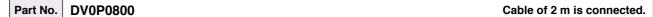
- 1. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Refer to P.225 for symbols and functions of the above signals.

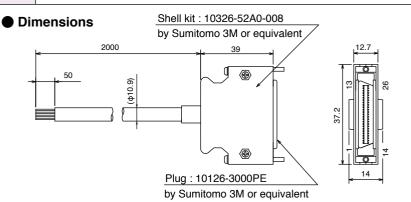
Options

Interface Cable/ Communication Cable/ Console

[Unit: mm]

Interface Cable





Wiring table

Pin No.	Title of signal	Color or cable	Pin No.	Title of signal	Color or cable	Pin No.	Title of signal	Color or cable
1	COM+	Orange (Red 1)	10	COIN	Pink (Black 1)	19	OZ+	Pink (Red 2)
2	SRV-ON	Orange (Black 1)	11	BRK-OFF	Orange (Red 2)	20	OZ-	Pink (Black 2)
3	A-CLR	Gray (Red 1)	12	WARN	Orange (Black 2)	21	CZ	Orange (Red 3)
4	CL/INTSPD2	Gray (Black 1)	13	COM-	Gray (Red 2)	22	PULS1	Gray (Red 3)
5	GAIN/ZEROSPD	White (Red 1)	14	GND	Gray (Black 2)	23	PULS2	Gray (Black 3)
6	DIV/INTSPD1	White (Black 1)	15	OA+	White (Red 2)	24	SIGN1	White (Red 3)
7	CWL	Yellow (Red 1)	16	OA-	White (Black 2)	25	SIGN2	White (Black 3)
8	CCWL	Yellow (Black 1)	17	OB+	Yellow (Red 2)	26	FG	Orange (Black 3)
9	ALM	Pink (Red 1)	18	OB-	Yellow (Black 2)			

<Notes>

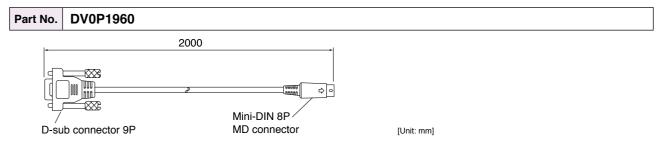
e. g. of Pin No. designation: Pin No. 1 Wire color is orange, and one red dot.

Pin No. 12 \dots Wire color is orange, and two black dot.

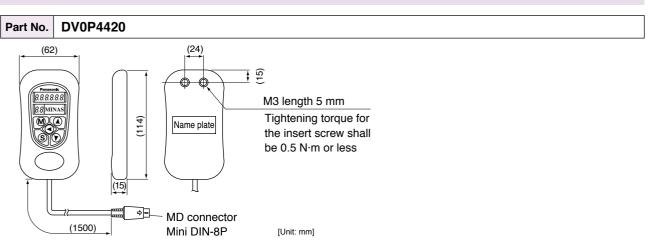
<Remarks>

The shield of this cable is not connected to a connector pin. To connect the shield to FG or GND at the driver side, use a connector kit for external device connection.

Communication Cable (For Connection with PC)



Console



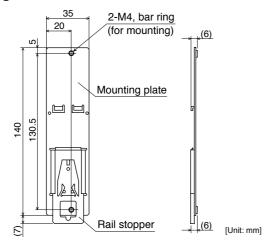
By lifting the driver, you can

DIN Rail Mounting Unit/ External Regenerative Resistor

DIN Rail Mounting Unit

Part No. DV0P3811

Dimensions

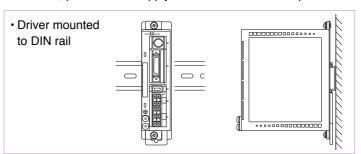


<Notes>

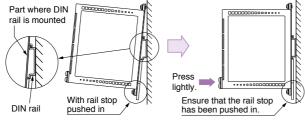
2 mounting screws (M4 X L8, Pan head) are attached. Rail stopper can be extended to max. 10 mm.

<Cautions>

Please read carefully operation manual before using this product. In addition, please do not apply excessive stress to the product.



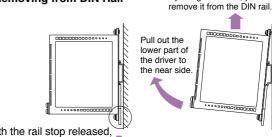
· How to Install



Hook the upper side of DIN rail mounting part on the DIN rail.

Press lightly the lower part of the main body of driver.

· Removing from DIN Rail



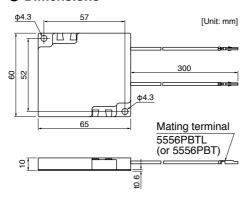
With the rail stop released, pull out the lower part of the driver to the near side.

External Regenerative Resistor

			Specifi		
Part No.	Manufacturer's Part No.	Resistance	Rated power	Activation temperature of built-in fuse	Note (Input Power of drive)
		Ω	W	°C	
DV0P2890	45M03	50	10	137 ⁺³ ₋₂	Single phase, 100 V
DV0P2891	45M03	100	10	137 ⁺³ ₋₂	Single/3-phase, 200 V

Manufactured by Iwaki Musen Kenkyuusho Co., Ltd.

Dimensions



· Attach to incombustibles, such as metal.

 Install in the place which cannot touch directly by covering with incombustibles etc.

Since it becomes high temperature, external regeneration resistor must be installed according to the contents shown below.

<Caution of when using external regeneration resistor>

• Do not install near the combustibles.

Although the thermal cutoff is built in external regeneration resistor, the skin temperature of regeneration resistor may become high exceeding the operating temperature of thermal cutoff by the time the thermal cutoff operates in amplifier failure.

The thermal cutoff is for preventing ignition of the regeneration resistor in amplifier failure, and is not for controlling the skin temperature of resistor.

<Remarks>

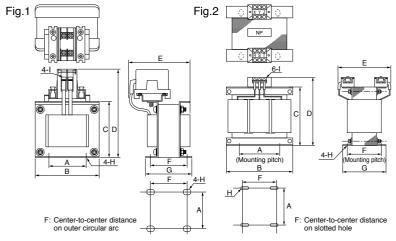
Thermal fuse is installed for safety.

The thermal fuse may blow due to heat dissipating condition, working temperature, supply voltage or load fluctuation. Make it sure that the surface temperature of the resistor may not exceed 100 °C at the worst running conditions with the machine, which brings large regeneration (such case as high supply voltage, load inertia is large or deceleration time is short) Please carry out air cooling if needed.

Reactor/ Surge Absorber for Motor Brake

Reactor

Frame symbol of driver	Power supply specifications	Rated output	Part No.	Fig.	
	Single phase, 100 V	50 W to 100 W	DV0P227	1	
MKDE	Single phase, 200 V	50 W to 100 W	DV0P220	2	
	3-phase, 200 V	50 W to 200 W	DV0P220		
	Single phase, 100 V	200 W	DV0P228	1	
MLDE	Single phase, 200 V	200 W to 400 W	DV0P220	2	
	3-phase, 200 V	400 W			



[Unit: mm]

	Part No.	A	В	С	D	E(Max)	F	G	Н	ı	Inductance (mH)	Rated current (A)
Fig. 1	DV0P227	55±0.7	80±1	66.5±1	110 Max	90	41±2	55±2	4-5φ×10	M4	4.02	5
Fig.1	DV0P228	55±0.7	80±1	66.5±1	110 Max	95	46±2	60±2	4-5φ×10	M4	2	8
Fig.2	DV0P220	65±1	125±1	(93)	136 Max	155	70+3/-0	85±2	4-7φ×12	M4	6.81	3

Harmonic restraint on general-purpose inverter and servo driver

On September, 1994, Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system and Guidelines for harmonic restraint on household electrical appliances and general-purpose articles established by the Agency for Natural Resources and Energy of the Ministry of Economy, Trade and Industry (the ex-Ministry of International Trade and Industry). According to those guidelines, the Japan Electrical Manufacturers Association (JEMA) have prepared technical documents (procedure to execute harmonic restraint: JEM-TR 198, JEM-TR 199 and JEM-TR 201) and have been requesting the users to understand the restraint and to cooperate with us. On January, 2004, it has been decided to exclude the general-purpose inverter and servo driver from the Guidelines for harmonic restraint on household electrical appliances and general-purpose articles". After that, the Guidelines for harmonic restraint on household electrical appliances and general-purpose articles was abolished on September 6, 2004.

We inform you that the procedure to execute the harmonic restraint on general-purpose inverter and servo driver will be modified as follows.

- 1. All types of the general-purpose inverters and servo drivers used by specific users are under the control of the Guide-lines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system". The users who are required to apply the guidelines must calculate the equivalent capacity and harmonic current according to the guidelines and must take appropriate countermeasures if the harmonic current exceeds a limit value specified in a contract demand. (Refer to JEM-TR 210 and JEM-TR 225.)
- 2. The Guidelines for harmonic restraint on household electrical appliances and general-purpose articles was abolished on September 6, 2004. However, based on conventional guidelines, JEMA applies the technical documents JEM-TR 226 and JEM-TR 227 to any users who do not fit into the Guidelines for harmonic restraint on heavy consumers who receive power through high voltage system or extra high voltage system from a perspective on enlightenment on general harmonic restraint. The purpose of these guidelines is the execution of harmonic restraint at every device by a user as usual to the utmost extent.

<Remarks>

When using a reactor, be sure to install one reactor to one servo driver.

■ Recommended components

Surge Absorber for Motor Brake

Motor	Surge absorber for motor brake				
Motor	Part No. (Manufacturer's)	Manufacturer			
MUMA 50 W to 400 W	Z15D151	SEMITEC Corporation			

List of Peripheral Components

List of Peripheral Components

Manufacturer	Tel No. / Home Page	Peripheral components
Panasonic Corporation Eco Solutions Company	http://panasonic.net/es/	Circuit breaker
Panasonic Corporation Automotive & Industrial Systems Company	http://panasonic.net/id/	Surge absorber Switch, Relay
lwaki Musen Kenkyusho Co., Ltd.	+81-44-833-4311 http://www.iwakimusen.co.jp/	Regenerative resistor
SEMITEC Corporation	+81-3-3621-2703 http://www.semitec.co.jp/english2/	Surge absorber for motor brake
TDK Corporation	+81-3-5201-7229 http://www.global.tdk.com/	Noise filter for signal lines
Okaya Electric Industries Co. Ltd.	+81-3-4544-7040 http://www.okayaelec.co.jp/english/index.html	Surge absorber Noise filter
Sumitomo 3M	+81-3-5716-7290 http:/solutions.3m.com/wps/portal/3M/ja_JP/ WW2/Country/	
Tyco Electronics	+81-44-844-8052 http://www.te.com/ja/home.html	Connector
Japan Molex Inc.	+81-462-65-2313 http://www.molex.co.jp	
DYDEN CORPORATION	+81-3-5805-5880 http://www.dyden.co.jp/english/index.htm	Cable

^{*} The above list is for reference only. We may change the manufacturer without notice.

MEMO

Information

5 Family

E Series

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EC Directives/Conformity to UL Standards/KC

EC Directives

The EC Directives apply to all such electronic products as those having specific functions and have been exported to EU and directly sold to general consumers. Those products are required to conform to the EU unified standards and to furnish the CE marking on the products.

However, our AC servos meet the relevant EC Directives for Low Voltage Equipment so that the machine or equipment comprising our AC servos can meet EC Directives.

EMC Directives

MINAS Servo System conforms to relevant standard under EMC Directives setting up certain model (condition) with certain locating distance and wiring of the servo motor and the driver. And actual working condition often differs from this model condition especially in wiring and grounding. Therefore, in order for the machine to conform to the EMC Directives, especially for noise emission and noise terminal voltage, it is necessary to examine the machine incorporating our servos.

Conformity to UL Standards

Observe the following conditions of (1) and (2) to make the system conform to UL508C (E164620).

- (1) Use the driver in an environment of Pollution Degree 2 or 1 prescribed in IEC60664-1. (e.g. Install in the control box with IP54 enclosure.)
- (2) Make sure to install a circuit breaker or fuse which are UL recognized (Listed (1) marked) between the power supply and the noise filter.

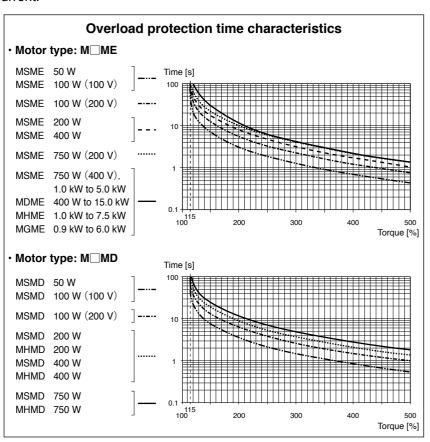
For rated current of circuit breaker and fuse, refer to P.19 "Driver and List of Applicable Peripheral Equipments".

Use a copper cable with temperature rating of 75 °C or higher.

(3) Over-load protection level

Over-load protective function will be activated when the effective current exceeds 115 % or more than the rated current based on the time characteristics (see the graph). Confirm that the effective current of the driver does not exceed the rated current.

Set up the peak permissible current with Pr0.13 (Setup of 1st torque limit) and Pr5.22 (Setup 2nd torque limit).



Conformed Standards

		Driver	Motor
	EMC Directives	EN55011 EN61000-6-2 EN61800-3	_
EC	Low-Voltage Directives	EN61800-5-1	EN60034-1 EN60034-5
Directives	Machinery Directives Functional safety 11	ISO13849-1(PL d)(Cat.3) EN61508(SIL2) EN62061(SILCL 2) EN61800-5-2(STO) IEC61326-3-1	_
UL Standards CSA Standards Radio Waves Act (South Korea) (KC)*2		UL508C (E164620)	UL1004-1, UL1004-6 (E327868)
		C22.2 No.14	C22.2 No.100
		KN11 KN61000-4-2, 3, 4, 5, 6, 8, 11	_

IEC : International Electrotechnical Commission

EN : Europaischen NormenEMC : Electromagnetic CompatibilityUL : Underwriters LaboratoriesCSA : Canadian Standards Association

Pursuant to the directive 2004/108/EC, article 9(2)

Panasonic Testing Centre

Panasonic Service Europe, a division of

Panasonic Marketing Europe GmbH

Winsbergring 15, 22525 Hamburg, F.R. Germany

- When export this product, follow statutory provisions of the destination country.
- *1 A5IIE and A5E series doesn't correspond to the functional safety standard.
- *2 Information related to the Korea Radio Law

This servo driver is a Class A commercial broadcasting radio wave generator not designed for home use. The user and dealer should be aware of this fact.

