

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.
- 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

Electronic data of this product (Instruction Manual, CAD data) can be downloaded from the following web site; industrial.panasonic.com/ac/e/

Contact to



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

1-1 Morofuku 7-chome, Daito, Osaka 574-0044, Japan



Search







AC Servo Motor & Driver

MINAS A6 Family MINAS E series

IN Better Solution



2023.3

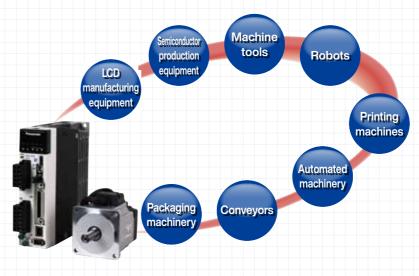
■ This product is for industrial equipment. Don't use this product at general household

MINAS A6 Family



More compact, more faster and more easy-to-use Servomotors that meet the demands of the present age.

The MINAS A6 family of advanced AC servomotors is changing the landscape of industrial machinery.



Robots

A robot is required to operate stably despite arm posture and position, workload and other conditions changing from moment to moment. The MINAS A6 family assures stable operation by suppressing effects of load to a minimum using "adaptive load control."



Processing machinery

With metal processing machine, it is very difficult to render mirror-like finishing on a polygonal body.

The A6 family realizes "3.2 kHz frequency response" to improve feedback responsiveness, thus enabling mirror surfacing without generating lines or streaks.



Component mounting machines

The A6 family also shows its versatility when used with a component mounting machine where speed and positional accuracy are demanded. In addition to high frequency response, it can process accidental disturbances with the help of built-in "adaptive load control," thus maintaining high productivity.



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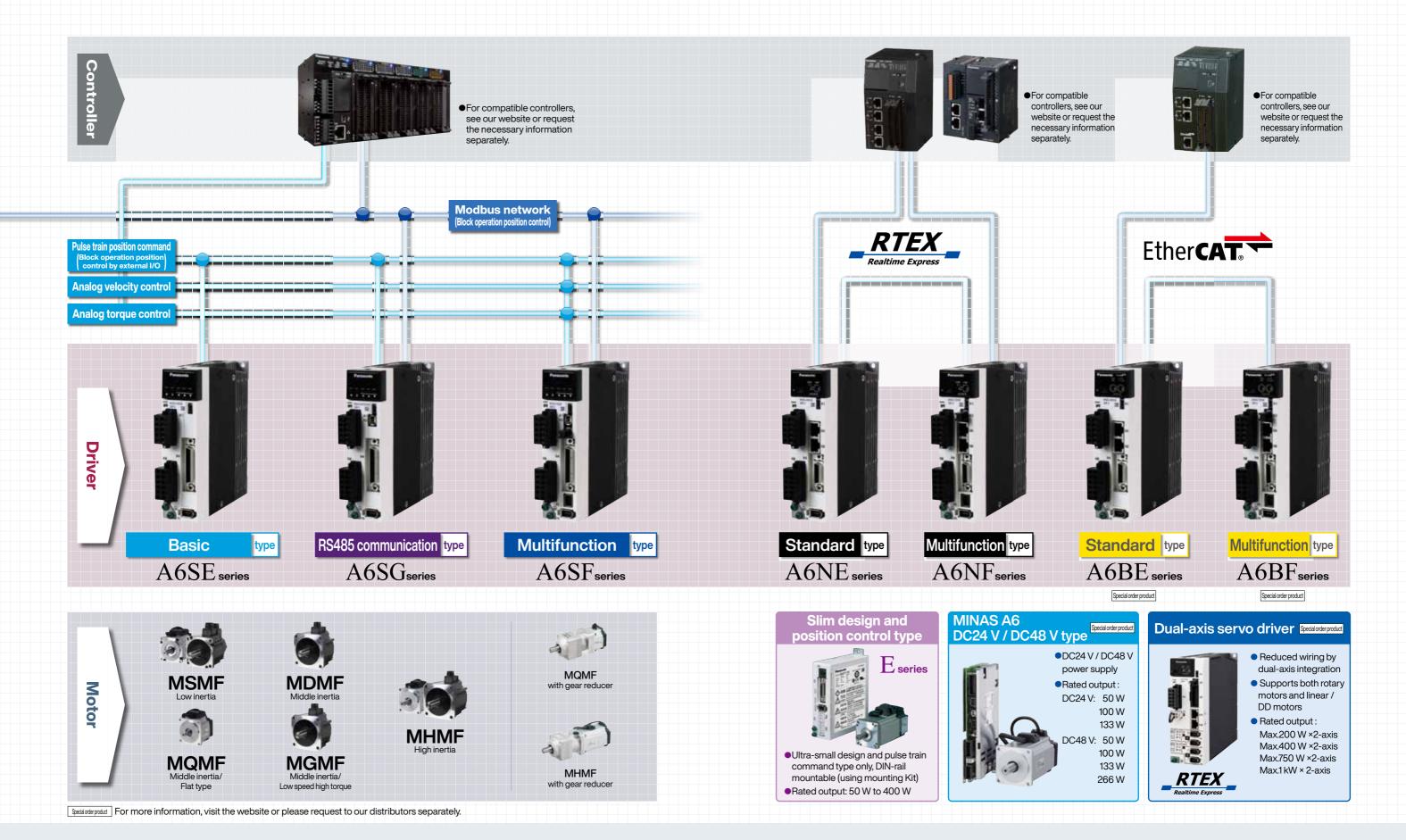
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Servomotors that flexibly and effectively fit into





It is MINAS A6 Family lineup that meets the

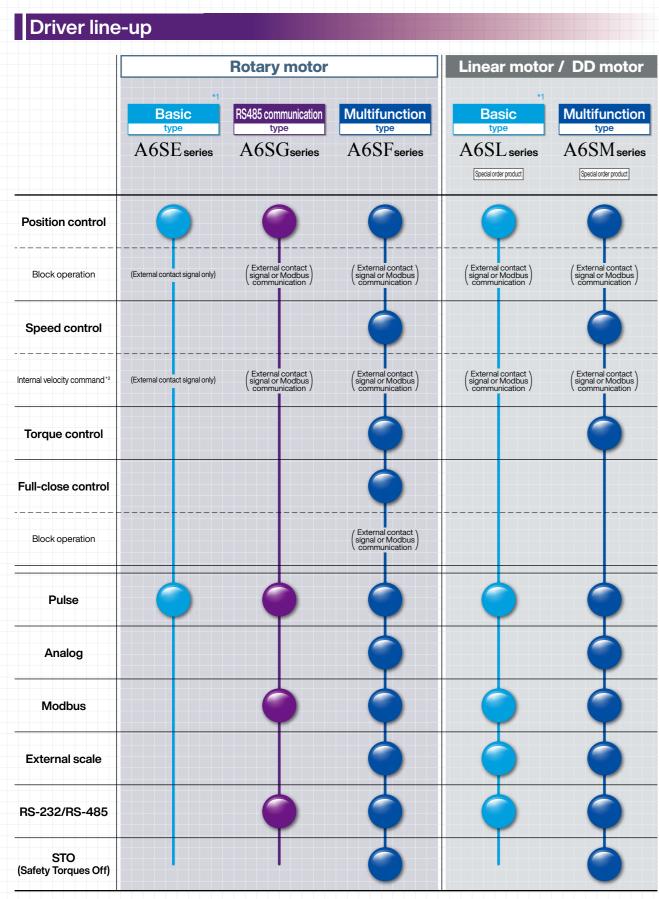
manufacturing industry needs. MINAS A6 Family

Motor line-up 100 w | 200 w | 400 w | 750 w | 850 w | 1000 w | 1.0 kw | 1.3 kw | 1.5 kw 1.8 kw | 2.0 kw | 2.4 kw | 2.9 kw | 3.0 kw | 4.0 kw | 4.4 kw | 5.0 kw | 5.5 kw | 7.5 kw | 11.0 kw | 15.0 kw | 22.0 kw 100 V Table description Flange sq. dimension [Unit: mm] 130 sq. - Also available with gear reducer. 3000 r/min(6000 r/min) 3000 r/min(5000 r/min) 3000 r/min(5000 r/min) 400 V (Under development) 3000 r/min(5000 r/min) 3000 r/min(5000 r/min) 100 V Middle inertia/Flat t 3000 r/min(6500 r/min) 200 V 1500 r/min 2000 r/min(3000 r/min) 2000 r/min(3000 r/min) 1500 r/min(2000 r/min) 400 V (Under development) 2000 r/min(3000 r/min) 2000 r/min(3000 r/min) 1500 r/min 1500 r/min(2000 r/min) 200 V tia/Low speed h 1500 r/min(3000 r/min) 1500 r/min(3000 r/min) 400 V (Under development) 1500 r/min(3000 r/min) 1500 r/min(3000 r/min) 100 V 3000 r/min(6000 r/min) 2000 r/min(3000 r/min) 2000 r/min(3000 r/min) 3000 r/min(6500 r/min 1500 r/min 400 V (Under development) 3000 r/min(6500 r/min 3000 r/min(6000 r/min) 2000 r/min(3000 r/min)

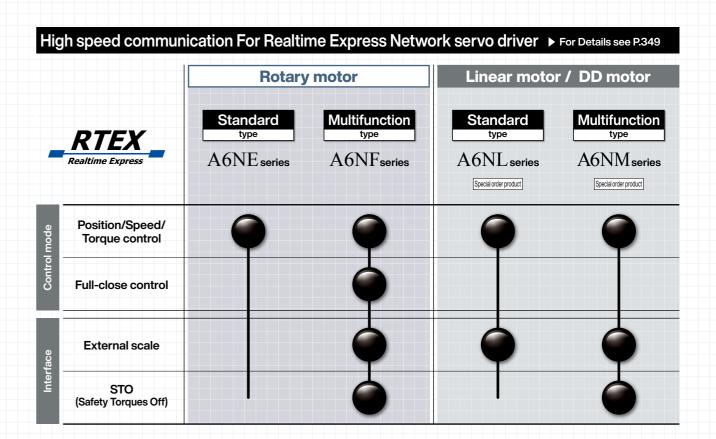
*1 Maximum rotational speed is 3000 r/min.

It is MINAS A6 Family lineup that meets the

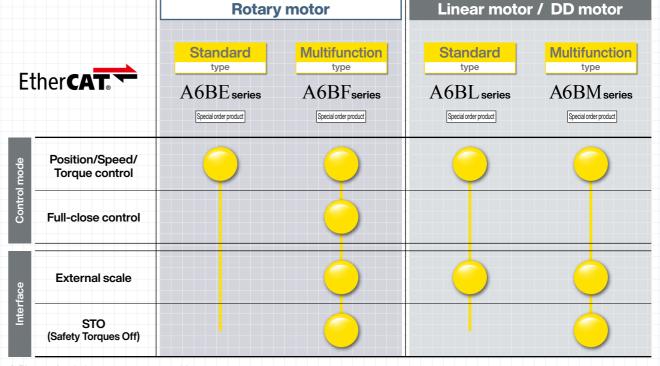
manufacturing industry needs. MINAS A6 Family



^{*1} A6SE series driver (Position control only) does not correspond to the absolute system of using the serial communication with the host device. It supports incremental system only.



Servo drivers with EtherCAT open network ▶ For Details see P.369



Please check the instruction manual for necessary wiring.

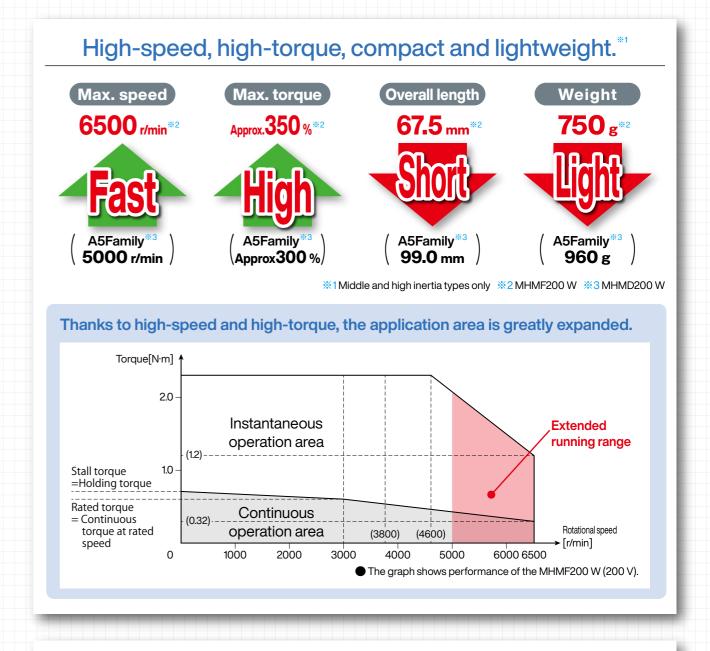
Special order product For more information, please visit our website or request to our distributors separately.

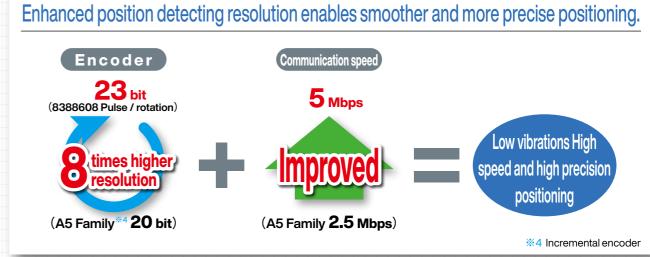
^{*2} When using internal speed command with Modbus, external servo ON is required.

Small, light, powerful and speedy

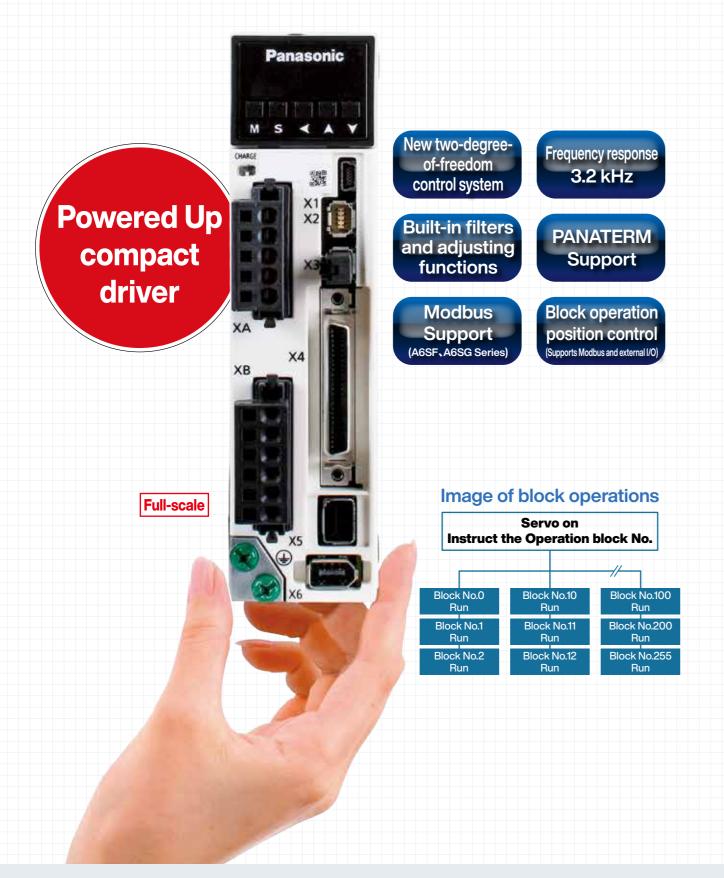








Swifter, smarter and easier to use



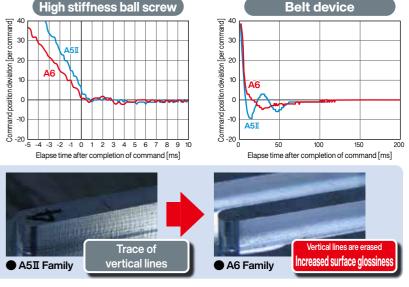


High-speed response, high-precision positioning for quick and accurate movement Our proprietary algorithm in Comparison of position setting waveforms addition to upgraded CPU and High stiffness ball screw Belt device other hardware realized further high-speed response. Furthermore, high-precision positioning is achieved by automatically eliminating micro vibrations and

Example of operation with processing machine A mirror finish is obtained even if a process that tends to cause streaking.

machine oscillation caused by the

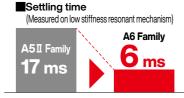
resonance.



Easy and quick setting, shortening conventional settling time by approx. 64%."

Newly developed fit gain function substantially reduces adjustment time. Adaptive notch filter and various gains can be automatically set and adjusted.

%1 Comparison with conventional product A5II Family









Fit gain adjustment window

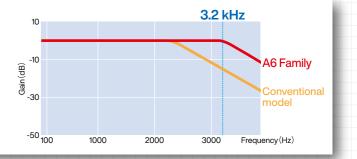
 Automatically proposes various settings

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	Salaci	Recommendation	Rigiday	Commend response[m]	Stelnkrete touton)
	1000	Minimum stabilizati.	22	23	0.0
、 I	T-	Designate oversh	22	24	1.0
X	200	Designate stability	10	1.6	9.5
1	01-3	High rigidity setting	22	24	1.0
	Г	Manual sading			

Realized 3.2 kHz frequency response to improve productivity

Realizes 3.2 kHz frequency response. At 139% that of conventional models *1, it enables high-speed operation and improves productivity.

X1 Comparison with conventional product A5II Family



Reduced maintenance work

Lineup of motors protected by high dust-proof, high heat-resistant oil seal (With protective lip)

Motors protected by a highly dust-proof, oil-tight oil seal (with protection lip) have been added to the lineup of motor products equipped with oil seals of conventional specifications. The oil seals of this type of motor are made of a material of higher heat resistance.

You can select appropriate motor type according to your application environment such as dusty, powdery or gear connection necessity.

- Oil-seals (with protective lip) are not available for MSMF motors with flange size 80 mm or smaller.
- MQMF and MHMF motors with flange size of 80 mm or smaller provided with oils seals (with protective lip) are not mounting-compatible with A5 Family models.



Applicable oil seals

Flange size	Motor type	With oil seal			With oil seal (with protective lip)			
00	MSMF	0			No	setting		
80 mm or less	MHMF, MQMF	0	Made of nitrile rubber (NBR)	0	Made of	Not mounting-compatible with A5 Family products		
100 mm or more	All Type	0	TUDDOT (TVDIT)	0	fluororubber	Mounting-compatible with A5 Family products		

and trouble.



IP67 enclosure rating (Motors with flange size of 80 mm or smaller are order-made products)

Direct-mount connectors are used for the motor power supply and encoder input and output to improve sealing performance of the motor to IP67.

- IP67-compatible motors with flange size of 80 mm or smaller are order-made products.
- · For environmental conditions of applications, refer to P.303.

What is IP? An international standard that specifies the degree of dustproof and waterproof performance. (IP: Ingress Protection) IP- 6 7 Protected against water penetration when immersed in water for the specified penetration.



Lifespan diagnosis / degradation diagnosis

It warns expected lifetime of the motor & driver, and deterioration limit of the equipment.

Geared servomotor

The geared servomotor lineup is also added.

Other driver functions

Adaptive load control

Adaptive load control automatically sets the best suitable gain table in response to fluctuations in inertia caused by changes in workload, thus keeping machines operating stably at all times.

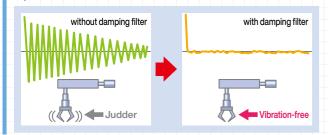


Friction torque compensation

This function reduces the effect of machine related friction and improves responsiveness. Three kinds of friction compensation can be set: unbalanced load compensation, which sets an offset torque that is constantly applied; kinetic friction compensation, which changes direction in response to the direction of movement; and viscous friction compensation, which changes according to the speed command.

Manual/Auto damping filter

Equipped with a damping filter that is automatically set through the setup support software. This filter removes the natural vibration frequency component from the command input, greatly reducing vibration of the axis when stopping. The number of filters for simultaneous use has been increased to three from the conventional two filters. (Two from one in the two-degree-of-freedom-control mode.) The adaptive frequency has also been significantly expanded from 0.5 Hz to 300 Hz.

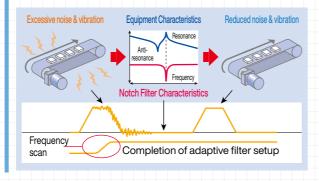


Manual/Auto notch filter

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.

The A6 Family is equipped with 5 notch filters with frequencies settable from 50 Hz to 5000 Hz. Depth can be individually adjusted within this range. (Two of the filters share automatic settings.)



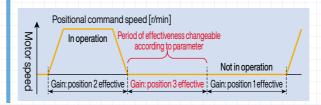
Block operation function

256 block patterns can be created. Easy control is possible because the instruction can be given to block No. by Modbus (RS232, RS485) or interface (IO) signal.



3-step gain

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



Inertia ratio conversion

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

Input/output signal assignment

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

Torque limiter switching

These can be used for applications such as simplified pressure, tension control, and sensor-less homing.

Supports semi-/full-closed loop (8 Mpps input pulse, 4 Mpps output pulse) control.

Supports full-closed loop control. The A6SF series accommodates a command input of 8 Mpps and feedback output of 4 Mpps, enabling high-resolution, high-speed operation. Supports the industry's leading positioning resolution commands (pulse-train commands).

- The A6SE and A6SG series do not support full-closed loop control.
- Applicable scale: AB-phase feedback scale (general purpose product) and serial feedback scale (dedicated to Panasonic format product)

A5 Family Input 4 Mpps A6 Family Input 8 Mpps

Dynamic braking

With parameter settings, you can select dynamic braking, which shorts servomotor windings U, V and W at Servo-OFF, during positive direction/ negative direction, and during power shutdown and tripping of the circuit breaker for over travel inhibition.

 The desired action sequence can be set up to accommodate your machine requirements.

Inrush current preventive function

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

Parameter initialization

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

Regenerative energy discharge

A regenerative resistor is used to discharge regenerative energy, which is the energy generated when stopping a load with a large moment of inertia or when using this unit in vertical operation. This energy is returned to the driver from the motor.

- Frame A, and frame B model drivers do not contain a regenerative resistor. 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.

Multifunctional software for quick adjustment support

PANATERM set-up support software

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 A6 Family through the USB interface. Choose either English, Japanese, Chinese, Korean-language display.

Setup wizard

This wizard supports fundamental settings in each control mode step by step, including 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) Confirming results Adjust gain to meet your needs



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



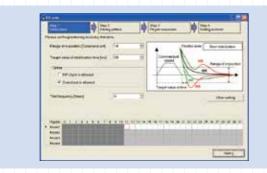
Trial ru

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

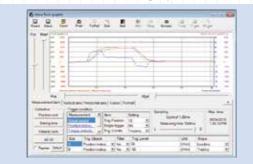


Fit gair

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.



Significant increase of measuring objects Multi-functional waveform graphic



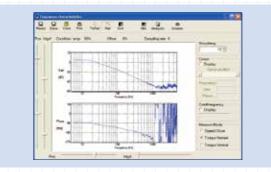


Please download from our web site and use after install to the PC.

https://industrial.panasonic.com/ww/products/motors-compressors/fa-motors/ac-servo-motors/minas-a5-panaterm

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.



Encoder temperature monitor

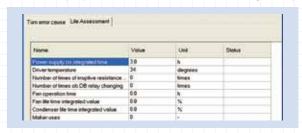
The Encoder Temperature Monitor is a new function capable of real-time measurement of the interior temperature of the encoder, something that has been difficult to achieve in the past. It is valuable for monitoring the motor and can be used as a diagnostic in the event of a malfunction.



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.



Deterioration diagnosis

From the equipment information that can be detected by the motor, it is possible to display and check the deterioration and aging status of the equipment.



Other features It has convenient functions such as motor / driver information such as load factor, power supply voltage, driver temperature etc, logging function capable of recording interface recording, display function of non-rotating factors etc

● Deterioration diagnosis ● Block action editor / monitor (A6SE, A6SG, A6SF series) ● Battery refresh ● Object editor (A6BE, A6BF series)

Hardware configuration

Personal	CPU	800 MHz or more
computer	Memory	System memory 512 MB or more Graphics memory 32 MB or more
	Hard disk capacity	Vacancy of 512MB or more recommended
	OS	Windows [®] Vista SP1 (32 bit), Windows [®] 7 (32 bit, 64 bit), Windows [®] 8 (32 bit, 64 bit), Windows [®] 1 (32 bit, 64 bit) Japanese, English, Chinese (Simplified), Korean version
	Serial communication function	USB port, COM port (Communication speeds: 2400 bps to 115200 bps) * A COM port is required to use RS232 communications. A 9600 bps or higher baud rate is recommended.
Display	Resolution	1024 × 768 pix or more
	Number of colors	24 bit colors (TrueColor) or more

<CAUTION> This software is applicable only to A5 Family, A6 Family. To apply this software to A, AⅢ, E or A4 series, consult our distributors.

Lineup of two types of network

servo driver



Realtime Express(RTEX)

Ultimate **Real-time** performance

- Com. period min. 0.0625 ms
- Com. speed 100 Mbps Full-duplex
- Velocity response 3200 Hz

Functionality to meet various needs

- Precise position latch & comparing
- Infinitely rotatable absolute encoder
- IEC safety I/F model available *
- *1: Multi-functional type F. IEC61800-5-2 STO, IEC61508 SIL3.



Simple network

- High-performance & Low-cost
- Isochronous established by ASIC
- Easy device development



Max 16000 times/s

MINAS A6N series

EtherCAT

High-Performance

- Frequency response: 3200 Hz
- Supports network communication "EtherCAT".
- High-Speed 100 Mbps
- Real-time auto tuning function,
 Anti-vibration filters are available.



High-functions

- EtherCAT with many supported applications <7 control modes, 32 hm methods, DC(Synch), SM2(Synch), FreeRUN (Non-synch)>
- System-up possible with various slaves.
- Supports PC-based controller.
- A6BL/A6BM (for Linear Motor) will be available soon.

Standards

- Official EtherCAT Conformance Tested model available.
- IEC safety I/F model available.*2
- *2: Supported by multifunction type. EN61800-5-2 STO, EN61508 SIL3.



Small size servo driver with EtherCAT

A6B series Special order product

Absolute system can be configured without the battery.

Battery-less

absolute encoder motor

For details on the battery-less absolute encoder type, refer to the "MINAS A6 Family Battery-less Absolute Encoder Models" catalog.

Reduced the battery for the absolute encoder by installing the power generating element in the motor. In addition to improving maintainability, we support the construction of ecological and economical industrial machines and systems.

Maintenance work such as battery replacement is reduced because battery is not required anymore.

Reduce wasteful inventory management and replacement costs as battery is no required anymore. It contributes to the construction of ecological and economical industrial machines and systems.



Battery-less absolute encoder motor list

		80 mn	n sq. or les	s Leadwi	re type		100 mm	sq. or more	Encoder	connector (Small size c	JN2) type
	50 W	100 W	200 W	400 W	750 W	1000 W	1.0 kW	1.5 kW	2.0 kW	3.0 kW	4.0 kW	5.0 kW
Low inertia MSMF	100 V 200 V	100 V 200 V	100 V 200 V	100 V 200 V	200V	200V	200V	200V	200 V	200V)	200V	200V
Middle inertia MQMF		100 V 200 V	100 V 200 V	100 V 200 V		1		1				
Middle inertia MDMF		ole descript	ion				200V	200V	200 V	200V	200V	200V
Middle inertia MGMF	Volt	cifications	200 V)			 	850 W		2.4 kV	V 2.9 kW		4.4 kW
High inertia MHMF	100 V 200 V	100 V 200 V	100 V 200 V	100 V 200 V	200V	200V	200V	200V	200V	200V	200V	200V

* 400 V (Under development)

Compliance with MINAS A6 Family international standards











		Driver	Motor
	EU EMC Directives/ UK EMC Regulation	EN55011 EN61000-6-2 EN61000-6-4 EN61800-3	_
EU/UK Standards	EU Low Voltage Directives/ UK Low Voltage Regulation	EN61800-5-1	EN60034-1 EN60034-5
	Machinery (Functional safety ¹¹)	ISO13849-1 EN61508 EN62061 EN61800-5-2	_
UL	Standards	UL61800-5-1 (E164620)	UL1004-1, UL 1004-6 (E327868)
CSA	A Standards	C22.2 No.274	C22.2 No.100
Radio Waves A	ct (South Korea) (KC) ^{*2}	KN11 KN61000-4-2,3,4,5,6,8,11	_

IEC: International Electrotechnical Commission UI: Underwriters Laboratories

EN: Europaischen Normen CSA : Canadian Standards Association EMC: Electromagnetic Compatibility

Safety parameter

	Diagnosis based on EDM	No diagnosis based on EDM
Cofoty Intogrity Loyal	EN61508 (SIL3)	EN61508 (SIL2)
Safety Integrity Level	EN62061 (SILCL3)	EN62061 (SILCL2)
Performance level	ISO13849-1 PL e (Cat.3)	ISO13849-1 PL d (Cat.3)
Safety function	EN61800-5-2 (SIL 3, STO)	EN61800-5-2 (SIL 2, STO)
	<for a,b,c,d,e,f="" size=""></for>	<for a,b,c,d,e,f="" size=""></for>
Hazardous failure probability per hour	$PFH = 1.34 \times 10^{-8} (\% SIL3 = 13.4 \%)$	$PFH = 1.40 \times 10^{-8} (\% SIL2 = 1.40 \%)$
riazardous failure probability per riodi	<for and="" g="" h="" size=""></for>	<for and="" g="" h="" size=""></for>
	PFH =1.78 × 10 ⁻⁸ (% SIL3 = 17.8 %)	$PFH = 1.85 \times 10^{-8} \text{ (% SIL2} = 1.85 \text{ %)}$
Average time of hazardous failure	MTTFd: High (100 years)	MTTFd: High (100 years)
Average self-diagnosis rate	DC: Medium	DC:Low
Task time	15 years	15 years

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

*1 A6SE, A6SG, A6NE and A6BE 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

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 products is not an object of china compulsory certification (CCC).

Low noise, compliant with EU EMC Directives/UK EMC Regulation Radiated noise is minimized to meet EU EMC Directives/UK EMC Regulation and to

support international standards.

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 EU Low Voltage Directives/UK Low Voltage Regulation machinery commands. (The final safety compliance must be applied as machine.)

SEMI-F47

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

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

Motor Line-up Models" catalog.

Motor

Low inertia

Middle inertia

High inertia

MSMF

MQMF

(Flat type)

MDMF

MGMF

MHMF

80 mm sq. or less

80 mm sq. or less

100 mm sq. or more

.2

80 mm sq. or less

Rated output

(kW)

0.05 0.1

0.2 0.4

0.75 1.0

0.05 0.1

0.2 0.4

0.75 1.0

1.0 1.5

2.0 3.0

4.0 5.0

0.1 | 0.2

0.4

0.1 0.2

0.4

1.0 1.5

2.0 3.0

4.0 5.0

7.5

22.0 0.85 1.3

1.8 2.4

2.9 4.4

5.5

0.05 0.1

0.2 0.4

0.75 1.0

0.05 0.1

0.2 0.4

0.75 1.0

1.0 1.5

2.0 3.0

4.0 5.0

7.5

130 mm sq. or more 11.0 15.0

For details on the battery-less absolute encoder type, refer to the "MINAS A6 Family Battery-less Absolute Encoder

Enclosure

IP65

IP67

IP67

IP65

IP67

IP67

22.0 kW

: IP44

IP67

IP65

IP67

IP67

Motor

lead-out

configuration

Leadwire

Connector

Connector

Leadwire

Connector

Connector

22.0 kW

Connector

Leadwire

Connector

Connector

Features

Small capacity

plications

Suitable for high

speed application

Suitable for all ap-

Middle capacity

Suitable for the

machines directly

coupled with ball

screw and high

Small capacity

for low stiffness

Motors with gear

reducers are also

driven

available.

(See. P.293)

Middle capacity

Middle capacity

Suitable for low

speed and high

· Small capacity

belt driven

(See. P.293)

· Suitable for low stiff-

ness machines with

Motors with gear

reducers are also

Middle capacity

Suitable for low

stiffness machines

with belt driven, and

large load moment of

torque application

belt driven

· Suitable for low stiff-

ness machines with

stiffness and high

repetitive application

· Flat type and suitable

machines with belt

Applications

Bonder

ductor

Semicon-

production

. equipment

Packing

etc

SMT

Food

LCD

etc

SMT

machines

machines

machines

production

equipment

machines

machines

Belt drive

machines

unloading

Conveyors

Robots

Machine

Conveyors

machines

Conveyors

Conveyors

· LCD manu-

facturing

equipment

Robots

Robots

etc

Robots

Textile

etc

tool

etc

robot

Inserter

Rotary

encoder

absolute

0

0

 \bigcirc

0

0

0

0

0

0

Rated rotational

speed

(r/min)

3000

(6000)

3000

(6000)

3000

(5000)

3000

(4500)

3000

(6500)

3000

(6500)

2000

(3000)

1500

(3000)

1500 (2000)

1500

(3000)

3000 (6500)

3000

(6000)

3000

(6500)

3000

(6000)

2000

(3000)

1500

(3000)

(Max. speed) 23-bit

A6 Series

Refer to P.29 to P.42 for motor and driver combinations.

* For combination of elements of model number, refer to Index P.448.

Servo Motor "Oil seal with protective lip" option is not available for motors above 7.5 kW.

F 5 A Z L 1 M S MA 1 Special specifications 4 (2) (5) 6)

① Type

Symbol Tvpe MSM Low inertia (50 W to 50 kW) MQM Middle inertia (100 W to 400 W) MDM Middle inertia (1.0 kW to 22.0 kW) MGM Middle inertia (0.85 kW to 5.5 kW) MHM High inertia (50 W to 7.5 kW)

② Series

	5	Symbol	Series name
		F	A6 Family
	_		
)			

7 Motor specifications: 80 mm sq. or less MSMF 50 W to 1000 W

Shaft Holding brake Oil seal Motor encoder

_		-						terminal '	
Symbol		Round	Key-way, center tap	without	with	without	with	Connector JN	Lead wire
Α	1	•		•		•		•	
Α	2	•		•		•			•
В	1	•			•	•		•	
В	2	•			•	•			•
С	1	•		•			•	•	
С	2	•		•			•		•
D	1	•			•		•	•	
D	2	•			•		•		•
S	1		•	•		•		•	
S	2		•	•		•			•
Т	1		•		•	•		•	
Т	2		•		•	•			•
U	1		•	•			•	•	
U	2		•	•			•		•
V	1		•		•		•	•	
V	2		•		•		•		•

3 Motor rated output

	•				
Symbol	Rated output	Symbol	Rated output	Symbol	Rated output
5A	50 W	13	1.3 kW	44	4.4 kW
01	100 W	15	1.5 kW	50	5.0 kW
02	200 W	18	1.8 kW	55	5.5 kW
04	400 W	20	2.0 kW	75	7.5 kW
08	750 W	24	2.4 kW	C1	11.0 kW
09	0.85 kW, 1000 W	29	2.9 kW	C5	15.0 kW
09	(130 mm sq.) (80 mm sq.)	30	3.0 kW	D2	22.0 kW
10	1.0 kW	40	4.0 kW		

6 Design order

	- 9 p
Symbol	Specifications
1	100 V
2	200 V
Z	100 V/ 200 V common (50 W only)

4 Voltage specifications

Symbol Specifications Standard

<Note>

When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

(5) Rotary encoder specifications

7 Moto	or specifications:	IP67*2 100 mn	n sq. to 220 mm	sq.
L	Absolute	23-bit	8388608	5
Symbol	Format	Pulse counts	Resolution	Wires

MSMF, MHMF, MDMF, MGMF

						,	,		
		Sh	aft	Holding	g brake	Oil	seal	Encode	r terminal
Sym	nbol	Round	Key- way	without	with	with	With protective lip	Connector JN2 (Small size)	Connector JL10 (Large size)*3
С	5	•		•		•		•	
С	6	•		•		•			•
С	7	•		•			•	•	
С	8	•		•			•		•
D	5	•			•	•		•	
D	6	•			•	•			•
D	7	•			•		•	•	
D	8	•			•		•		•
G	5		•	•		•		•	
G	6		•	•		•			•
G	7		•	•			•	•	
G	8		•	•			•		•
Н	5		•		•	•		•	
Н	6		•		•	•			•
Н	7		•		•		•	•	
Н	8		•		•		•		•

7 Motor specifications: 80 mm sq. or less

S	MHMF 50 W to 1000 W
	MQMF 100 W to 400 W

Symbol		Shaft		Holding brake			Oil seal	Motor encoder terminal *1		
		Round	Key-way, center tap	without	with	without	with	With protective lip	Connector JN	Lead wire
Α	1	•		•		•			•	
Α	2	•		•		•				•
В	1	•			•	•			•	
В	2	•			•	•				•
С	1	•		•			•		•	
С	2	•		•			•			•
С	3	•		•				•	•	
С	4	•		•				•		•
D	1	•			•		•		•	
D	2	•			•		•			•
D	3	•			•			•	•	
D	4	•			•			•		•
S	1		•	•		•			•	
S	2		•	•		•				•
Т	1		•		•	•			•	
Т	2		•		•	•				•
U	1		•	•			•		•	
U	2		•	•			•			•
U	3		•	•				•	•	
U	4		•	•				•		•
V	1		•		•		•		•	
V	2		•		•		•			•
V	3		•		•			•	•	
V	4		•		•			•		•

Servo Driver "Basic" and "RS485 communication" types are not available for G-Frame and H-Frame drivers.

N 1 5 S E M A D L * * * Special specifications 2 3 4 5 1 6

1 Frame symbol

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

2 Series

Symbol	Series name
L	A6 Family

3 Safety Function*4

	•
Symbol	Specifications
N	without the safety function
Т	with the safety function

Symbol Current rating Symbol Current rating 6 A 80 A 8 A Α 100 A 120 A 12 A В

3	22 A	С	160 A
4	24 A	Е	240 A
5	40 A	F	360 A
8	60 A		

(5) Supply voltage specifications

(4) Max. current rating

1

2

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

*4 Position control type "E" and general communication type "G"	do n
have a safety function.	

130 mm sq. or more (*1) Please refer to P.303 for protection class conditions.

80 mm sq. or less

When using a rotary encoder as an absolute system (using multi-turn data), connect a battery to the absolute encoder.

inertia

When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

21 | Panasonic Industry Co., Ltd. Panasonic Industry Co., Ltd. | 22

7 Classification of type *4

Specification

Basic type

(Pulse train only)

Multi fanction type

(Pulse, analog, full-closed)

RS485 communication type

(Pulse train only)

*3 Connector on the motor side encoder. (Also applicable to screwed type.)

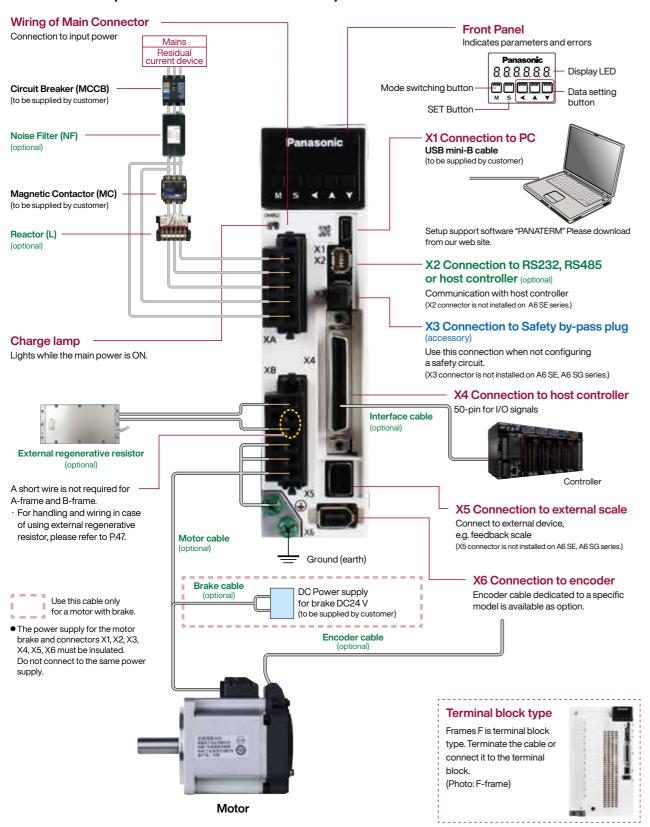
6 I/f specifications

Symbol (specification)

(Analog/Pulse)

^{*} For possible combinations of motors and drivers, see P.29 to P.42.

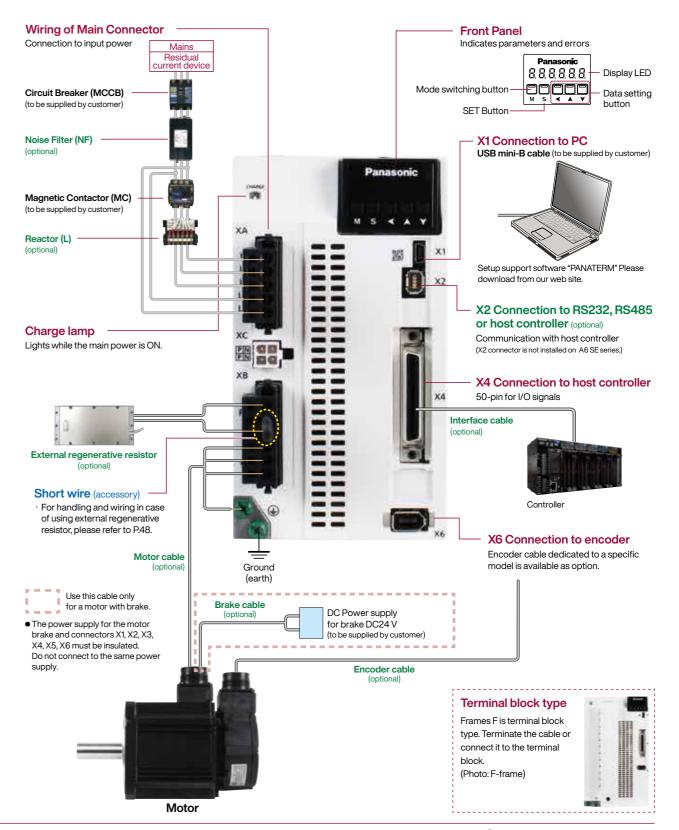
<A6SF Series (Driver: A-frame Motor: 200 W)>



<Caution>

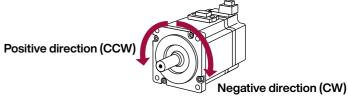
Apply adequate tightening torque to the product mounting screw by taking into consideration strength of the screw and the characteristics of material to which the product is installed. Overtightening can damage the screw and/or material; undertightening can result in loosening.

<A6SG Series/ A6SE Series (Driver: D-frame Motor: 1.0 kW)>



<Note>

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



6 6 6 6 6 6 6

Motor cable

to be supplied

Ground

Connection to input power

Circuit Breaker

Noise Filter (NF)

(to be supplied)

Magnetic

Contactor (MC)

(to be supplied)

Reactor (L)

(to be supplied)

Dynamic brake resistor (DB)

· Install protection such as thermal fuse

External regenerative resistor

Magnetic

☐ Contactor
☐

(MC)

* DB thermal fuse

(to be supplied)

(MCCB)

Front Panel

Mode switching button

SET Button

Panasonic
8, 8, 8, 8, 8, 8

Display LED

Data setting button

X1 Connection to PC

download from our web site.

USB mini-B cable

(to be supplied by cu

Setup support software "PANATERM" Please

X2 Connection to RS232, RS485 or host controller (optional)

- X3 Connection to Safety by-pass plug (accessory) Use this connection when not configuring

Communication with host controller

a safety circuit.

X4 Connection to host controller

Interface cable

50-pin for I/O signals

Connect to external device.

e.g. feedback scale.

Controller

X5 Connection to external scale

X6 Connection to encoder
 Encoder cable dedicated to a specific model is available as option.

model is available as option.

for brake DC24 V
(to be supplied by customer)

Encoder cable
(optional)

DC Power supply

Brake cable

Use this cable only for a motor with brake.

The power supply for the motor brake and connectors X1, X2, X3, X4, X5, X6 must be

Do not connect to the same power supply.

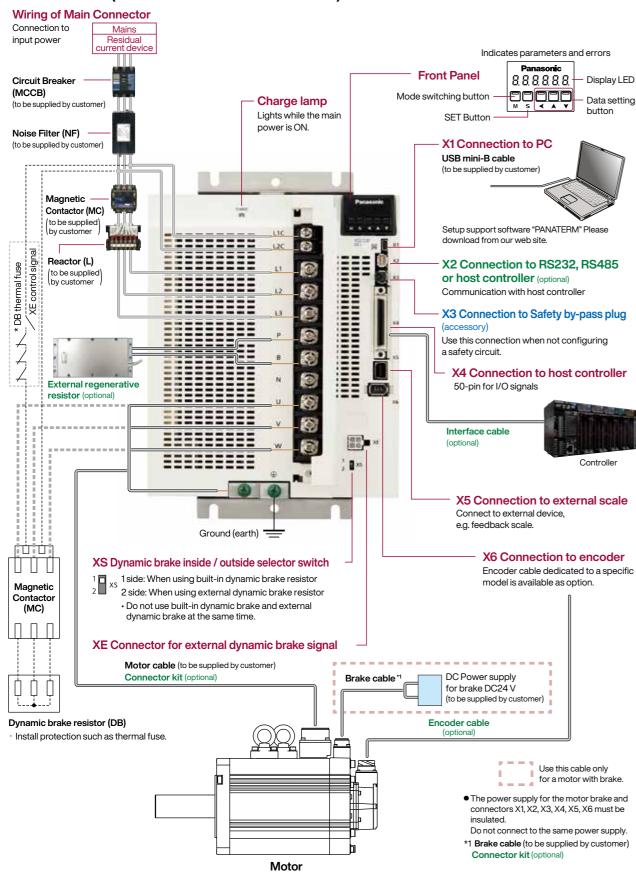
*1 Brake cable (to be supplied by customer)

*1 Brake cable (to be supplied by custome Connector kit (optional)

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

Motor

<A6SF Series (Driver: G-frame Motor: 7.5 kW)>



<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.

Driver	Applicable motor	Voltage (V) *1	Rated output (kW)	Required Power (at the (rated load) (kVA)	Circuit breaker (rated (current)	Noise filter (Single phase 3-phase	Surge absorber Single phase 3-phase	Ferrite core	Rated operating current of magnetic contactor contact configuration *2	Diameter and withstand voltage of main circuit cable	terminal for main circuit terminal	Diameter and withstand voltage of control power supply cable	terminal for control power supply	Diameter and withstand voltage of motor cable *4	Diameter and withstand voltage of brake cable
	MSMF MHMF MSMF MQMF	Single phase, 100	0.05	approx. 0.4		DV0P4170	DV0P4190								
MADL	MHMF MSMF		0.05												
	MHMF MSMF MQMF MHMF	Single/ 3-phase 200	0.1, 0.2	approx. 0.5	10	DV0P4170 DV0PM20042	DV0P4190 DV0P1450								0.28 mm ² to 0.75 mm ² /
	MSMF	Single phase, 100	0.2			DV0P4170	DV0P4190		20 A (3P+1a)						AWG22 to AWG18
MBDL	MQMF MHMF	Single/ 3-phase 200	0.4	approx. 0.9		DV0P4170 DV0PM20042	DV0P4190 DV0P1450			0.75 mm ² / AWG18				0.75 mm ² / AWG18	100 VAC or more
	MSMF MQMF MHMF	Single phase, 100	0.4	approx. 0.9			DV0P4190			600 VAC or more to	Q.		Q.	600 VAC or more to	
MCDL	MSMF MHMF	Single/ 3-phase 200	0.75	approx. 1.8	15	DV0PM20042	DV0P4190 DV0P1450			2.0 mm ² / AWG14 600 VAC	onnectio		onnectio	2.0 mm ² / AWG14 600 VAC	
	MGMF		0.85	approx. 2.0						or more	n to e		n to e	or more	
	MSMF MDMF		1.0 (80 mm sq.)	approv							Connection to exclusive connector		Connection to exclusive connector		
MDDL	MHMF MHMF	Single/ 3-phase 200	1.0 (80 mm sq.)	approx. 2.4	20	DV0P4220	DV0P4190 DV0P1450		30 A (3P+1a)		connect		connect		
	MSMF	200	1.0	approx.			2001 1100	DV0P1460	(5. 1)		q		9		
	MGMF MSMF		1.3	2.6											
	MDMF MHMF	3-phase 200	1.5	approx. 2.9							-			2.0 mm ² /	
	MGMF		1.8	approx. 3.4						2.0 mm ² / AWG14				AWG14 600 VAC	
MEDL	MSMF MDMF MHMF		2.0	approx. 3.8	30	DV0PM20043	DV0P1450		60 A (3P+1a)	600 VAC or more to 3.5 mm ² / AWG12		0.75 mm²/ AWG18 600 VAC or more		or more to 3.5 mm²/ AWG12 600 VAC or more	0.75 mm²/ AWG18 100 VAC or more
	MGMF		2.4	approx. 4.5					(or ria)	600 VAC or more					
	MGMF		2.9	approx. 5.0											
	MSMF MDMF MHMF		3.0	approx. 5.2						3.5 mm ² /			11 mm or smaller	3.5 mm²/ AWG12	
MFDL	MSMF MDMF MHMF	3-phase 200	4.0	approx. 6.5	50	DV0P3410	DV0P1450			AWG12 600 VAC	11 mm or smaller		ф5.3	600 VAC or more	
	MGMF		4.4	approx. 7.0					100 A (3P+1a)	or more			Terminal block		
	MSMF MDMF MHMF		5.0	approx. 7.8							Δ φ5.3		M5		
	MGMF		5.5	approx. 8.5						8.0 mm ² /	Terminal block M5		7 mm or smaller	1421	
MGDL	MDMF MHMF	3-phase 200	7.5	approx.	60	HF3080C-SZA (Recommended) components	DV0P1450	DV0P1460	100 A (3P+1a)	AWG8 600 VAC or more			φ3.2 Terminal block M3	14 mm²/ AWG6 600 VAC or more	
			11.0	approx.				RJ8095 (Recommended)		22 mm²/			IVIO	22 mm²/ AWG4	0.75 mm²/ AWG18
			15.0	approx.	125			T400-61D		AWG4 600 VAC or more	16 mm or smaller		10 mm or smaller	600 VAC or more	100 VAC or more
MHDL	MDMF	3-phase 200	22.0	approx. 28	175	HF3100C-SZA (Recommended) components	DV0P1450	*5	150 A (3P+1a)	38 mm²/ AWG2 600 VAC or more	φ6.4 Terminal block M6		ф4.3 Terminal block M4	*6 22.8 mm or smaller \$\int_{\phi 8.5}\$ Terminal block M8	

Related page

Noise filter	P.412 "Composition of Peripheral Devices"
Surge absorber	P.413 "Composition of Peripheral Devices"
Ferrite core	P.414 "Composition of Peripheral Devices"
Motor/brake connector	P.307 "Specifications of Motor connector"

About circuit breaker and magnetic contactor

To comply to EU Directives/UK Regulation, install a circuit breaker between the power and the noise filter without fail, and the circuit breaker should conform to IEC Standards and UL recognized (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.

· 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 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	_	ninal cover ning screw
Frame	Terminal name	Nominal size	Fastening torque (N·m) Note)1	Nominal size	Fastening torque (N·m) Note)1
MFDL	L1, L2, L3, L1C, L2C, P, RB, B, N, U, V, W	M5	1.8 to 2.0	М3	0.19 to 0.21
MGDL	L1C, L2C	М3	0.4 to 0.6	M3	0.19 to 0.21
MIGDL	L1, L2, L3, P, B, N, U, V, W	M5	2.0 to 2.4	IVIS	0.19 (0 0.21
MHDL	L1C, L2C, DB1, DB2	M4	0.7 to 1.0	M5	2.0 to 2.5
IVITUL	L1, L2, L3, P, B, N, U, V, W	M6	2.2 to 2.5	М3	0.19 to 0.21

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

	Gro	und screw		nnector to ontroller (X4)
Driver frame	Nominal size	Fastening torque (N·m) Note)1	Nominal size	Fastening torque (N·m) Note)1
MADL, MBDL, MCDL, MDDL, MEDL	M4	1.0 to 1.2		
MFDL, MGDL	M5	1.8 to 2.0	M2.6	0.2±0.05
MHDL	M6	2.4 to 2.6		

■ Motor: Fastening torque

	, ,	W terminal terminal screw	-	nal box cover ening screw
Motor	Nominal size	Fastening torque (N·m) Note)1	Nominal size	Fastening torque (N·m) Note)1
MDMF 22.0 kW	M8	12.0	M5	4.4

- · 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.

 ^{*1} Select peripheral devices for single/3phase common specification according to the power source.
 *2 The magnetic contactor used for the external dynamic brake resistor should have the same rating as the magnetic contactor used for the main circuit.

^{*3} For the ground screw, use the same crimp terminal as that for the main circuit terminal block.

^{*4} The thickness of the grounding wire and the thickness of the external dynamic brake resistor should be the same as or larger than the thickness of the motor wire.

^{*5} Please use all to comply with international standards.

^{*6 22.0} kW The connection of the motor power line is a terminal block. In order to comply with the CSA standard, it is necessary to use a CSA standard-certified power wire round terminal.

			Motor		Driver								Optional parts 🕨	refer to P.306			
						A6SF series	A6SG series		Power		able Note)3 Absolute	Motor Ca	ble Note)3				
N	Notor series	Power supply	Output (W)	Part No. Note)1	Rating/ Spec. Dimensions (page)	Multi fanction type (Pulse, analog, full-closed	RS485 communication A6SE series Basic (Pulse signal input)	Frame	capacity (at (rated load) (kVA)	Use in the absolute system (with battery box) Note)5	Use in the		with Brake	Brake Cable Note)3	External Regenerative Resistor	Reactor Single phase 3-phase	Noise Filter (Single phase) 3-phase
			50	MSMF5AZL1 □ 2	63, 119	MADLT01SF	Note)2, Note)4 MADLN01S			Fixe	Cable	MOVAD	ie cable	WOVADIE CADIE			
		Single	100	MSMF011L1 2	65, 120	MADLT11SF	MADLN11S♦	A-frame ★	Approx. 0.4						DV0P4280	DV0P227	DV0P4170
		phase 100 V	200	MSMF021L1 2	67, 121	MBDLT21SF	MBDLN21S♦	B-frame	Approx.						DV0P4283		
		100 V	400	MSMF041L1 2	69, 123	MCDLT31SF	MCDLN31S	★ C-frame	O.5 Approx.						DV0P4282	DV0P228	DV0PM20042
Low	MSMF /Leadwire\		50	MSMF5AZL1 2	64, 119	MADLT05SF	MADLN05S♦	O manie	0.9	MFECA	MFECA				2701 1202		B voi inizoo iz
w inertia	(type)		100	MSMF012L1 □ 2	66, 120	MADLT05SF	MADLN05S♦	A-frame	Approx.	0 * * 0EAE (For fixed)	0 * * 0EAD (For fixed)		MCA 0EED	MFMCB 0**0GET	DV0P4281	DV0P227	DV0P4170
tia	3000 r/min IP65	Single	200	MSMF022L1 □ 2	68, 121	MADLT15SF	MADLN15S♦	*	0.5	(I of fixed)	(I of lixed)			Note)6		DV0P220	DV0P4170 DV0PM20042
		phase/ 3-phase	400	MSMF042L1 □ 2	70, 123	MBDLT25SF	MBDLN25S♦	B-frame	Approx.						DV0P4283	DV0P228	
		200 V	750	MSMF082L1 ☐ 2	71, 124	MCDLT35SF	MCDLN35S♦	C-frame	Approx. 1.8							DV0P220	DV0PM20042
			1000	MSMF092L1 ☐ 2	72, 125	MDDLT45SF	MDDLN45S♦	D-frame	Approx.						DV0P4284	DV0P228	DV0P4220
			100	MQMF011L1 2	79, 135	MADLT11SF	MADLN11S♦	A-frame	Approx.						DV0P4280	DV0P222 DV0P227	
Mic		Single		MQMF011L1	·		<u> </u>	★ B-frame	0.4 Approx.							DV0F227	DV0P4170
Middle	MQMF	phase 100 V	200	MQMF021L1 4 MQMF041L1 2	81, 139	MBDLT21SF	MBDLN21S♦	★	0.5						DV0P4283	DV0P228	
inertia	(Leadwire) type		400	MQMF041L1 ☐ 4	83, 143	MCDLT31SF	MCDLN31S♦	C-frame	Approx. 0.9	MFECA 0**0EAE	MFECA 0**0EAD		MCA	MFMCB	DV0P4282		DV0PM20042
a Flat	3000 r/min	Single	100	MQMF012L1 ☐ 2 MQMF012L1 ☐ 4	80, 135	MADLT05SF	MADLN05S♦	A-frame	Approx.	(For fixed)	(For fixed)	0**	0EED	0 * * 0GET Note)6	DV0P4281	DV0P227	
type	IP65	phase/ 3-phase	200	MQMF022L1 \square 2 MQMF022L1 \square 4	82, 139	MADLT15SF	MADLN15S♦	*	0.5						D) (0D 1000	DV0P220	DV0P4170 DV0PM20042
		200 V	400	MQMF042L1 ☐ 2 MQMF042L1 ☐ 4	84, 143	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9						DV0P4283	DV0P228 DV0P220	
			50	MHMF5AZL1 2 MHMF5AZL1 4	85, 147	MADLT01SF	MADLN01S♦		Approx.								
		Single	100	MHMF011L1 2 MHMF011L1 4	87, 151	MADLT11SF	MADLN11S♦	A-frame ★	0.4						DV0P4280	DV0P227	DV0P4170
		phase 100 V	200	MHMF021L1 MHMF021L1 4	89, 155	MBDLT21SF	MBDLN21S♦	B-frame ★	Approx.						DV0P4283		-
	MHMF		400	MHMF041L1 2 MHMF041L1 4	91, 159	MCDLT31SF	MCDLN31S♦	C-frame	Approx. 0.9						DV0P4282	DV0P228	DV0PM20042
High	/Leadwire\		50	MHMF5AZL1 2 MHMF5AZL1 4	86, 147	MADLT05SF	MADLN05S♦			MFECA	MFECA	ME	MCA	MFMCB	DVOD 400 t		
High inertia	(type / 3000 r/min		100	MHMF012L1 ☐ 2 MHMF012L1 ☐ 4	88, 151	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5	0 * * 0EAE (For fixed)	0 * * 0EAD (For fixed)		0EED	0 * * 0GET Note)6	DV0P4281	DV0P227 DV0P220	DV0P4170
Ф	IP65	Single phase/	200	MHMF022L1 ☐ 2 MHMF022L1 ☐ 4	90, 155	MADLT15SF	MADLN15S♦							14016/0		_ : 0	DV0PM20042
		3-phase 200 V	400	MHMF042L1 ☐ 2 MHMF042L1 ☐ 4	92, 159	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9						DV0P4283	DV0P228	
			750	MHMF082L1 ☐ 2 MHMF082L1 ☐ 4	93, 163	MCDLT35SF	MCDLN35S♦	C-frame	Approx. 1.8							DV0P220	DV0PM20042
			1000	MHMF092L1 ☐ 2 MHMF092L1 ☐ 4	94, 167	MDDLT55SF	MDDLN55S♦	D-frame	Approx. 2.4						DV0P4284	DV0P228 DV0P222	DV0P4220

regenerative resistor.

Note)1 : Represents the motor specifications. (refer to "Model designation" P.22.)

Note)2 \diamondsuit : Represents the driver specifications. (refer to "Model designation" P.22.)

Note)3 ** : Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030EAE

Note)4 Because A6SE series driver (dedicated for position control) does not support the absolute system specification, only incremental system can be used in combination.

- Please note that a battery is not supplied together with 23-bit Please buy the battery part number "DV0P2990" separately.
- Note)6 Brake cable and motor cables are required for the motors with brake.