A 급 기기 (업무용 방송통신기자재)

이 기기는 업무용(A 급) 전자파적합기기로서 판매자

또는 사용자는 이 점을 주의하시기 바라며, 가정외의

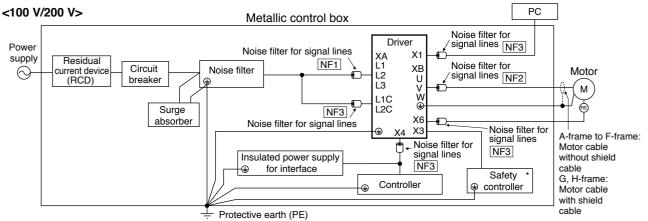
지역에서 사용하는 것을 목적으로 합니다.

(대상기종: Servo Driver)

Composition of Peripheral Equipments

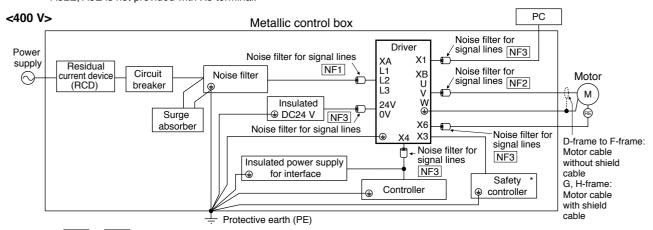
Installation Environment

Use the servo driver in the environment of Pollution Degree 1 or 2 prescribed in IEC-60664-1 (e.g. Install the driver in control panel with IP54 protection structure.)



For NF1 to NF3, refer to the Table "Noise Filter for Signal Line" (P.254).

^{*} A5IE, A5E is not provided with X3 terminal.



For NF1 to NF3, refer to the Table "Noise Filter for Signal Line" (P.254).

<Caution>

Use options correctly after reading Operating Instructions of the options to better understand the precautions. Take care not to apply excessive stress to each optional part.

Power Supply

100 V type (A-frame to C-frame)	Single phase, 100 V $^{+10}_{-15}\%$ to 120 V $^{+10}_{-15}\%$	50 Hz/60 Hz
200 V type (A-frame to D-frame)	Single/3-phase, 200 V +10 % to 240 V +10 % -15 %	50 Hz/60 Hz
200 V type (E-frame to H-frame)	3-phase, 200 V ⁺¹⁰ / ₋₁₅ % to 230 V ⁺¹⁰ / ₋₁₅ %	50 Hz/60 Hz
400 V type [Main power supply] (D-frame to H-frame)	3-phase, 380 V ⁺¹⁰ % to 480 V ⁺¹⁰ % ₋₁₅ %	50 Hz/60 Hz
400 V type [Control power supply] (D-frame to H-frame)	DC 24 V ±15 %	

- (1) This product is designed to be used in over-voltage category (installation category) **I** of EN 61800-5-1:2007.
- (2) Use an insulated power supply of DC12 V to 24 V which has CE marking or complies with EN60950.

^{*} A5IE, A5E is not provided with X3 terminal.

Circuit Breaker

Install a circuit breaker which complies with IEC Standards and UL recognized (Listed and marked) between power supply and noise filter.

The short-circuit protection circuit on the product is not for protection of branch circuit.

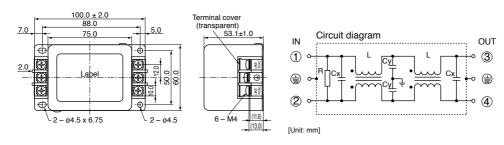
The branch circuit should be protected in accordance with NEC and the applicable local regulations in your area.

Noise Filter

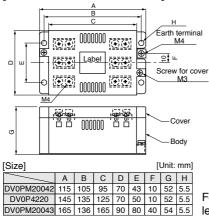
When you install one noise filter at the power supply for multi-axes application, contact the manufacturer of the noise filter. If noise margin is required, connect 2 filters in series to emphasize effectiveness.

Options

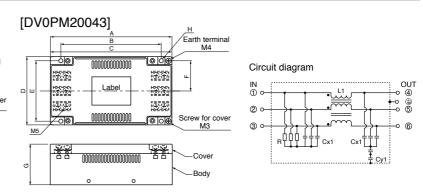
Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0P4170	Single phase 100 V, 200 V	SUP-EK5-ER-6	A-frame and B-frame	Okaya Electric Ind.



Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
	3-phase 200 V		A-frame and B-frame	
DV0PM20042	Single phase 100 V, 200 V 3-phase 200 V	3SUP-HU10-ER-6	C-frame	Okaya Electric Ind.
DV0P4220	Single/3-phase 200 V	3SUP-HU30-ER-6	D-frame	
DV0PM20043	3-phase 200 V	3SUP-HU50-ER-6	E-frame	



[DV0PM20042, DV0P4220]



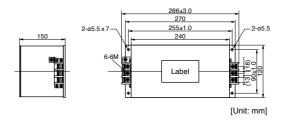
For single phase application, use 2 terminals among 3 terminals, leaving the remaining terminal unconnected.

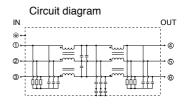
A5 Family

Conformance to International Standards

Composition of Peripheral Equipments

Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0P3410	3-phase 200 V	3SUP-HL50-ER-6B	F-frame	Okaya Electric Ind.



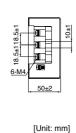


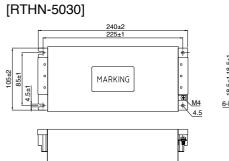
Recommended components

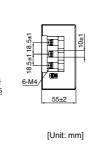
Part No.	Voltage specifications for driver	Current rating (A)	Applicable driver (frame)	Manufacturer
RTHN-5010		10	A-frame to C-frame	
RTHN-5030	3-phase 200 V	30	D-frame	TDK-Lambda Corp.
RTHN-5050		50	E-frame and F-frame	

[RTHN-5010]

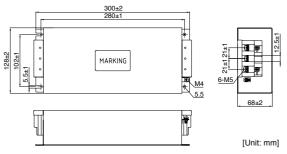








[RTHN-5050]

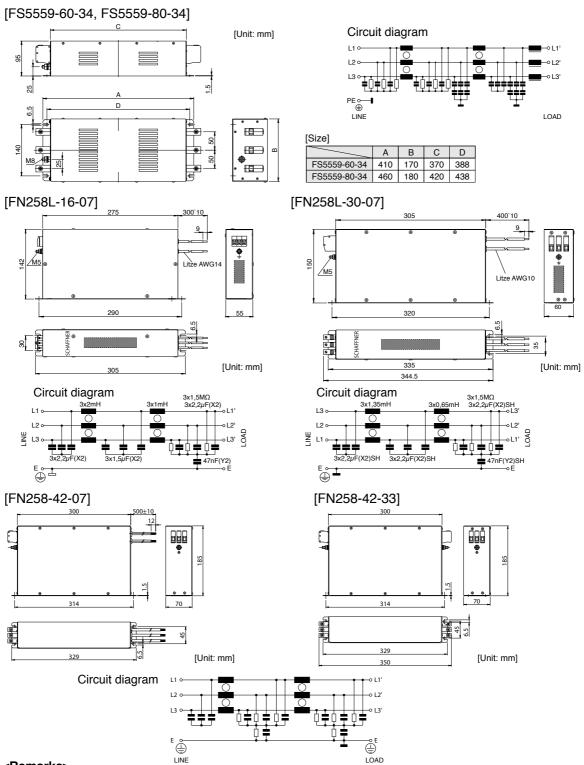


<Remarks>

- Select a noise filter of capacity that exceeds the capacity of the power source (also check for load condition).
- For detailed specification of the filter, contact the manufacturer.
- When two or more servo drivers are used with a single noise filter at the common power source, consult with the noise filter manufacturer.

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Part No.	Voltage specifications for driver	Current rating (A)	Applicable driver (frame)	Manufacturer
FS5559-60-34	2 phase 200 V	60	G-frame	
FS5559-80-34	3-phase 200 V	80	H-frame	
FN258L-16-07		16	D-frame and E-frame	Cohoffnor FMC Inc
FN258L-30-07] [30	F-frame	Schaffner EMC, Inc.
FN258-42-07	3-phase 400 V	42	G-frame and H-frame	
FN258-42-33		42	G-frame and H-frame	



<Remarks>

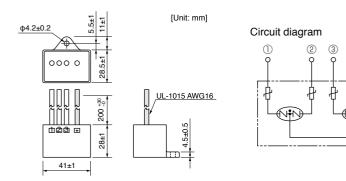
- Select a noise filter of capacity that exceeds the capacity of the power source (also check for load condition).
- For detailed specification of the filter, contact the manufacturer.
- When two or more servo drivers are used with a single noise filter at the common power source, consult with the noise filter manufacturer.

Composition of Peripheral Equipments

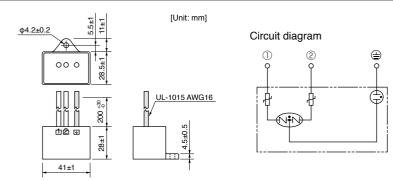
Surge Absorber

Provide a surge absorber for the primary side of noise filter.

Option part No. Voltage specifications for driver		Manufacturer's part No.	Manufacturer
DV0P1450	3-phase 200 V	R·A·V-781BXZ-4	Okaya Electric Ind.
DV0PM20050	3-phase 400 V	R·A·V-801BXZ-4	Okaya Electric irid.



Option part No. Voltage specifications for driver		Manufacturer's part No.	Manufacturer
DV0P4190	Single phase 100 V, 200 V	R·A·V-781BWZ-4	Okaya Electric Ind.



Noise Filter for Signal Lines

Install noise filters for signal lines to all cables (power cable, motor cable, encoder cable and interface cable)

Symbol*1	Cable Name	100 V/200 V Amp. frame symbol	400 V Amp. frame symbol	Option part No.	Manufacturer's part No.	Manufacturer	Qty.
		A, B, C, D	D, E, F	DV0P1460	ZCAT3035-1330	TDK Corp.	4
NF1	Power cable	Power cable E, F —		Recommended components	RJ8035	KK-CORP.CO.JP	1
		G, H	G, H	Recommended components	RJ8095	KK-CORP.CO.JP	1
	Motor cable	A, B, C, D, E, F	D, E, F	DV0P1460	ZCAT3035-1330	TDK Corp.	4
NF2		G, H	G, H	Recommended components	T400-61D	MICROMETALS	1
NF3	24 V Power cable Encoder cable Interface cable USB cable Control power cable	cable Common cable (to all frames)		DV0P1460	ZCAT3035-1330	TDK Corp.	4

^{*1} For symbols, refer to the Block Diagram "Installation Environment" (P.249).

<Remarks>

To connect the noise filter to the connector XB connection cable, adjust the sheath length at the tip of the cable, as required.

<Caution>

Fix the signal line noise filter in order to prevent excessive stress to the cables.

<Fig.2: Dimensions>

	Part No.	Current	100 kHz				Siz	e [Unit:	mm]		
		Current	(μH)	Α	В	С	D1	D2	Core thickness	Е	F
	RJ8035	35 A	9.9±3	170	150	23	80	53	24	R3.5	7
	RJ8095	95 A	7.9±3	200	180	34	130	107	35	R3.5	7

Fig.1: DV0P1460(Option)

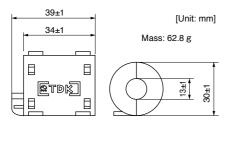


Fig.2: RJ8035, RJ8095 (Recommended components)

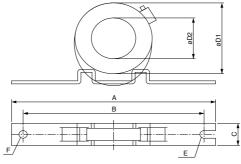
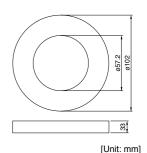


Fig.3: T400-61D (Recommended components)



Residual Current Device

Install a type B Residual current device (RCD) at primary side of the power supply.

Type B: Residual current device which detects a direct-current ingredient.

Grounding

- (1) Connect the protective earth terminal () of the driver and the protective earth terminal (PE) of the control box without fail to prevent electrical shocks.
- (2) Do not make a joint connection to the protective earth terminals (). 2 terminals are provided for protective earth.

<Note>

For driver and applicable peripheral equipments, refer to P.19 "Driver and List of Applicable Peripheral Equipments".

Compliance to EC and EMC Directives Composition of Peripheral Components

Compliance to EC and EMC Directives

EC Directives

The EC Directives apply to all such electronic products as those having specific functions and have been exported to EU and directly sold to general consumers. Those products are required to conform to the EU unified standards and to furnish the CE marking on the products. MINAS AC Servos conforms to the EC Directives for Low Voltage Equipment so that the machine incorporating our servos has an easy access to the conformity to relevant EC Directives for the machine.

EMC Directives

MINAS Servo System conform to relevant standard under EMC Directives setting up certain model (condition) with certain locating distance and wiring of the servo motor and the driver. And actual working condition often differs from this model condition especially in wiring and grounding. Therefore, in order for the machine to conform to the EMC Directives, especially for noise emission and noise terminal voltage, it is necessary to examine the machine incorporating our servos.

Conformed Standards

Subject		Conformed Standard						
	IEC60034-1	IEC60034-5 UL1004 CSA22.2 No.100	Conforms to					
Motor	EN50178	UL508C CSA22.2 No.14	Low- Voltage Directives					
	EN55011	Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment						
	EN61000-6-2	Immunity for Industrial Environments	Conforms to					
	IEC61000-4-2	Electrostatic Discharge Immunity Test						
Motor and	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	references					
driver	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test	by EMC Directives					
	IEC61000-4-5	Lightening Surge Immunity Test						
	IEC61000-4-6	High Frequency Conduction Immunity Test						
	IEC61000-4-11	Instantaneous Outage Immunity Test						

IEC : International Electrotechnical Commission

EN : Europaischen Normen
EMC: Electromagnetic Compatibility
UL : Underwriters Laboratories
CSA : Canadian Standards Association

Pursuant to at the directive 2004/108/EC, article 9(2)

Panasonic Testing Centre
Panasonic Service Europe.

a division of Panasonic Marketing Europe GmbH Winsbergring 15,22525 Hamburg,F.R.Germany

Composition of Peripheral Components

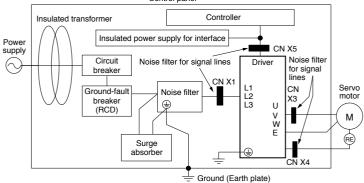
<Pre><Precautions in using options>

Use options correctly after reading operation manuals of the options to better understand the precautions. Take care not to apply excessive stress to each optional part.