A6 Series

			Motor				Driver								Optional parts 🕨	refer to P.306			
						A6SF series	A6SG series		Power	Encode		er Cab	ole Note)3	Motor Ca	ble Note)3				
М	otor series		Output (W)	Part No. Note)1	Rating/ Spec. Dimensions (page)	Multi fanction type (Pulse, analog, full-closed	RS485 communication A6SE series Basic (Pulse signal input) Note)2, Note)5	Frame	capacity (at (rated load) (kVA)	Use in the absolute syste (with battery bo Note)6	absol	tem	Solute Use in the Incremental system without battery box)	without Brake	with Brake	Brake Cable Note)3	External Regenerative Resistor	Reactor (Single phase 3-phase)	Noise Filter (Single phase) 3-phase
			50	MSMF5AZL1 ☐ 1	63, 119	MADLT01SF	MADLN01S♦	- A-frame	Approx.								DV0P4280	DV0P227	
		Single phase	100	MSMF011L1 ☐ 1	65, 121	MADLT11SF	MADLN11S♦	*	0.4								D V 01 4200	DVOI ZZI	DV0P4170
		100 V	200	MSMF021L1 ☐ 1	67, 122	MBDLT21SF	MBDLN21S♦	B-frame ★	Approx. 0.5	MFECA 0 * * 0MJE /For movable,\	0*	E	MFECA 0 * * 0MJD /For movable,\	0 * * /For m	MCA ONJD ovable, tion of	MFMCB 0 * * 0PJT /For movable, direction of	DV0P4283	DV0P228	
	MOME		400	MSMF041L1 □ 1	69, 123	MCDLT31SF	MCDLN31S♦	C-frame	Approx. 0.9	direction of motor shaft	di m	1)	direction of motor shaft	\ moto	mr shaft / MCA 0NKD	direction of motor shaft	DV0P4282	D 7 01 220	DV0PM20042
Low inertia	MSMF (Connector) type		50	MSMF5AZL1 ☐ 1	64, 119	MADLT05SF	MADLN05S♦	_		0 * * 0MKE For movable, opposite direction of motor shaft	/ For	on	0 * * 0MKD For movable, opposite direction of motor shaft	For m	ovable, e direction for shaft	0 * * 0PKT For movable, opposite direction of motor shaft	DV0P4281		
	3000 r/min IP67		100	MSMF012L1 ☐ 1	66, 121	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5	MFECA 0**0TJE / For fixed, direction of	0 * / F	E	MFECA 0 * * 0TJD For fixed, direction of	0 * * / For	MCA ORJD fixed, \ tion of	MFMCB 0 * * 0SJT For fixed, direction of		DV0P227 DV0P220	DV0P4170
		Single phase/	200	MSMF022L1 ☐ 1	68, 122	MADLT15SF	MADLN15S♦			MFECA 0**0TKE	\m 	F	motor shaft/ MFECA 0 * * 0TKD	\moto	mca 0RKD	\motor shaft/ MFMCB 0 * * 0SKT			DV0PM20042
		3-phase 200 V	400	MSMF042L1 ☐ 1	70, 123	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9	For fixed, opposite direction of motor shaft	(oppo	on	For fixed, opposite direction of motor shaft	For opposite of mot	fixed, e direction for shaft	For fixed, opposite direction of motor shaft Note)7	DV0P4283	DV0P228	
			750	MSMF082L1 ☐ 1	71, 125	MCDLT35SF	MCDLN35S♦	C-frame	Approx. 1.8					140	10)4	,		DV0P220	DV0PM20042
			1000	MSMF092L1 ☐ 1	72, 126	MDDLT45SF	MDDLN45S♦	D-frame	Approx. 2.4						1		DV0P4284	DV0P228 DV0P222	DV0P4220
			100	MQMF011L1 ☐ 1 MQMF011L1 ☐ 3	79, 137	MADLT11SF	MADLN11S♦	A-frame ★	Approx. 0.4	MFECA 0**0MJE		F	MFECA 0**0MJD	MFMCA 0 * * 0UFD	MFMCA 0**0VFD		DV0P4280	DV0P227	DV0P4170
M.		Single phase 100 V	200	MQMF021L1 ☐ 1 MQMF021L1 ☐ 3	81, 141	MBDLT21SF	MBDLN21S♦	B-frame ★	Approx.	(For movable, direction of motor shaft	(For)	(For movable, direction of motor shaft	(For movable, direction of motor shaft	(For movable, direction of motor shaft		DV0P4283	DVoDoos	DV014170
inertia (Connertia 3000	MQMF (Connector) type		400	MQMF041L1 ☐ 1 MQMF041L1 ☐ 3	83, 145	MCDLT31SF	MCDLN31S♦	C-frame	Approx. 0.9	MFECA 0 * * 0MKE For movable, opposite direction of motor shaft	0 * / For	on)	MFECA 0 * * 0MKD For movable, opposite direction of motor shaft	MFMCA 0 * * 0UGD For movable, opposite direction of motor shaft	MFMCA 0 * * 0VGD For movable, opposite direction of motor shaft		DV0P4282	DV0P228	DV0PM20042
	3000 r/min IP67	Oir ele	100	MQMF012L1 ☐ 1 MQMF012L1 ☐ 3	80, 137	MADLT05SF	MADLN05S♦		Approx.	MFECA 0 * * 0TJE / For fixed, \	0 *		MFECA 0 * * 0TJD / For fixed, \	MFMCA 0 * * 0WFD / For fixed, \	MFMCA 0 * * 0XFD / For fixed, \	_	DV0P4281	DV0P227	
		Single phase/	200	MQMF022L1 ☐ 1 MQMF022L1 ☐ 3	82, 141	MADLT15SF	MADLN15S♦	- A-frame ★	0.5	direction of motor shaft/ MFECA 0 * * 0TKE	\m 	F	direction of motor shaft/ MFECA 0 * * 0TKD	direction of motor shaft MFMCA 0 * * 0WGD	direction of motor shaft/ MFMCA 0 * * 0XGD		2./2	DV0P220	DV0P4170 DV0PM20042
		200 V	400	MQMF042L1 ☐ 1 MQMF042L1 ☐ 3	84, 145	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx.	For fixed, opposite direction of motor shaft	Oppo	on	For fixed, opposite direction of motor shaft	For fixed, opposite direction of motor shaft	For fixed, opposite direction of motor shaft		DV0P4283	DV0P228 DV0P220	

★: Frame-A and B drivers are not equipped with regenerative resistors. When regeneration occurs, please prepare an optional external

Note)1 : Represents the motor specifications. (refer to "Model designation" P.22.)

Note)2 \diamondsuit : Represents the driver specifications. (refer to "Model designation" P.22.)

Note)3 * * : Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030MJE

Note)4 Cables for opposite to output shaft cannot be used with 50 W or 100 W motor. (MSMF connector type only.)

Note)5 Because A6SE series driver (dedicated for position control) does not support the absolute system specification,

only incremental system can be used in combination.

Note)6 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box). Please buy the battery part number "DV0P2990" separately.

Note)7 Brake cable and motor cables are required for the motors with brake.

 $\ \lceil$ Movable : For application where the cable is movable.

Fixed : For application where the cable is fixed.

Direction of motor shaft/Opposite direction of motor shaft: Cable direction

	Power		Motor				Driver						(Optional parts 🕨 r	efer to P.306			
						A6SF series	A6SG series		Power	Encoder	coder Cable Note	9)3	Motor Cal	ole Note)3				
					Rating/	Multi fanction type /Pulse, analog,\	RS485 communication		capacity	23-bi	23-bit Absolute				Brake	External	Doostor	Noise Filter
M	lotor series	Power supply	Output (W)	Part No. Note)1	Spec. Dimensions (page)	(full-closed)	A6SE series Basic (Pulse signal input) Note)2, Note)4	Frame	(at rated load (kVA)	Use in the absolute syste (with battery box Note)5	system system system (without be	in the mental item attery box)	without Brake	with Brake	Cable Note)3	Regenerative Resistor	Reactor Single phase 3-phase	Single phase 3-phase
			50	MHMF5AZL1 ☐ 1 MHMF5AZL1 ☐ 3	85, 149	MADLT01SF	MADLN01S♦	Λ	Approx.				MFMCA 0 * * 7UFD Movable/fixed common-use, direction of motor shaft	MFMCA 0 * * 7VFD Movable/fixed common-use, direction of motor shaft		DV0P4280	DV0P227	
			100	MHMF011L1 ☐ 1 MHMF011L1 ☐ 3	87, 153	MADLT11SF	MADLN11S♦	A-frame ★	0.4				MFMCA 0 * * 7UGD Movable/fixed common-use, opposite direction of motor shaft	MFMCA 0 * * 7VGD Movable/fixed common-use, opposite direction of motor shaft		DV0F4200	DVOFZZI	DV0P4170
		Single phase	200	MHMF021L1 ☐ 1 MHMF021L1 ☐ 3	89, 157	MBDLT21SF	MBDLN21S♦	B-frame	Approx.				MFMCA 0 * * 0UFD (For movable, direction of motor shaft)	MFMCA 0 * * 0VFD (For movable, direction of motor shaft)		DV0P4283		
		100 V		IVII IVII UZILI 🗆 3				*	0.0				MFMCA 0 * * 0UGD For movable, opposite direction of motor shaft	MFMCA 0 * * 0VGD For movable, opposite direction of motor shaft			DV0P228	
	MHMF (Connector type -		400	MHMF041L1 1	91, 161	MCDLT31SF	MCDLN31S◇	C-frame	Approx.	MFECA 0 * * 0MJE /For movable, direction of motor shaft	able, For mo	OMJD ovable,\	MFMCA 0 * * 0WFD For fixed, direction of motor shaft	MFMCA 0 * * 0XFD / For fixed, direction of motor shaft)		DV0P4282		DV0PM20042
High				MHMF041L1 □ 3					0.0	MFECA 0 * * 0MKE For movable, opposite direction of motor shaft	MKE 0 * * (pable, For mo opposite	OMKD ovable, \	MFMCA 0 * * 0WGD For fixed, opposite direction of motor shaft	MFMCA 0 * * 0XGD For fixed, opposite direction of motor shaft				
inertia	3000 r/min IP67		50	MHMF5AZL1 ☐ 1 MHMF5AZL1 ☐ 3	86, 149	MADLT05SF	MADLN05S♦			MFECA 0 * * 0TJE (For fixed, direction of motor shaft)	OTJE 0 * * ed, For f	OTJD	MFMCA 0 * * 7UFD Movable/fixed common-use, direction of motor shaft	MFMCA 0 * * 7VFD Movable/fixed common-use, direction of motor shaft	_	DVoDvoov		
			100	MHMF012L1 ☐ 1 MHMF012L1 ☐ 3	88, 153	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5	MFECA 0 * * 0TKE For fixed, opposite direction of motor shaft	OTKE 0 * * ed, For f irection opposite		MFMCA 0 * * 7UGD Movable/fixed common-use, opposite direction of motor shaft	MFMCA 0 * * 7VGD Movable/fixed common-use, opposite direction of motor shaft		DV0P4281	DV0P227 DV0P220	DV0P4170
		Single phase/	200	MHMF022L1 ☐ 1 MHMF022L1 ☐ 3	90, 157	MADLT15SF	MADLN15S♦						MFMCA 0 * * 0UFD (For movable, direction of motor shaft)	MFMCA 0 * * 0VFD (For movable, direction of motor shaft)				DV0PM20042
		3-phase 200 V	400	MHMF042L1 ☐ 1 MHMF042L1 ☐ 3	92, 161	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9				MFMCA 0 * * 0UGD For movable, opposite direction of motor shaft	MFMCA 0 * * 0VGD For movable, opposite direction of motor shaft		DV0P4283	DV0P228	
			750	MHMF082L1 ☐ 1 MHMF082L1 ☐ 3	93, 165	MCDLT35SF	MCDLN35S♦	C-frame	Approx. 1.8				MFMCA 0 * * 0WFD For fixed, direction of motor shaft)	MFMCA 0 * * 0XFD For fixed, direction of motor shaft)			DV0P220	DV0PM20042
			1000	MHMF092L1 ☐ 1 MHMF092L1 ☐ 3	94, 169	MDDLT55SF	MDDLN55S♦	D-frame	Approx. 2.4				MFMCA 0 * * 0WGD For fixed, opposite direction of motor shaft	MFMCA 0 * * 0XGD For fixed, opposite direction of motor shaft		DV0P4284	DV0P228 DV0P222	DV0P4220

★: Frame-A and B drivers are not equipped with regenerative resistors. When regeneration occurs, please prepare an optional external

Note)1 : Represents the motor specifications. (refer to "Model designation" P.22.)

Note)2 \diamondsuit : Represents the driver specifications. (refer to "Model designation" P.22.)

Note)3 * * : Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030MJE

Note)4 Because A6SE series driver (dedicated for position control) does not support the absolute system specification, only incremental system can be used in combination.

Note)5 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box). Please buy the battery part number "DV0P2990" separately.

Fixed: For application where the cable is fixed.

Direction of motor shaft/Opposite direction of motor shaft: Cable direction

Table of Part Numbers and Options

100 mm sq. or more 0.85 kW to 5.0 kW IP67 motor Encoder connector (Large size JL10) type

			Motor				Driver					Opt	tional parts > ref	fer to P.306		
					Rating/	A6SF series Multi fanction type / Pulse, analog, \	A6SG series RS485 communication		Power	JL10 (l One-tou N/MS so	able Note)3,5 arge size) th lock type rewed type	Motor Cabl JL (One-touch JL04 scre	10 lock type			
Me	otor series	Power supply	Output (W)	Part No. Note)1	Spec. Dimensions (page)	(full-closed)	A6SE series Basic (Pulse signal input) Note)2, Note)4	Frame	rated load / (kVA)	Use in the absolute system (with battery box) Note)7	Use in the Incremental system (without battery box)	without Brake	with Brake	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
		Cinala		MCME100L1 D 6					A	Fixe	d cable	Movabl	e cable			
		Single phase/	1000	MSMF102L1	73, 127	MDDLT55SF	MDDLN55S♦	D-frame	Approx. 2.4			MFMCD 0 * * 2EUD	MFMCA 0 * * 2FUD	DV0P4284	DV0P228 / DV0P222	DV0P4220
	MSMF	3-phase 200 V	1500	MSMF152L1 \square 6 MSMF152L1 \square 8	74, 128	MDDLT55SF	MDDLN55S♦	2 manie	Approx. 2.9	MFECA	MFECA	MFMCD	MFMCA	2 7 6 7 120 1	DV0PM20047 / DV0P222	2 701 1220
Low	Large size JL10 type		2000	MSMF202L1 ☐ 6 MSMF202L1 ☐ 8	75, 129	MEDLT83SF	MEDLN83S♦	E-frame	Approx. 3.8	0 * * 0EPE	0 * * 0 EPD	0 * * 2ECD	0 * * 2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
inertia	3000 r/min	3-phase	3000	MSMF302L1 ☐ 6 MSMF302L1 ☐ 8	76, 131	MFDLTA3SF	MFDLNA3S♦		Approx. 5.2	MFECA	MFECA	MFMCA	MFMCA		DV0P224	
ω	IP67	200 V	4000	MSMF402L1 6 MSMF402L1 8	77, 132	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.	0 * * 0ESE	0 * * 0ESD	0 * * 3EUT	0 * * 3FUT	DV0P4285		DV0P3410
			5000	MSMF502L1 ☐ 6	78, 133	MFDLTB3SF	MFDLNB3S	-	Approx.			MFMCA 0 * *3ECT	MFMCA 0 * *3FCT	×2 in parallel	DV0P225	
		Single	1000	MSMF502L1 8 MDMF102L1 6	102, 180	MDDLT45SF	MDDLN45S♦		7.8 Approx.			MFMCD	MFMCA		DV0P228 / DV0P222	
		phase/ 3-phase	1500	MDMF102L1 ☐ 8 MDMF152L1 ☐ 6	103, 181	MDDLT55SF	MDDLN55S	D-frame	2.4 Approx.			0 * * 2EUD	0 * * 2FUD	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
	MDMF Large size	200 V		MDMF152L1 ☐ 8 MDMF202L1 ☐ 6	, in the second		•	_	2.9 Approx.	MFECA	MFECA	MFMCD 0**2ECD	MFMCA 0 * * 2FCD	DV0P4285		D) (0D) 1000 (0
	JL10 type		2000	MDMF202L1 ☐ 8 MDMF302L1 ☐ 6	104, 183	MEDLT83SF	MEDLN83S♦	E-frame	3.8 Approx.	0 * * 0EPE	0 * * 0EPD	0 4 4 2 2 0 0	0 * * 21 00	Note)6	DV0P223	DV0PM20043
	2000 r/min IP67	3-phase 200 V	3000	MDMF302L1	105, 184	MFDLTA3SF	MFDLNA3S	-	5.2 Approx.	MFECA 0**0ESE	MFECA 0**0ESD	MFMCA 0 * *3EUT	MFMCA 0 * *3FUT	DV0P4285	DV0P224	
		200 V	4000	MDMF402L1 ☐ 8	106, 185	MFDLTB3SF	MFDLNB3S♦	F-frame	6.5			MFMCA	MFMCA	×2 in parallel	DV0P225	DV0P3410
Middle			5000	MDMF502L1	107, 187	MFDLTB3SF	MFDLNB3S♦		Approx.			0 * * 3ECT	0 * * 3FCT			
dle in		Single phase/	850	MGMF092L1 ☐ 6 MGMF092L1 ☐ 8	112, 193	MDDLT45SF	MDDLN45S♦	D-frame	Approx. 2.0			MFMCD	MFMCA 0 * * 2FUD	DV0P4284	DV0P228 / DV0P221	DV0P4220
inertia		3-phase 200 V	1300	MGMF132L1 \square 6 MGMF132L1 \square 8	113, 195	MDDLT55SF	MDDLN55S♦	D-frame	Approx. 2.6			0 * * 2EUD ———— MFMCD	MFMCA	DV01 4204	DV0PM20047 / DV0P222	D V 01 4220
	MGMF Large size		1800	MGMF182L1 ☐ 6 MGMF182L1 ☐ 8	114, 196	MEDLT83SF	MEDLN83S♦		Approx.	MFECA	MFECA	0 * * 2ECD	0 * * 2FCD		DV0P223	
	JL10 type Low speed/ High torque type	3-phase 200 V	2400	MGMF242L1 ☐ 6 MGMF242L1 ☐ 8	115, 197	MEDLT93SF	MEDLN93S♦	E-frame	Approx.	0 * * 0EPE MFECA 0 * * 0ESE	0 * * 0EPD ————————————————————————————————————	MFMCE 0 * * 3EUT MFMCE 0 * * 3ECT	MFMCD 0**3FUT MFMCD 0**3FCT	DV0P4285 Note)6	DV0P224	DV0PM20043
	1500 r/min IP67	200 V	2900	MGMF292L1 ☐ 6 MGMF292L1 ☐ 8	116, 199	MFDLTB3SF	MFDLNB3S♦		Approx.			MFMCA	MFMCA		_	
	11 07		4400	MGMF442L1 ☐ 6	117, 200	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.			0 * * 3EUT MFMCA	0 * * 3FUT MFMCA	DV0P4285 ×2 in parallel	DV0P225	DV0P3410
		Single		MGMF442L1 8 MHMF102L1 6					7.0 Approx.			0 * * 3ECT MFMCD	0 * * 3FCT MFMCA			
		phase/ 3-phase	1000	MHMF102L1	95, 171	MDDLT45SF	MDDLN45S♦	D-frame	2.4 Approx.			0 * * 2EUD	0 * * 2FUD	DV0P4284	DV0P228 / DV0P222	DV0P4220
		200 V	1500	MHMF152L1 8	96, 172	MDDLT55SF	MDDLN55S♦		2.9			MFMCD 0**2ECD	MFMCA 0 * * 2FCD		DV0PM20047 / DV0P222	
High inertia	MHMF Large size JL10 type 2000 r/min		2000	MHMF202L1 ☐ 6 MHMF202L1 ☐ 8	97, 173	MEDLT83SF	MEDLN83S◇	E-frame	Approx. 3.8	MFECA 0 * * 0EPE ———————————————————————————————————	MFECA 0**0EPD ———— MFECA	MFMCE 0**2EUD MFMCE 0**2ECD	MFMCE 0 * * 2FUD MFMCE 0 * * 2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
tia	IP67	3-phase 200 V	3000	MHMF302L1 ☐ 6 MHMF302L1 ☐ 8	98, 175	MFDLTA3SF	MFDLNA3S♦		Approx. 5.2	0 * * 0ESE	0 * * 0ESD	MFMCA	MFMCA		DV0P224	
			4000	MHMF402L1	99, 176	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.			0 * * 3EUT	0 * * 3FUT	DV0P4285 ×2 in parallel		DV0P3410
			5000	MHMF502L1 6 MHMF502L1 8	100, 177	MFDLTB3SF	MFDLNB3S♦	1	Approx.			MFMCA 0 * *3ECT	MFMCA 0 * *3FCT	^2 III parallel	DV0P225	

: Represents the motor specifications. (refer to "Model designation" P.22.)

Note)2 \diamondsuit : Represents the driver specifications. (refer to "Model designation" P.22.)

Note)3 * * : Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030EPE

Note)4 Because A6SE series driver (dedicated for position control) does not support the absolute system specification, only incremental system can be used in combination.

Note)5 Use of JL10 type encoder cables and motor cables enable one-touch lock connections. Conventional screwed type N/MS and JL04V type cables can also be used.

A6N Series

A6B Series
Special Order Product

Information

Note)6 For other possible combinations, refer to P.343.

Note)7 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box). Please buy the battery part number "DV0P2990" separately.

Table of Part Numbers and Options

100 mm sq. or more 0.85 kW to 5.0 kW IP67 motor Encoder connector (Small size JN2) type

			Motor				Driver					Opt	ional parts > ref	er to P.306		
					Rating/	A6SF series Multi fanction type / Pulse, analog, \	A6SG series RS485 communication		Power		able Note)3 nall size) n lock type)	Motor Cabl JL One-touch JL04 scre	10 lock type			
М	otor series	Power supply	Output (W)	Part No. Note)1	Spec. Dimensions (page)	full-closed	A6SE series Basic (Pulse signal input) Note)2, Note)4	Frame	rated load (kVA)	Use in the absolute system (with battery box) Note)7	bsolute Use in the Incremental system (without battery box)	without Brake	with Brake	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
		Single		MSMF102L1 ☐ 5					Approx.	Fixed	cable	Movable	e cable			
		phase/	1000	MSMF102L1 ☐ 7	73, 127	MDDLT55SF	MDDLN55S♦	D-frame	2.4			MFMCD 0 * * 2EUD	MFMCA 0 * * 2FUD	DV0P4284	DV0P228 / DV0P222	DV0P4220
	MSMF	3-phase 200 V	1500	MSMF152L1 ☐ 5 MSMF152L1 ☐ 7	74, 129	MDDLT55SF	MDDLN55S♦	2 mano	Approx. 2.9			MFMCD	MFMCA	2 7020 .	DV0PM20047 / DV0P222	210220
Low	Small size		2000	MSMF202L1 ☐ 5 MSMF202L1 ☐ 7	75, 130	MEDLT83SF	MEDLN83S♦	E-frame	Approx.	MFECA	MFECA	0 * * 2ECD	0 * * 2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
inertia	JN2 type 3000 r/min	3-phase	3000	MSMF302L1	76, 131	MFDLTA3SF	MFDLNA3S♦		Approx. 5.2	0**0ETE	0 * * 0ETD	MFMCA	MFMCA	14010)0	DV0P224	
_	IP67	200 V	4000	MSMF402L1 ☐ 5 MSMF402L1 ☐ 7	77, 133	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx. 6.5			0 * * 3EUT	0 * * 3FUT	DV0P4285 ×2 in parallel		DV0P3410
			5000	MSMF502L1 5 MSMF502L1 7	78, 134	MFDLTB3SF	MFDLNB3S♦	-	Approx.			MFMCA 0**3ECT	MFMCA 0 * *3FCT	AZ III parallel	DV0P225	
		Single	1000	MDMF102L1	102, 181	MDDLT45SF	MDDLN45S♦		Approx.			MFMCD	MFMCA		DV0P228 / DV0P222	
		phase/ 3-phase	1500	MDMF152L1 5	103, 182	MDDLT55SF	MDDLN55S	D-frame	Approx.			0 * * 2EUD	0 * * 2FUD	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
	MDMF Small size	200 V	2000	MDMF152L1 ☐ 7 MDMF202L1 ☐ 5 MDMF202L1 ☐ 7	104, 183	MEDLT83SF	MEDLN83S♦	E-frame	2.9 Approx. 3.8	MEEGA	MEEGA	MFMCD 0**2ECD	MFMCA 0 * *2FCD	DV0P4285	DV0P223	DV0PM20043
	JN2 type 2000 r/min		3000	MDMF302L1 ☐ 5	105, 185	MFDLTA3SF	MFDLNA3S♦		Approx.	MFECA 0**0ETE	MFECA 0 * * 0ETD	MFMCA	MFMCA	Note)6	DV0P224	
	IP67	3-phase 200 V	4000	MDMF302L1 ☐ 7 MDMF402L1 ☐ 5					5.2 Approx.			0 * * 3EUT	0 * * 3FUT	DV0P4285	D V 01 Z Z 4	D\/0D2410
_				MDMF402L1 ☐ 7 MDMF502L1 ☐ 5	106, 186	MFDLTB3SF	MFDLNB3S	F-frame	6.5 Approx.			MFMCA 0**3ECT	MFMCA 0 * * 3FCT	×2 in parallel	DV0P225	DV0P3410
Middle		Single	5000	MDMF502L1 7 7 MGMF092L1 5	107, 187	MFDLTB3SF	MFDLNB3S♦		7.8 Approx.			0 * * 3LO1	U			
le ine		phase/	850	MGMF092L1 ☐ 7	112, 194	MDDLT45SF	MDDLN45S♦	D-frame	2.0			MFMCD 0 * * 2EUD	MFMCA 0 * * 2FUD	DV0P4284	DV0P228 / DV0P221	DV0P4220
inertia	MGMF	3-phase 200 V	1300	MGMF132L1 ☐ 5 MGMF132L1 ☐ 7	113, 195	MDDLT55SF	MDDLN55S♦		Approx. 2.6			MFMCD	MFMCA		DV0PM20047 / DV0P222	
	Small size		1800	MGMF182L1 ☐ 5 MGMF182L1 ☐ 7	114, 197	MEDLT83SF	MEDLN83S♦		Approx. 3.4			0 * * 2ECD	0**2FCD		DV0P223	
	JN2 type Low speed/ High torque type	3-phase 200 V	2400	MGMF242 L1 ☐ 5 MGMF242 L1 ☐ 7	115, 198	MEDLT93SF	MEDLN93S♦	E-frame	Approx.	MFECA 0 * * 0ETE	MFECA 0 * * 0ETD	MFMCE 0**3EUT MFMCE 0**3ECT	MFMCD 0 * *3FUT MFMCD 0 * *3FCT	DV0P4285 Note)6	DV0P224	DV0PM20043
	1500 r/min IP67		2900	MGMF292L1 ☐ 5 MGMF292L1 ☐ 7	116, 199	MFDLTB3SF	MFDLNB3S♦		Approx. 5.0			MFMCA 0 * * 3EUT	MFMCA 0 * *3FUT	DV0P4285		
			4400	MGMF442L1	117, 201	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.			MFMCA 0**3ECT	MFMCA 0 * * 3FCT	×2 in parallel	DV0P225	DV0P3410
		Single	1000	MHMF102L1	95, 171	MDDLT45SF	MDDLN45S♦		Approx.			MFMCD	MFMCA		DV0P228 / DV0P222	
		phase/ 3-phase	1500	MHMF102L1	96, 173	MDDLT55SF	MDDLN55S♦	D-frame	2.4 Approx. 2.9			0**2EUD MFMCD	0 * * 2FUD MFMCA	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
	MHMF	200 V		IVII IIVII I I JZLI 🔲 /					2.5			0 * * 2ECD MFMCE	0 * * 2FCD MFMCE			
High	Small size		2000	MHMF202L1 ☐ 5 MHMF202L1 ☐ 7	97, 174	MEDLT83SF	MEDLN83S♦	E-frame	Approx.	MFECA	MFECA	0 * * 2EUD	0 * * 2FUD	DV0P4285	DV0P223	DV0PM20043
High inertia	JN2 type 2000 r/min			IVII IIVII ZUZLI 🗀 /					0.0	0**0ETE	0 * * 0ETD	MFMCE 0 * * 2ECD	MFMCE 0 * * 2FCD	Note)6		
<u>a</u> .	IP67	3-phase 200 V	3000	MHMF302L1 ☐ 5 MHMF302L1 ☐ 7	98, 175	MFDLTA3SF	MFDLNA3S♦		Approx. 5.2			MFMCA 0**3EUT	MFMCA 0 * *3FUT		DV0P224	
			4000	MHMF402L1 \square 5 MHMF402L1 \square 7	99, 177	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx. 6.5			MFMCA	MFMCA	DV0P4285 ×2 in parallel	DVoDoos	DV0P3410
			5000	MHMF502L1 ☐ 5 MHMF502L1 ☐ 7	100, 178	MFDLTB3SF	MFDLNB3S♦	1	Approx.			0 * *3ECT	0 * * 3FCT		DV0P225	

Note)1 : Represents the motor specifications. (refer to "Model designation" P.22.)

Note)2 \diamondsuit : Represents the driver specifications. (refer to "Model designation" P.22.)

Note)3 * *: Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030ETE

Note)4 Because A6SE series driver (dedicated for position control) does not support the absolute system specification, only incremental system can be used in combination.

Note)5 Use of JL10 type motor cables enable one-touch lock connections. Conventional screwed type JL04V type cables can also be used.

Note)6 For other possible combinations, refer to P.343.

Note)7 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box). Please buy the battery part number "DV0P2990" separately.

Table of Part Numbers and Options 176 mm sq. or more 5.5 kW to 22.0 kW IP67 motor Encoder connector (Large size JL10) type

			Motor				Driver					Ор	tional parts > refe	er to P.306			
		_			Rating/	A6SF series Multi fanction type	A6SG series RS485 communication		Power capacity	JL10 (La One-touc	arge size) h lock type ewed type		Cable te)6	External			
I	Notor series	Power supply	Output (W)	Part No. Note)1	Spec. Dimensions (page)	(Pulse, analog, full-closed	A6SE series Basic (Pulse signal input)	Frame	(rated load) (kVA)	Use in the absolute system (with battery box) Note)4	Absolute Use in the Incremental system (without battery box)	without Brake	with Brake	Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter	
	T									Fixed	cable						4 1
			7500	MDMF752L1 ☐ 6	108 188	MGDLTC3SF	_	G-frame	Approx.					DV0P4285 x3 in parallel		HF3080C-SZA (Recommended) components P.413	
Middle inertia	MDMF Large size JL10 type 1500 r/min	3-phase	11000	MDMFC12L1 ☐ 6	109 189	MHDLTE3SF	_		Approx. 15	MFECA 0 * * 0EPE	MFECA 0 * * 0EPD	Note)6	Note)6				
	IP67 IP44 (22000 W)	200 V	15000	MDMFC52L1 ☐ 6	110 191	MHDLTE3SF	_	H-frame	Approx. 20	MFECA 0 * * 0ESE	MFECA 0 * * 0ESD			DV0P4285 ×6 in parallel	Note)5	HF3100C-SZA (Recommended components) P.413	
			22000	MDMFD22L1 ☐ 6	111 192	MHDLTF3SF	_		Approx. 28			Note)6 (U, V, W, Ground : M8 terminal block)	Note)6 (U, V, W, Ground : M8 terminal block)				
	MGMF Large size JL10 type /Low speed/ High torque type 1500 r/min IP67	3-phase 200 V	5500	MGMF552L1 ☐ 6	118 201	MGDLTC3SF	_	G-frame	Approx. 8.5	MFECA 0**0EPE MFECA 0**0ESE	MFECA 0**0EPD ——— MFECA 0**0ESD	Note)6	Note)6	DV0P4285	— Note)5	HF3080C-SZA (Recommended components) P.413	
High inertia	MHMF Large size JL10 type 1500 r/min IP67	3-phase 200 V	7500	MHMF752L1 □ 6	101 179	MGDLTC3SF	_	G-frame	Approx. 11	MFECA 0**0EPE MFECA 0**0ESE	MFECA 0**0EPD ——— MFECA 0**0ESD	Note)6	Note)6	x3 in parallel	— Note)5	HF3080C-SZA (Recommended) components P.413	

■ About dynamic brake

A6 Series

G frame is built-in / external, H frame is external

The indication of the internal / {external} dynamic brake resistance capacity is the maximum allowable inertia (load inertia moment ratio to rotor inertia moment is 10 times) up to three consecutive emergency stops at the rated speed. If used under conditions higher than that, the resistance may break and the dynamic brake may not operate.

Recommended resistance: 1.2 Ω 400 W or more × 3 pieces For inquiries: Iwaki Musen Kenkyusho Co.,Ltd. Tel: +81-44-833-4311

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Noten	- Represents	me moior spec	ancanons, nei	ier io iviodeio	iesionanon ezzu

Note)2 * *: Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030ETE

Note)3 Use of JL10 type encoder cables and motor cables enable one-touch lock connections. Conventional screwed type N/MS and JL04V type cables can also be used.