Control panel

Installation Environment

Use Minas driver in environment of Pollution Degree 1 or 2 prescribed in IEC-60664-1 (e.g. Install the driver in control panel with IP54 protection structure.)



Power Supply

100 V system	Single phase, 100 V ^{+10 %} _{-15 %} to 115 V ^{+10 %} _{-15 %}	50 Hz/60 Hz
200 V system	Single phase, 200 V ⁺¹⁰ / ₋₁₅ % to 240 V ⁺¹⁰ / ₋₁₅ %	50 Hz/60 Hz
200 V system	3-phase, 200 V $^{+10}_{-15}\%$ to 240 V $^{+10}_{-15}\%$	50 Hz/60 Hz

- (1) Use the power supply under an environment of Overvoltage Category II specified in IEC60664-1.
- (2) For a interface power supply, use the insulated one with 12 VDC to 24 VDC which conforms to CE Marking or EN Standards (EN60950).

Circuit Breaker

Connect a circuit breaker which conforms to IEC standards and is UL recognized (UL Listed, marked), between the power supply and the noise filter.

Manufacturer

Okava Electric

[Unit: mm]

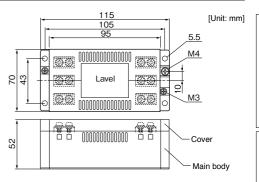
Composition of Peripheral Components Conformity to UL Standards

E Series Conformance to International Standards

Noise Filter

When you install one noise filter in the power supply for multi axis application, consult with the manufacture of the filter.

Option part No.	Part No.	Manufacturer
DV0P4160	3SUP-HU10-ER-6	Okaya Electric Industries Co.



Surge Absorber

Install a surge absorber at primary side of the noise filter.

Option part No.	Driver voltage spec	Part No.	Manufacturer	Option part No.	Driver voltage spec	Part No.
DV0P1450	3-phase, 200 V	R·A·V-781BXZ-4	Okaya Electric	DV0P4190	Single phase, 100 V, 200 V	R · A · V-781BWZ-4
	ø4.2±	0.2	[Unit: mm]		ø4.2±	0.2
Circuit diagr	am ③ ⊕	28.5±1		Circuit diagr	ram 😩	0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		2841	OH 1015 AWG16 UL-1015			28±1
		41±1				41±1

<Remarks>

Remove this surge absorber when you perform dielectric test on the machine, or surge absorber might be damaged.

Noise Filter for Signal Lines

Install noise filters for signal lines to all cables (Power line, motor cable, encoder cable, interface cable)

<Caution>

- Please fix a line noise filter to avoid excessive stress to the cable.
- · When using multiple axes, noise generated from each driver might influence driver and peripheral equipment and result to malfunction.

Please insert line noise filters between driver and motor wires (U, V, W but grounding).

(Please refer to P.255 "peripheral equipment configuration".)

Option part No).	Part No.	Qty.	Manufacturer
DV0P1460	ZC	AT3035-1330	4	TDK Corp.
39±1				[Unit: mm]
34±1		Ma	ass : 62	.8 g
	П			+

Grounding

- (1) Connect the protective earth terminal of the driver ((-)) and protective earth terminal of the control panel (PE) without fail to prevent electrical shocks.
- (2) Do not co-clamp to the ground terminals $(\stackrel{\frown}{-})$. Two ground terminals are provided.

Ground-Fault Breaker

Install a ground fault curcuit braker (RCD) to the primary side of the power supply.

Please use B-type (DC sensitive) ground fault circuit breakers defined in IEC60947-2, JISC8201-2-2.

Conformity to UL Standards

Observe the following conditions of (1) and (2) to make the system conform to UL508C (File No. E164620).

- (1) Use the driver in an environment of Pollution Degree 2 or 1 prescribed in IEC60664-1. (e.g. Install in the control box
- (2) Install a circuit breaker or fuse which are UL recognized (LISTED (1) marked) between the power supply and the noise filter without fail.

AC Servo Motor Capacity Selection Software Option Selection Software for AC Servo Motor

AC Servo Motor Capacity Selection Software

We have prepared PC software "M-SELECT" for AC servo motor capacity selection. Consult our sales representative or authorized distributor.

Three-step selection

1. Select components and specified values

Select appropriate mechanical parameter items and fill them with parameter values derived from

the real machine. To simulate the target machine as practical as possible, use maximum number of parameters available.



2. Enter operation pattern

Input the planned operation pattern that will contain [speed and rotation standard] or [absolute position

standard] with optional settings such as S-acceleration/de celeration.



3. Select the motor

When the data required in step 1 and 2 above have been input, the software lists the motors,

which will be appropriate to use with your machine. Select the motor that is best suitable for your machine application.



Details of motor

Once the motor is selected, specifications of the motor and amplifier, and details of reason for

determination are displayed and may be printed out.



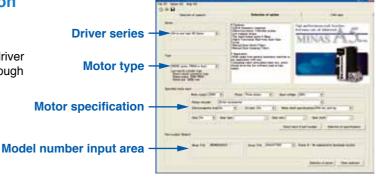
Option Selection Software for AC Servo Motor

We have prepared PC software to enable fast, easy, and correct option selection, a complicated job without the software.

Two procedures for option selection

Selection according to driver series and motor type

Suitable option can be selected by selecting driver series, motor type and motor specification through pulldown menu.



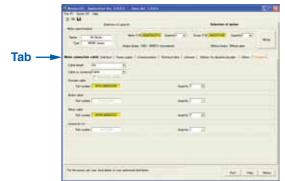
2. Entry of model number

If you know the model number based on the servo motor and driver currently used, enter the model number.

Result of selection

Tab sheet specific to each of option model numbers is used for easier identification of the desired option.

* When you are using the motor capacity selection software, simply press [Option Selection] tab and the screen as shown right will appear.



Please download from our web site and use after install to the PC. http://industrial.panasonic.com/ww/products/motors-compressors/fa-motors

Organization of the System of Units

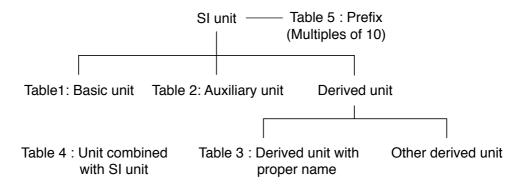


Table1: Basic unit

Quantity	Name of unit	Symbol of unit
Length	meter	m
Weight	kilogram	kg
Time	second	s
Current	ampere	A
Thermodynamic temperature	kelvin	K
Amount of substance	mol	mol
Luminous intensity	candela	cd

Table 2: Auxiliary unit

Quantity	Name of unit	Symbol of unit
Plane angle	radian	rad
Solid angle	steradian	sr

Table 3: Major derived unit with proper name

Quantity	Name	Symbol of unit	Derivation from basic unit, auxiliary unit or other derived unit
Frequency	hertz	Hz	1 Hz = 1 s ⁻¹
Force	newton	N	1 N = 1 kg·m/s ²
Pressure, Stress	pascal	Pa	1 Pa = 1 N/m ²
Energy, Work, Amount of heat	joule	J	1 J = 1 N·m
Amount of work, Work efficiency, Power, Electric power	watt	W	1 W = 1 J/s
Electric charge, Amount of electricity	coulomb	С	1 C = 1 A⋅s
Electric potential, Potential difference, Voltage, Electromotive force	volt	V	1 V = 1 J/C
Electrostatic capacity, Capacitance	farad	F	1 F = 1 C/V
Electric resistance	ohm	Ω	1 Ω = 1 V/A
Electric conductance	siemens	S	1 S = 1 Ω ⁻¹
Magnetic flux	weber	Wb	1 Wb = 1 V⋅s
Magnetic flux density, Magnetic induction	tesla	Т	1 T = 1 Wb/m ²
Inductance	henry	Н	1 H = 1 Wb/A
Degree centigrade (Celsius)	degree centigrade (Celsius) / degree	°C	t °C = (t+273.15) K
Luminous flux	lumen	lm	1 lm = 1 cd·sr
Illuminance	lux	lx	1 lx = 1 lm/m ²

Table 4: Unit combined with SI unit

Quantity	Name	Symbol of unit			
	minute	min			
Time	hour	h			
	day	d			
	degree	•			
Plane angle	minute	,			
	second	п			
Volume	liter	I, L			
Weight	ton	t			

Table 5: Prefix

Multiples powered	Prefix			
to unit	Name	Symbol		
10 ¹⁸	exa	E		
10 ¹⁵	peta	Р		
10 ¹²	tera	Т		
10°	giga	G		
10 ⁶	mega	M		
10 ³	kilo	k		
10 ²	hecto	h		
10	deca	da		
10 ⁻¹	deci	d		
10 ⁻²	centi	С		
10 ⁻³	milli	m		
10 ⁻⁶	micro	μ		
10 ⁻⁹	nano	n		
10 ⁻¹²	pico	р		
10 ⁻¹⁵	femto	f		
10 ⁻¹⁸	atto	a		

Guide to the International System of Units (SI)

Major Compatible Unit

Quantity	Symbol of conventional unit	Symbol of SI unit and compatible unit	Conversion value
Length	μ (micron)	μm	1 μ = 1 μm (micrometer)
Acceleration	Gal	m/s ²	1 Gal = 10 ⁻² m/s ²
	G	m/s ²	1 G = 9.80665 m/s ²
Frequency	c/s, c	Hz	1 c/s = Hz
Revolving speed, Number of revolutions	rpm	s ⁻¹ or min ⁻¹ , r/min	1 rpm = 1 min ⁻¹
Weight	kgf	_) -
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	m³/kgf	m³/kg	Same value
Load	kgf	N	1 kgf = 9.80665 N
Force	kgf	N	1 kgf = 9.80665 N
	dyn	N	1 dyn = 10 ⁻⁵ N
Moment of force	kgf⋅m	N·m	1 kgf·m = 9.806 N·m
Pressure	kgf/cm ²	Pa, bar ⁽¹⁾ or kgf/cm ²	1 kgf/cm ² = 9.80665 x 10 ⁴ Pa
resoure	NS.JOIT	r a, bar or kg//orr	= 0.980665 bar
	at (Engineering atmospheric pressure)	Pa	1 at = 9.80665 x 10 ⁴ Pa
	atm (Atmospheric pressure)	Pa	1 atm = $1.01325 \times 10^5 \text{ Pa}$
	mH ₂ O, mAq	Pa	$1 \text{ mH}_2\text{O} = 9.80665 \times 10^3 \text{ Pa}$
	mmHg	Pa or mmHg ⁽²⁾	1 mmHg = 133.322 Pa
	Torr	_	1 mm ig = 100.022 i a
Chross	kgf/mm ²	Pa Pa or N/m²	1 kgf/mm ² = 9.80665 x 10 ⁶ Pa
Stress	Kgi/IIIII	Pa OF IV/III	=9.80665 x 10 ⁶ N/m ²
	1	Pa or N/m ²	$-9.80665 \times 10^{4} \text{ N/III}$ $1 \text{ kgf/cm}^2 = 9.80665 \times 10^{4} \text{ Pa}$
	kgf/cm ²	Pa or N/III	$= 9.80665 \times 10^4 \text{ N/m}^2$
	kgf/m ²	Pa or N/m ²	1 kgf/m ² = 9.80665 Pa = 9.80665 N/m ²
Elastic modulus	Kgi/ffi-	Pa or N/III	$1 \text{ kgf/cm}^2 = 9.80665 \text{ x } 10^4 \text{ N/m}^2$
Francis Mode	Last on	1 (:1-)	
Energy, Work	kgf⋅m	J (joule)	1 kgf·m = 9.80665 J
	erg	J	1 erg = 10 ⁻⁷ J
Work efficiency, Power	kgf·m/s	W (watt)	1 kgf·m/s = 9.80665 W
	PS	W	1 PS = 0.7355 kW
Viscosity	PP	Pa·s	1 P = 0.1 Pa·s
Kinetic viscosity	St	mm²/s	10 ⁻² St = 1 mm ² /s
Thermodynamic temperature	K	K (kelvin)	1 K = 1 K
Temperature interval	deg	K ⁽³⁾	1 deg = 1 K
Amount of heat	cal	J	1 cal = 4.18605 J
Heat capacity	cal/°C	J/K ⁽³⁾	1 cal/°C = 4.18605 J/K
Specific heat, Specific heat capacity	cal/ (kgf·°C)	cal/ (kgf·K) ⁽³⁾	1 cal/ (kgf·°C) = 4.18605 J/ (kg·K)
Entropy	cal/K	J/K	1 cal/K = 4.18605 J/K
Specific entropy	cal/ (kgf⋅K)	J/(kg·K)	1 cal/ (kgf·K) = $4.18605 \text{ J/ (kg·K)}$
Internal energy (Enthalpy)	cal	J	1 cal = 4.18605 J
Specific internal energy (Specific enthalpy)	cal/kgf	J/kg	1 cal/kgf = 4.18605 J/kg
Heat flux	cal/h	W	1 kcal/h = 1.16279 W
Heat flux density	cal/ (h·m²)	W/m ²	1 kcal/ (h·m²) = 1.16279 W/m²
Thermal conductivity	cal/ (h·m·°C)	W/ (m·K) ⁽³⁾	1 kcal/ (h·m·°C) = 1.16279 W/ (m·K)
Coefficient of thermal conductivity	cal/ (h·m²·°C)	W/ (m ² ·K) ⁽³⁾	1 kcal/ (h·m²·°C) = 1.16279 W/ (m²·K)
Intensity of magnetic field	Oe	A/m	1 Oe = $10^3 / (4\pi) \text{ A/m}$
Magnetic flux	Mx	Wb (weber)	1 Mx = 10 ⁻⁸ Wb
Magnetic flux density	Gs,G	T (tesla)	1 Gs = 10 ⁻⁴ T

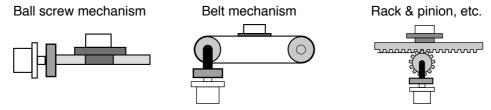
- Applicable to liquid pressure. Also applicable to atmospheric pressure of meteorological data, when "bar" is used in international standard.
 Applicable to scale or indication of blood pressure manometers.
 "C" can be substituted for "K".

Flow of Motor Selection

1. Definition of mechanism to be driven by motor.

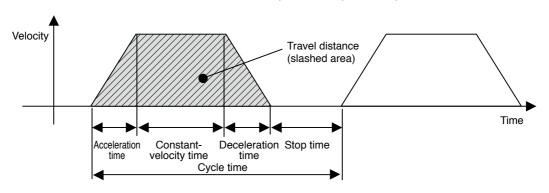
Define details of individual mechanical components (ball screw length, lead and pulley diameters, etc.)