Note)4 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box).

Please buy the battery part number "DV0P2990" separately.

Note)5 The reactor has to be prepared by the customer.

Note)6 We recommend purchasing an optional connector kit.

Connector kit (option) components Note)6

	D	river	Option No.	Encoder C	able	Motor	Cable	Brake	Cable	
Motor	Frame	Connection terminal	Connector Kit for motor, encoder connection	Motor side	Driver side	Motor side	Driver side	Motor side	Power supply for brake	
			DV0PM20107	Large size connector				not included		
MDMF 7.5 kW MGMF 5.5 kW MHMF 7.5 kW	G	M5	DV0PM20108	One-touch lock type	For	Connector Screwed type	(to be supplied by customer) M5 Round terminal	Connector Screwed type	(to be supplied by customer)	
	u	Wio	DV0PM20111	Large size connector	Connector X6			not included		
			DV0PM20112	Screwed type				Connector Screwed type		
			DV0PM20107	Large size connector One-touch lock type Large size connector Screwed type		Connector Screwed type	(to be supplied by customer) M6 Round terminal	not included	(to be supplied by customer)	
MDMF 11.0 kW	Н	Н М6	DV0PM20108		For Connector X6			Connector Screwed type		
MDMF 15.0 kW	''		DV0PM20111					not included		
			DV0PM20112					Connector Screwed type		
			DV0PM20109	Large size connector				not included		
MDMF 22.0 kW	Н	Me	DV0PM20110	One-touch lock type	For	Terminal block (to be supplied)	(to be supplied by customer)	Connector Screwed type	/to be supplied	
IVIDIVIF ZZ.U KVV	П	H M6	DV0PM20113	Large size connector	Connector X6	M8 Round terminal	M6 Round terminal	not included	(by customer)	
			DV0PM20114	Screwed type				Connector Screwed type		

A6 Series

Table of Part Numbers and Options 176 mm sq. or more 5.5 kW to 22.0 kW IP67 motor Encoder connector (Small size JN2) type

			Motor				Driver					Op	tional parts > refe	er to P.306							
										Encode	r Cable Note)2	Motor	r Cable								
					Rating/	A6SF series Multi fanction type	A6SG series RS485		Power		(Small size) ouch lock type)	No	te)5	External							
	Motor series	Power supply	· .	Spec. Dimensions (page)	(Pulse, analog, full-closed	A6SE series Basic (Pulse signal input)	Frame	(at (rated load) (kVA)	Use in the absolute syste (with battery box Note)3	(without battery box	without Brake	with Brake	Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter						
										Fix	red cable										
			7500	MDMF752L1 ☐ 5	108 189	MGDLTC3SF	_	G-frame	Approx. 11			Note)5				DV0P4285 ×3 in parallel		HF3080C-SZA (Recommended) components P.413			
	MDMF Small size JN2 type 1500 r/min	3-phase	11000	MDMFC12L1 ☐ 5	109 190	MHDLTE3SF	_		Approx. 15	MFECA	MFECA MFFCA			5 Note)5							
Middle	IP67	200 V	200 V	200 V	200 V	200 V	200 V	15000	MDMFC52L1 ☐ 5	110 191	MHDLTE3SF	_	H-frame	Approx. 20	0 * * 0ETE				DV0P4285 ×6 in parallel	Note)4	HF3100C-SZA (Recommended) components P.413
Middle inertia			22000	MDMFD22L1 ☐ 5	111 193	MHDLTF3SF	_		Approx. 28			Note)5 (U, V, W, Ground) (: M8 terminal block)	Note)5 (U, V, W, Ground : M8 terminal block)								
	MGMF Small size JN2 type (Low speed/ High torque type) 1500 r/min IP67	3-phase 200 V	5500	MGMF552L1 □ 5	118 202	MGDLTC3SF	_	G-frame	Approx. 8.5	MFECA 0**0ETE	MFECA 0 * * 0ETD	Note)5	Note)5	DV0P4285	— Note)4	HF3080C-SZA (Recommended components) P.413					
High inertia	MHMF Small size JN2 type 1500 r/min IP67	3-phase 200 V	7500	MHMF752L1 □ 5	101 179	MGDLTC3SF	_	G-frame	Approx.	MFECA 0**0ETE	MFECA 0**0ETD	Note)5	Note)5	×3 in parallel	— Note)4	HF3080C-SZA (Recommended) components P.413					

■ About dynamic brake

G frame is built-in / external, H frame is external

The indication of the internal / {external} dynamic brake resistance capacity is the maximum allowable inertia (load inertia moment ratio to rotor inertia moment is 10 times) up to three consecutive emergency stops at the rated speed. If used under conditions higher than that, the resistance may break and the dynamic brake may not operate.

Recommended resistance: 1.2 Ω 400 W or more × 3 pieces For inquiries: Iwaki Musen Kenkyusho Co.,Ltd. Tel: +81-44-833-4311

Note)1	: Represents the	motor specifications.	(refer to "Model	designation" P.22.)

Note)2 * *: Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030ETE

■ Connector kit (option) components Note)5

	D	river	Option No.	Encoder C	able	Motor	Cable	Brake	Cable	
Motor	Frame	Connection terminal	Connector Kit for motor, encoder connection	Motor side	Driver side	Motor side	Driver side	Motor side	Power supply for brake	
MDMF 7.5 kW MGMF 5.5 kW MHMF 7.5 kW	c	M5	DV0PM20056	Small size connector	For Connector X6	Connector Screwed type	(to be supplied by customer)	not included	(to be supplied) by customer	
	G	IVIS	DV0PM20057	Screwed type			M5 Round terminal	Connector Screwed type		
MDMF 11.0 kW	Н	M6	DV0PM20056	Small size connector Screwed type	For Connector X6	Connector Screwed type	(to be supplied by customer M6 Round terminal	not included	(to be supplied by customer)	
MDMF 15.0 kW	п		DV0PM20057					Connector Screwed type		
MDMF 22.0 kW	Н	M6	DV0PM20115	Small size connector	For	to be supplied \ \ by customer	(to be supplied by customer)	not included	/to be supplied\	
	н	IVID	DV0PM20116	Screwed type Connector		\ by customer / M8 Round terminal	M6 Round terminal	Connector Screwed type	by customer)	

Note)3 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box).

Please buy the battery part number "DV0P2990" separately. Note)4 The reactor has to be prepared by the customer.

Note)5 We recommend purchasing an optional connector kit.

	Mai	n circuit	Single phase 100 V $^{+10}_{-15}$ % to 120 V $^{+10}_{-15}$ % 50 Hz / 60 Hz				
100 V							
_	Cont	rol circuit A-frame to	Single phase 100 V +10 % to 120 V +10 % 50 Hz / 60 Hz				
Input power	Main	D-frame	Single/3-phase 200 V +10 % to 240 V +10 % 50 Hz / 60 Hz				
200 V	circuit	E-frame to H-frame	3-phase 200 V $^{+10}_{-15}$ % to 240 V $^{+10}_{-15}$ % 50 Hz / 60 Hz				
200 1	Control	A-frame to D-frame	Single phase 200 V $^{+10}_{-15}$ % to 240 V $^{+10}_{-15}$ % 50 Hz / 60 Hz				
	circuit	E-frame to H-frame	Single phase 200 V $^{+10}_{-15}$ % to 240 V $^{+10}_{-15}$ % 50 Hz / 60 Hz				
	tem	perature	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)				
Environmen	hu	ımidity	Both operating and storage: 20 %RH to 85 %RH (free from condensation*1)				
	Al	titude	Lower than 1000 m				
	Vik	oration	5.88 m/s² or less, 10 Hz to 60 Hz				
Control meth	nod		IGBT PWM Sinusoidal wave drive				
Encoder feedback			23-bit (8388608 resolution) absolute encoder, 7-wire serial * When using it as an incremental system (not using multi-turn data), do not connect the battery for absolute encoder. Parameter Pr. 0.15 must be set to "1" (factory settings).				
External sca	External scale feedback		A/B phase, homing signal differential input. Serial communication is also supported. Manufacturers that support serial communication scale: Fagor Automation S.Coop., HEIDENHAIN, Magnescale Co., Ltd., Mitutoyo Corporation Nidec Sankyo Corporation, Renishaw plc				
Control	oianal	Input	General purpose 10 inputs The function of general-purpose input is selected by parameters.				
	sigriai	Output	General purpose 6 outputs The function of general-purpose output is selected by parameters.				
Analog :	sianal	Input	3 inputs (16-bit A/D : 1 input, 12-bit A/D : 2 inputs)				
ຂີ່ Analog :	sigriai	Output	2 outputs (Analog monitor: 2 output)				
ector	anal	Input	2 inputs (Photo-coupler input, Line receiver input) Both open collector and line driver interface can be connected. High speed line driver interface can be connected.				
Pulse si	griai	Output	4 outputs (Line driver: 3 output, open collector: 1 output) Line driver output for encoder pulses (A/B/Z signal) or external feedback pulses (EXA/EXB/EXZ signal) open collector output also available for Z or EXZ signal.				
		USB	USB interface to connect to computers for parameter setting or status monitoring.				
Communication	ion	RS232	1:1 communication				
		RS485	1: n communication (max 31) (Supports Modbus)				
Safety function			A dedicated connector is provided for Functional Safety.				
Front panel			(1) 5 keys (2) LED (6-digit)				
Regeneratio	n		A-frame, B-frame, G-frame, 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 bra	ke		A-frame to G-frame: Built-in H-frame: External resistor only				
Control mode			Switching among the following 7 mode is enabled, (1) Position control (2) Speed control (3) Toque control (4) Position/Speed control (5) Position/Torque control (6) Speed/Torque control (7) Full-closed control				

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

	Co	ntrol input			 (1) servo-ON input (2) Alarm clear input (3) Gain switch input (4) Positive direction drive inhibit input (5) Negative direction drive inhibit input (6) Forced alarm input (7) Inertia ratio switch input 				
	Co	ntrol outpu	t		(1) Servo-alarm output (2) Servo-ready output (3) External brake off output (4) At-speed output (5) Torque in-limit output (6) Zero speed detection output (7) Warning output (8) Alarm clear attribute output (9) Servo on status output				
		Control in			 (1) Deviation counter clear input (2) Command pulse inhibit input (3) Command division/multiplication switch input (4) Anti-vibration switch input (5) Torque limit switch input (6) Control mode switch input 				
		Control or			(1) In-position output (2) Position command ON/OFF output				
	_		Max. command Input pulse si	gnal format	500 kpps (Optocoupler interface), 8 Mpps (When using line receiver input multiplied by 4) Differential input. Selectable by parameter. ([1]Positive/Negative pulse [2]A/B quadrature [3]Pulse/Direction)				
	Position control	Pulse input	Electronic ge (Division/Mult command pul	tiplication of	Applicable scaling ratio: 1/1000 times to 8000 times Any value of 1 - 2 ³⁰ can be set for both numerator (which corresponds to encoder resolution) and denominator (which corresponds to command pulse resolution per motor revolution), but the combination has to be within the range shown above.				
	풁		Smoothing file	ter	Primary delay filter or FIR type filter is adaptable to the command input				
	_	Analog		ommand input	Individual torque limit for both positive and negative direction is enabled.				
		input	Torque feed f		Analog voltage can be used as torque feed forward input.				
			ee-of-freedom		Available				
			tion control	00111101	Available				
			ation suppress	ion control	Available				
		Block ope			Modbus (RS 232, RS 485) or interface is selectable				
+					(1) Internal command velocity selection input (2) Speed zero clamp input				
		Control input Control output			(3) Velocity command sign input (4) Control mode switch input (1) Speed coincidence output (2) Velocity command ON/OFF output				
		Control of							
-	Speed	Analog	Velocity command input		Velocity command input with analog voltage is possible. Scale setting and command polarity vary depending on parameters. (6 V/Rated rotational speed: Default				
	ğ	input		ommand input	Individual torque limit for both positive and negative direction is enabled.				
	contro		Torque feed f		Analog voltage can be used as torque feed forward input.				
	ro	Internal ve	elocity comma	nd	Switching the internal 8 speed is enabled by command input.				
	_		down function		Individual setup of acceleration and deceleration is enabled, with 0 s to 10 s / 1000 r/min. Sigmoid acceleration/deceleration is also enabled.				
끄		Speed ze			Internal velocity command can be clamped to 0 with speed zero clamp input.				
E L	ōr		ee-of-freedom	control	Available				
Function		Control input			Speed zero clamp input, torque command sign input, control mode switch input.				
٦ .	g G	Control output			(1) Speed coincidence output (2) Speed in-limit output				
	Torque contro	Analog input Torque command input			Torque command input with analog voltage is possible. Scale setting and command polarity vary depending on parameters. (3 V/rated torque Default)				
	<u>ठ</u>	Speed lim	it function		Speed limit value with parameter is enabled.				
		Control in	put		(1) Deviation counter clear input (2) Command pulse inhibit input (3) Command division/multiplication switch input (4) Anti-vibration switch input (5) Torque limit switch input				
		Control ou	ıtput		(1) In-position output (2) Position command ON/OFF output				
				pulse frequency	500 kpps (Optocoupler interface), 8 Mpps (When using line receiver input multiplied by 4)				
			Input pulse si		Differential input. Selectable by parameter. ([1]Positive/Negative pulse [2]A/B quadrature [3]Pulse/Direction)				
		Pulse	F		Applicable scaling ratio: 1/1000 times to 8000 times				
	Full-closed	input	Electronic gea (Division/Mult command pul	tiplication of	Any value of $1 - 2^{30}$ can be set for both numerator (which corresponds to encoder resolution) and denominator (which corresponds to command pulse resolution per motor revolution), but the combination has to be within the range shown above.				
	Se		Smoothing file	ter	Primary delay filter or FIR type filter is adaptable to the command input				
	O.	Analog		ommand input	Individual torque limit for both positive and negative direction is enabled.				
	contro	input	Torque feed f		Analog voltage can be used as torque feed forward input.				
	trol	Setting ra	nge of externa ultiplication	·	1/40 times to 1280 times Although ratio of the encoder pulse (numerator) and external scale pulse (denominator) can be arbitrarily set in the range of 1 to 2 ²³ for the numerator and in the range of 1 to 2 ²³ for the denominator, this product should be used within the aforementioned range.				
		Two-dear	ee-of-freedom	control	Available				
					Available				
		Anti-vibration control Load variation suppression control		sion control	Available				
		Block ope			Modbus (RS 232, RS 485) or interface is selectable				
	_	Auto tunir			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.				
	δ	Division o	f encoder feed	back nulse	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.				
				Soft error	Excess position deviation, command pulse division error, EEPROM error etc.				
		Alarm dat	a trace back		Tracing back of alarm data is available				
					-				

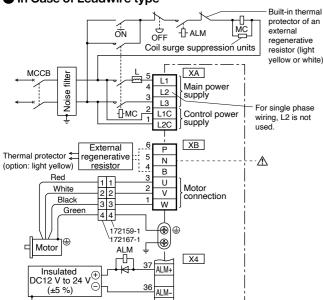
F	\6 \$	Series	Driver	Specifica	tions A6SG series (RS485 comm	unication type)	Position control only type		
		100 V	Maii	n circuit	Single phase 100 V +10 % 1-15 %	to 120 V +10 % 50	Hz / 60 Hz		
		100 V	Conti	rol circuit	Single phase 100 V +10 % 1-15 %	to 120 V +10 % 50	Hz / 60 Hz		
	Input		Main	A-frame to D-frame	Single/3-phase 200 V +10 % 1 -15 %	to 240 V ⁺¹⁰ % 50	Hz / 60 Hz		
	Input power	200.14	circuit	E-frame to F-frame	3-phase 200 V +10 % 1 -15 %	to 240 V ⁺¹⁰ % 50	Hz / 60 Hz		
		200 V	Control	A-frame to D-frame	Single phase 200 V +10 % 1	to 240 V ⁺¹⁰ % 50	Hz / 60 Hz		
			circuit	E-frame to F-frame	Single phase 200 V +10 % 1 -15 %	to 240 V ⁺¹⁰ % 50	Hz / 60 Hz		
			temp	perature	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)				
	En	vironment	humidity		Both operating and storage : 20 %RH to 85	5 %RH (free from co	ndensation*1)		
			Altitude		Lower than 1000 m				
			Vit	oration	5.88 m/s ² or less, 10 Hz to 60 Hz				
	Со	ntrol metho	od		IGBT PWM Sinusoidal wave drive				
Basic Specifications	End	Encoder feedback			23-bit (8388608 resolution) absolute encoder, 7-wire serial * A6SG series When using it as an incremental system (not using multi-turn data), do not connect the battery for absolute encoder. Parameter Pr. 0.15 must be set to "1" (factory settings). * A6SE series Since it can be used only as an incremental system, do not connect the battery for absolute encoder. Parameter Pr. 0.15 must be set to "1" (factory settings).				
		0	Input		General purpose 10 inputs The function of general-purpose input is selected by parameters.				
	Interface connector	Control si	gnai	Output	General purpose 6 outputs The function of general-purpose input is selected by parameters.				
	эе сог	A mala mai		Input	None				
	nect	Analog si	gnai	Output	2 outputs (Analog monitor: 2 output)				
	¥	Pulso sign	aal	Input	2 inputs (Photo-coupler input, Line receiver	r input)			
		Pulse sigr	iai	Output	4 outputs (Line driver: 3 output, open colle	ctor: 1 output)			
				USB	USB interface to connect to computers for	parameter setting or	status monitoring.		
		mmunication	on	RS232	1:1 communication		2 connector is not installed		
				RS485	1: n communication (max 31)	on A6 SE serie	9S.		
	Fro	ont panel			(1) 5 keys (2) LED (6-digit)				
	Re	generation			A-frame, B,-frame: no built-in regenerative C-frame to F-frame: Built-in regenerative re				
	Dyı	namic brak	е		A-frame to F-frame: Built-in				
	Со	ntrol mode			(1) Position control (2) Internal velocity cor	mmand (3) Position	/Internal velocity command		

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

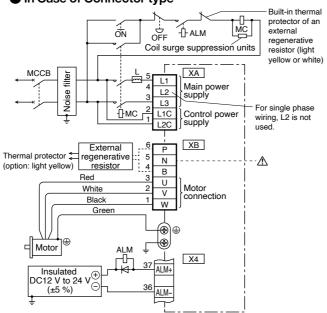
C	COI	ntrol input		(1) servo-ON input (2) Alarm clear input (3) Gain switch input (4) Positive direction drive inhibit input (5) Negative direction drive inhibit input (6) Forced alarm input (7) Inertia ratio switch input
C	oı	ntrol output		(1) Servo-alarm output (2) Servo-ready output (3) External brake off output (4) At-speed output (5) Torque in-limit output (6) Zero speed detection output (7) Warning output (8) Alarm clear attribute output (9) Servo on status output
		Control inp	ut	(1) Deviation counter clear input (2) Command pulse inhibit input (3) Command division/multiplication switch input (4) Anti-vibration switch input (5) Torque limit switch input (6) Control mode switch input
		Control out	put	(1) In-position output (2) Position command ON/OFF output
	Po		Max. command pulse frequency	500 kpps (Optocoupler interface) 8 Mpps (Line receiver interface)
7		•	Input pulse signal format	Differential input. Selectable by parameter. ([1]Positive/Negative pulse [2]A/B quadrature [3]Pulse/Direction)
Position control	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Electronic gear (Division/Multiplica- tion of command pulse)	Applicable scaling ratio: 1/1000 times to 8000 times Any value of 1 - 2 ³⁰ can be set for both numerator (which corresponds to encoder resolution) and denominator (which corresponds to command pulse resolution per motor revolution), but the combination has to be within the range shown above.
			Smoothing filter	Primary delay filter or FIR type filter is adaptable to the command input
		Anti-vibration control		Available
_	ĺ	Two-degree-of-freedom control		Available
Function		Load variation suppression control		Available
		Block opera	ation	Modbus (RS 232, RS 485) or interface is selectable. (A6SE : interface only.)
		Control inpo	ut	(1) Internal command velocity selection input (2) Speed zero clamp input (3) Velocity command sign input (4) Control mode switch input
U	0	Control out	put	(1) Speed coincidence output (2) Velocity command ON/OFF output
opeed		Internal vel	ocity command	Switching the internal 8 speed is enabled by command input.
control	3	Soft-start/d	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	l clamp	Internal velocity command can be clamped to 0 with speed zero clamp input.
		Two-degree	e-of-freedom control	Available
		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 pulse	encoder feedback	Set up of any value is enabled (encoder pulses count is the max.).
non	3	Protective function	Hard error	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current and encoder error etc.
		IUIIUIIII	Soft error	Excess position deviation, command pulse division error, EEPROM error etc.
		Alarm data	trace back	Tracing back of alarm data is available

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





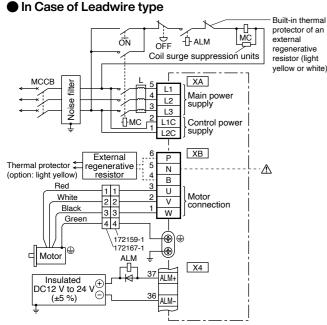
In Case of Connector type



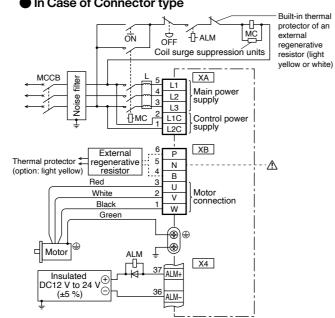
- The pin number of X4 is based on the factory setting parameters.
- * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply.

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





In Case of Connector type



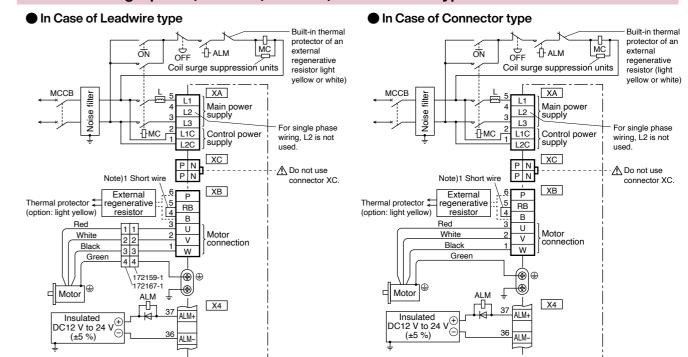
- The pin number of X4 is based on the factory setting parameters.
- * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply.

Connect an external regenerative resistor.

Frame No.	Chartuira	Built-in	Connection of the connector XB	⚠ Do not connect anything to N.
	Short wire (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	without	Connect an external regenerative resistor between P-B.	Always open between P-B.

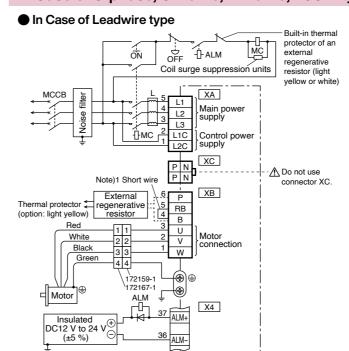
^{*} Refer to P.307 Specifications of Motor connector.

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

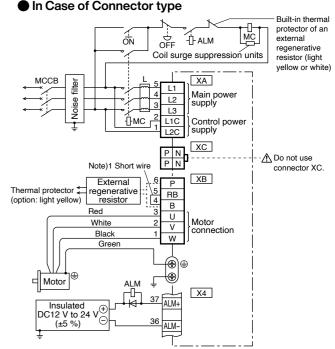


- The pin number of X4 is based on the factory setting parameters.
- * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply.

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





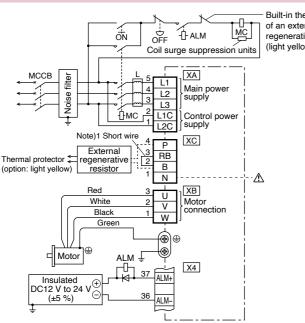


- The pin number of X4 is based on the factory setting parameters.
- * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply.

Frame No.	Short wire	Built-in regenerative resistor	Connection of the connector XB				
	(Accessory)		In case of using an external regenerative resistor	In case of not using an external regenerative resistor			
C-frame D-frame	with	with	Remove the short wire accessory from between RB-B. Connect an external regenerative resistor between P-B.	Shorted between RB-B with an attached short wire			

^{*} Refer to P.307, P.308, Specifications of Motor connector.

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



Built-in thermal protector of an external regenerative resistor (light yellow or white)

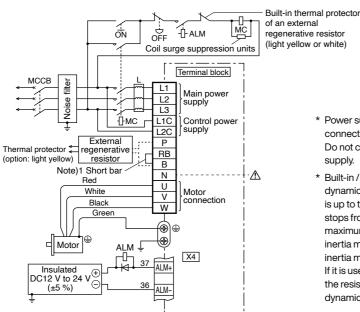
> * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply.

• The pin number of X4 is based on the factory setting parameters.

Note)1

, .											
Frame	Short wire	Built-in regenerative resistor	Connection of the connector XC								
No.	(Accessory)		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 RB-B. Connect an external regenerative resistor between P-B.	Shorted between RB-B with an attached short wire							

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



- - connector X4 requires insulation. Do not connect to the same power * Built-in / {external} The standard of the dynamic brake resistance's capability is up to three consecutive emergency stops from the rated speed at the

* Power supply for motor brake and

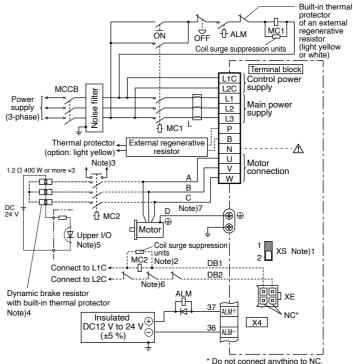
maximum allowable inertia (load inertia moment ratio 10 times the rotor inertia moment). If it is used under more conditions the resistance may be broken and the dynamic brake may not operate

• The pin number of X4 is based on the factory setting parameters.

Frame No. Short bar (Accessory)	NOTE				
No. (Accessory) regenerative resistor In case of using an external regenerative resistor an external regenerative resistor - Remove the short bar accessory from between RB-B Connect an external regenerative resistor - Shorted between RB-B with an attached short bar	Eramo	Short har	Built-in	Connection of terminal block	♠ Do not connect anything to N.
F-frame with with with resistor an external regenerative resistor an external regenerative resistor an external regenerative resistor an external regenerative resistor short bar accessory from between RB-B. • Connect an external regenerative resistor short bar			regenerative	In case of using	In case of not using
F-frame with with between RB-B. • Shorted between RB-B with an attached short bar	140.	(Accessory)	resistor	an external regenerative resistor	an external regenerative resistor
	F-frame	with	with	between RB-B. Connect an external regenerative resistor	

^{*} Refer to P.308. Specifications of Motor connector.

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



• The pin number of X4 is based on the factory setting parameters.

■ About the Dynamic Brake

G frame has built-in dynamic brake resistor. When using built-in dynamic brake, set switch XS to "1" side.

When exceeding the capacity of built-in dynamic brake resistor, set switch XS to "2" side and use external dynamic brake resistor.

■ When using external dynamic brake

Note 1) Set switch XS to "2" side.

- Note 2) Make the electromagnetic contactor (MC2) the same as the electromagnetic contactor (MC1) of the main circuit.
- Note 3) Provide an auxiliary contact, and configure protection so that the servo will not turn on in the external sequence if the main
- Note 4) Mount the dynamic brake resistor on incombustible material such as metal
- Note 5) Install a thermal protector on the dynamic brake resistor and monitor it with the upper I / O, and configure protection so that the servo is not turned on in the external sequence when the thermal protector is operating.
- Note 6) If the upper I / O cannot monitor the thermal protector, input the output of the thermal protector between L2C and DB2 so that the dynamic brake does not operate when the temperature protection works.

■ About motor wiring

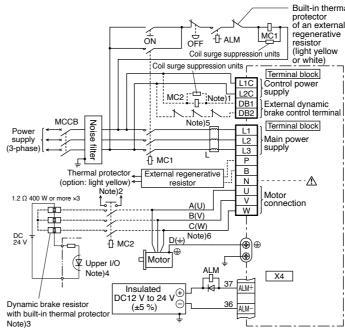
Note 7) This is the terminal symbol of the connector.

- * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply
- * Do not use built-in dynamic brake and external dynamic brake at the same time.

■ Connection of regenerative resistor

Frame No.	Short bar	raganarativa	Connection of terminal block			
	(Accessory)		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 P-B.	Always open between P-B.		

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



• The pin number of X4 is based on the factory setting parameters.

■ Connection of regenerative resistor

■ About the Dynamic Brake

The H frame does not have a built-in dynamic brake resistor, so it will be in a free run state when the motor does emergency stop. Use an external dynamic brake resistor if it may cause a machine

■ When using external dynamic brake

- Note 1) Make the electromagnetic contactor (MC2) the same as the electromagnetic contactor (MC1) of the main circuit.
- Note 2) Provide an auxiliary contact, and configure protection so that the servo will not turn on in the external sequence if the main contact is welded.
- Note 3) Mount the dynamic brake resistor on incombustible material such as metal.
- Note 4) Install a thermal protector on the dynamic brake resistor and monitor it with the upper I / O, and configure protection so that the servo is not turned on in the external sequence when the thermal protector is operating.
- Note 5) If the upper I / O cannot monitor the thermal protector, input the output of the thermal protector between L2C and DB2 so that the dynamic brake does not operate when the temperature protection works.

■ About motor wiring

Note 6) This is the terminal symbol of the connector. () Is the terminal symbol of 22.0 kW motor.

Do not use built-in dynamic brake and external dynamic brake at the

Frame No.	Short bar	Built-in regenerative	Connection of terminal block	⚠ Do not connect anything to N.
	(Accessory)	resistor	In case of using an external regenerative resistor	In case of not using an external regenerative resistor
H-frame	H-frame without without		• Connect an external regenerative resistor between P-B.	Always open between P-B.

^{*} Refer to P.308, Specifications of Motor connector.

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.

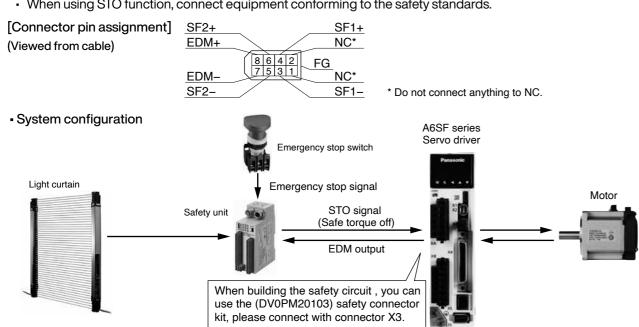
Outline Description of Safe Torque Off (STO)

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 STO state. When the driver becomes STO state, front panel displays the "St.". Then, when the driver's state is STO input is off and servo-on input is off, the driver automatically becomes servo-off.