<Typical mechanism>



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

Description on the Items Related to Motor Selection

1. Torque

(1) Peak torque

Indicate the maximum torque that the motor requires during operation (mainly in acceleration and deceleration steps). The reference value is 80% or less of the maximum motor torque. If the torque is a negative value, a regenerative discharge resistor may be required.

(2) Traveling torque, Stop holding torque

Indicates the torque that the motor requires for a long time. The reference value is 80% or less of the rated motor torque. If the torque is a negative value, a regenerative discharge resistor may be required.

Traveling torque calculation formula for each mechanism

Ball screw mechanism

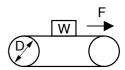
W F

Traveling torque $T_f = \frac{P}{2\pi \eta} (\mu gW + F)$

 $\begin{array}{ll} \text{W}: \text{Weight} \, [kg] & \eta: \text{Mechanical efficiency} \\ \text{P}: \text{Lead} \, [m] & \mu: \text{Coefficient of friction} \end{array}$

 $\label{eq:first-problem} F : \text{External force [N]} \qquad \qquad g : \text{Acceleration of gravity } 9.8 [\text{m/s}^2]$

Belt mechanism



Traveling torque $T_f = \frac{D}{2\pi \eta} (\mu gW + F)$

W: Weight [kg] η : Mechanical efficiency P: Pulley diameter [m] μ : Coefficient of friction

F: External force [N] g: Acceleration of gravity $9.8[m/s^2]$

(3) Effective torque

Indicates a root-mean-square value of the total torque required for running and stopping the motor per unit time. The reference value is approx. 80% or less of the rated motor torque.

$$Trms = \sqrt{\frac{Ta^2 x ta + Tf^2 x tb + Td^2 x td}{tc}}$$

 $Ta: Acceleration \ torque \ [N\cdot m] \qquad \qquad ta: Acceleration \ time \ [s] \qquad \qquad tc: Cycle \ time \ [s]$

Tr: Traveling torque [N·m] tb: Constant-velocity time [s] (Run time + Stop time)

Td: Deceleration torque [N·m] td: Deceleration time [s]

2. Motor velocity

Maximum velocity

Maximum velocity of motor in operation: The reference value is the rated velocity or lower value. When the motor runs at the maximum velocity, you must pay attention to the motor torque and temperature rise. For actual calculation of motor velocity, see "Example of motor selection" described later.

3. Inertia and inertia ratio

Inertia is like the force to retain the current moving condition.

Inertia ratio is calculated by dividing load inertia by rotor inertia.

Generally, for motors with 750 W or lower capacity, the inertia ratio should be "20" or less. For motors with 1000 W or higher capacity, the inertia ratio should be "10" or less.

If you need quicker response, a lower inertia ratio is required.

(For example, when the motor takes several seconds in acceleration step, the inertia ratio can be further)

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	$J = \frac{1}{12} W (a^{2} + b^{2}) [kg \cdot m^{2}]$ $W : Weight [kg]$ a, b, c : Side length [m]	Uniform rod	$J = \frac{1}{48} W(3D^2 + 4L^2)_{[kg \cdot m^2]}$ $W : Weight [kg]$ $D : Outer diameter [m]$ $L : Length [m]$
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" $J = J_1 + (\frac{n_2}{n_1})^2 J_2[kg \cdot m^2]$ $n_1 : \text{A rotational speed of a shaft } [r/min]$ $n_2 : \text{A rotational speed of b shaft } [r/min]$		
Conveyor	$J = \frac{1}{4} WD^{2} [kg \cdot m^{2}]$ $W : Workpiece weight on conveyor [kg]$ $D : Drum diameter [m]$ * Excluding drum J	Ball screw	$J = J_B + \frac{W \cdot P^2}{4\pi^2} \text{ [kg·m²]}$ $W : \text{Weight [kg]}$ $P : \text{Lead}$ $JB : J \text{ of ball screw}$

If weight (W [kg]) is unknown, calculate it with the following formula:

Weight W[kg]=Density ρ [kg/m³] x Volume V[m³]

Density of each material

Iron $\rho = 7.9 \times 10^3 \, [kg/m^3]$

Aluminum $\rho = 2.8 \times 10^3 \, [kg/m^3]$

Brass ρ =8.5 x 10³ [kg/m³]

Selecting Motor Capacity To Drive Ball Screw Mechanism

To Drive Ball Screw Mechanism

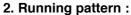
1. Example of motor selection for driving ball screw mechanism

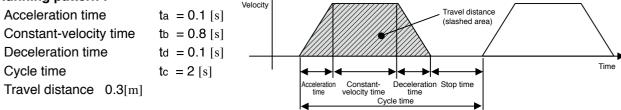
Workpiece weight WA = 10 [kg]Ball screw length BL = 0.5 [m]Ball screw diameter BD = 0.02 [m]Ball screw lead BP = 0.02 [m]

Ball screw efficiency $B\eta = 0.9$

Travel distance 0.3[m]

Coupling inertia $Jc = 10 \times 10^{-6} [kg \cdot m^2]$ (Use manufacturer-specified catalog value, or calculation value.)





3. Ball screw weight
$$BW = \rho \times \pi \times \left(\frac{BD}{2}\right)^2 \times BL = 7.9 \times 10^3 \times \pi \times \left(\frac{0.02}{2}\right)^2 \times 0.5$$

4. Load inertia
$$JL = JC + JB = JC + \frac{1}{8}BW \times BD^{2} + \frac{WA \cdot BP^{2}}{4\pi^{2}}$$
$$= 0.00001 + (1.24 \times 0.02^{2}) / 8 + 10 \times 0.02^{2} / 4\pi^{2}$$
$$= 1.73 \times 10^{-4} [kg \cdot m^{2}]$$

5. Provisional motor selection

In case of MSME 200 W motor : $JM = 0.14 \times 10^{-4} \, [kg \cdot m^2]$

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 $\frac{1}{2}$ × 0.1 × Vmax + 0.8 × Vmax + $\frac{1}{2}$ × 0.1 × Vmax = 0.3 0.9 × Vmax = 0.3 Vmax = 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]

$$N = 0.334 / 0.02 = 16.7 [r/s]$$

= 16.7 × 60 = 1002 [r/min] < 3000 [r/min] (Rated velocity of MSME 200W motor)

9. Calculation of torque

Traveling torque
$$T_f = \frac{BP}{2\pi B \, \eta} \ (\mu gWA + F) = \frac{0.02}{2\pi \times 0.9} \ (0.1 \times 9.8 \times 10 + 0)$$

$$= 0.035 \ [N \cdot m]$$
 Acceleration torque
$$T_a = \frac{(JL + JM) \times 2\pi N[r/s]}{Acceleration time \ [s]} + Traveling torque$$

$$= \frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} + 0.035$$

$$= 0.196 + 0.035 = 0.231 \ [N \cdot m]$$

Informatio

Deceleration torque $T_d = \frac{(JL + JM) \times 2\pi N[r/s]}{Deceleration time [s]} - Traveling torque$ $= \frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} - 0.035$

10. Verification of maximum torque

To Drive Ball Screw Mechanism

Example of Motor Selection

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·m] < 0.64 [N·m] (Rated torque of MSME 200 W motor)

12. Judging from the inertia ratio calculated above, selection of 200 W motor is preferable, although the torque margin is significantly large.

Example of Motor Selection

Example of motor selection for timing belt mechanism

1.Mechanism Workpiece weight WA = 2[kg] (including belt)

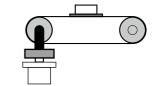
Pulley diameter PD = 0.05[m]

Pulley weight WP= 0.5[kg] (Use manufacturer-specified catalog value, or calculation value.)

Mechanical efficiency $B\eta = 0.8$

Coupling inertia Jc = 0 (Direct connection to motor shaft)

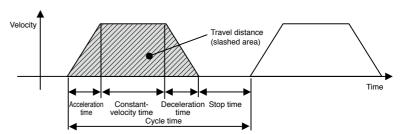
Belt mechanism inertia JB Pulley inertia JP



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
$$JL = JC + JB + JP$$

$$= JC + \frac{1}{4}WA \times PD^2 + \frac{1}{8}WP \times PD^2 \times 2$$

$$= 0 + \frac{1}{4} \times 2 \times 0.05^2 + \frac{1}{8} \times 0.5 \times 0.05^2 \times 2$$

$$= 0.00156 = 15.6 \times 10^{-4} [kg \cdot m^2]$$

4. Provisional motor selection

In case of MSME 750 W motor : $JM = 0.87 \times 10^{-4} \, [kg \cdot m^2]$

5. Calculation of inertia ratio

JL / JM = 15.6×10^{-4} / 0.87×10^{-4} Therefore, the inertia ratio is "17.9" (less than "20")

Selecting Motor Capacity Example of Motor Selection

6. Calculation of maximum velocity (Vmax)

$$\frac{1}{2}$$
 × Acceleration time×Vmax+Constant-velocity time×Vmax+ $\frac{1}{2}$ × Deceleration time×Vmax=Travel distance $\frac{1}{2}$ × 0.1 × Vmax + 0.8 × Vmax + $\frac{1}{2}$ × 0.1 × Vmax = 1 0.9 × Vmax = 1 Vmax = 1 / 0.9 = 1.111[m/s]

7. Calculation of motor velocity (N [r/min])

A single rotation of pulley :
$$\pi \times PD = 0.157[m]$$

N = 1.111 / 0.157 = 7.08[r/s]
= 7.08 × 60 = 424.8[r/min] < 3000[r/min] (Rated velocity of MSME 750 W motor)

8. Calculation of torque

Traveling torque
$$T_f = \frac{PD}{2\,\eta} \left(\mu g W A + F \right) = \frac{0.05}{2\,\times\,0.8} \; (0.1\,\times\,9.8\,\times\,3\,+\,0)$$

$$= 0.061 [\,\mathrm{N\cdot m}\,]$$
Acceleration torque
$$T_a = \frac{(\,\mathrm{JL}\,+\,\mathrm{JM}\,)\,\times\,2\pi\,\mathrm{N}\,[\,\mathrm{r}/\mathrm{s}\,]}{\mathrm{Acceleration\;time}\,[\,\mathrm{s}\,]} + \mathrm{Traveling\;torque}$$

$$= \frac{(15.6\,\times\,10^{-4}\,+\,0.87\,\times\,10^{-4})\,\times\,2\pi\,\times\,7.08}{0.1} + 0.061$$

$$= 0.751\,+\,0.061 = 0.812 [\,\mathrm{N\cdot m}\,]$$
Deceleration torque
$$T_d = \frac{(\,\mathrm{JL}\,+\,\mathrm{JM}\,)\,\times\,2\pi\,\mathrm{N}\,[\,\mathrm{r}/\mathrm{s}\,]}{\mathrm{Deceleration\;time}\,[\,\mathrm{s}\,]} - \mathrm{Traveling\;torque}$$

$$= \frac{(\,\mathrm{J5.6}\,\times\,10^{-4}\,+\,0.87\,\times\,10^{-4})\,\times\,2\pi\,\times\,7.08}{0.1} - 0.061$$

$$= 0.751\,-\,0.061 = 0.69 [\,\mathrm{N\cdot m}\,]$$

9. Verification of maximum torque

Acceleration torque $Ta = 0.812[N \cdot m] < 7.1[N \cdot m]$ (Maximum torque of MSME 750 W motor)

10. Verification of effective torque

Trms =
$$\sqrt{\frac{Ta^2 \times ta + Tf^2 \times tb + Td^2 \times td}{tc}}$$

= $\sqrt{\frac{0.812^2 \times 0.1 + 0.061^2 \times 0.8 + 0.69^2 \times 0.1}{2}}$
= 0.241 [N·m] < 2.4 [N·m] (Rated torque of MSME 750 W motor)

11. Judging from the above calculation result, selection of MSME 750W motor is acceptable.

time

Request Sheet for Motor Selection

Request for motor selection I: Ball screw drive

s

mm

mm

1. Driven mechanism and running data

Travel distance of the work load per one cycle

ℓ1: mm

2) Cycle time

to: s

(Fill in items 3) and 4) if required.)

3) Acceleration time

velocity ℓ1 ta: s s td: **t**d

Running pattern

tο

4) Deceleration time

ts:

5) Stopping time

V: mm/s

7) External force

6) Max. velocity

F:

Ν

Positioning accuracy of the work load Total weight of the work load

Wa: kg

±

and the table 10) Power supply voltage

11) Diameter of the ball screw

٧

 mm

12) Total length of the ball

13) Lead of the ball screw

mm

Traveling direction (horizontal, vertical etc.)



 W_A

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 for motor selection II: Timing pulley + Ball screw drive

	Oriven mechanism an Travel distance of the work	_	1	Motor side	Ball s	crew side	
)	load per one cycle	ℓ ₁ : mm	15) Diameter of the pulley	D ₁ : mr	n D ₂ :	mr	
)	Cycle time	to: s	16) Weight of the pulley	W1: k	g W ₂ :	k	
	(Fill in items 3) and 4) if require	red.)	(or item 17) and 18))				
)	Acceleration time	ta: s	17) Width of the pulley	L1:	mm		
)	Deceleration time	td: s	18) Material of the pulley				
)	Stopping time	ts: s	19) Weight of the belt	WM:	kg		
)	Max. velocity	V: mm/s	Running pattern				
)	External force	F: N					
)	Positioning accuracy of the work load	± mm	l (1)				
)	Total weight of the work load and the table	Wa: kg	ta to	t _d t _s	time	_	
)	Power supply voltage	V	F	WA			
)	Diameter of the ball screw	mm					
)	Total length of the ball screw	mm					
)	Lead of the ball screw	mm				D ₂ (W ₂	
)	Traveling direction (horizontal, vertical etc.)				Wм		
	Other data (Fill the details	s on specific mechanis	m and its configurations in t	he following b	lank.)		
			Company name :				
	Department/Section :						
			Name :				
			Address : Tel :				
			Fax:				
			E-mail address:				

time

Request Sheet for Motor Selection

Request for motor selection III: Belt drive

1. Driven mechanism and running data

Travel distance of the work load per one cycle

ℓ 1: mm

2) Cycle time

s to:

(Fill in items 3) and 4) if required.)

3) Acceleration time

ta: s

4) Deceleration time

td: s

5) Stopping time

s ts:

6) Max. velocity

V: mm/s

7) External force

F: Ν

Positioning accuracy of the work load

± mm

9) Total weight of the work load

Wa: kg

10) Power supply voltage

٧

11) Weight of the belt

W_M: kg

12) Diameter of the driving pulley

13) Total weight of the pulley

D₁: mm W₁:

14) Width of the pulley

Traveling direction

(or item 14) and 15))

Running pattern

 ℓ_1

to

td

L₁: mm

 W_1

- 15) Material of the pulley
 - (horizontal, vertical etc.)
- 2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

kg

Company name:

Department/Section:

Name:

Address:

Tel: Fax:

E-mail address:

Request for motor selection IV : Timing pulley + Belt drive

1. Driven mechanism and running data

•••		iiii3iii ai	iu iu	9	aata			N	Motor side	Belt si	de
1)	Travel distance of load per one cycle		ℓ1: mm		mm	16) Diameter of the pu	ılley	Da	: mm	D4:	mm
2)	Cycle time		to: s			17) Weight of the pulle	у	Wa	: kg	W4:	kg
(Fill in items 3) and 4) if required.)					(or item 18) and 19	9))					
3)	Acceleration time		ta: s			18) Width of the pulley	/		L2:	mm	
4)	Deceleration time		td:		s	19) Material of the pul	ley				
5)	Stopping time		ts:		s	20) Weight of the belt			WL:	kg	
6)	Max. velocity		V:		mm/s	21) Traveling direction (horizontal, vertical		.) [
7)	External force		F:		N	Running pattern					
8)	Positioning accura	acy of the	±		mm	> /		\			
9)	Total weight of the load	work	WA:		kg	rg Airole / la					
10)	Power supply volt	age			V	t _a t _o	¥	t d	t _s	time	
11)	Weight of motor s	ide belt	WM:		kg					\sum	Ý
		Motor s	side	Belt	t side				W		L ₂
12)	Diameter of the pulley	D ₁ :	mm	D ₂ :	mm		١	N Α			
13)	Weight of the pulley	W ₁ :	kg	W ₂ :	kg	D2(W2)				D4((W ₄)
	(or item 14) and 1	5))				W _M		I			
14)	Width of the belt	L1:		mm					D ₃	(Wз)	
15)	Material of the pulley	the									
						D ₁ (W ₁)					
2. (Other data (Fil	I the detai	ls on s	specific	mechanis	and its configurations	s in tl	he f	ollowing bla	nk.)	
						Company name :					
						epartment/Section :					
						lame :					
						address:					
						el:					
						ax:					
						-mail address:					

pcs

Request Sheet for Motor Selection

Request for motor selection V: Turntable drive

s

1. Driven mechanism and running data

4١	Travel distance of the work
1)	load per one cycle

d₁: deg

to:

Dimensions of the work load

	Prism		Cylinder
a:	mm	a:	mm
b:	mm	b:	mm
c:	mm	c:	mm

2) Cycle time

(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. rotational speed of the table

v: deg/s

(or) V: r/s

Positioning accuracy of the work load

± deg

8) Weight of one work load

W_A: kg

9) Driving radius of the center of gravity of the work

R₁: mm

10) Diameter of the table

D₁: mm

11) Mass of the table

W₁: kg

12) Diameter of the table support

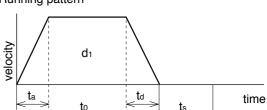
13) Power supply voltage

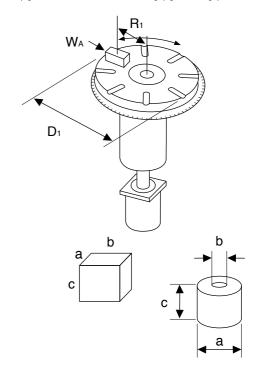
V

T₁:

Running pattern

15) Number of work loads





2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

 $\,mm$

Company name :
Department/Section :
Name :
Address:
Tel:
Fax :
E-mail address:

Request for motor selection VI: Timing pulley + Turntable drive

1. I	Driven mecha	nism ar	ıd rur	nning d	lata				Motor	side	Turnt	able side
1)	Travel distance of load per one cycle		dı:		deg	16)	Diameter of the	pulley	D ₂ :	mm	D3:	mm
2)	Cycle time		to:		s	17)	Weight of the po	ulley	W2:	kg	W 3:	kg
	(Fill in items 3) and	d 4) if requi	ired.)				(or item 18) and 19))					
3)	Acceleration time		ta: s			18) Width of the pulley			L1:		mm	
4)	Deceleration time		t d:		s	19)	Material of the p	oulley				
5)	Stopping time		ts:		s	20)	Weight of the be	elt		W _M :		kg
6)	Max. rotational spetable	eed of the	v: deg/s		deg/s	Running pattern						
		(or)	V: r/s									
7)	Positioning accura work load	cy of the	± deg			Application de						
8)	Weight of one worl	k load	Wa:		kg	ta to time						time
9)	Driving radius of the center of gravity of the work		R ₁ :		mm				,	R 1		
10)	D) Diameter of the table		D ₁ : mm		WA D1							
11)) Mass of the table		W ₁ : kg									
12)	Diameter of the table support		T ₁ : mm									
13)	Power supply volta	age			V		D2(W2)				▼.	
		(Prisi	m) (Cylinder)			D3(V2)					D3(W3)	
14)	Dimension of the work load	a:	mm	a:	mm				_ N	/ M		b
		b:	mm	b:	mm			a /	b	7		—
		c:	mm	C:	mm			С		a 1		
15)	Number of work lo	ads			pcs							C ▶
2. (2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)											
						Con	npany name :					
							Department/Section :					
						Name :						
							ress:					
							Tel:					
						Fax	:					

E-mail address:

Request for motor selection VII: Roller feed drive

1. Driven mechanism and running data

1) Travel distance of the work load per one cycle

ℓ 1: mm

2) Cycle time

to: s

(Fill in items 3) and 4) if required.)

3) Acceleration time

ta: s

4) Deceleration time

td: s

5) Stopping time

6) Max. velocity

ts: s

v: mm/s

7) External pulling force

F: N

8) Positioning accuracy of the work load

± mm

9) Number of rollers

pcs

10) Power supply voltage

11) Diameter of the roller

V

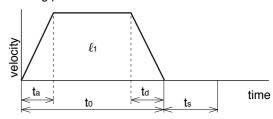
D₁:

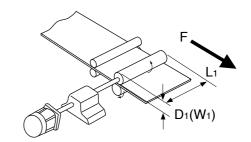
12) Mass of the roller

W₁: kg

mm

Running pattern





(or item 13) and 14))

13) Width of the roller

14) Material of the roller

L₁: mm

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:

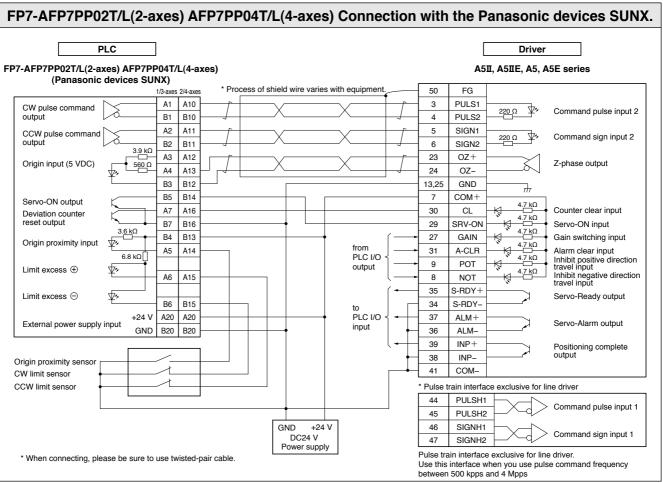
Request for motor selection Ⅷ: Driving with Rack & Pinion

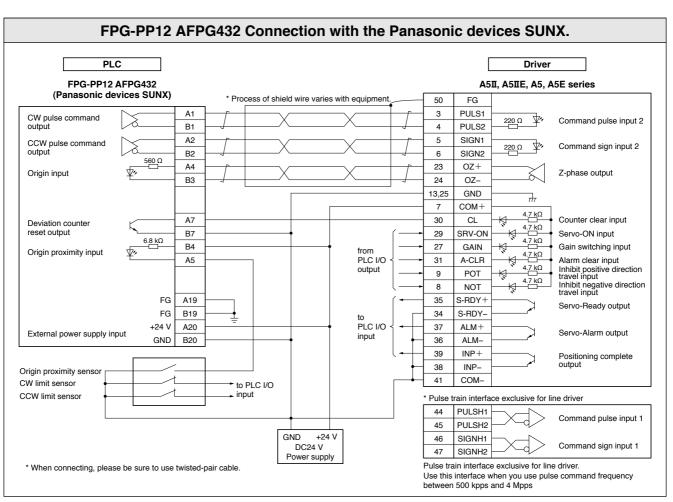
1. Driven mechanism and running data

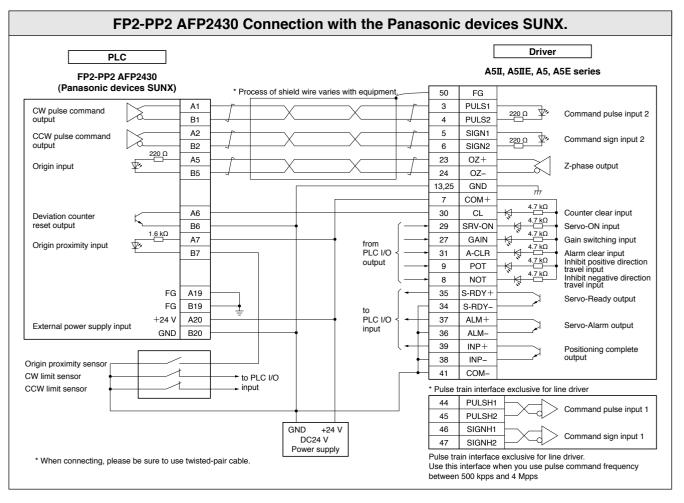
1)	Travel distance of the work load per one cycle	ℓ 1:	mm	
2)	Cycle time	to:	s	
	(Fill in items 3) and 4) if required.)			
3)	Acceleration time	ta:	s	Running pattern
4)	Deceleration time	td:	S	Value of the state
5)	Stopping time	ts:	S	
6)	Max. velocity	V: r	nm/s	ta to time
7)	External force	F:	N	/ WA
8)	Positioning accuracy of the work load	±	mm	F F
9)	Total weight of the work load	WA:	kg	
10)	Power supply voltage		V	W3 EX S
11)	Diameter of the pinion	D ₃ :	mm	D3
12)	Mass of the pinion	W3:	kg	
13)	Traveling direction (horizontal, vertical, etc.)			

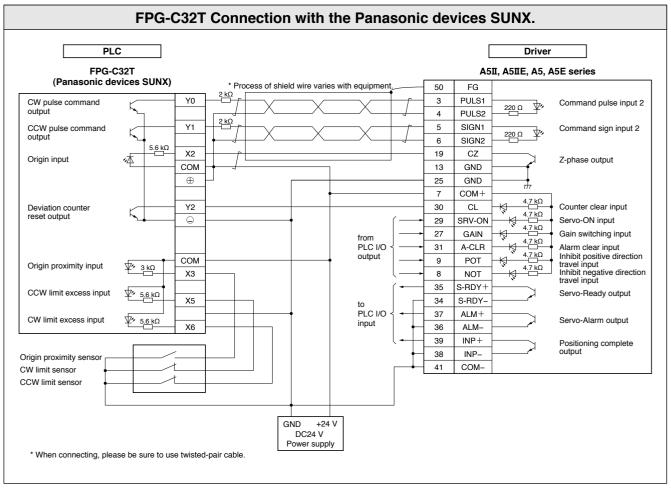
2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

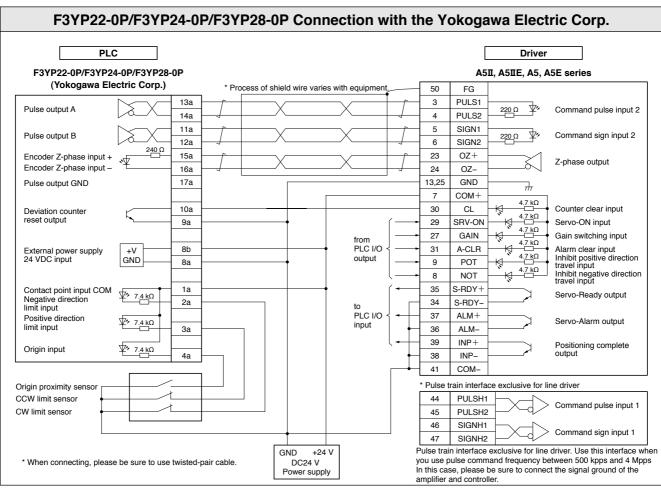
Company name :
Department/Section :
Name :
Address:
Tel:
Fax:
E-mail address:

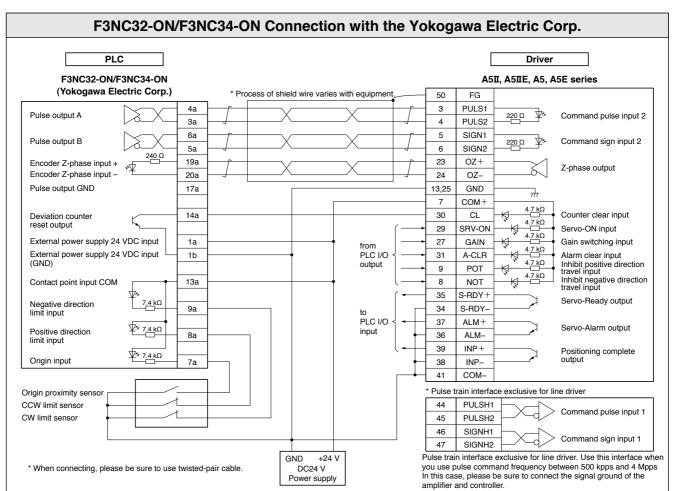


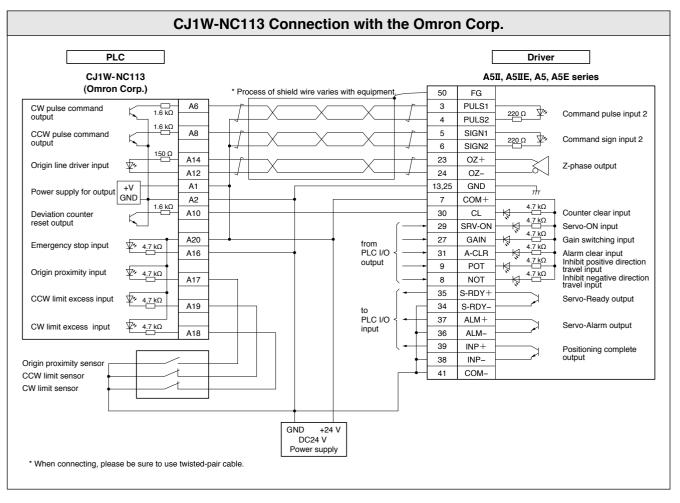


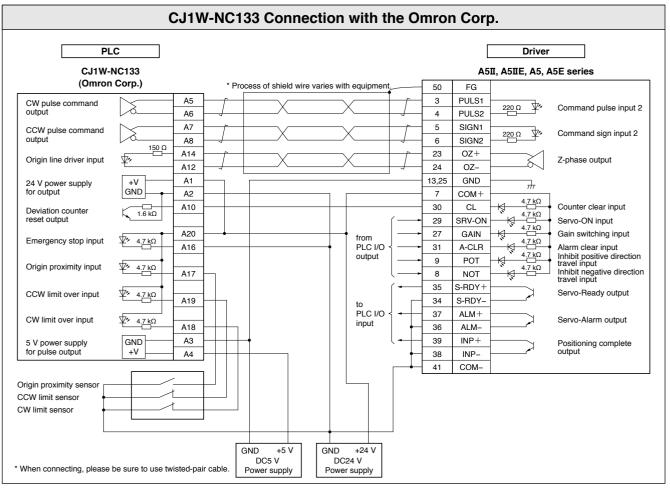


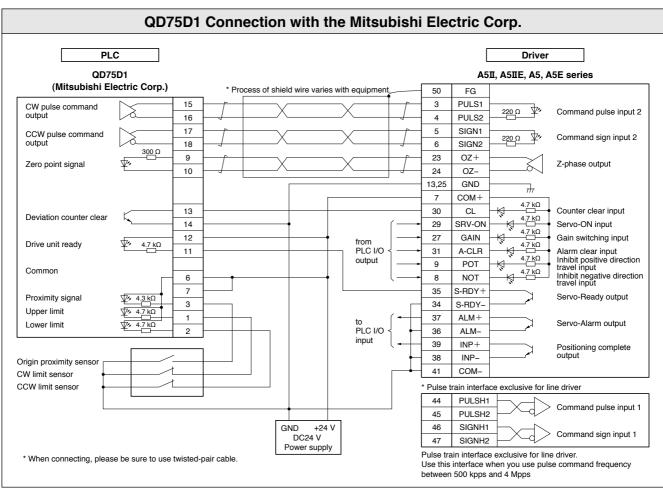


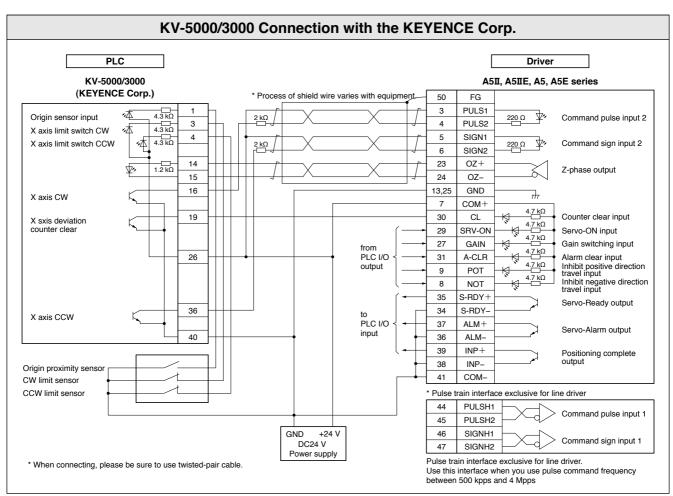






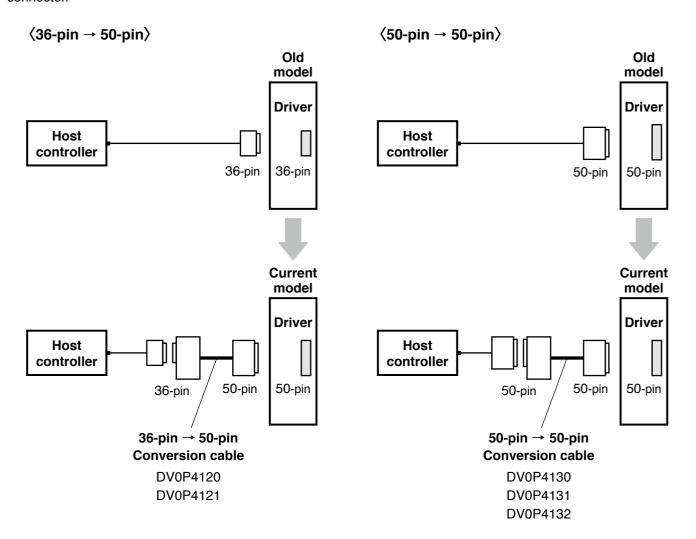






Replacing Old Model Servo Driver with MINAS A5II, A5 series

For easier replacement of old driver (MINAS X/XX/V series) with A5II, A5 series, use the interface conversion connector.



When selecting the cable, refer to the table below because the part number of the cable is specific to the control mode of the old model.

Old model	Control mode	Conversion cable part No.	Conversion wiring table	
X series XX series	Position/velocity control	DV0P4120	P.280	
(36-pin)	Torque control	DV0P4121	F.20U	
	Position control	DV0P4130	P.281	
V series (50-pin)	Velocity control	DV0P4131	F.201	
	Torque control	DV0P4132	P.282	

^{*} For external dimensions, refer to P.197.

Conversion Wiring Table

		DV0P4120			DV0P4121			
Pin No. on Old Model	Pin No. on Current Model	Signal Name	Symbol	Pin No. on Current Model	Signal Name	Symbol		
1	23	Z-phase output	OZ+	23	Z-phase output	OZ+		
2	24	Z-phase output	OZ-	24	Z-phase output	OZ-		
3	13	Signal ground	GND	13	Signal ground	GND		
4	19	Z-phase output	CZ	19	Z-phase output	CZ		
5	4	Command pulse input 2	PULS2	4	Command pulse input 2	PULS2		
6	3	Command pulse input 2	PULS1	3	Command pulse input 2	PULS1		
7	6	Command pulse sign input 2	SIGN2	6	Command pulse sign input 2	SIGN2		
8	5	Command pulse sign input 2	SIGN1	5	Command pulse sign input 2	SIGN1		
9	33	Command pulse inhibition input	INH	33	Command pulse inhibition input	INH		
10	26	Speed zero clamp input	ZEROSPD	26	Speed zero clamp input	ZEROSPD		
11	7	Power supply for control signal (+)	COM+	7	Power supply for control signal (+)	COM+		
12	29	Servo-ON input	SRV-ON	29	Servo-ON input	SRV-ON		
13	30	Deviation counter clear input	CL	30	Deviation counter clear input	CL		
14	14	Speed command input	SPR	NC				
15	15	Signal ground	GND	15	Signal ground	GND		
16	43	Speed monitor output	SP	43	Speed monitor output	SP		
17	25	Signal ground	GND	25	Signal ground	GND		
18	50	Frame ground	FG	50	Frame ground	FG		
19	21	A-phase output	hase output OA+ 21 A-phase output		OA+			
20	22	A-phase output	OA-	22	A-phase output	OA-		
21	48	B-phase output OB+ 48 B-phase output		OB+				
22	49	B-phase output	OB-	49	B-phase output	OB-		
23	NC			NC				
24	NC			NC				
25	39	Positioning complete output Speed arrival output	COIN+ AT-SPEED+	39	Positioning complete output Speed arrival output	COIN+ AT-SPEED+		
26	37	Servo-Alarm output	ALM+	37	Servo-Alarm output	ALM+		
27	35	Servo-Ready output	S-RDY+	35	Servo-Ready output	S-RDY+		
	34	Positioning complete output (–) Speed arrival output (–)	COIN- AT-SPEED-	34	Positioning complete output (–) Speed arrival output (–)	COIN- AT-SPEED-		
28	36	Servo-Alarm output (–)	ALM-	36	Servo-Alarm output (-)	ALM-		
	38	Servo-Ready output (–)	S-RDY-	38	Servo-Ready output (-)	S-RDY-		
	41	Power supply for control signal (-)	COM-	41	Power supply for control signal (-)	COM-		
29	8	CW over-travel inhibit input	CWL	8	CW over-travel inhibit input	CWL		
30	9	CCW over-travel inhibit input	CCWL	9	CCW over-travel inhibit input	CCWL		
31	31	Alarm clear input	A-CLR	31	Alarm clear input	A-CLR		
32	32	Control mode switching input	C-MODE	32	Control mode switching input	C-MODE		
33	18	CW direction torque limit input	CWTL	18	CW direction torque limit input	CWTL		
34	16	CCW direction torque limit input	CCWTL	14	Torque command input	TRQR		
35	17	Signal ground	GND	17	Signal ground	GND		
36	42	Torque monitor output	IM	42	Torque monitor output	IM		

^{* &}quot;NC" is no connect.

A5 Family Connection Between Driver and Controller

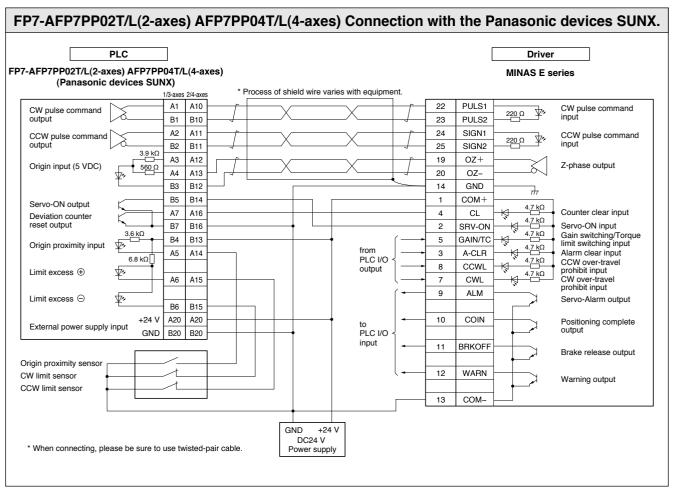
Replacing Old Model Servo Driver with MINAS A5II, A5 series

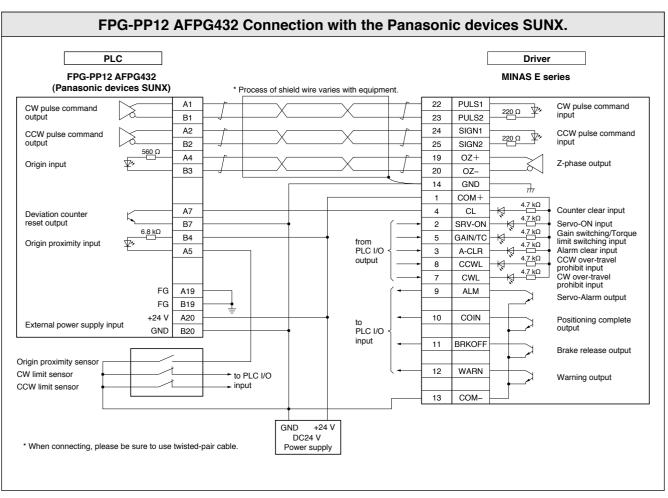
	DV0P4130				DV0P4131			
Pin No.	Pin Pin				Pin Dvor4131			
on Old Model	No. on Current Model	Signal Name	Symbol	No. on Current Model	Signal Name	Symbol		
1	8	CW over-travel inhibit input	CWL	8	CW over-travel inhibit input	CWL		
2	9	CCW over-travel inhibit input	CCWL	9	CCW over-travel inhibit input	CCWL		
3	3	Command pulse input 2	PULS1	NC				
4	4	Command pulse input 2	PULS2	NC				
5	5	Command pulse sign input 2	SIGN1	NC				
6	6	Command pulse sign input 2	SIGN2	NC				
7	7	Power supply for control signal (+)	COM+	7	Power supply for control signal (+)	COM+		
8	NC			NC				
9	NC			NC				
10	NC			NC				
11	11	External brake release signal	BRK-OFF+	11	External brake release signal	BRK-OFF+		
12	12	Zero-speed detection output signal	ZSP	12	Zero-speed detection output signal	ZSP		
13	13	Torque in-limit signal output	TLC	13	Torque in-limit signal output	TLC		
14	NC			14	Speed command input	SPR		
15	15	Signal ground	GND	15	Signal ground	GND		
16	16	CCW direction torque limit input	CCWTL	16	CCW direction torque limit input	CCWTL		
17	17	Signal ground	GND	17	Signal ground	GND		
18	18	CW direction torque limit input	CWTL	18	CW direction torque limit input	CWTL		
19	19	Z-phase output	CZ	19	Z-phase output	CZ		
20	NC			NC				
21	21	A-phase output	OA+	21	A-phase output	OA+		
22	22	A-phase output	OA-	22	A-phase output	OA-		
23	23	Z-phase output	OZ+	23	Z-phase output	OZ+		
24	24	Z-phase output	OZ-	24	Z-phase output	OZ-		
25	50	Frame ground	FG	50	Frame ground	FG		
26	26	Speed zero clamp input	ZEROSPD	26	Speed zero clamp input	ZEROSPD		
27	27	Gain switching input	GAIN	27	Gain switching input	GAIN		
28	NC			33	Selection 1 input of internal command speed	INTSPD1		
29	29	Servo-ON input	SRV-ON	29	Servo-ON input	SRV-ON		
30	30	Deviation counter clear input	CL	NC				
31	31	Alarm clear input	A-CLR	31	Alarm clear input	A-CLR		
32	32	Control mode switching input	C-MODE	32	Control mode switching input	C-MODE		
33	33	Command pulse inhibition input	INH	NC				
34	NC			NC				
35	35	Servo-Ready output	S-RDY+	35	Servo-Ready output	S-RDY+		
36	NC			NC				
37	37	Servo-Alarm output	ALM+	37	Servo-Alarm output	ALM+		
38	NC			NC				
39	39	Positioning complete output	COIN+	39	Speed arrival output	AT-SPEED+		
40	40	Torque in-limit signal output	TLC	40	Torque in-limit signal output	TLC		
	10	External brake release signal (-)	BRK-OFF-	10	External brake release signal (–)	BRK-OFF-		
	34	Positioning complete output (–)	COIN-	34	Speed arrival output (–)	AT-SPEED-		
41	36	Servo-Alarm output (–)	ALM-	36	Servo-Alarm output (–)	ALM-		
	38	Servo-Ready output (–)	S-RDY-	38	Servo-Ready output (–)	S-RDY-		
	41	Power supply for control signal (–)	COM-	41	Power supply for control signal (–)	COM-		
42	42	Torque monitor output	IM	42	Torque monitor output	IM		
43	43	Speed monitor output	SP	43	Speed monitor output	SP		
44	25	Signal ground	GND	25	Signal ground	GND		
45	25	Signal ground	GND	25 Signal ground		GND		
46	25	Signal ground	GND	25	Signal ground	GND		
47	NC NC	- 5 9	3.12	NC NC	- 5 · 5 · 5			
48	48	B-phase output	OB+	48	B-phase output	OB+		
49	49	B-phase output	OB-	49	B-phase output	OB-		
50	50	Frame ground	FG	50	Frame ground	FG		
- 00	00	a.no ground	' 4	00	a.no ground	1. 4		