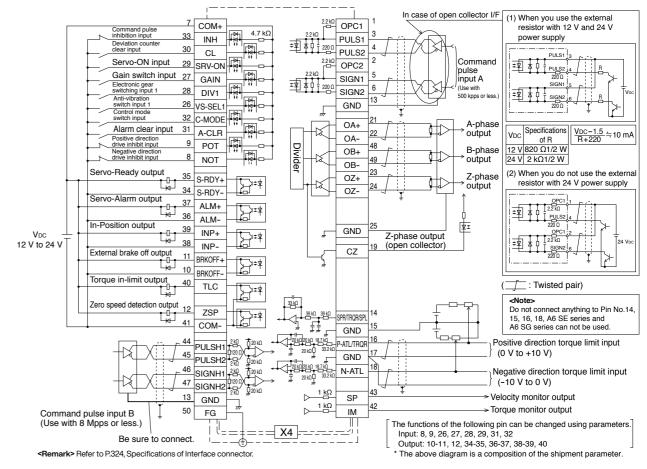
Safety Precautions

- 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
 - 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
- 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
- When using STO function, connect equipment conforming to the safety standards.



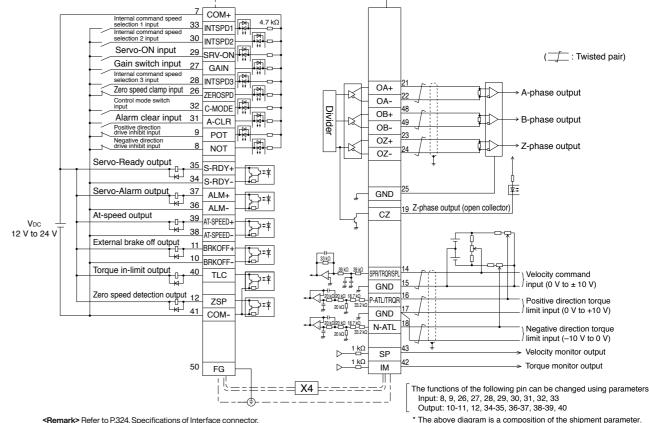
Wiring Example of Position Control Mode

Wiring to the Connector, X4



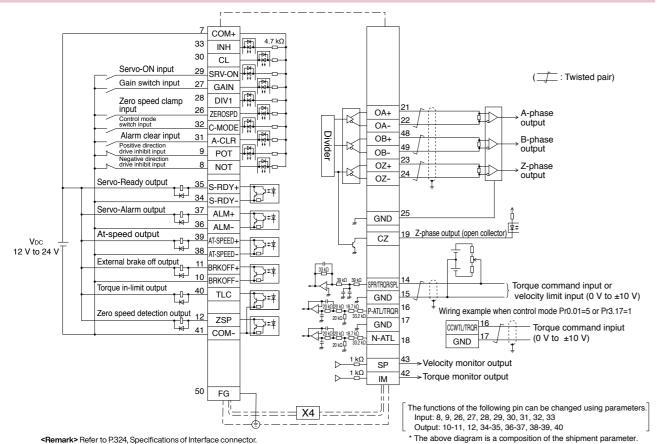
Wiring Example of Velocity Control Mode

* Internal velocity command is available only for A6SE and A6SG series



<Remark> Refer to P.324, Specifications of Interface connector

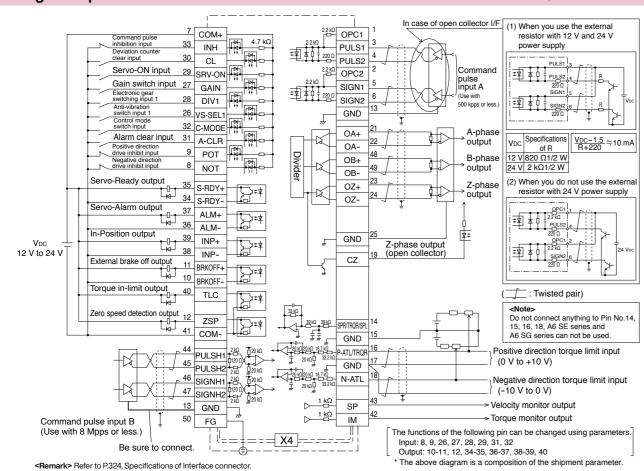
Wiring Example of Torque Control Mode * Excluding A6SE, A6SG Series



Wiring to the Connector, X4

Wiring Example of Full-closed Control Mode

* Excluding A6SE, A6SG Series

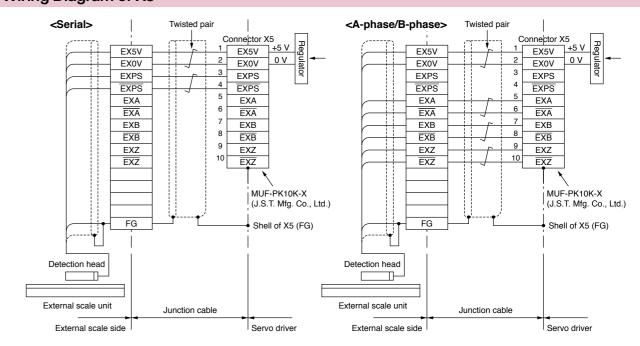


Applicable External Scale

Scale Type	Partner	Series	Resolution*1 [µm]	Max. rate*1 [m/s]
Parallel Type (A/B/Z phase)	General	_		d after4× multiplication : 4 Mpps
		SL700-PL101RP/RHP SL710-PL101RP/RHP	0.1	10
Serial	Magnescale Co., Ltd.	SR75/SR85	0.01 to 1	3.3
communication	· ·	BF1	0.001/0.01	0.4/1.8
(Incremental)		SQ10	0.05/0.1/0.5/1	3
	NIDEC MACHINE TOOL CORPORATION	MPLIN	0.1	30
	Nidec Sankyo Corporation	PSLH041+PSLG	0.1	6
		S3BP/G3BP	0.01/0.05	3
		LAP	0.01/0.05	3
	FAGOR AUTOMATION	EXA/ EXG/ EXT	0.01/0.05	8
		H2AP-D200/H2AP-D90	29 bit/23 bit	750 r/min/1500 r/min
		S2AP-D90	23 bit	1500 rpm
		LIC 2197P/LIC 2199P	0.05/0.1	10
		LIC 4193P/LIC 4195P LIC 4197P/LIC 4199P	0.001/0.005/0.01	10
	LIEIDENILIAINI	LC 195P/LC 495P	0.001/0.01	3
0	HEIDENHAIN	ECA 4490P	27 bits to 29 bits	7000 r/min~550 r/min (Depends on drum size)
Serial communication (Absolute)		RCN 2x90P/RCN 5x90P	26 bits/28 bits	1500 r/min
		RCN 8x90P	29 bit	500 r/min
	Magnescale Co.,Ltd.	SR77/SR87	0.01 to 1	3.3
		AT573-SC/H	0.05	2.5
	Mitutoyo Corporation	ST700	0.1	5
		ST1300	0.001/0.01	8
	NIDEC MACHINE TOOL CORPORATION	MPZA/MPRZ	23 bits	10000 r/min, 5000 r/min
			0.001	4
	Renishaw plc	RESOLUTE	0.05	100
			0.1	100
	RSF Electronik	MC 15P MP/MC 15P MK	0.05/0.1	10
	DOF EIECTIONIK	MCR 15P	22 bits~25 bits	_

^{*1} The maximum speed is a characteristic of the driver. It is limited by the configration of the machine and the system.

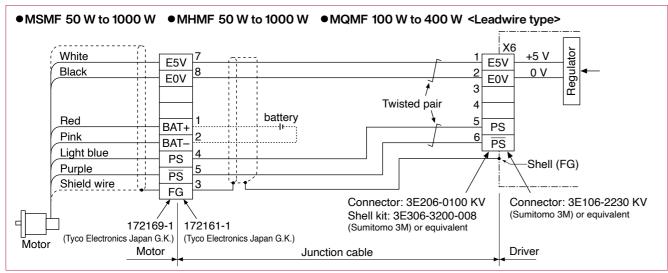
Wiring Diagram of X5

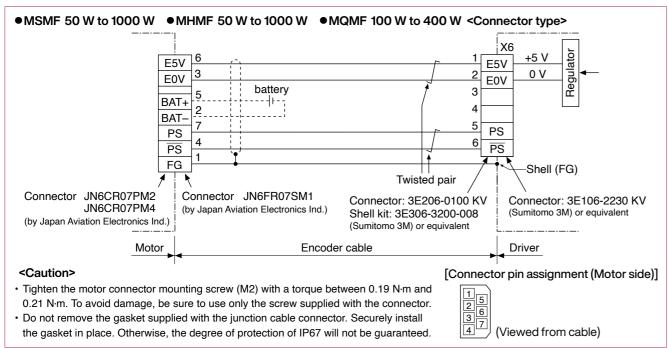


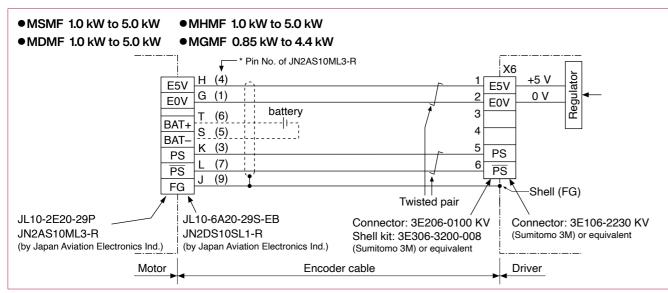
^{*} For more information about the external scale product, please contact the manufacturer.

When using a 23-bit absolute encoder as an absolute system*.

* When use a multi-turn data.



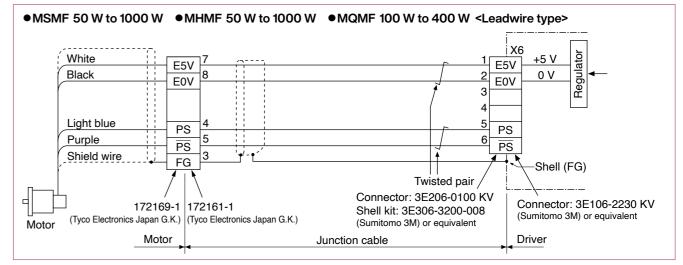


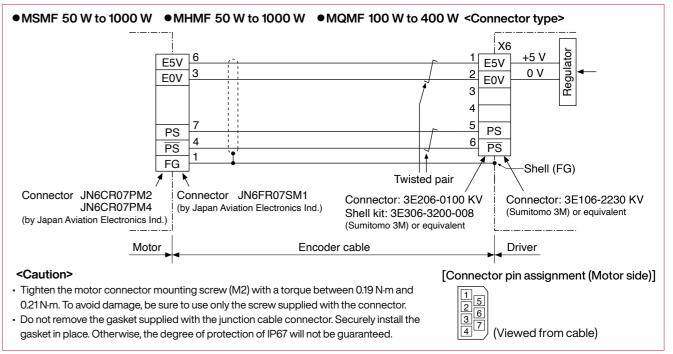


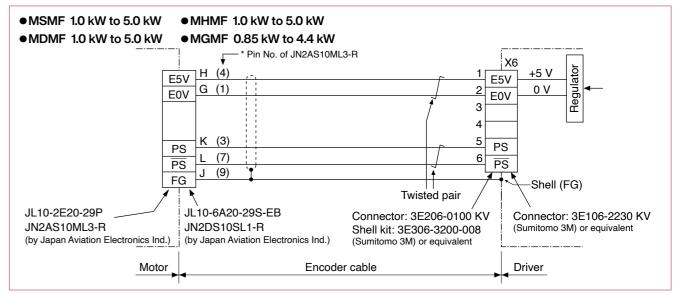
[Connector pin assignment] Refer to P.307, P.308 "Specifications of Motor connector".

When using a 23-bit absolute encoder as a incremental system*.

* When do not use a multi-turn data.







[Connector pin assignment] Refer to P.307, P.308 "Specifications of Motor connector".

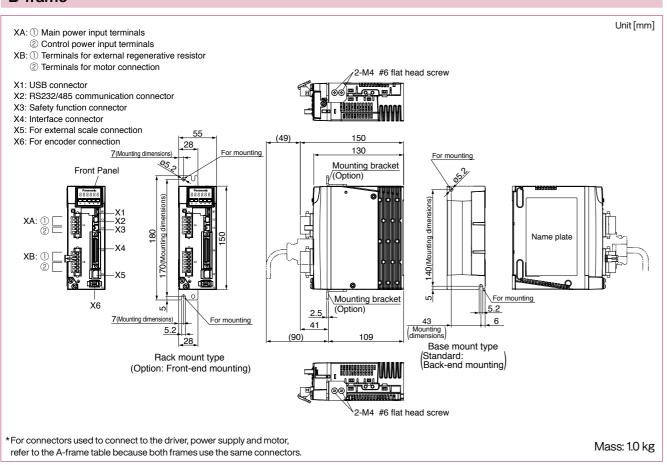
A6N Series

A-frame Unit [mm] 2-M4 #6 flat head screw X1: USB connector X2: RS232/485 communication connector X3: Safety function connector X4: Interface connector X5: For external scale connection X6: For encoder connection 130 For mounting Mounting bracket Main power input terminals -X2 Control power -X3 input terminal Terminals for external Terminals for motor connection Mounting bracket \For mounting 7(Mounting dimensions) 5.2 Base mount type Standard: Rack mount type (Option: Front-end mounting) 2-M4 #6 flat head screw A-frame: Connector of driver side S05B-F32SK-GGXR J.S.T. Mfg. Co., Ltd. S06B-F32SK-GGXR J.S.T. Mfg. Co., Ltd. UB-M5BR-DMP14-4S (or equivalent) J.S.T. Mfg. Co., Ltd. Connector XB S06B-F32SK-GGXR Connector X2 1-2040537-1 (or equivalent) Tyco Electronics Japan G.k Connector X3 2040537-1 (or equivalent) Tyco Electronics Japan G.K Connector X4 10250-52A2PE (or equivalent) Connector X5 MUF-RS10DK-GKXR (or equivalent) J.S.T. Mfg. Co., Ltd Connector X6 3E106-2230 KV (or equivalent) <Attached to the driver> Connector of power and motor side Connector XA 05JFAT-SAX-GGKK-A J.S.T. Mfg. Co., Ltd. Mass: 0.8 kg Connector XB 06JFAT-SAX-GGKK-A J.S.T. Mfg. Co., Ltd.

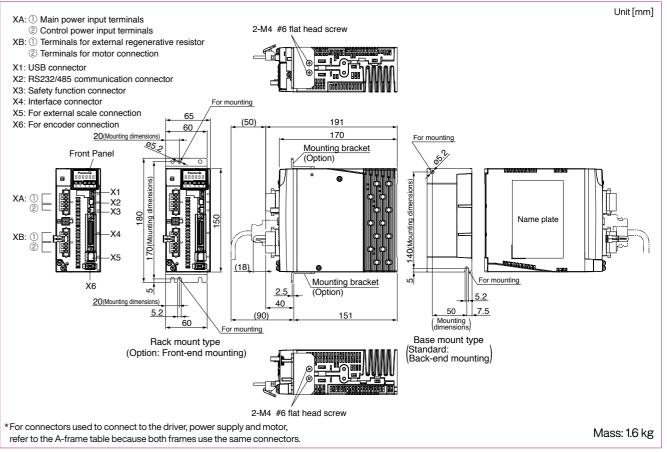
* All dimensions shown in this catalog are for A6SF series. But external dimensions are also same for

A6SE and A6SG series. For external appearance, please refer to P.23 and P.24.

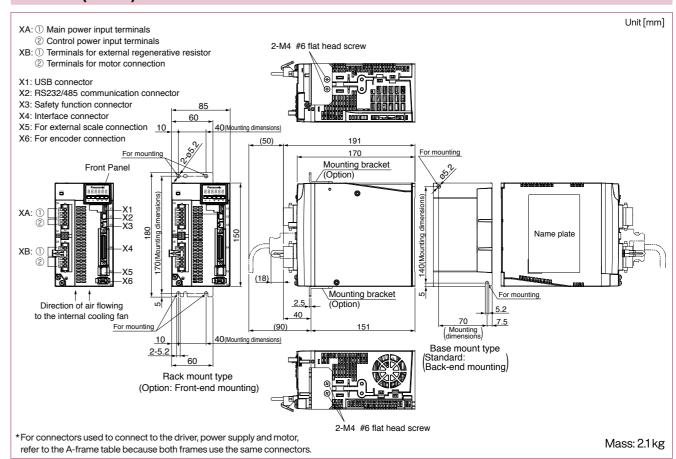
B-frame



C-frame

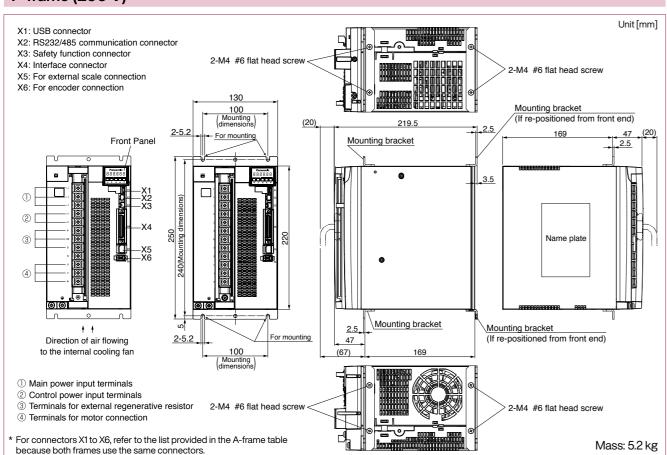


D-frame (200 V)

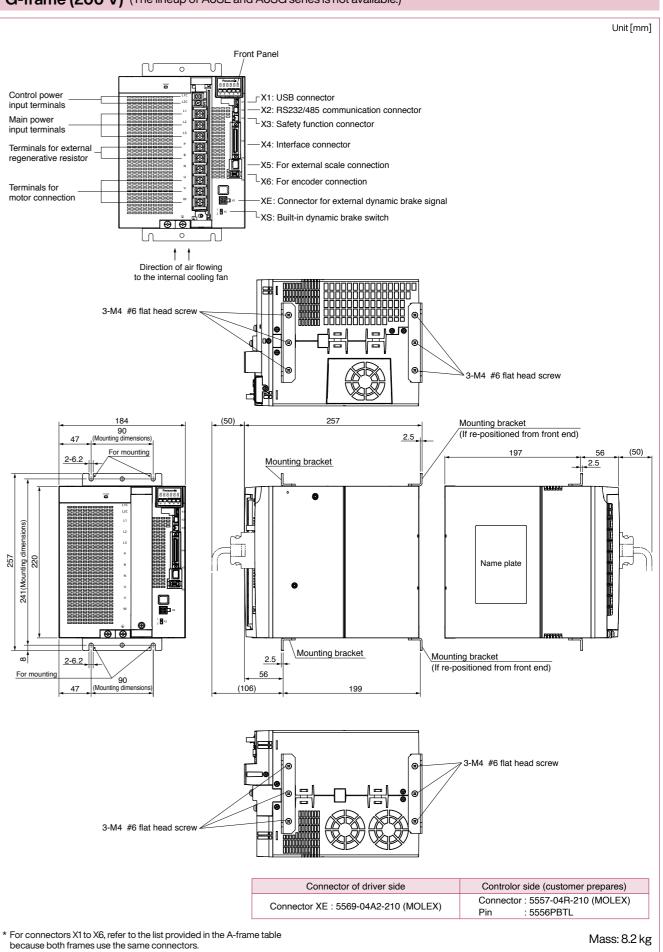


* All dimensions shown in this catalog are for A6SF series. But external dimensions are also same for A6SE and A6SG series. For external appearance, please refer to P.23 and P.24.

F-frame (200 V)



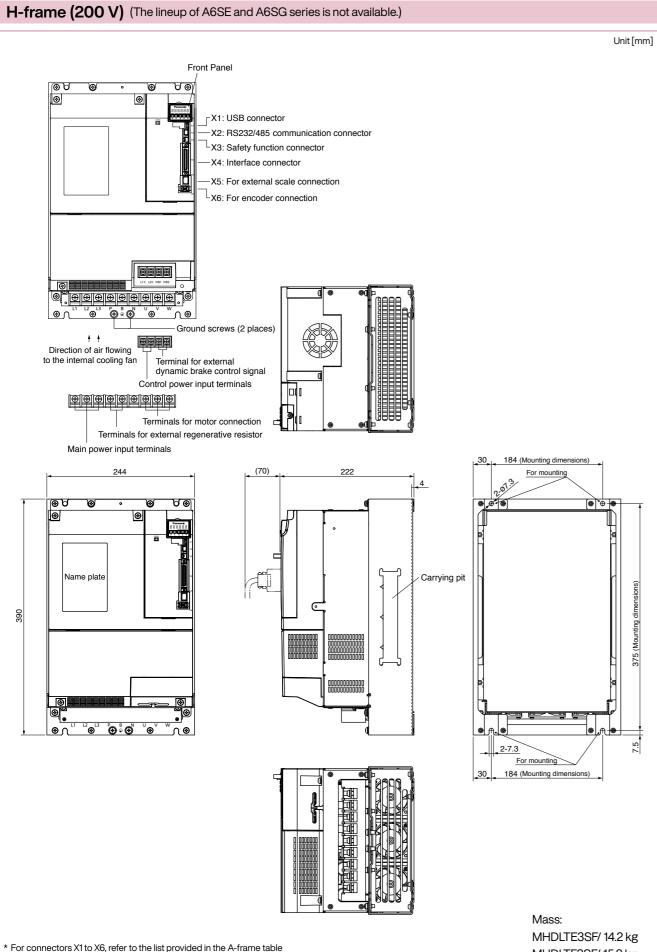
G-frame (200 V) (The lineup of A6SE and A6SG series is not available.)



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A6B Series
Special Order Produc

.. P.293



Features

Features/Lineup

- Line-up IP67 motor: 50 W to 5.0 kW
- Max speed: 6500r/min (MHMF 50 W to 400 W)
- · Low inertia (MSMF) to High inertia (MHMF).
- Low cogging torque: Rated torque ratio 0.5 % (typical value).
- 23-bit absolute encoder (8388608 pulse).

Motor Lineup

ō

mm sq.

or more

100 mm sq.

MHDLTF3SF/15.2 kg



MSMF Low inertia

Max. speed : 6000 r/min Rated speed: 3000 r/min Rated output

50 W to 1000 W Enclosure: IP65: Leadwire type IP67: Connector type



(Flat type) Middle inertia

Max. speed : 6500 r/min Rated speed: 3000 r/min Rated output: 100 W to 400 W

Enclosure: IP65: Leadwire type IP67: Connector type



MHME High inertia

Max. speed : 6500 r/min 6000 r/min (750 W,1000 W) Rated speed: 3000 r/min Rated output: 50 W to 1000 W Enclosure:

IP65: Leadwire type IP67: Connector type



MSMF Low inertia

Max. speed : 5000 r/min 4500 r/min (4.0 kW,5.0 kW)

Rated speed: 3000 r/min Rated output: 1.0 kW to 5.0 kW

Enclosure



Middle inertia Max. speed : 3000 r/min

: 2000 r/min (11.0 kW to 22.0 kW)

Rated speed: 2000 r/min

: 1500 r/min (11.0 kW to 22.0 kW)

Rated output: 1.0 kW to 22.0 kW Enclosure : IP67, IP44 (22.0 kW)



(Low speed/ High torque type) Middle inertia

Max. speed : 3000 r/min Rated speed: 1500 r/min Rated output: 0.85 kW to 5.5 kW

Enclosure : IP67



High inertia

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

: 1500 r/min (7.5 kW) Rated output: 1.0 kW to 7.5 kW

Motor Contents

MSMF 50 W to 5.0 kWP.63

MQMF

100 W to 400 W...

MHMF 50 W to 7.5 kWP.85

MDMF

1.0 kW to 22.0 kW P.102

MGMF

0.85 kW to 5.5 kWP.112

Dimensions

MSMF (50 W to 1000 W). (1.0 kW to 5.0 kW)... .. P.127

MQMF (100 W to 400 W)...

MHME

(50 W to 1000 W).

(1.0 kW to 7.5 kW). **MDMF** (1.0 kW to 22.0 kW)....

MGMF (0.85 kW to 5.5 kW)...

Special Order Product P.203

Motors with Gear Reducer

Motor Specification Description

Environmental Conditions...... P.303 Notes on [Motor specification] page..... Permissible Load at Output Shaft..... ..P.304

Built-in Holding BrakeP.305

Enclosure : IP67

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because both frames use the same connectors.

Specifications

				AC100 V
Motor model*	1	MSMF5AZL1		
		Multi	function type	MADLT01SF
Applicable	Model No.	RS48	5 communication type *2	MADLN01SG
driver		Basic	type *2	MADLN01SE
	Frame	e sym	bol	A-frame
Power supply	capacit	/	(kVA)	0.4
Rated output			(W)	50
Rated torque			(N·m)	0.16
Continuous st	all torqu	е	(N·m)	0.16
Momentary M	ax. peal	c torqu	ue (N·m)	0.48
Rated current			(A(rms))	1.1
Max. current			(A(o-p))	4.7
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4280	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	6000
Moment of ine	ertia		Without brake	0.026
of rotor (×10 ⁻⁴ kg·m ²)		With brake	0.029	
Recommended moment of ratio of the load and the rote				30 times or less
Rotary encod	er speci	icatio	ns*3	23-bit Absolute
	Res	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

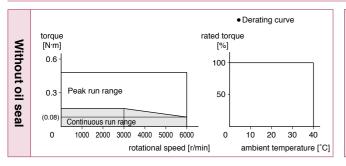
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

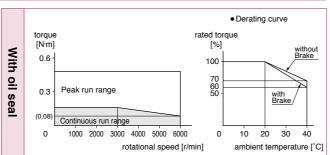
• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88.0
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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications		without brake		with brake				
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.119		_	P.119		_		
Connector type (IP67)	P.119		_	P.120		_		

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

Specifications

200 V MSMF 50 W [Low inertia 38 mm sq.] IP65

					AC200 V		
Motor model	1	MSMF5AZL1					
			function type		MADLT05SF		
Applicable	Model No.	RS48	5 communication ty	pe *2	MADLN05SG		
driver	140.	Basic	type *2		MADLN05SE		
	Fram	e sym	bol		A-frame		
Power supply	capacit	у	(k'	VA)	0.5		
Rated output			((W)	50		
Rated torque			(N	·m)	0.16		
Continuous st	tall torqu	ie	(N	·m)	0.16		
Momentary M	lax. peal	k torqı	ue (N	·m)	0.48		
Rated current	:		(A(rm	(A(rms)) 1.1			
Max. current			(A(o	-p))	4.7		
Regenerative	brake		Without option		No limit Note)2		
frequency (tim	es/min)	Note)1	DV0P4281		No limit Note)2		
Rated rotation	nal spee	d	(r/min)		3000		
Max. rotationa	al speed		(r/n	nin)	6000		
Moment of ine	ertia		Without brake		0.026		
of rotor (×10 ⁻⁴ kg·m ²)			With brake		0.029		
Recommended moment of inertia ratio of the load and the rotor				ote)3	30 times or less		
Rotary encod	er speci	ficatio	ns*3		23-bit Absolute		
	Re	solutio	on per single turr	ı	8388608		

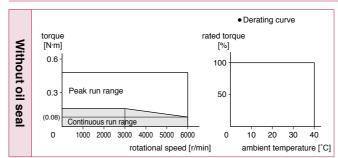
• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

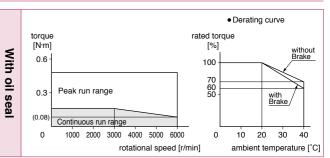
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88.0
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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifica	ations	without brake			with brake			
·		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Leadwire type ((IP65)	P.119		_	P.119		_	
Connector type	(IP67)	P.119		_	P.1	20	_	

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

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A6B Series

Series

Specifications

				AC100 V
Motor model *1	I			MSMF011L1□□
		Multi	function type	MADLT11SF
Applicable	Model No	RS48	5 communication type *2	MADLN11SG
driver		Basic	type *2	MADLN11SE
	Frame	e sym	bol	A-frame
Power supply	capacit	/	(kVA)	0.4
Rated output			(W)	100
Rated torque			(N·m)	0.32
Continuous stall torque (N·m				0.32
Momentary M	ax. peal	c torqu	ue (N·m)	0.95
Rated current			(A(rms))	1.6
Max. current			(A(o-p))	6.9
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4280	No limit Note)2
Rated rotation	al spee	d	(r/min)	3000
Max. rotationa	ıl speed		(r/min)	6000
Moment of ine	ertia		Without brake	0.048
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.051
Recommended moment of ratio of the load and the rot				30 times or less
Rotary encode	er speci	icatio	ns ^{*3}	23-bit Absolute
	Res	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

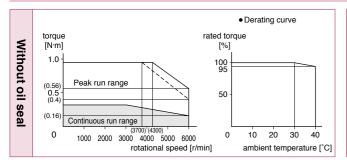
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

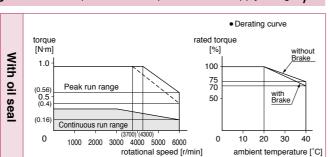
• Permissible load (For details, refer to P.304)

. •		,
	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88.0
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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications		without brake		with brake				
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.1	20	_	P.1	20	_		
Connector type (IP67)	P.121		_	P.121		_		

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

Specifications

					AC200 V
Motor model *1				MSMF012L1	
			function type		MADLT05SF
Applicable	Model No.	RS48	RS485 communication type *2		MADLN05SG
driver	140.	Basic	c type *2		MADLN05SE
	Fram	e sym	bol		A-frame
Power supply	capacit	y	(k\	VA)	0.5
Rated output			((W)	100
Rated torque			(N	·m)	0.32
Continuous st	tall torqu	ie	(N	·m)	0.32
Momentary M	lax. peal	k torqı	ue (N	·m)	0.95
Rated current	:		(A(rm	ıs))	1.1
Max. current			(A(o-	-p))	4.7
Regenerative	brake		Without option		No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4281		No limit Note)2
Rated rotation	nal spee	d	(r/m	nin)	3000
Max. rotationa	al speed		(r/m	nin)	6000
Moment of ine	ertia		Without brake		0.048
of rotor (×10 ⁻⁴	¹ kg·m²)		With brake		0.051
Recommended moment of inertia ratio of the load and the rotor				ote)3	30 times or less
Rotary encod	er speci	ficatio	ns*3		23-bit Absolute
	Re	solutio	on per single turn	1	8388608

200 V MSMF 100 W [Low inertia 38 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

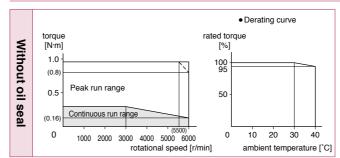
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

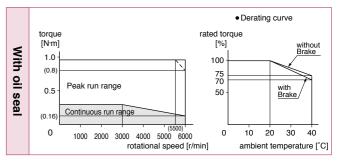
• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88.0
accombiy	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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft						
Motor specifications	without brake			with brake			
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Leadwire type (IP65)	P.120		_	P.120		_	
Connector type (IP67)	P.121		_	P.121		_	