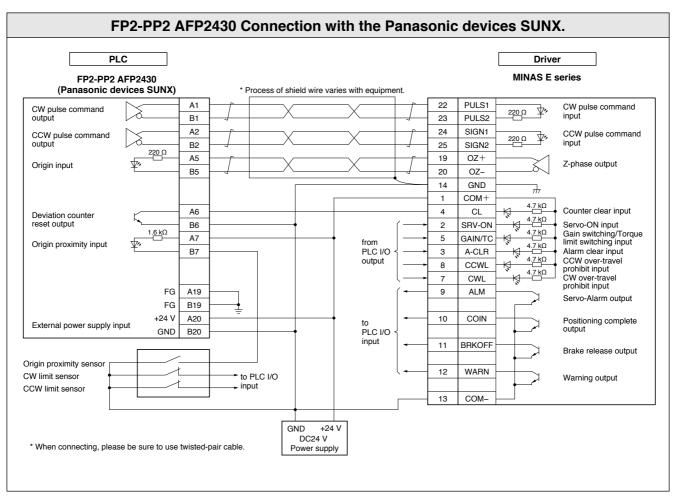
^{* &}quot;NC" is no connect.

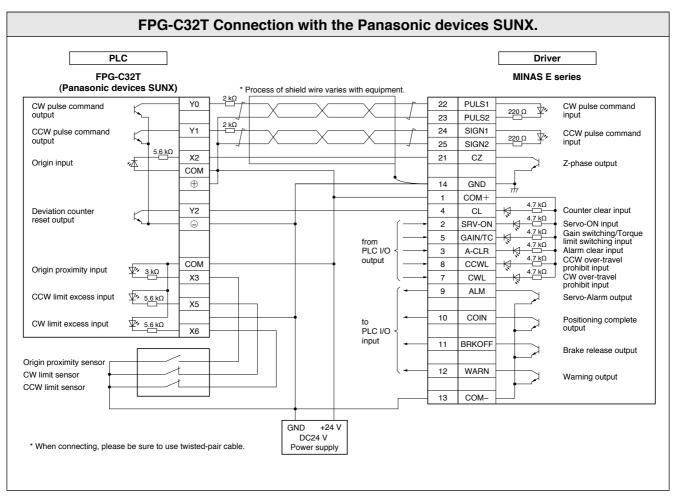
	DV0P4132							
Pin No. on Old Model	Pin No. on Current Model	Signal Name	Symbol					
1	8	CW over-travel inhibit input	CWL					
2	9	CCW over-travel inhibit input	CCWL					
3	NC							
4	NC							
5	NC							
6	NC							
7	7	Power supply for control signal (+)	COM+					
8	NC							
9	NC							
10	NC							
11	11	External brake release signal	BRK-OFF+					
12	12	Zero-speed detection output signal	ZSP					
13	13	Torque in-limit signal output	TLC					
14	NC							
15	15	Signal ground	GND					
16	16	Torque command input	TRQR					
17	17	Signal ground	GND					
18	18	CW direction torque limit input	CWTL					
19	19	Z-phase output	CZ					
20	NC	A discount to the	0.4					
21	21	A-phase output	OA+					
22	22	A-phase output	OA-					
23	23	Z-phase output	OZ+					
24	24	Z-phase output	OZ-					
25	50	Frame ground	FG					
26	26	Speed zero clamp input	ZEROSPD					
27	27	Gain switching input	GAIN					
28	NC 00	Convo ON input	CDV ON					
29 30	29 NC	Servo-ON input	SRV-ON					
	_	Alarm clear input	A CLP					
31	31	'	A-CLR C-MODE					
33	32 NC	Control mode switching input	G-WODE					
34	NC							
35	35	Servo-Ready output	S-RDY+					
36	NC NC	Servo-neady output	3-ND1+					
37	37	Servo-Alarm output	ALM+					
38	NC NC	Servo-Alaim output	ALIVIT					
39	39	Speed arrival output	AT-SPEED+					
40	40	Torque in-limit signal output	TLC					
40	10	External brake release signal (–)	BRK-OFF-					
	34	Speed arrival output (–)	AT-SPEED-					
41	36	Servo-Alarm output (–)	ALM-					
7.	38	Servo-Ready output (–)	S-RDY-					
	41	Power supply for control signal (–)	COM-					
42	42	Torque monitor output	IM					
43	43	Speed monitor output	SP					
44	25	Signal ground	GND					
45	25	Signal ground	GND					
46	25	Signal ground	GND					
47	NC		SIND					
48	48	B-phase output	OB+					
49	49	B-phase output	OB-					
50	50	Frame ground	FG					
] 30	Tramo ground	0					

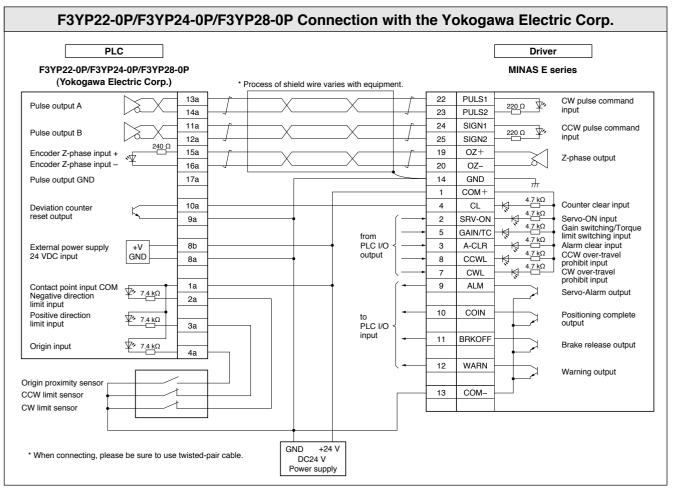
^{* &}quot;NC" is no connect.

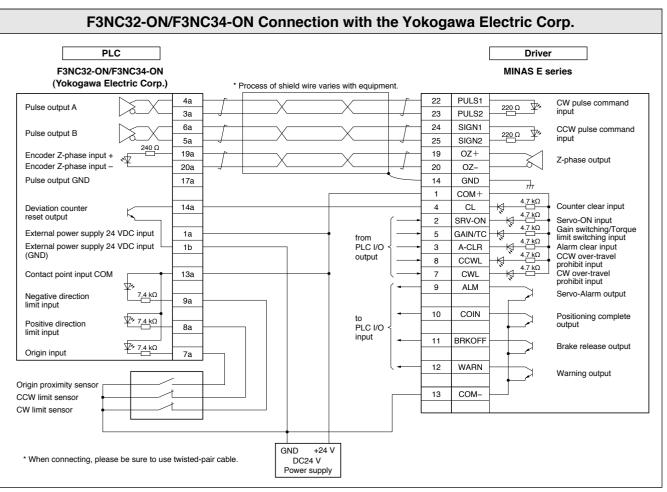


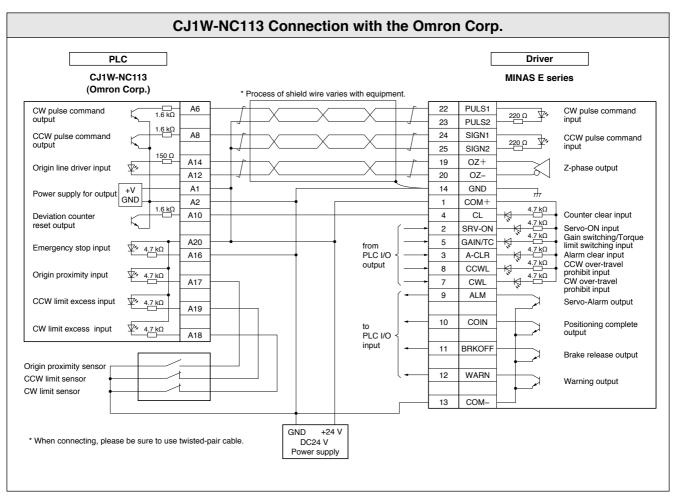


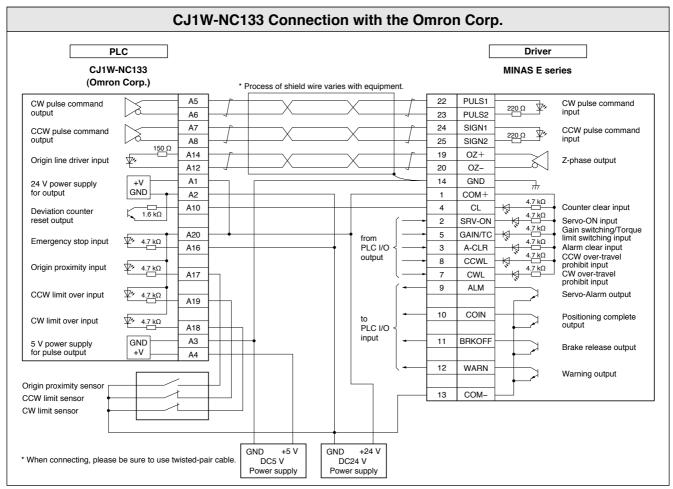


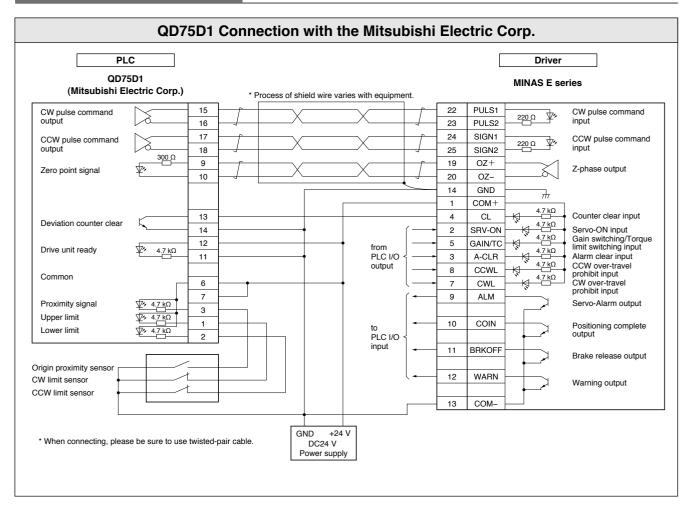












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MSME302GCGM	MSME 3.0 kW Incremental encoder	161
MSME302GCHM	MSME 3.0 kW Incremental encoder	77
MSME302GCHM MSME302S1C	MSME 3.0 kW Incremental encoder MSME 3.0 kW Absolute encoder	161 77
MSME302S1D	MSME 3.0 kW Absolute encoder	77
MSME302S1G	MSME 3.0 kW Absolute encoder	77
MSME302S1H	MSME 3.0 kW Absolute encoder	77
MSME302SCC	MSME 3.0 kW Absolute encoder	77
MSME302SCCM	MSME 3.0 kW Absolute encoder	161
MSME302SCDM	MSME 3.0 kW Absolute encoder	77
MSME302SCDM MSME302SCG	MSME 3.0 kW Absolute encoder MSME 3.0 kW Absolute encoder	161 77
MSME302SCGM	MSME 3.0 kW Absolute encoder	161
MSME302SCH	MSME 3.0 kW Absolute encoder	77
MSME302SCHM	MSME 3.0 kW Absolute encoder	161
MSME304G1C	MSME 3.0 kW Incremental encoder	108
MSME304G1D	MSME 3.0 kW Incremental encoder	108
MSME304G1G	MSME 3.0 kW Incremental encoder	108

Part No. Title Page	MSME (Low inertia)					
MSME304GCD MSME 3.0 kW Incremental encoder 108 MSME304GCG MSME 3.0 kW Incremental encoder 108 MSME304GCH MSME 3.0 kW Incremental encoder 108 MSME304S1D MSME 3.0 kW Absolute encoder 108 MSME304S1D MSME 3.0 kW Absolute encoder 108 MSME304S1H MSME 3.0 kW Absolute encoder 108 MSME304SCH MSME 3.0 kW Absolute encoder 108 MSME304SCD MSME 3.0 kW Absolute encoder 108 MSME304SCG MSME 3.0 kW Absolute encoder 108 MSME304SCG MSME 3.0 kW Absolute encoder 108 MSME304SCG MSME 3.0 kW Absolute encoder 108 MSME402G1D MSME 4.0 kW Incremental encoder 78 MSME402G1D MSME 4.0 kW Incremental encoder 78 MSME402G1D MSME 4.0 kW Incremental encoder 78 MSME402GCD MSME 4.0 kW Incremental encoder 78 MSME402GCD MSME 4.0 kW Incremental encoder 78 MSME402GCM MSME 4.0 kW Incremental encoder 78 MSME402GCM MSME 4.0 kW Incremental encoder	Part No.	Title	Page			
MSME304GCD	MSME304G1H	MSME 3.0 kW Incremental encoder	108			
MSME304GCH MSME 3.0 kW Incremental encoder 108 MSME304G1C MSME 3.0 kW Incremental encoder 108 MSME304S1D MSME 3.0 kW Absolute encoder 108 MSME304S1D MSME 3.0 kW Absolute encoder 108 MSME304S1H MSME 3.0 kW Absolute encoder 108 MSME304SCD MSME 3.0 kW Absolute encoder 108 MSME304SCD MSME 3.0 kW Absolute encoder 108 MSME304SCG MSME 3.0 kW Absolute encoder 108 MSME304SCG MSME 3.0 kW Absolute encoder 108 MSME304SCH MSME 4.0 kW Incremental encoder 78 MSME402G1D MSME 4.0 kW Incremental encoder 78 MSME402G1D MSME 4.0 kW Incremental encoder 78 MSME402G1H MSME 4.0 kW Incremental encoder 78 MSME402GCDM MSME 4.0 kW Incremental encoder 78 MSME402GCM MSME 4.0 kW Incremental encoder <td>MSME304GCC</td> <td>MSME 3.0 kW Incremental encoder</td> <td>108</td>	MSME304GCC	MSME 3.0 kW Incremental encoder	108			
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[Panasonic Sales Office of Motors]