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

A6N Series

Specifications

				AC100 V	
Motor model	1			MSMF021L1	
		Multi	function type	MBDLT21SF	
Applicable	Model No	RS48	5 communication type *2	MBDLN21SG	
driver		Basic	type *2	MBDLN21SE	
	Frame	e sym	bol	B-frame	
Power supply	capacity	/	(kVA)	0.5	
Rated output			(W)	200	
Rated torque	ie (N·m)			0.64	
Continuous st	tall torqu	l torque (N·m)		0.64	
Momentary M	lax. peal	c torqu	ue (N·m)	1.91	
Rated current			(A(rms))	2.5	
Max. current			(A(o-p))	10.6	
Regenerative	brake		Without option	No limit Note)2	
frequency (tim	es/min)	Note)1	DV0P4283	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	3000	
Max. rotation	al speed		(r/min)	6000	
Moment of ine	ertia		Without brake	0.14	
of rotor (×10 ⁻⁴	¹ kg·m²)		With brake	0.17	
Recommended moment of incratio of the load and the rotor				30 times or less	
Rotary encod	er specif	icatio	ns ^{*3}	23-bit Absolute	
Resolution per single turn			8388608		

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

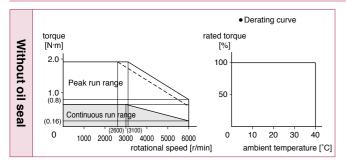
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

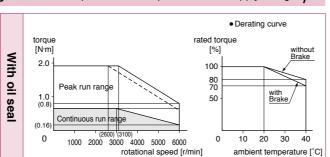
• Permissible load (For details, refer to P.304)

	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)	98.0

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications		without brake		with brake				
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.1	21	_	P.1	22	_		
Connector type (IP67)	P.122		_	P.122		_		

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

Specifications

				AC200 V
Motor model*	1	MSMF022L1		
			function type	MADLT15SF
Applicable	Model No	RS48	5 communication type *	MADLN15SG
driver	140.	Basic	type *2	MADLN15SE
	Fram	e sym	bol	A-frame
Power supply	capacit	у	(kVA)	0.5
Rated output			(W)	200
Rated torque			(N·m)	0.64
Continuous st	all torqu	ie	(N·m)	0.64
Momentary M	ax. pea	k torqı	ue (N·m)	1.91
Rated current			(A(rms))	1.5
Max. current			(A(o-p))	6.5
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4283	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	6000
Moment of ine	ertia		Without brake	0.14
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.17
Recommended moment of inertia ratio of the load and the rotor				30 times or less
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	n per single turn	8388608

200 V MSMF 200 W [Low inertia 60 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

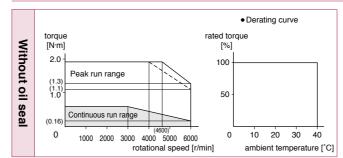
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

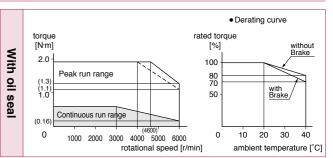
• Permissible load (For details, refer to P.304)

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)	98.0

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





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Dimensions

	Round shaft/ Key way, center tap shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Leadwire type (IP65)	P.1	P.121		P.122		_	
Connector type (IP67)	P.122		_	P.122		_	

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

A6N Series

A6B Series

Specifications

				AC100 V
Motor model*1			MSMF041L1□□	
		ultifunction	type	MCDLT31SF
Applicable	Model R	S485 commu	nication type *2	MCDLN31SG
driver		asic type *2		MCDLN31SE
	Frame s	ymbol		C-frame
Power supply	capacity		(kVA)	0.9
Rated output			(W)	400
Rated torque			(N·m)	1.27
Continuous sta	all torque		(N·m)	1.27
Momentary Ma	ax. peak to	orque	(N·m)	3.82
Rated current	Rated current		(A(rms))	4.6
Max. current		(A(o-p))		19.5
Regenerative	brake	Witho	ut option	No limit Note)2
frequency (time	es/min) Not	e)1 DV0P4282		No limit Note)2
Rated rotation	al speed		(r/min)	3000
Max. rotationa	l speed		(r/min)	6000
Moment of ine	rtia	Witho	ut brake	0.27
of rotor ($\times 10^{-4}$	kg·m²)	With brake		0.30
Recommender ratio of the loa			Note)3	30 times or less
Rotary encode	er specifica	ations *3		23-bit Absolute
	Resol	ution per si	ngle turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

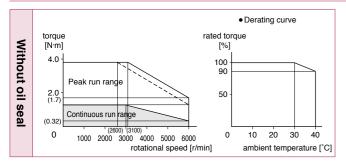
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

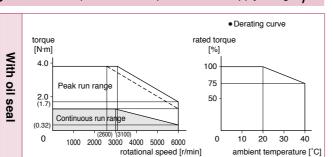
• Permissible load (For details, refer to P.304)

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)	98.0

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

		Round shaft/ Key way, center tap shaft							
	Motor specifications Leadwire type (IP65)		without brake		with brake				
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
		P.123		_	P.123		_		
	Connector type (IP67)	P.123		_	P.124		_		

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

Specifications

				AC200 V
Motor model*	ı	MSMF042L1		
	Multifunction type			MBDLT25SF
Applicable	Model No	RS48	5 communication type *2	MBDLN25SG
driver	INO.	Basic	type *2	MBDLN25SE
	Fram	e sym	bol	B-frame
Power supply	capacit	у	(kVA)	0.9
Rated output			(W)	400
Rated torque			(N·m)	1.27
Continuous st	all torqu	ie	(N·m)	1.27
Momentary M	ax. pea	k torqı	ue (N·m)	3.82
Rated current			(A(rms))	2.4
Max. current			(A(o-p))	10.2
Regenerative	brake		Without option	No limit Note)2
requency (time	es/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	ertia		Without brake	0.27
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.30
Recommended moment of inertia ratio of the load and the rotor Note)3				30 times or less
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	n per single turn	8388608

200 V MSMF 400 W [Low inertia 60 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

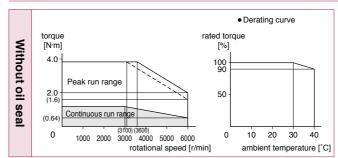
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

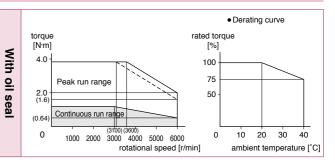
• Permissible load (For details, refer to P.304)

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)	98.0

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft						
Motor specifications		without brake		with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Leadwire type (IP65)	P.1	23	_	P.123		_	
Connector type (IP67)	P.123		_	P.124		_	

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

A6N Series

A6B Series

Specifications

				AC200 V	
Motor model*	I	MSMF082L1□□			
			function type	MCDLT35SF	
Applicable	Model No	RS48	5 communication type *2	MCDLN35SG	
driver		Basic	c type *2	MCDLN35SE	
	Fram	e sym	bol	C-frame	
Power supply	capacit	y	(kVA)	1.8	
Rated output			(W)	750	
Rated torque			(N·m)	2.39	
Continuous st	all torqu	ie	(N·m)	2.39	
Momentary M	ax. peal	k torqı	ue (N·m)	7.16	
Rated current			(A(rms))	4.1	
Max. current			(A(o-p))	17.4	
Regenerative	brake		Without option	No limit Note)2	
frequency (time	es/min)	Note)1	DV0P4283	No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	ıl speed		(r/min)	6000	
Moment of ine	ertia		Without brake	0.96	
of rotor (×10 ⁻⁴	kg·m²)		With brake	1.06	
Recommende ratio of the loa				20 times or less	
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute	
	Re	solutio	on per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

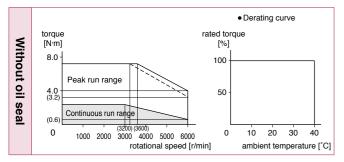
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

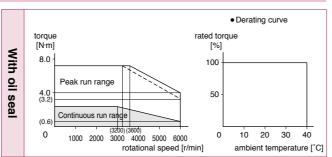
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Motor specifications	Round shaft/ Key way, center tap shaft							
			without brake		with brake				
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Leadwire type (IP65)	P.124		_	P.1	24	_		
	Connector type (IP67)	P.125		_	P.125		_		

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

Specifications

				AC200 V
Motor model*	1	MSMF092L1□□		
		Multi	function type	MDDLT45SF
Applicable	Model No.	RS48	5 communication type	MDDLN45SG
driver	110.	Basic	type *2	MDDLN45SE
	Fram	e sym	bol	D-frame
Power supply	capacit	у	(kVA	2.4
Rated output			(W	1000
Rated torque			(N·m	3.18
Continuous st	all torqu	ie	(N·m	3.18
Momentary M	ax. peal	k torqu	ue (N·m	9.55
Rated current			(A(rms)	5.7
Max. current			(A(o-p)	24.2
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4284	No limit Note)2
Rated rotation	nal spee	d	(r/min	3000
Max. rotationa	al speed		(r/min	6000
Moment of ine	ertia		Without brake	1.26
of rotor (×10 ⁻⁴	kg·m²)		With brake	1.36
Recommended moment of inertia ratio of the load and the rotor				15 times or less
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

200 V MSMF 1000 W [Low inertia 80 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

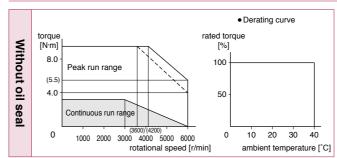
Static friction torque (N·m)	3.80 or more		
Engaging time (ms)	70 or less		
Releasing time (ms) Note)4	20 or less		
Exciting current (DC) (A)	0.42		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±2.4		

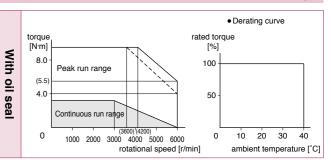
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

Motor specifications	Round shaft/ Key way, center tap shaft							
		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.125		_	P.126		_		
Connector type (IP67)	P.126		_	P.126		_		

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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		
Motor model*1		MSMF102L1□□		
		Multi	function type	MDDLT55SF
Applicable	Model No.	RS48	5 communication type *2	MDDLN55SG
driver		Basic	type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	у	(kVA)	2.4
Rated output			(W)	1000
Rated torque (N·m)				3.18
Continuous st	all torqu	3.82		
Momentary M	ax. pea	k torqu	ue (N·m)	9.55
Rated current			(A(rms))	6.6
Max. current			(A(o-p))	28
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/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	2.15
of rotor (×10 ⁻⁴	kg·m²)		With brake	2.47
Recommended moment of in ratio of the load and the roto				15 times or less
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

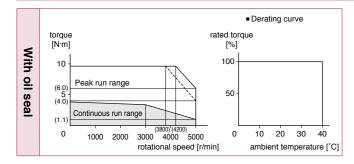
Static friction torque (N·m)	8.0 or more		
Engaging time (ms)	50 or less		
Releasing time (ms) Note)4	15 or less		
Exciting current (DC) (A)	0.81		
Releasing voltage (DC) (V)	2 or more		
Exciting voltage (DC) (V)	24±2.4		

• Permissible load (For details, refer to P.304)

	·	•
	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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications		Key way shaft/ Round shaft							
		without brake		with brake					
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal			
Encoder connector Large size (JL10) typ	е	P.	P.127		P.127				
Encoder connector Small size (JN2) type		P.127		_	P.128				

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

Specifications

					AC200 V
Motor model	1	MSMF152L1□□			
			function type		MDDLT55SF
Applicable	Model No	RS48	5 communication ty	pe *2	MDDLN55SG
driver	110.	Basic	type *2		MDDLN55SE
	Fram	e sym	bol		D-frame
Power supply	capacit	y	(k)	VA)	2.9
Rated output			(W)	1500
Rated torque			(N	·m)	4.77
Continuous s	tall torqu	ie	(N	·m)	5.72
Momentary N	1ax. pea	k torqı	ue (N	·m)	14.3
Rated current			(A(rm	(A(rms)) 8.2	
Max. current			(A(o-	p))	35
Regenerative brake W		Without option		No limit Note)2	
frequency (times/min) Note)1		DV0P4284		No limit Note)2	
Rated rotatio	nal spee	d	(r/m	nin)	3000
Max. rotation	al speed		(r/m	nin)	5000
Moment of in	ertia		Without brake		3.10
of rotor (×10 ⁻⁴ kg·m ²) With			With brake		3.45
Recommenderatio of the lo			ote)3	15 times or less	
Rotary encod	ler speci	ficatio	ns*3		23-bit Absolute
	Re	solutio	n per single turn	1	8388608

200 V MSMF 1.5 kW [Low inertia 100 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

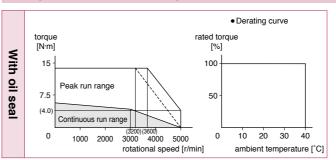
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft						
	without brake			with brake			
,	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.128		_	P.128		
Encoder connector Small size (JN2) type	_	P.129		_	P.129		

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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		
Motor model*1		MSMF202L1□□		
		Multi	function type	MEDLT83SF
Applicable	Model No.	RS48	5 communication type *2	MEDLN83SG
driver		Basic	type *2	MEDLN83SE
	Frame	sym	bol	E-frame
Power supply	capacity	,	(kVA)	3.8
Rated output			(W)	2000
Rated torque		6.37		
Continuous stall torque (N·m)				7.64
Momentary M	ax. peak	19.1		
Rated current (A(rms)			(A(rms))	11.3
Max. current (A(o-p))			48	
Regenerative brake		Without option	No limit Note)2	
frequency (times/min) Note)1		DV0P4285	No limit Note)2	
Rated rotation	al speed	t	(r/min)	3000
Max. rotationa	al speed		(r/min)	5000
Moment of ine	ertia		Without brake	4.06
of rotor (×10 ⁻⁴ kg·m ²)			With brake	4.41
Recommended moment of inertia ratio of the load and the rotor				15 times or less
Rotary encode	er specif	icatio	ns*³	23-bit Absolute
	Res	olutic	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

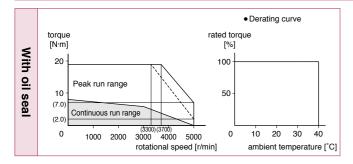
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	,	,
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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft							
		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Encoder connector Large size (JL10) type	_	P.129		_	P.130			
Encoder connector Small size (JN2) type	_	P.130		_	P.130			

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

Specifications

				AC200 V
Motor model*1		MSMF302L1□□		
Applicable		Multi	function type	MFDLTA3SF
	Model No.	RS48	5 communication type *2	MFDLNA3SG
driver	110.	Basic	type *2	MFDLNA3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	5.2
Rated output			(W)	3000
Rated torque			(N·m)	9.55
Continuous stall torque (N·m)				11.0
Momentary Max. peak torque (N·m)				28.6
Rated current			(A(rms))	18.1
Max. current			(A(o-p))	77
Regenerative brake Wit		Without option	No limit Note)2	
frequency (times/min) Note)1		DV0P4285×2	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	5000
Moment of ine	ertia		Without brake	7.04
of rotor (×10 ⁻⁴ kg·m ²)			With brake	7.38
Recommended moment of inertia ratio of the load and the rotor Note)3				15 times or less
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on per single turn	8388608

200 V MSMF 3.0 kW [Low inertia 120 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

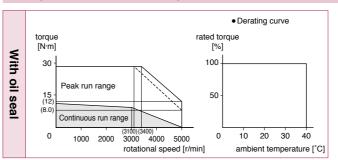
Static friction torque (N·m)	12.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft						
	without brake			with brake			
γ	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.131		_	P.131		
Encoder connector Small size (JN2) type	_	P.131		_	P.132		

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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		
Motor model *1	ı	MSMF402L1□□		
		Multi	function type	MFDLTB3SF
Applicable	Model No.	RS48	5 communication type *2	MFDLNB3SG
driver		Basic	type *2	MFDLNB3SE
	Frame	e sym	bol	F-frame
Power supply	capacity	/	(kVA)	6.5
Rated output			(W)	4000
Rated torque			(N·m)	12.7
Continuous stall torque (N·m)				15.2
Momentary M	ax. peal	c torqu	ue (N·m)	38.2
Rated current			(A(rms))	19.6
Max. current	Max. current (A(o-p))			83
Regenerative brake			Without option	No limit Note)2
frequency (time	es/min) I	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	4500
Moment of ine	ertia		Without brake	14.4
of rotor (×10 ⁻⁴	kg·m²)		With brake	15.6
Recommended moment of inertia ratio of the load and the rotor Note)3				15 times or less
Rotary encode	er specif	icatio	ns*3	23-bit Absolute
	Res	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

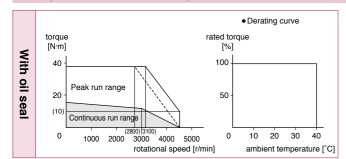
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	,	,
	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)	784
	Thrust load A, B-direction (N)	343

- For details of Note)1 to Note)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft							
		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Encoder connector Large size (JL10) type	_	P.132		_	P.132			
Encoder connector Small size (JN2) type	_	P.133		_	P.133			

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

Specifications

				AC200 V	
Motor model*	I	MSMF502L1□□			
		Multi	function type	MFDLTB3SF	
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG	
driver		Basic	type *2	MFDLNB3SE	
	Fram	e sym	bol	F-frame	
Power supply	capacit	y	(kVA)	7.8	
Rated output			(W)	5000	
Rated torque			(N·m)	15.9	
Continuous st	all torqu	ie	(N·m)	19.1	
Momentary M	ax. pea	k torqu	ue (N·m)	47.7	
Rated current			(A(rms))	24.0	
Max. current			(A(o-p))	102	
Regenerative	brake		Without option	No limit Note)2	
frequency (tim	es/min)	Note)1	DV0P4285×2	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	3000	
Max. rotationa	al speed		(r/min)	4500	
Moment of inc	ertia		Without brake	19.0	
of rotor (×10 ⁻⁴	kg·m²)		With brake	20.2	
Recommender ratio of the load		15 times or less			
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute	
	Re	solutio	n per single turn	8388608	

200 V MSMF 5.0 kW [Low inertia 130 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

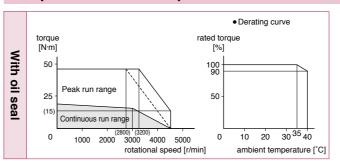
Static friction torque (N·m)	22.0 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	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)	784
	Thrust load A, B-direction (N)	343

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.133		_	P.134		
Encoder connector Small size (JN2) type	_	P.134		_	P.1	134	

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

				AC100 V	
Motor model	1	MQMF011L1			
			function type	MADLT11SF	
Applicable	Model No	RS48	5 communication type *2	MADLN11SG	
driver	110.	Basic	type *2	MADLN11SE	
	Fram	e sym	bol	A-frame	
Power supply	capacit	у	(kVA)	0.4	
Rated output			(W)	100	
Rated torque			(N·m)	0.32	
Continuous s	tall torqu	ıe	(N·m)	0.33	
Momentary M	1ax. pea	k torqı	ue (N·m)	1.11	
Rated current			(A(rms))	1.6	
Max. current			(A(o-p))	7.9	
Regenerative	brake		Without option	No limit Note)2	
frequency (tim	nes/min)	Note)1	DV0P4280	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	3000	
Max. rotation	al speed	l	(r/min)	6500	
Moment of in	ertia		Without brake	0.15	
of rotor (×10	4 kg·m²)		With brake	0.18	
Recommended moment of inertia ratio of the load and the rotor Note)3				20 times or less	
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute	
	Re	solutio	n per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

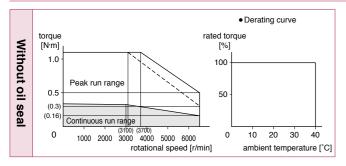
Static friction torque (N·m)	0.39 or more
Engaging time (ms)	15 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

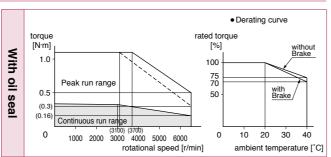
• Permissible load (For details, refer to P.304)

	,	•
	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88
assembly	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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

Motor specifications	Round shaft/ Key way, center tap shaft								
		without brake		with brake					
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal			
Leadwire type (IP65)	P.135	P.135	P.135	P.136	P.136	P.136			
Connector type (IP67)	P.137	P.137	P.137	P.138	P.138	P.138			

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

Specifications

					AC200 V
Motor model	1		MQMF012L1		
			function type		MADLT05SF
Applicable	Model No	RS48	5 communication type	e *2	MADLN05SG
driver	140.	Basic	type *2		MADLN05SE
	Fram	e sym	bol		A-frame
Power supply	capacit	у	(kV/	۹)	0.5
Rated output			(V	V)	100
Rated torque			(N·n	n)	0.32
Continuous stall torque (N·m)					0.33
Momentary M	ax. pea	k torqı	ıe (N·n	(N·m) 1.11	
Rated current			(A(rms	(A(rms)) 1.1	
Max. current			(A(o-p	(A(o-p))	
Regenerative	brake		Without option		No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4281		No limit Note)2
Rated rotation	nal spee	d	(r/mii	n)	3000
Max. rotationa	al speed		(r/mii	n)	6500
Moment of ine	ertia		Without brake		0.15
of rotor (×10 ⁻⁴	kg·m²)		With brake		0.18
Recommended moment of inertratio of the load and the rotor				e)3	20 times or less
Rotary encod	er speci	ficatio	ns ^{*3}		23-bit Absolute
Resolution per single to					8388608

200 V MQMF 100 W [Middle inertia Flat type 60 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

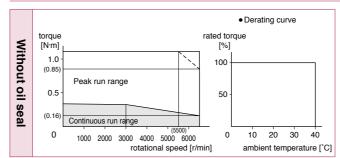
-	•
Static friction torque (N·m)	0.39 or more
Engaging time (ms)	15 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

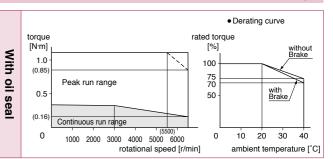
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.135	P.135	P.135	P.136	P.136	P.136		
Connector type (IP67)	P.137	P.137	P.137	P.138	P.138	P.138		

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

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A6N Series

A6N Series

A6B Series

				AC100 V
Motor model	1	MQMF021L1		
		Multi	function type	MBDLT21SF
Applicable	Model No.	RS48	5 communication type *2	MBDLN21SG
driver	140.	Basic	type *2	MBDLN21SE
	Fram	e sym	bol	B-frame
Power supply	capacit	у	(kVA)	0.5
Rated output			(W)	200
Rated torque			(N·m)	0.64
Continuous s	tall torqu	ie	(N·m)	0.76
Momentary M	lax. pea	k torqı	ue (N·m)	2.23
Rated current	t		(A(rms))	2.1
Max. current			(A(o-p))	10.4
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4283	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6500
Moment of inc	ertia		Without brake	0.50
of rotor (×10	4 kg·m²)		With brake	0.59
Recommended moment of inertia ratio of the load and the rotor Note)3				20 times or less
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

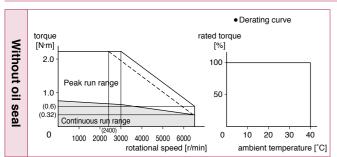
During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

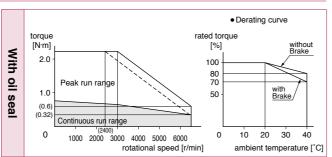
- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

Detail of model designation, refer to P.22.

*3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

		Round shaft/ Key way, center tap shaft								
Motor specifications		without brake		with brake						
	•	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal			
	Leadwire type (IP65)	P.139	P.139	P.139	P.140	P.140	P.140			
	Connector type (IP67)	P.141	P.141	P.141	P.142	P.142	P.142			

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

Specifications

				AC200 V
Motor model	*1	MQMF022L1		
		Multi	function type	MADLT15SF
Applicable	Model No	RS48	5 communication type *2	MADLN15SG
driver	110.	Basic	type *2	MADLN15SE
	Fram	e sym	bol	A-frame
Power supply	/ capacit	y	(kVA)	0.5
Rated output			(W)	200
Rated torque			(N·m)	0.64
Continuous s	tall torqu	ie	(N·m)	0.76
Momentary N	/lax. pea	ue (N·m)	2.23	
Rated curren	t		(A(rms))	1.4
Max. current			(A(o-p))	6.9
Regenerative	brake		Without option	No limit Note)2
frequency (tin	nes/min)	Note)1	DV0P4283	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6500
Moment of in	ertia		Without brake	0.50
of rotor (x10 ⁻⁴ kg·m ²)			With brake	0.59
Recommended moment of ir ratio of the load and the roto				20 times or less
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	n per single turn	8388608

200 V MQMF 200 W [Middle inertia Flat type 80 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

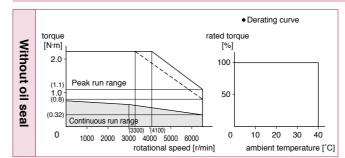
During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

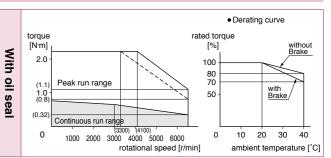
- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

Detail of model designation, refer to P.22.

*3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

Motor specifications	Round shaft/ Key way, center tap shaft							
		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.139	P.139	P.139	P.140	P.140	P.140		
Connector type (IP67)	P.141	P.141	P.141	P.142	P.142	P.142		

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

				AC100 V
Motor model	1	MQMF041L1		
			function type	MCDLT31SF
Applicable	Model No	RS48	5 communication type *2	MCDLN31SG
driver		Basic	type *2	MCDLN31SE
	Fram	e sym	bol	C-frame
Power supply	capacit	у	(kVA)	0.9
Rated output			(W)	400
Rated torque			(N·m)	1.27
Continuous s	tall torqu	ie	(N·m)	1.40
Momentary M	1ax. pea	k torqı	ue (N·m)	4.46
Rated curren	t		(A(rms))	4.1
Max. current			(A(o-p))	20.3
Regenerative	brake		Without option	No limit Note)2
frequency (tim	nes/min)	Note)1	DV0P4282	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6500
Moment of in	ertia		Without brake	0.98
of rotor (×10 ⁻⁴ kg·m²) With brake			With brake	1.06
Recommended moment of inertia ratio of the load and the rotor Note)3				20 times or less
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

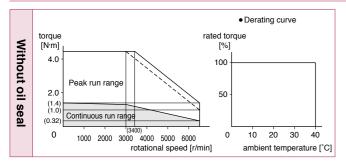
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

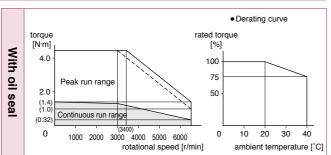
• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147
document	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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

Motor spec		Round shaft/ Key way, center tap shaft							
	Motor specifications		without brake		with brake				
	·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Leadwire type (IP65)	P.143	P.143	P.143	P.144	P.144	P.144		
	Connector type (IP67)	P.145	P.145	P.145	P.146	P.146	P.146		

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

Specifications

				AC200 V
Motor model	*1	MQMF042L1□□		
			function type	MBDLT25SF
Applicable	Model No	RS48	5 communication type *2	MBDLN25SG
driver	110.	Basic	type *2	MBDLN25SE
	Fram	e sym	bol	B-frame
Power supply	/ capacit	у	(kVA)	0.9
Rated output			(W)	400
Rated torque			(N·m)	1.27
Continuous s	tall torqu	ie	(N·m)	1.40
Momentary N	/lax. pea	k torqı	ue (N·m)	4.46
Rated curren	t		(A(rms))	2.1
Max. current			(A(o-p))	10.4
Regenerative	brake		Without option	No limit Note)2
frequency (tin	nes/min)	Note)1	DV0P4283	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6500
Moment of in	ertia		Without brake	0.98
of rotor (×10	4 kg·m²)		With brake	1.06
Recommend ratio of the lo	•••		20 times or less	
Rotary encod	ler speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

200 V MQMF 400 W [Middle inertia Flat type 80 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

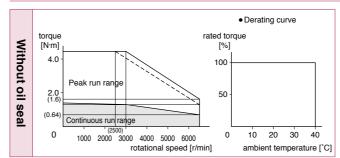
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

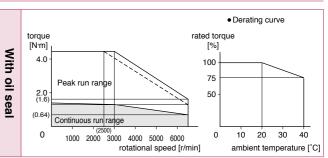
• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





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Dimensions

Motor specifications	Round shaft/ Key way, center tap shaft							
	without brake			with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.143	P.143	P.143	P.144	P.144	P.144		
Connector type (IP67)	P.145	P.145	P.145	P.146	P.146	P.146		

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. A6N Series

A6B Series

				AC100 V
Motor model	1	MHMF5AZL1		
			function type	MADLT01SF
Applicable	Model No	RS48	5 communication type *2	MADLN01SG
driver		Basic	type *2	MADLN01SE
	Fram	e sym	bol	A-frame
Power supply	capacit	у	(kVA)	0.4
Rated output			(W)	50
Rated torque			(N·m)	0.16
Continuous s	tall torqu	ie	(N·m)	0.18
Momentary M	1ax. pea	k torqı	ıe (N·m)	0.56
Rated curren	t		(A(rms))	1.1
Max. current			(A(o-p))	5.5
Regenerative	brake		Without option	No limit Note)2
frequency (tim	nes/min)	Note)1	DV0P4280	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6500
Moment of in	ertia		Without brake	0.038
of rotor (×10	4 kg·m²)		With brake	0.042
Recommended moment of inertia ratio of the load and the rotor Note)3				30 times or less
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

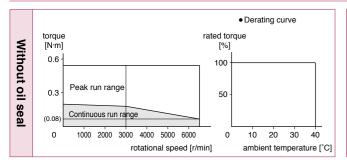
Static friction torque (N·m)	0.38 or more		
Engaging time (ms)	35 or less		
Releasing time (ms) Note)4	20 or less		
Exciting current (DC) (A)	0.30		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±2.4		

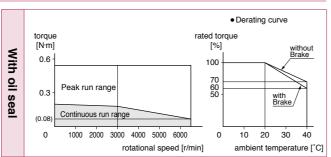
• Permissible load (For details, refer to P.304)

	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)	49

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Motor specifications	Round shaft/ Key way, center tap shaft							
Motor sp			without brake		with brake				
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal			
Leadwire	type (IP65)	P.147	P.147	P.147	P.148	P.148	P.148		
Connector	type (IP67)	P.149	P.149	P.149	P.150	P.150	P.150		

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

Specifications

					AC200 V		
Motor model	1	MHMF5AZL1					
		Multifunction type			MADLT05SF		
Applicable	Model No.	RS48	5 communication ty	pe *2	MADLN05SG		
driver	140.	Basic	type *2		MADLN05SE		
	Fram	e sym	bol		A-frame		
Power supply	capacit	у	(k'	VA)	0.5		
Rated output				(W)	50		
Rated torque			(N	·m)	0.16		
Continuous stall torque (N·m)				·m)	0.18		
Momentary Max. peak torque				(N·m) 0.56			
Rated current			(A(rn	(A(rms)) 1.1			
Max. current			(A(o	p))	5.5		
Regenerative	brake		Without option		No limit Note)2		
frequency (tim	es/min)	Note)1	DV0P4281		No limit Note)2		
Rated rotation	nal spee	d	(r/min)		3000		
Max. rotationa	al speed		(r/n	nin)	6500		
Moment of ine	ertia		Without brake		0.038		
of rotor (×10 ⁻⁴	¹ kg·m²)		With brake		0.042		
Recommended moment of inertia ratio of the load and the rotor				ote)3	30 times or less		
Rotary encod	er speci	ficatio	ns*3		23-bit Absolute		
	Re	solutio	on per single turr	1	8388608		

200 V MHMF 50 W [High inertia 40 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

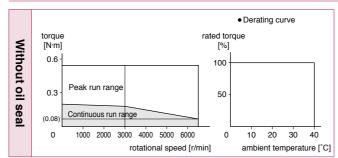
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

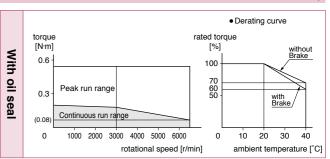
• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	49

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.147	P.147	P.147	P.148	P.148	P.148		
Connector type (IP67)	P.149	P.149	P.149	P.150	P.150	P.150		

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

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A6B Series

A6N Series

E Series

				AC100 V
Motor model	*1	MHMF011L1		
			function type	MADLT11SF
Applicable	Model No	RS48	5 communication type *2	MADLN11SG
driver		Basic	type *2	MADLN11SE
	Fram	e sym	bol	A-frame
Power supply	capacit	у	(kVA)	0.4
Rated output			(W)	100
Rated torque (N·m)				0.32
Continuous s	tall torqu	0.33		
Momentary N	lax. pea	k torqı	ue (N·m)	1.11
Rated current (A(rms))				1.6
Max. current (A(o-p))				7.9
Regenerative	brake		Without option	No limit Note)2
frequency (times/min) Note)1		DV0P4280	No limit Note)2	
Rated rotatio	nal spee	d	(r/min)	3000
Max. rotation	al speed	l	(r/min)	6500
Moment of in	ertia		Without brake	0.071
of rotor (×10	⁴ kg·m²)		With brake	0.074
Recommended moment of inertia ratio of the load and the rotor				30 times or less
Rotary encod	ler speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

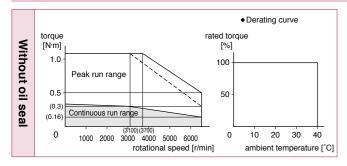
Static friction torque (N·m)	0.38 or more		
Engaging time (ms)	35 or less		
Releasing time (ms) Note)4	20 or less		
Exciting current (DC) (A)	0.30		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±2.4		

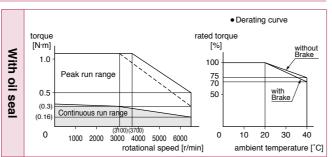
• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

Motor specifications	Round shaft/ Key way, center tap shaft								
		without brake		with brake					
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal			
Leadwire type (IP65)	P.151	P.151	P.151	P.152	P.152	P.152			
Connector type (IP67)	P.153	P.153	P.153	P.154	P.154	P.154			

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

Specifications

				AC200 V	
Motor model	1	MHMF012L1			
		Multi	function type	MADLT05SF	
Applicable	Model No	RS48	5 communication type *2	MADLN05SG	
driver		Basic	type *2	MADLN05SE	
	Fram	e sym	bol	A-frame	
Power supply	capacit	y	(kVA)	0.5	
Rated output			(W)	100	
Rated torque			(N·m)	0.32	
Continuous st	all torqu	0.33			
Momentary M	ax. pea	k torqu	ue (N⋅m)	1.11	
Rated current			(A(rms))	1.1	
Max. current			(A(o-p))	5.5	
Regenerative	brake		Without option	No limit Note)2	
frequency (tim	es/min)	Note)1	DV0P4281	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	3000	
Max. rotationa	al speed		(r/min)	6500	
Moment of ine	ertia		Without brake	0.071	
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.074	
Recommended moment of inertratio of the load and the rotor				30 times or less	
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute	
	Re	solutio	n per single turn	8388608	

200 V MHMF 100 W [High inertia 40 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

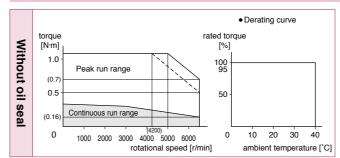
Static friction torque (N·m)	0.38 or more		
Engaging time (ms)	35 or less		
Releasing time (ms) Note)4	20 or less		
Exciting current (DC) (A)	0.30		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±2.4		

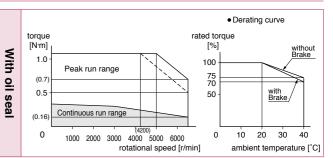
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.151	P.151	P.151	P.152	P.152	P.152		
Connector type (IP67)	P.153	P.153	P.153	P.154	P.154	P.154		

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

				AC100 V
Motor model*1	I	MHMF021L1		
		Multi	function type	MBDLT21SF
Applicable	Model No	RS48	5 communication type *2	MBDLN21SG
driver		Basic	type *2	MBDLN21SE
	Frame	sym	bol	B-frame
Power supply	capacity	/	(kVA)	0.5
Rated output			(W)	200
Rated torque			(N·m)	0.64
Continuous st	all torqu	е	(N·m)	0.76
Momentary M	ax. peak	torqu	ue (N·m)	2.23
Rated current			(A(rms))	2.1
Max. current			(A(o-p))	10.4
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min) I	Note)1	DV0P4283	No limit Note)2
Rated rotation	al speed	b	(r/min)	3000
Max. rotationa	ıl speed		(r/min)	6500
Moment of ine	ertia		Without brake	0.29
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.31
Recommended moment of ratio of the load and the rote				30 times or less
Rotary encode	er specif	icatio	ns*³	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

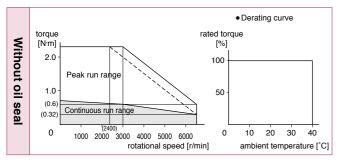
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

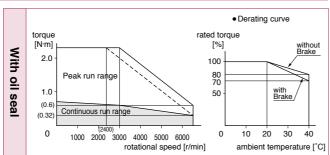
• Permissible load (For details, refer to P.304)

	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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

		Round shaft/ Key way, center tap shaft						
	Motor specifications		without brake		with brake			
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
	Leadwire type (IP65)	P.155	P.155	P.155	P.156	P.156	P.156	
	Connector type (IP67)	P.157	P.157	P.157	P.158	P.158	P.158	

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

Specifications

					AC200 V		
Motor model ^{*1}					MHMF022L1		
		Multi	function type		MADLT15SF		
Applicable	Model No	RS48	5 communication typ	e *2	MADLN15SG		
driver	140.	Basic	type *2		MADLN15SE		
	Frame	e sym	bol		A-frame		
Power supply	capacit	у	(k\	/A)	0.5		
Rated output			('	W)	200		
Rated torque			(N·	m)	0.64		
Continuous s	tall torqu	ie	(N·	m)	0.76		
Momentary N	1ax. peal	k torqu	ıe (N·	m)	2.23		
Rated curren	t		(A(rm	s))	1.4		
Max. current			(A(o-	p))	6.9		
Regenerative	brake		Without option		No limit Note)2		
frequency (tin	nes/min)	Note)1	DV0P4283		No limit Note)2		
Rated rotatio	nal spee	d	(r/m	in)	3000		
Max. rotation	al speed		(r/m	in)	6500		
Moment of in	ertia		Without brake		0.29		
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake		0.31			
Recommended moment of inertia ratio of the load and the rotor				te)3	30 times or less		
Rotary encod	ler speci	ficatio	ns ^{*3}		23-bit Absolute		
	Re	solutio	n per single turn		8388608		

200 V MHMF 200 W [High inertia 60 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

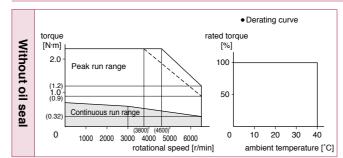
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

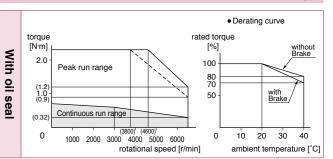
• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications	without brake			with brake				
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.155	P.155	P.155	P.156	P.156	P.156		
Connector type (IP67)	P.157	P.157	P.157	P.158	P.158	P.158		

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

				AC100 V
Motor model*	1			MHMF041L1
		Multi	function type	MCDLT31SF
Applicable	Model No.	RS48	5 communication type *2	MCDLN31SG
driver		Basio	type *2	MCDLN31SE
	Frame	sym	bol	C-frame
Power supply	capacity		(kVA)	0.9
Rated output			(W)	400
Rated torque			(N·m)	1.27
Continuous st	inuous stall torque			1.40
Momentary M	entary Max. peak torque			4.46
Rated current			(A(rms))	4.1
Max. current	c. current		(A(o-p))	20.3
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min) N	ote)1	DV0P4282	No limit Note)2
Rated rotation	nal speed		(r/min)	3000
Max. rotationa	al speed		(r/min)	6500
Moment of ine	ertia		Without brake	0.56
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.58
Recommended moment of ratio of the load and the rote				30 times or less
Rotary encode	er specifi	catio	ns ^{*3}	23-bit Absolute
Resolution per single turn			8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

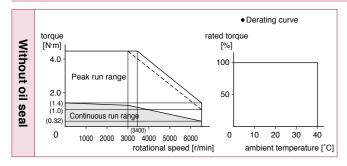
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

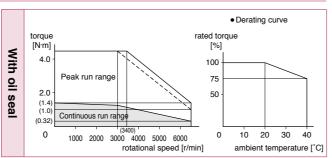
• Permissible load (For details, refer to P.304)

	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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

		Round shaft/ Key way, center tap shaft							
	Motor specifications		without brake		with brake				
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Leadwire type (IP65)	P.159	P.159	P.159	P.160	P.160	P.160		
	Connector type (IP67)	P.161	P.161	P.161	P.162	P.162	P.162		

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

Specifications

				AC200 V
Motor model	1	MHMF042L1		
			function type	MBDLT25SF
Applicable	Model No	RS48	5 communication type *2	MBDLN25SG
driver	140.	Basic	c type *2	MBDLN25SE
	Fram	e sym	bol	B-frame
Power supply	capacit	у	(kVA)	0.9
Rated output			(W)	400
Rated torque			(N·m)	1.27
Continuous s	tall torqu	ie	(N·m)	1.40
Momentary M	lax. pea	k torqı	ue (N·m)	4.46
Rated current	İ		(A(rms))	2.1
Max. current			(A(o-p))	10.4
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4283	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6500
Moment of in	ertia		Without brake	0.56
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	0.58	
Recommended moment of in ratio of the load and the roto				30 times or less
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

200 V MHMF 400 W [High inertia 60 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

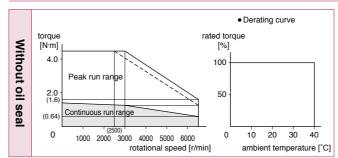
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

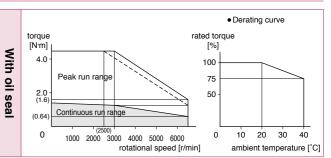
• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications	without brake			with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.159	P.159	P.159	P.160	P.160	P.160		
Connector type (IP67)	P.161	P.161	P.161	P.162	P.162	P.162		

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

A6N Series

A6B Series

Specifications

				AC200 V
Motor model	1	MHMF082L1		
			function type	MCDLT35SF
Applicable	Model No	RS48	5 communication type *2	MCDLN35SG
driver		Basic	type *2	MCDLN35SE
	Fram	e sym	bol	C-frame
Power supply	capacit	у	(kVA)	1.8
Rated output			(W)	750
Rated torque			(N·m)	2.39
Continuous s	tall torqu	2.86		
Momentary M	1ax. pea	k torqı	ue (N·m)	8.36
Rated current (A(rms))				3.8
Max. current (A(o-p))				18.8
Regenerative	brake		Without option	No limit Note)2
frequency (times/min) Note)1		DV0P4283	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6000
Moment of in	ertia		Without brake	1.56
of rotor (×10	4 kg·m²)		With brake	1.66
Recommender ratio of the lo		20 times or less		
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on per single turn	8388608

Brake specifications (For details, refer to P.305)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.)

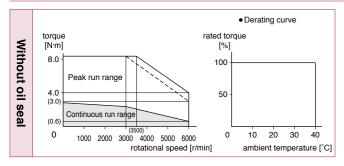
Static friction torque (N·m)	3.8 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

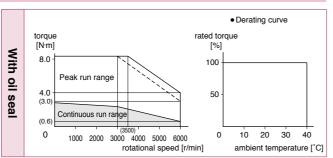
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- · Dimensions of Driver, refer to P.58.
- *1 \(\subseteq \) in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

Motor specifications	Round shaft/ Key way, center tap shaft							
		without brake		with brake				
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.163	P.163	P.163	P.164	P.164	P.164		
Connector type (IP67)	P.165	P.165	P.165	P.166	P.166	P.166		

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

					AC200 V	
Motor model*	1	MHMF092L1				
		Multi	function type		MDDLT55SF	
Applicable	Model No	RS48	5 communication ty	pe *2	MDDLN55SG	
driver	140.	Basic	type *2		MDDLN55SE	
	Fram	e sym	bol		D-frame	
Power supply	capacit	у	(k¹	VA)	2.4	
Rated output			((W)	1000	
Rated torque			(N	·m)	3.18	
Continuous st	all torqu	ie	(N	·m)	3.34	
Momentary M	ax. pea	k torqu	ıe (N	·m)	11.1	
Rated current		(A(rm	ıs))	5.7		
Max. current			(A(o-	p))	28.2	
Regenerative	brake		Without option		No limit Note)2	
frequency (time	es/min)	Note)1	DV0P4284		No limit Note)2	
Rated rotation	nal spee	d	(r/m	nin)	3000	
Max. rotationa	al speed		(r/m	nin)	6000	
Moment of ine	ertia		Without brake		2.03	
of rotor (x10 ⁻⁴ kg·m ²)			With brake		2.13	
Recommended moment of inertia ratio of the load and the rotor Note)3					15 times or less	
Rotary encode	er speci	ficatio	ns*3		23-bit Absolute	
	Re	solutio	n per single turn	1	8388608	

Brake specifications (For details, refer to P.305)
 (This brake will be released when it is energized.)
 Do not use this for braking the motor in motion.

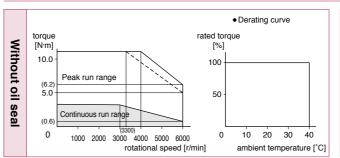
Static friction torque (N·m)	3.8 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

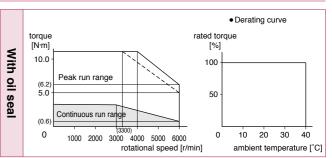
• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \(\subseteq \) in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications	without brake			with brake				
посто организациона	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.167	P.167	P.167	P.168	P.168	P.168		
Connector type (IP67)	P.169	P.169	P.169	P.170	P.170	P.170		

<Cautions>
Reduce the moment of inertia ratio if high speed response operation is required.
Dimensions are subject to change without notice. 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		
Motor model *1	1"			MHMF102L1□□
		Multi	function type	MDDLT45SF
Applicable	Model No	RS48	5 communication type *2	MDDLN45SG
driver	1.10.	Basic	type *2	MDDLN45SE
	Frame	sym	bol	D-frame
Power supply	capacity	,	(kVA)	2.4
Rated output			(W)	1000
Rated torque			(N·m)	4.77
Continuous stall torque			(N·m)	5.25
Momentary M	ax. peak	torqu	ue (N·m)	14.3
Rated current			(A(rms))	5.2
Max. current			(A(o-p))	22
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min) N	Note)1	DV0P4284	No limit Note)2
Rated rotation	nal speed	t	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	22.9
of rotor (×10 ⁻⁴	kg·m²)		With brake	24.1
Recommended moment of inertia ratio of the load and the rotor				5 times or less
Rotary encode	er specif	icatio	ns ^{*3}	23-bit Absolute
	Resolution per single turn			8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

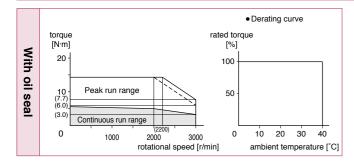
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	,	•
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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.1	171	_	P.171		
Encoder connector Small size (JN2) type	_	P.171		_	P.172		

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

Specifications

				AC200 V
Motor model*	1	MHMF152L1		
		Multi	function type	MDDLT55SF
Applicable	Model No.	RS48	5 communication type *	MDDLN55SG
driver	140.	Basic	type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	y	(kVA)	2.9
Rated output	Rated output			1500
Rated torque			(N·m)	7.16
Continuous stall torque			(N·m)	7.52
Momentary M	lax. peal	21.5		
Rated current	:		(A(rms))	8.0
Max. current			(A(o-p))	34
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4284	No limit Note)2
Rated rotation	nal spee	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	33.4
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	34.6
Recommended moment of inertia ratio of the load and the rotor Note)3				5 times or less
Rotary encod	er speci	ficatio	ns*3	23-bit Absolute
	Resolution per single turn			8388608

200 V MHMF 1.5 kW [High inertia 130 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

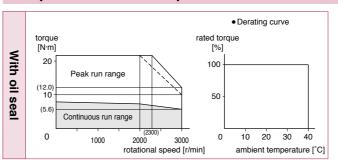
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.172 P.173		_	P.172		
Encoder connector Small size (JN2) type	_			_	P.173		

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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
Motor model*1		MHMF202L1		
		Multifunction type		MEDLT83SF
Applicable	Model No	RS48	5 communication type *2	MEDLN83SG
driver	110.	Basic	type *2	MEDLN83SE
	Frame	e sym	bol	E-frame
Power supply	capacit	y	(kVA)	3.8
Rated output			(W)	2000
Rated torque			(N·m)	9.55
Continuous st	all torqu	е	(N·m)	11.5
Momentary M	ax. peal	k torqu	ue (N·m)	28.6
Rated current			(A(rms))	12.5
Max. current			(A(o-p))	53
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285	No limit Note)2
Rated rotation	al spee	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	55.7
of rotor (×10 ⁻⁴ kg·m ²)			With brake	61.0
Recommended moment of ratio of the load and the rote				5 times or less
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

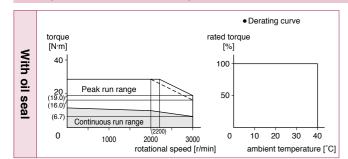
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	,	,
During assembly	Radial load P-direction (N)	1666
	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)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
c.c. speecanec	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.1	173	_	P.174		
Encoder connector Small size (JN2) type	_	P.174		_	P.174		

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

Specifications

				AC200 V	
Motor model*1	MHMF302L1				
			function type	MFDLTA3SF	
Applicable	Model No	RS48	5 communication type *2	MFDLNA3SG	
driver	140.	Basic	type *2	MFDLNA3SE	
	Fram	e sym	bol	F-frame	
Power supply	capacit	у	(kVA)	5.2	
Rated output			(W)	3000	
Rated torque			(N·m)	14.3	
Continuous st	all torqu	ie	(N·m)	17.2	
Momentary M	ax. pea	k torqı	ue (N·m)	43.0	
Rated current			(A(rms))	17.0	
Max. current			(A(o-p))	72	
Regenerative	brake		Without option	No limit Note)2	
frequency (time	es/min)	Note)1	DV0P4285×2	No limit Note)2	
Rated rotation	al spee	d	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	ertia		Without brake	85.3	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	90.7	
Recommende ratio of the loa		5 times or less			
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute	
	Re	solutio	n per single turn	8388608	

200 V MHMF 3.0 kW [High inertia 176 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

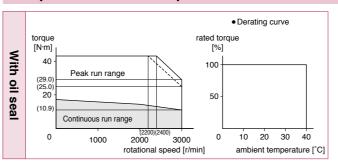
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft					
Motor specifications	without brake			with brake		
γ	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.175		_	P.	175
Encoder connector Small size (JN2) type	_	P.175		_	P.	176

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

Applicable

Rated output

Rated torque

Rated current

Max. current

Regenerative brake

frequency (times/min) Note)1

Rated rotational speed

Max. rotational speed

of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)

Recommended moment of inertia

ratio of the load and the rotor

Rotary encoder specifications *3

Moment of inertia

driver

Specifications

Power supply capacity

Continuous stall torque

Momentary Max. peak torque

Multifunction type

Basic type *2

Frame symbol

RS485 communication type *2

(kVA)

(W)

(N·m)

(N·m)

(N·m)

(A(rms))

(A(o-p))

(r/min)

(r/min)

Without option

DV0P4285×2

Without brake

With brake

Resolution per single turn

During

During

assembly

• Brake specifications (For details, refer to P.305)

25.0 or more

80 or less

25 or less

1.29

2 or more

24±2.4

784

980

784

343

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

Do not use this for braking the motor in motion.

• Permissible load (For details, refer to P.304)

Radial load P-direction (N)

Thrust load A-direction (N)

Thrust load B-direction (N)

Radial load P-direction (N)

• For details of Note)1 to Note)4, refer to P.303.

*1 \square in the motor part number represents the motor

*3 When using a rotary encoder as an incremental

system (not using multi-turn data), do not connect a

*2 Basic type and RS485 communication type are

Detail of model designation, refer to P.22.

operation Thrust load A, B-direction (N)

· Dimensions of Driver, refer to P.59.

battery for absolute encoder.

specifications.

"Position control type".

Static friction torque (N·m)

Releasing time (ms) Note)4

Releasing voltage (DC) (V)

Exciting current (DC) (A)

Exciting voltage (DC) (V)

Engaging time (ms)

Specifications

				AC200 V
Motor model	1	MHMF502L1		
		Multif	function type	MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver	140.	Basic	type *2	MFDLNB3SE
	Frame	e sym	bol	F-frame
Power supply	/ capacity	у	(kVA)	7.8
Rated output			(W)	5000
Rated torque (N·m)				23.9
Continuous s	tall torqu	е	(N·m)	26.3
Momentary N	lax. peal	k torqu	ue (N·m)	71.6
Rated curren	t		(A(rms))	23.3
Max. current			(A(o-p))	99
Regenerative	brake		Without option	No limit Note)2
frequency (tin	nes/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	2000
Max. rotation	al speed		(r/min)	3000
Moment of in	ertia		Without brake	146
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	151	
Recommend ratio of the lo	• • • • • • • • • • • • • • • • • • • •	5 times or less		
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Res	solutio	n per single turn	8388608

200 V MHMF 5.0 kW [High inertia 176 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.

battery for absolute encoder.

- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type". Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a

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

AC200 V

MHMF402L1

MFDLTB3SF

MFDLNB3SG

MFDLNB3SE

F-frame

6.5

4000

19.1

22.0

57.3

20

85

No limit Note)2

No limit Note)2

2000

3000

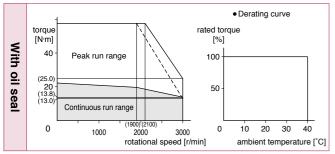
104

110

5 times or less

23-bit Absolute

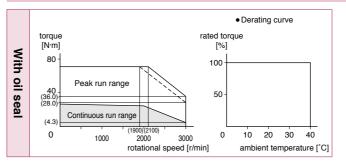
8388608



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.1	176	_	P.1	176	
Encoder connector Small size (JN2) type	_	P.177		_	P.1	177	

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.177		_	P.178		
Encoder connector Small size (JN2) type	_	P.178		_	P.	178	

Reduce the moment of inertia ratio if high speed response operation is required. <Cautions> Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products. Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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	
Motor model*	I	MHMF752L1			
Applicable		Multi	function type	MGDLTC3SF	
	Model No.	RS48	5 communication type *2	_	
driver	140.	Basic	type *2	_	
	Fram	e sym	bol	G-frame	
Power supply	capacit	у	(kVA)	11	
Rated output			(W)	7500	
Rated torque			(N·m)	47.8	
Continuous stall torque (N·m)				47.8	
Momentary M	ax. pea	k torqı	ue (N·m)	125	
Rated current			(A(rms))	40.2	
Max. current			(A(o-p))	154	
Regenerative	brake	ke Without option		No limit Note)2	
frequency (tim	es/min)	Note)1	DV0P4285×3	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	1500	
Max. rotationa	al speed		(r/min)	3000	
Moment of ine	ertia		Without brake	272	
of rotor (×10 ⁻⁴	kg·m²)		With brake	279	
Recommended moment of inertia ratio of the load and the rotor				5 times or less	
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute	
	Re	solutio	on per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

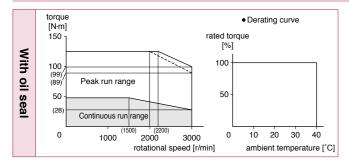
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.60.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Motor specifications	Key way shaft/ Round shaft							
		without brake			with brake				
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Encoder connector Large size (JL10) type	_	P.179	_	_	P.179	_		
	Encoder connector Small size (JN2) type	_	P.179	_	_	P.180	_		

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

Specifications

				AC200 V	
Motor model	1			MDMF102L1	
		Multi	function type	MDDLT45SF	
Applicable	Model No	RS48	5 communication type *2	MDDLN45SG	
driver	140.	Basic	type *2	MDDLN45SE	
	Fram	e sym	bol	D-frame	
Power supply	capacit	2.4			
Rated output			(W)	1000	
Rated torque			(N·m)	4.77	
Continuous s	tall torqu	ie	(N·m)	5.25	
Momentary N	lax. pea	ue (N·m)	14.3		
Rated curren	t		(A(rms))	5.2	
Max. current			(A(o-p))	22	
Regenerative	brake		Without option	No limit Note)2	
frequency (tim	nes/min)	Note)1	DV0P4284	No limit Note)2	
Rated rotatio	nal spee	d	(r/min)	2000	
Max. rotation	al speed		(r/min)	3000	
Moment of in	ertia		Without brake	6.18	
of rotor (×10	4 kg·m²)		With brake	7.40	
Recommenderatio of the lo		10 times or less			
Rotary encod	ler speci	ficatio	ns ^{*3}	23-bit Absolute	
	Re	solutio	n per single turn	8388608	

200 V MDMF 1.0 kW [Middle inertia 130 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

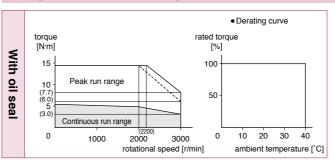
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	980
	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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
co. specimeaneric	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.180		_	P.	180	
Encoder connector Small size (JN2) type	_	P.181		_	P.	181	

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

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E Series

				AC200 V
Motor model*		MDMF152L1		
		Multi	function type	MDDLT55SF
Applicable	Model No.	RS48	5 communication type *2	MDDLN55SG
driver		Basic	type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	y	(kVA)	2.9
Rated output			(W)	1500
Rated torque			(N·m)	7.16
Continuous st	all torqu	ie (N·m)		7.52
Momentary M	ax. pea	torque (N·m)		21.5
Rated current			(A(rms))	8.0
Max. current			(A(o-p))	34
Regenerative	enerative brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4284	No limit Note)2
Rated rotation	nal spee	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	9.16
of rotor (×10 ⁻²	kg·m²)		With brake	10.4
Recommended moment of ine ratio of the load and the rotor				10 times or less
Rotary encod	er speci	ficatio	ns*³	23-bit Absolute
	Re	solutic	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

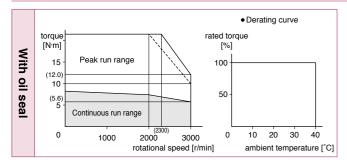
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	·	•
	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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Motor specifications	Key way shaft/ Round shaft						
Motor specification		without brake			with brake			
·		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) ty		_	P.181 P.182		_	P.1	182	
Encoder connector Small size (JN2) ty		_			_	P.1	182	

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

Specifications

				AC200 V
Motor model	1	MDMF202L1		
		Multifunction type		MEDLT83SF
Applicable	Model No.	RS48	5 communication type *2	MEDLN83SG
driver	140.	Basic	c type *2	MEDLN83SE
	Fram	e sym	bol	E-frame
Power supply	capacit	у	(kVA)	3.8
Rated output			(W)	2000
Rated torque			(N·m)	9.55
Continuous s	tall torqu	ie	(N·m)	10.0
Momentary N	lax. pea	k torqı	ue (N·m)	28.6
Rated curren	t		(A(rms))	9.9
Max. current			(A(o-p))	42
Regenerative	brake		Without option	No limit Note)2
frequency (tim	nes/min)	Note)1	DV0P4285	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	2000
Max. rotation	al speed		(r/min)	3000
Moment of in	ertia		Without brake	12.1
of rotor (×10	4 kg·m²)		With brake	13.3
Recommended moment of inertia ratio of the load and the rotor				10 times or less
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on per single turn	8388608

200 V MDMF 2.0 kW [Middle inertia 130 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

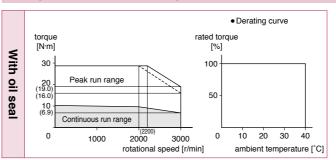
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.183		_	P.	183	
Encoder connector Small size (JN2) type	_	P.183		_	P.	184	

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

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A6N Series

				AC200 V
Motor model *1		MDMF302L1		
		Multi	function type	MFDLTA3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNA3SG
driver	110.	Basic	type *2	MFDLNA3SE
	Frame	sym	bol	F-frame
Power supply	capacity	/	(kVA)	5.2
Rated output			(W)	3000
Rated torque			(N·m)	14.3
Continuous st	all torqu	е	(N·m)	15.0
Momentary M	ax. peak	torqu	ue (N·m)	43.0
Rated current			(A(rms))	16.4
Max. current			(A(o-p))	70
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min) 1	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	nal speed	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	18.6
of rotor (×10 ⁻⁴	kg·m²)		With brake	19.6
Recommended moment of inertia ratio of the load and the rotor				10 times or less
Rotary encoder specifications *3			23-bit Absolute	
Resolution per single turn			8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

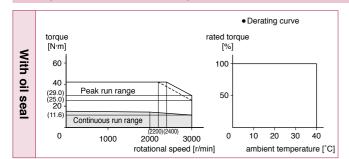
Static friction torque (N·m)	22.0 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

		Key way shaft/ Round shaft						
	Motor specifications	without brake			with brake			
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
	Encoder connector Large size (JL10) type	_	P.1	184	_	P.1	84	
	Encoder connector Small size (JN2) type	_	P.185		_	P.1	85	

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

				AC200 V
Motor model	MDMF402L1			
			function type	MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver	INO.	Basic	c type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	6.5
Rated output			(W)	4000
Rated torque			(N·m)	19.1
Continuous s	tall torqu	ie	(N·m)	22.0
Momentary M	lax. peal	k torqı	ue (N·m)	57.3
Rated current			(A(rms))	20.0
Max. current			(A(o-p))	85
Regenerative	brake		Without option	No limit Note)2
requency (tim	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	nal spee	d	(r/min)	2000
Max. rotation	al speed		(r/min)	3000
Moment of in			Without brake	46.9
of rotor (×10	¹ kg·m²)		With brake	52.3
Recommended moment of ine ratio of the load and the rotor				10 times or less
Rotary encoder specifications *3			ns*3	23-bit Absolute
	Re	solutio	on per single turn	8388608

200 V MDMF 4.0 kW [Middle inertia 176 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

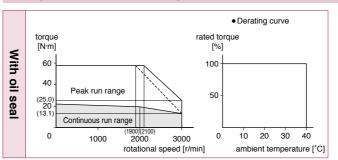
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft					
Motor specifications	without brake			with brake		
motor operations	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.185		_	P.	186
Encoder connector Small size (JN2) type	_	P.186		_	P.	186