(April.01.2015)

Country	Company Name [Category]	City		Address	TEL FAX		
U.S.A	Panasonic Industrial Devices Sales Company of America [Sales office]	New Jersey	1	verfront Plaza, 7th Floor Newark, NJ 5490 U.S.A	+1-800-228-2350		
	Panasonic do Brazil		1	a do Cafe, 277 Torre A-8 Andar	+55-11-3889-4022		
Brazil	[Sales office]	Sao Paulo	Jabaqu ZIP Cod	ara de: 04311-900 Sao Paulo SP Brazil	+55-11-3889-4103		
			Hans-P	rinsel-Strasse 2 · D - 85540 Haar ·	+49-89-46-159-0		
	Panasonic Industrial Devices Sales		German		+49-89-46-159-212		
	Europe GmbH [Sales office]	Munich	e-mail	http://eu.industrial.panasonic.com/abo	out-us/contact-us		
	[European Headquarter]		Web site	http://eu.industrial.panasonic.com/procompressors-pumps	ducts/motors-		
	alay Martijaha Crahii			nammacher Feld 47 D-85567 Grafing	+49(0)-80-92/81-89-		
	ghv Vertriebs-GmbH [Distributors]	Munich	b. Muni	ch	+49(0)-80-92/81-89-		
C			e-mail	http://www.ghv.de/kontakt.html			
Germany				Diesel-Ring 2, 83607 Holzkirchen,	+49 (0) 8024 648-0		
	Panasonic Electric Works Europe AG [Sales office]	Holzkirchen	Deutsch	hland	+49 (0) 8024 648-11		
	[European Headquarter]		e-mail	https://www.panasonic-electric-works	.com/eu/93.htm		
			Web site	https://www.panasonic-electric-works	.com/eu/index.htm		
			1	Diesel-Ring 2, 83607 Holzkirchen,	+49 (0) 8024 648-0		
	Panasonic Electric Works Europe AG	Holzkirchen	Deutsch	hland	+49 (0) 8024 648-11		
	[Subsidiary]	TIOIZITITOTION	e-mail	https://www.panasonic-electric-works	.com/eu/93.htm		
			Web site	https://www.panasonic-electric-works	.com/eu/index.htm		
				Commercio 3-5 (Z.I.Ferlina), 37012	+39-045-6752711		
	Panasonic Electric Works Italia srl	Verona	Bussole	engo (VR), Italy	+39-045-6700444		
	[Subsidiary]	Voiona	e-mail	https://www.panasonic-electric-works	.com/eu/93.htm		
Italy			Web site	https://www.panasonic-electric-works	.com/eu/322.htm		
italy			Viale M	onza 338 20128 Milano	+39-02-270-98-1		
	Lenze Italia S.r.l.	Milano	Viale Monza 338 20128 Milano		+39-02-270-98-290		
	[Distributors]	Willano	e-mail	mail@LenzeItalia.it			
			Web site	http://www.lenze.com/it-it/azienda/len	ze-in-italia/		
			Priory F	Business Park, Bedford, MK44 3WH.	+44-1234-7532-00		
United	Lenze Limited	Bedford		, Dodiora, Mitt i ovi ii	+44-1234-7532-20		
Kingdom	[Distributors]	Dodioid	e-mail	uk.sales@lenze.com			
			Web site	http://www.lenze.com/en-gb/about-lenze	e/lenze-in-united-kingdo		
				Park, San Severo 20, 28042 Madrid,	+34-91-329-3875		
Spain	Panasonic Electric Works Espana S.A.	ranasonic Electric Works Espana S.A. Spain Madrid		+34-91-329-2976			
ори	[Subsidiary]		e-mail	https://www.panasonic-electric-works	.com/eu/93.htm		
			Web site	https://www.panasonic-electric-works	.com/eu/322.htm		
				curesti, nr.63, Ciorogirla, Ilfov, RO-	+40-21-255-0543		
Romania	C.I.T. Automatizari SRL	Bucuresti	077055	, ROMANIA	+40-21-255-0544		
	[Distributors]	Duodrooti	e-mail	office@citautomatizari.ro			
			Web site	http://www.citautomatizari.ro			
	Floatroprived Ltd		1	17, litera 43, Polustrovskiy avenue,	+7-812-703-09-81		
Russia	Electroprivod Ltd. [Distributors]	St.Petersburg	Saint-P	etersburg, Russia	+7-812-493-27-26		
			Web site	http://www.electroprivod.ru	1		
				SOK.NO:10 A.O.S.B CIGLI-IZMIR,	+90 232 433 8515		
	BOSTEK TEKNOLOJI GELISTIRME VE ROBOT SIST.SAN.TIC.A.S	Izmir	TURKE	:Y	+90 232 433 8881		
	[Distributors]	1211111	e-mail	sales@bostek.com.tr			
Turkey			Web site	http://www.bostek.com.tr/			
iuiney				nayi Sitesi 104 Sokak A07 Blok No:02	+90-216-466-3683		
	Savior Kontrol Otomasyon	Istanbul	Yukarı Dudullu Ümraniye İstanbul Tur		Dudullu Ümraniye İstanbul Turkey	+90-216-466-3685	
	[Distributors]			e-mail info@savior.com.tr		info@savior.com.tr	
			Web site	http://www.savior.com.tr/			

	Country	Company Name	City	Address	TEL
	Country	[Category]	Oity	Address	FAX
		Panasonic Industrial Devices Sales (Hong Kong) Co.,Ltd. (PIDSHK)	Hong kong	Top Floor, South Wing, ChinaChem Gloden Plaza, 77 Mody Road, S.T.S. East, Kowloon,	+852-2529-7322
		[Sales office]		HongKong	+852-2598-9743
		Panasonic Industrial Devices Sales		Floor 6, China Insurance Building, 166	+86-21-3855-2442
	China	(China) Co.,Ltd. (PIDSCN) [Sales office]	Shanghai	East Road LuJiaZui PuDong New District, Shanghai, China	+86-21-3855-2375
		Panasonic Industrial Devices Sales (China) Co.,Ltd. (PIDSCN) [Sales office]	Shenzhen	8/F, Tower Three, Kerry Plaza, 1-1 Zhongxinsi Road, Futian District, Shenzhen, China	+86-755-8255-8791 —
				12th Floor, Ambience Commercial,	+91-124-6670400
		Industrial Division, Panasonic India Pvt Ltd.	Gurgaon,	Behind Ambience Mall, Gurgaon - 122002, Haryana, India	+91-124-6670338
		[Sales office]	Haryana	Web site http://industrial.panasonic.com/sa/procompressors/fa-motors	ducts/motors-
				Sardar Patel Ring Road, Near Bright School,	+91-79-39845300
		Lubi Electronics [Distributors]	Gandhinaga, Gujarat	Nana Chiloda, Dist.: Gandhinagar - 382330, Gujarat, India	+91-79-39845599
	India		aujurut	Web site http://www.lubielectronics.com	<u> </u>
	aiu			59, Bibijan Street, 2nd Floor, Moiz Manzil,	+91-22-23455052
		Luna Bearings [Distributors]	Mumbai, Maharashtra	Mumbai - 400003, Maharashtra, India	+91-22-23427773
				Web site http://www.lunabearings.com	
				A/6, Plot No.74, Shree Ganesh Complex, Behind Gupta Compound, Dapole Road,	+91-2522-661600
		Vashi Electricals Pvt. Ltd. [Distributors]	Mumbai, Maharashtra	Mankoli Naka, Bhiwandi - 421305, Maharashtra, India	+91-2522-661620
				Web site http://www.vashielectricals.com	
		Panasonic Industrial Devices Sales		6F DONG-IL Tower 38, Teheran-ro 114-gil,	+82-2-795-9600
	Korea	Korea Co., Ltd. (PIDSKR) [Sales office]	Seoul	Gangnam-gu, Seoul, 135-851, Korea	+82-2-2052-1053
		Panasonic Industrial Devices Sales	Taipei	12F, No.9, SongGao Rd., Taipei 110, Taiwan, R.O.C.	+886-2-2757-1900
	Taiwan	Taiwan Co.,Ltd. [Sales office]			+886-2-2757-1977
		Panasonic Industrial Devices Sales Asia Pte.Ltd. [Sales office]			+65-6390-3718
			Singapore	No.3 Bedok South Road Singapore 469269	+65-9435-6844
		Intermech Machinery Pte.Ltd.		2 Woodlands Sector 1 #03-25, Woodlands	+65-6751-5088
	Singapore		Singapore	Spectrum 1 Singapore 738068	+65-6759-2122
		[Distributors]		Web site http://www.intermech.com.sg	
		Damana de Marabina de Odro Dhal	IZ I -	No.14, Lorong Sanggul 1C, Bandar Puteri,	+60-3-5161-7876
		Panamech Machinery Sdn Bhd [Distributors]	Kuala Lumpur	41200 Klang, Selangor Darul Ehsan	+60-3-5161-7136
	Malaysia			Web site http://panamech.com.my/	
	_	Panamech (PG) Sdn Bhd		Sri Relau Komplex, Unit 1-3-11, Persiaran Bukit Jambul 1, 11900 Penang	+60-4-643-8266
S		[Distributors]	Penang		+60-4-645-1639
out				Web site http://panamech.com.my/	+66-2181-2299
South-eastern Asia		Premier Automation Center Co.,Ltd.	Bangkok	73 Soi Ladkrabang 30 Ladkrabang Ladkrabang Bangkok 10520	+66-2181-2288
steri		[Distributors]	J	Web site http://www.premier-ac.co.th	
AS	Thailand			3 Soi Charoenrat 10, Charoenrat Road.,	+66-2291-9933
<u>a</u> .		Plenty Island (Thai) Co.,Ltd. [Distributors]	Bangkok	Bangkhlo, Bangkhorlaem, Bangkok 10120	+66-2291-2065
		- ,		Web site http://www.plenty.co.th	
		PT. Handal Yesindo Sejahtera		Jl. Raya Kutisari 8A, Surabaya, Indonesia	+62-31-843-8844
		[Distributors]	Surabaya		+62-31-841-4333
	Indonesia			Web site http://www.handalyesindo.com	±62-21-564-0170
		PT.Riasarana Electrindo [Distributors] Jaka	Jakarta	JI. Prof. Dr. Latumenten Grogol Permai blok lakarta D No. 8-15 Jakarta 11460, Indonesia	+62-21-564-9178 +62-21-566-7405
			Janaria	Web site http://www.risacorps.com	1 . 2
				136 Calbayog Street, Mandaluyong City,	+63-2-881-3636
	Philippines	Movaflex Designs Unlimited, Inc. [Distributors]	Manila	Metro Manila, Philippines.	+63-2-998-3881
		[Distributors]		Web site http://www.movaflex.com/	



Safety Precautions

- Important Notes on exporting this product or equipment containing this product; If the end-user or application of this product is related to military affairs or weapons, its export may be controlled by "Foreign Exchange and Foreign Trade Control Law" of Japan where export license will be required before product can be exported from Japan.
- This product is designed and manufactured for use in General Purpose Industrial Equipment and it is not intended to be used in equipment or system that may cause personal injury or death.
- · All servicing such as installation, wiring, operation, maintenance and etc., should be performed by qualified personnel only.
- Tighten mounting screws with an adequate torque by taking into consideration strength of the screws and the characteristics of material to which the product will be mounted. Over tightening can damage the screw and/or material; under tightening can result in loosening.
- *Example: apply 2.7 N·m 3.3 N·m torque when tightening steel screw (M5) to steel surface.
- · Install safety equipment to prevent serious accidents or loss that is expected in case of failure of this product.
- Consult us before using this product under such special conditions and environments as nuclear energy control, aerospace, transportation, medical equipment, various safety equipments or equipments which require a lesser air contamination.
- We have been making the best effort to ensure the highest quality of our products, however, some applications with exceptionally large external noise disturbance and static electricity, or failure in input power, wiring and components may result in unexpected action. It is highly recommended that you make a fail-safe design and secure the safety in the operative range.
- If the motor shaft is not electrically grounded, it may cause an electrolytic corrosion to the bearing, depending on the condition of the machine and its mounting environment, and may result in the bearing noise. Checking and verification by customer is required.
- Failure of this product depending on its content may generate smoke of about one cigarette. Take this into consideration when the application of the machine is clean room related.
- Please be careful when using the product in an environment with high concentrations of sulfur or sulfuric gases, as sulfuration can lead to disconnection from the chip resistor or a poor contact connection.
- Do not input a supply voltage which significantly exceeds the rated range to the power supply of this product. Failure to heed this caution may lead to damage of the internal parts, causing smoke and/or fire and other troubles.
- The user is responsible for matching between machine and components in terms of configuration, dimensions, life expectancy, characteristics, when installing the machine or changing specification of the machine. The user is also responsible for complying with applicable laws and regulations.
- · Manufacturer's warranty will be invalid if the product has been used outside its stated specifications.
- · Component parts are subject to minor change to improve performance.
- Read and observe the instruction manual to ensure correct use of the product.

Repair

Consult to the dealer from whom you have purchased this product for details of repair work.

When the product is incorporated to the machine you have purchased, consult to the machine manufacturer or its dealer.

URL

Electric data of this product (Instruction Manual, CAD data) can be download from the following web site; http://industrial.panasonic.com/ww/products/motors-compressors/fa-motors

Contact to :



ISO9001 Certificate division ISO 14001

ISO14001 Certificate division

Panasonic Corporation, Automotive & Industrial Systems Company, Smart Factory Solutions Business Division, Motor Business Unit

1-1 Morofuku 7-chome, Daito, Osaka 574-0044, Japan Tel : +81-72-871-1212 Fax: +81-72-870-3151

The contents of this catalog apply to the products as of April 2015.

- 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.

[•] This product is for industrial equipment. Don't use this product at general household.