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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		
Motor model*1		MDMF502L1□□		
			function type	MFDLTB3SF
Applicable	Model No.	RS48	5 communication type *2	MFDLNB3SG
driver		Basic	type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	7.8
Rated output			(W)	5000
Rated torque			(N·m)	23.9
Continuous st	all torqu	ie	(N·m)	26.3
Momentary M	ax. pea	k torqı	ue (N·m)	71.6
Rated current			(A(rms))	23.3
Max. current			(A(o-p))	99
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	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	58.2
of rotor (×10 ⁻⁴	kg·m²)		With brake	63.0
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times or less
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

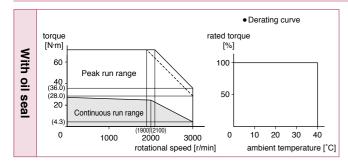
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	,	,
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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

		Key way shaft/ Round shaft							
	Motor specifications	without brake			with brake				
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Encoder connector Large size (JL10) type	_	P.1	187	_	P.1	187		
	Encoder connector Small size (JN2) type	_	P.187		_	P.188			

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

Specifications

				AC200 V
Motor model*	I			MDMF752L1
		Multi	function type	MGDLTC3SF
Applicable	Model No	RS48	5 communication type *2	_
driver	140.	Basic	type *2	_
	Fram	e sym	bol	G-frame
Power supply	capacit	y	(kVA)	11
Rated output			(W)	7500
Rated torque		47.8		
Continuous st	all torqu	47.8		
Momentary M	ax. pea	125		
Rated current			40.2	
Max. current			(A(o-p))	154
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4285×3	No limit Note)2
Rated rotation	nal spee	d	(r/min)	1500
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	122
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	127	
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times or less
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	n per single turn	8388608

200 V MDMF 7.5 kW [Middle inertia 176 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

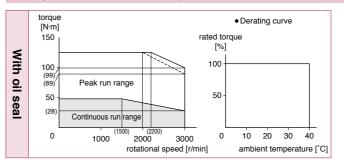
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	2058
During assembly During operation	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)4, refer to P.303.
- Dimensions of Driver, refer to P.60.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft							
Motor specifications	without brake			with brake				
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Encoder connector Large size (JL10) type	_	P.188	_	_	P.188	_		
Encoder connector Small size (JN2) type	_	P.189	_	_	P.189	_		

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

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A6B Series

A6N Series

E Series

				A C 0 0 0 V
				AC200 V
Motor model *1		MDMFC12L1□□		
		Multifunction type		MHDLTE3SF
Applicable	Model No	RS48	5 communication type *2	_
driver	110.	Basic	type *2	_
	Fram	e sym	bol	H-frame
Power supply	capacit	у	(kVA)	15
Rated output			(W)	11000
Rated torque			(N·m)	70.0
Continuous st	all torqu	ie	(N·m)	70.0
Momentary M	ax. pea	k torqu	ue (N·m)	175
Rated current (A(rms			(A(rms))	57.1
Max. current			(A(o-p))	209
Regenerative	generative brake Juency (times/min) Note)1		Without option	No limit Note)2
frequency (time			DV0P4285×6	No limit Note)2
Rated rotation	al spee	d	(r/min)	1500
Max. rotationa	ıl speed		(r/min)	2000
Moment of ine	ertia		Without brake	205
of rotor (×10 ⁻⁴	kg·m²)		With brake	214
Recommended moment of iratio of the load and the rote			10 times or less	
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutic	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

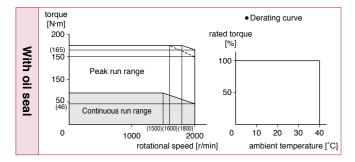
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	4508
During assembly	Thrust load A-direction (N)	1470
document	Thrust load B-direction (N)	2646
During operation	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.61.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

		Key way shaft/ Round shaft							
	Motor specifications	without brake			with brake				
	·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Encoder connector Large size (JL10) type	_	P.189	_	_	P.190	_		
	Encoder connector Small size (JN2) type	_	P.190	_	_	P.190	_		

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

Specifications

					AC200 V
Motor model*1			MDMFC52L1		
		Multifunction type			MHDLTE3SF
Applicable	Model No	RS48	5 communication type	e ^{*2}	_
driver	140.	Basic	type *2		_
	Fram	e sym	bol		H-frame
Power supply	capacit	у	(kV/	۹)	20
Rated output			(V	V)	15000
Rated torque			(N·n	n)	95.5
Continuous st	all torqu	ie	(N·n	n)	95.5
Momentary M	Momentary Max. peak torque (N·m)				224
Rated current			(A(rms	5))	65.8
Max. current		(A(o-p))			225
Regenerative	enerative brake		Without option		No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×6		No limit Note)2
Rated rotation	nal spee	d	(r/mi	n)	1500
Max. rotationa	al speed		(r/mii	n)	2000
Moment of ine	ertia		Without brake		280
of rotor (×10 ⁻⁴	kg·m²)		With brake		289
Recommended moment of inertia ratio of the load and the rotor Note)3				e)3	10 times or less
Rotary encode	er speci	ficatio	ns ^{⁺3}		23-bit Absolute
	Re	solutio	n per single turn		8388608

200 V MDMF 15.0 kW [Middle inertia 220 mm sq.] IP67

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

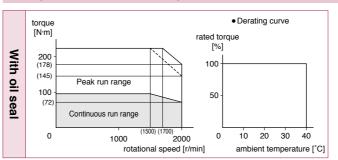
•	'
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

During assembly During operation	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	2646
	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

- For details of Note)1 to Note)4, refer to P.303.
- · Dimensions of Driver, refer to P.61.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

		Key way shaft/ Round shaft						
Motor	specifications	without brake			with brake			
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
	der connector size (JL10) type	_	P.191	_	_	P.191	_	
	der connector size (JN2) type	_	P.191	_	_	P.192	_	

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

IP67

Specifications

		AC200 V		
Motor model*1		MDMFD22L1□□		
		Multi	function type	MHDLTF3SF
Applicable	Model No.	RS48	5 communication type *2	_
driver		Basic	type *2	_
	Fram	e sym	bol	H-frame
Power supply	capacit	у	(kVA)	28
Rated output			(W)	22000
Rated torque			(N·m)	140
Continuous stall torque			(N·m)	140
Momentary M	ax. pea	k torqı	ue (N·m)	350
Rated current			(A(rms))	80.9
Max. current			(A(o-p))	294
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×6	No limit Note)2
Rated rotation	al spee	d	(r/min)	1500
Max. rotationa	al speed		(r/min)	2000
Moment of ine	ertia		Without brake	431
of rotor (×10 ⁻⁴ kg·m ²)			With brake	455
Recommended moment of ratio of the load and the rote				10 times or less
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

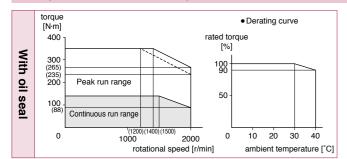
Static friction torque (N·m)	200 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	150 or less
Exciting current (DC) (A)	1.72
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	4508
During assembly	Thrust load A-direction (N)	1470
document	Thrust load B-direction (N)	2646
During operation	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.61.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft							
Motor specifications	without brake			with brake				
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Encoder connector Large size (JL10) type	_	P.192	_	_	P.192	_		
Encoder connector Small size (JN2) type	<u>—</u>	P.193	_	_	P.193	_		

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

Specifications

200 V **MGMF 0.85 kW**

					AC200 V
Motor model	1	MGMF092L1□□			
		Multifunction type			MDDLT45SF
Applicable	Model No.	RS48	5 communicatio	n type *2	MDDLN45SG
driver	140.	Basic	c type *2		MDDLN45SE
	Fram	e sym	bol		D-frame
Power supply	capacit	у		(kVA)	2.0
Rated output				(W)	850
Rated torque	Rated torque			(N·m)	5.41
Continuous stall torque			(N·m)		5.41
Momentary Max. peak torque				(N·m)	14.3
Rated current	t		(A	A(rms))	5.9
Max. current			(/	(A(o-p)) 22	
Regenerative	brake		Without option		No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4284		No limit Note)2
Rated rotation	nal spee	d		(r/min)	1500
Max. rotation	al speed			(r/min)	3000
Moment of in	ertia		Without bra	ake	6.18
of rotor (×10	4 kg·m²)		With brake		7.40
Recommended moment of inertia ratio of the load and the rotor				Note)3	10 times or less
Rotary encod	er speci	ficatio	ns*3		23-bit Absolute
	Re	solutio	on per single	turn	8388608

• Brake specifications (For details, refer to P.305) 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
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

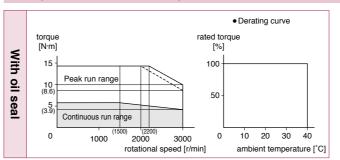
• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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

Middle inertia Low speed/High torque type



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.193 P.194		_	P.194		
Encoder connector Small size (JN2) type	_			_	P.194		

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

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

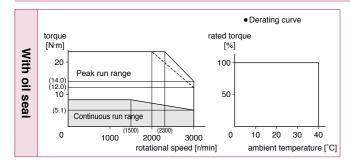
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type		P.195 P.195		_	P.195		
Encoder connector Small size (JN2) type	_			_	P.196		

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

Specifications

				AC200 V	
Motor model*1		MGMF182L1□□			
		Multi	function type	MEDLT83SF	
Applicable	Model No	RS48	5 communication type *2	MEDLN83SG	
driver	140.	Basic	type *2	MEDLN83SE	
	Frame	e sym	bol	E-frame	
Power supply	capacit	y	(kVA)	3.4	
Rated output			(W)	1800	
Rated torque		11.5			
Continuous st	all torqu	11.5			
Momentary Max. peak torque (N·m)				28.7	
Rated current		11.8			
Max. current (A(o-p)				42	
Regenerative	brake		Without option	No limit Note)2	
frequency (time	es/min)	Note)1	DV0P4285×2	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	12.1	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	13.3	
Recommended moment of i				10 times or less	
Rotary encode	er speci	icatio	ns*3	23-bit Absolute	
	Res	solutio	on per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

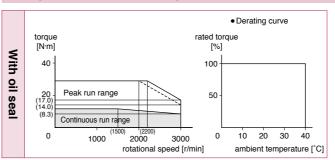
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft						
	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.196		_	P.196		
Encoder connector Small size (JN2) type	_	P.197		_	P.1	197	

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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	
Motor model	' 1	MGMF242L1□□			
		Multi	function type	MEDLT93SF	
Applicable	Model No	RS48	5 communication type *2	MEDLN93SG	
driver	110.	Basic	type *2	MEDLN93SE	
	Fram	e sym	bol	E-frame	
Power supply	/ capacit	у	(kVA)	4.5	
Rated output			(W)	2400	
Rated torque			(N·m)	15.3	
Continuous stall torque (N·m)				15.3	
Momentary N	Лах. pea	k torqı	ue (N·m)	45.2	
Rated current (A(rn			(A(rms))	16.0	
Max. current			(A(o-p))	67	
Regenerative	brake		Without option	No limit Note)2	
frequency (tin	nes/min)	Note)1	DV0P4285×2	No limit Note)2	
Rated rotatio	nal spee	d	(r/min)	1500	
Max. rotation	al speed		(r/min)	3000	
Moment of in	ertia		Without brake	46.9	
of rotor (×10	4 kg·m²)		With brake	52.3	
Recommended moment of ratio of the load and the rote			10 times or less		
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute	
	Re	8388608			

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

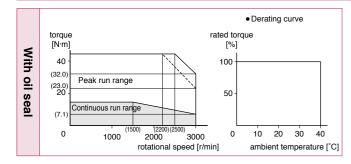
Static friction torque (N·m)	25.0 or more		
Engaging time (ms)	80 or less		
Releasing time (ms) Note)4	25 or less		
Exciting current (DC) (A)	1.29		
Releasing voltage (DC) (V)	2 or more		
Exciting voltage (DC) (V)	24±2.4		

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Motor specifications	Key way shaft/ Round shaft							
		without brake			with brake				
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Encoder connector Large size (JL10) type	_	P.1	197	_	P.1	198		
	Encoder connector Small size (JN2) type	_	P.198		_	P.1	198		

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

Specifications

				AC200 V	
Motor model*1		MGMF292L1□□			
		Multi	function type	MFDLTB3SF	
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG	
driver	140.	Basic	type *2	MFDLNB3SE	
	Frame	e sym	bol	F-frame	
Power supply	capacit	y	(kVA)	5.0	
Rated output			(W)	2900	
Rated torque			(N·m)	18.5	
Continuous st	all torqu	18.5			
Momentary Max. peak torque (N·m)				45.2	
Rated current		19.3			
Max. current (A(o-				67	
Regenerative	brake		Without option	No limit Note)2	
frequency (time	es/min)	Note)1	DV0P4285×2	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	46.9	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	52.3	
Recommended moment of i ratio of the load and the roto				10 times or less	
Rotary encode	er speci	icatio	ns*3	23-bit Absolute	
	Res	solutio	on per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

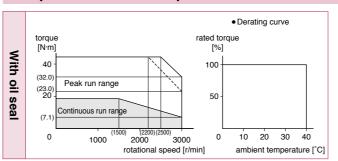
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft						
	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.199		_	P.199		
Encoder connector Small size (JN2) type	_	P.199		_	P.200		

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

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A6N Series

Motor Specifications 200 V MGMF 4.4 kW

Middle inertia Low speed/High torque type

A6N Series

A6B Series

E Series

Specifications

				AC200 V	
Motor model	1	MGMF442L1□□			
			function type	MFDLTB3SF	
Applicable	Model No.	RS48	5 communication type *2	MFDLNB3SG	
driver	110.	Basic	type *2	MFDLNB3SE	
	Fram	e sym	bol	F-frame	
Power supply	capacit	у	(kVA)	7.0	
Rated output			(W)	4400	
Rated torque			(N·m)	28.0	
Continuous s	tall torqu	ie	(N·m)	28.0	
Momentary M	lax. pea	k torqı	ue (N·m)	70.0	
Rated current (A(rms))		27.2			
Max. current	t (A(o-p))		(A(o-p))	96	
Regenerative	brake		Without option	No limit Note)2	
frequency (tim	es/min)	Note)1	DV0P4285×2	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	1500	
Max. rotation	al speed		(r/min)	3000	
Moment of in	ertia		Without brake	58.2	
of rotor (×10 ⁻⁴ kg·m²) With brake			With brake	63.0	
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times or less	
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute	
Resolution per single turn				8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

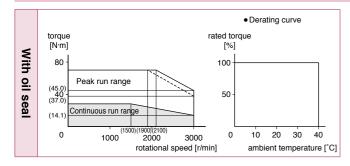
Static friction torque (N·m)	44.1 or more		
. , ,	44.1 01 111010		
Engaging time (ms)	150 or less		
Releasing time (ms) Note)4	30 or less		
Exciting current (DC) (A)	1.29		
Releasing voltage (DC) (V)	2 or more		
Exciting voltage (DC) (V)	24±2.4		

• Permissible load (For details, refer to P.304)

	,	,
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)	1470
	Thrust load A, B-direction (N)	490

- For details of Note)1 to Note)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft								
		without brake		with brake					
•		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Encoder of Large size (_	P.200		_	P.200			
Encoder of Small size		_	P.201		_	P.201			

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

Specifications

				AC200 V
Motor model	1	MGMF552L1□□		
			function type	MGDLTC3SF
Applicable	Model No.	RS48	5 communication type *2	_
driver	140.	Basic	c type *2	_
	Fram	e sym	bol	G-frame
Power supply	/ capacit	у	(kVA)	8.5
Rated output			(W)	5500
Rated torque			(N·m)	35.0
Continuous s	tall torqu	ie	(N·m)	35.0
Momentary N	lax. pea	k torqı	ue (N·m)	102
Rated curren	t		(A(rms))	39.8
Max. current			(A(o-p))	164
Regenerative	brake		Without option	No limit Note)2
frequency (tin	nes/min)	Note)1	DV0P4285×3	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	1500
Max. rotation	al speed		(r/min)	3000
Moment of in	ertia		Without brake	83.0
of rotor (×10	4 kg·m²)		With brake	88.0
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Re	8388608		

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

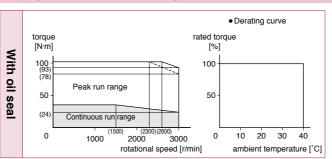
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.60.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.22.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft							
		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Encoder connector Large size (JL10) type	_	P.201	_	_	P.202	_		
Encoder connector Small size (JN2) type	_	P.202	_	_	P.202	_		

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

MSMF 50 W

Leadwire type (IP65)

with brake

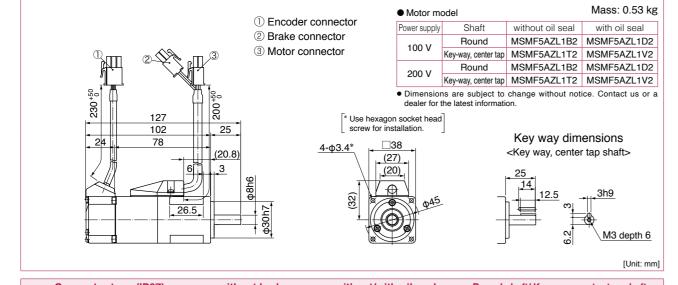
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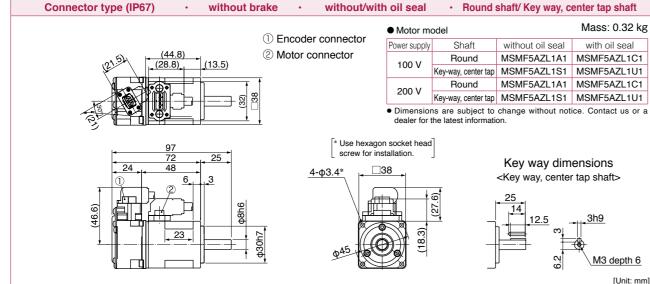
without/with oil seal

· Round shaft/ Key way, center tap shaft

[Unit: mm]

Leadwire type (IP65) without brake without/with oil seal · Round shaft/ Key way, center tap shaft Mass: 0.32 kg Motor model Encoder connector Shaft without oil seal Power supply 2 Motor connector Round MSMF5AZL1A2 MSMF5AZL1C2 100 V Key-way, center tap MSMF5AZL1S2 MSMF5AZL1U2 MSMF5AZL1A2 MSMF5AZL1C2 Round 200 V Key-way, center tap MSMF5AZL1S2 MSMF5AZL1U2 • Dimensions are subject to change without notice. Contact us or a * Use hexagon socket head 72 Key way dimensions 48 24 □38 <u>4-φ3.4*</u> <Key way, center tap shaft> (27) (20) M3 depth 6 [Unit: mm]

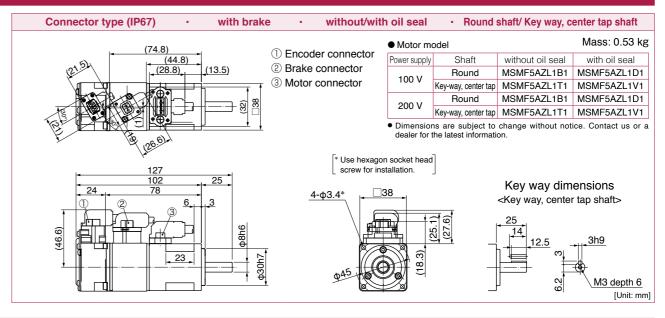


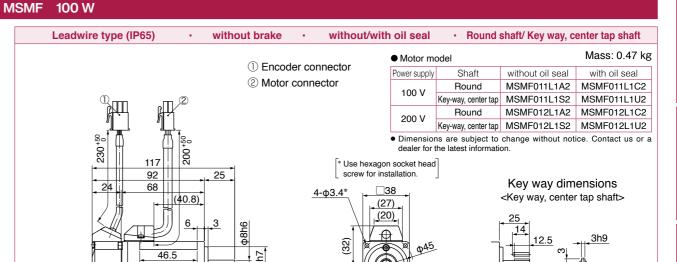


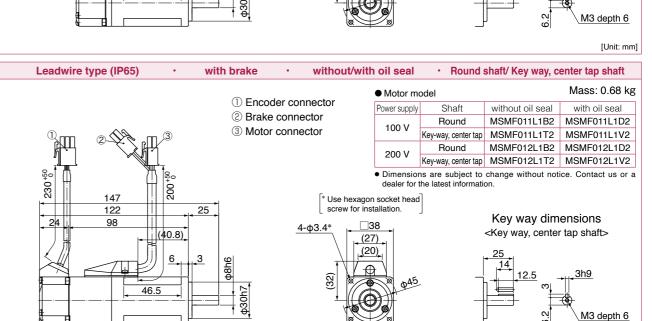
* For motors specifications, refer to P.63, P.64.

MSMF 50 W

MSMF 50 W to 100 W





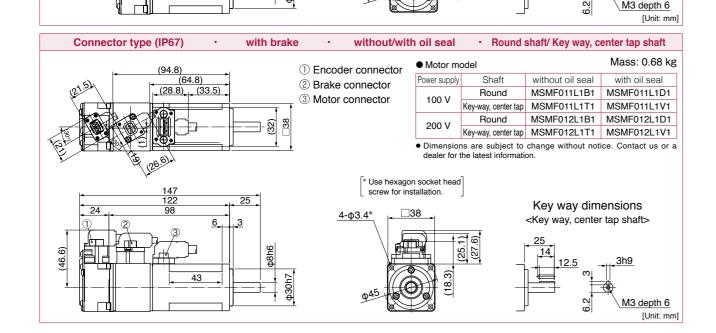


^{*} For motors specifications, refer to P.63 to P.66.

MSMF 100 W

Connector type (IP67) without brake without/with oil seal Round shaft/ Key way, center tap shaft Mass: 0.47 kg Motor model 1) Encoder connector Shaft without oil seal ower supply 2 Motor connector Round MSMF011L1A1 MSMF011L1C1 100 V Key-way, center tap MSMF011L1S1 MSMF011L1U1 MSMF012L1A1 MSMF012L1C1 Round 200 V Key-way, center tap MSMF012L1S1 MSMF012L1U1 • Dimensions are subject to change without notice. Contact us or a * Use hexagon socket head Key way dimensions <u>4-φ3.4*</u> <Key way, center tap shaft>

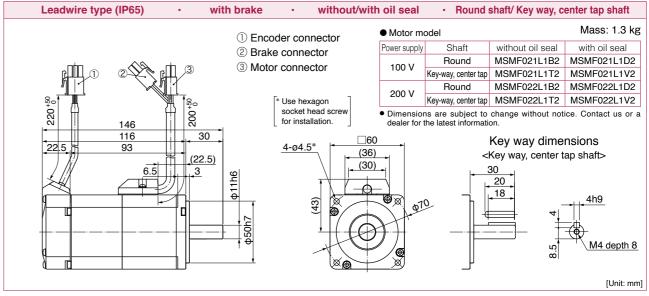
MSMF 100 W to 200 W

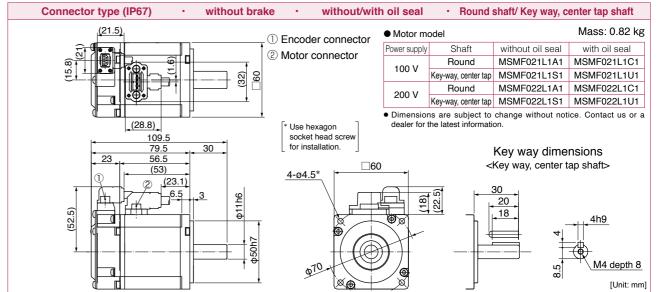


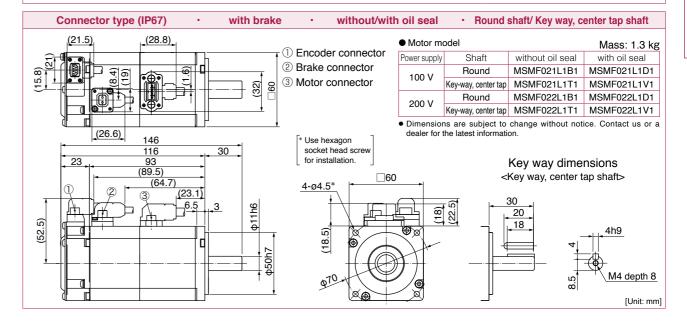
MSMF 200 W Leadwire type (IP65) without brake without/with oil seal · Round shaft/ Key way, center tap shaft Mass: 0.82 kg Motor model ① Encoder connector Shaft without oil seal with oil seal Power supply 2 Motor connector MSMF021L1A2 MSMF021L1C2 Round 100 V MSMF021L1S2 MSMF021L1U2 Key-way, center tap MSMF022L1A2 MSMF022L1C2 Round Key-way, center tap MSMF022L1S2 MSMF022L1U2 * Use hexagon socket head screw • Dimensions are subject to change without notice. Contact us or a for installation. 109.5 30 79.5 Key way dimensions 60 4-ø4.5* 56.5 <Key way, center tap shaft> (36)(22.5) (30)20 Ф 18 4h9 M4 depth 8 [Unit: mm]

* For motors specifications, refer to P.65 to P.68.

MSMF 200 W



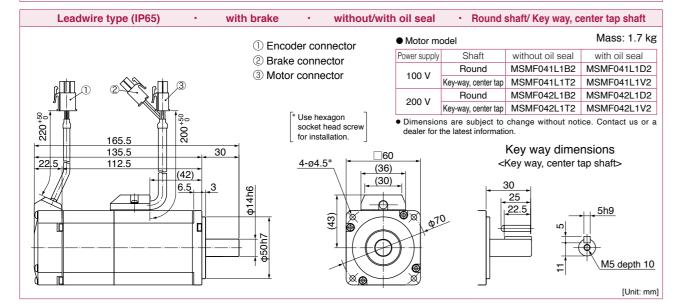


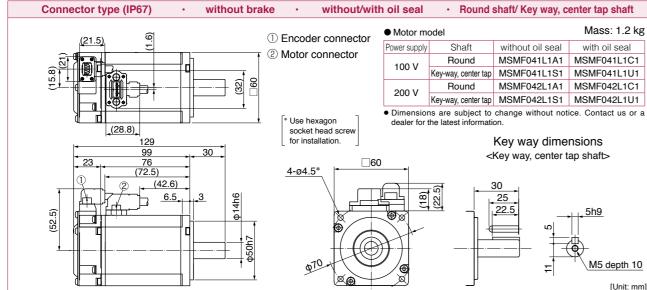


* For motors specifications, refer to P.67, P.68.

MSMF 400 W

Leadwire type (IP65) without brake without/with oil seal · Round shaft/ Key way, center tap shaft Mass: 1.2 kg Motor model (1) Encoder connector Shaft without oil seal Power supply 2 Motor connector Round MSMF041L1A2 MSMF041L1C2 100 V Key-way, center tap MSMF041L1S2 MSMF041L1U2 MSMF042L1A2 MSMF042L1C2 Round 200 V Key-way, center tap MSMF042L1S2 MSMF042L1U2 * Use hexagon \bullet Dimensions are subject to change without notice. Contact us or a socket head screw for installation. Key way dimensions 99 4-ø4.5* <Key way, center tap shaft> (36)(42) (30) <u></u> M5 depth 10 [Unit: mm]

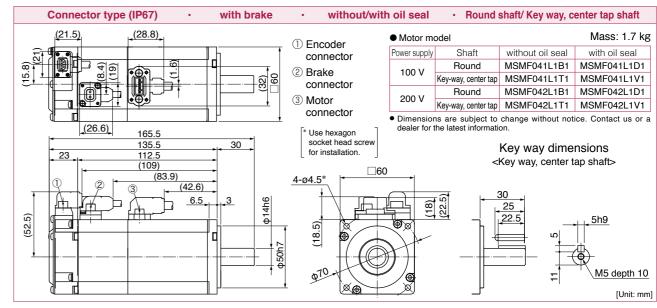




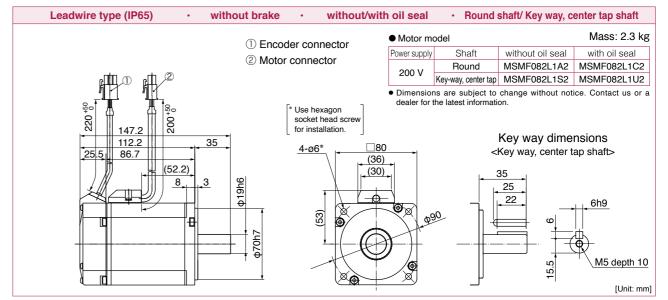
* For motors specifications, refer to P.69, P.70.

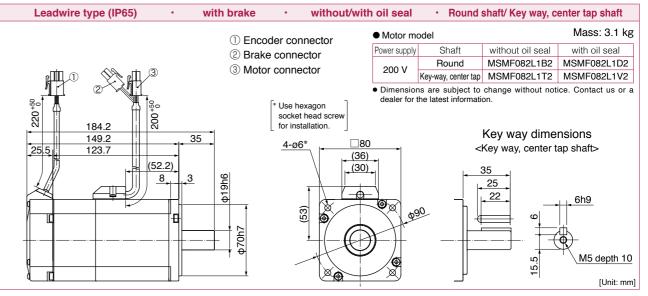
MSMF 400 W

MSMF 400 W to 750 W



MSMF 750 W

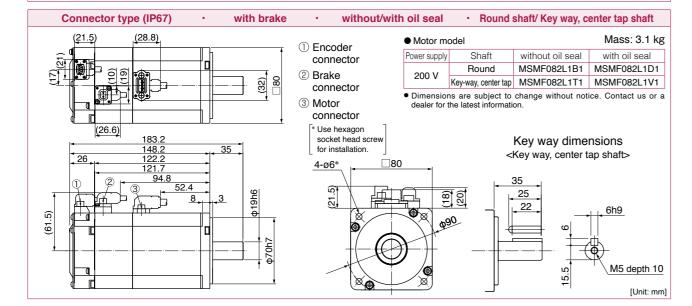




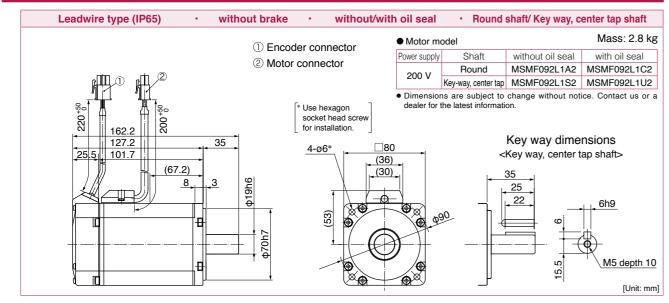
^{*} For motors specifications, refer to P.69 to P.71.

MSMF 750 W

Connector type (IP67) without brake • without/with oil seal · Round shaft/ Key way, center tap shaft (21.5) (28.8) Mass: 2.3 kg Motor model ① Encoder Shaft without oil seal Power supply Round MSMF082L1A1 MSMF082L1C1 2 Motor Key-way, center tap MSMF082L1S1 MSMF082L1U1 connector • Dimensions are subject to change without notice. Contact us or a * Use hexagon socket head screw Key way dimensions for installation. <Key way, center tap shaft> 4-ø6* 22 (09) M5 depth 10 [Unit: mm]



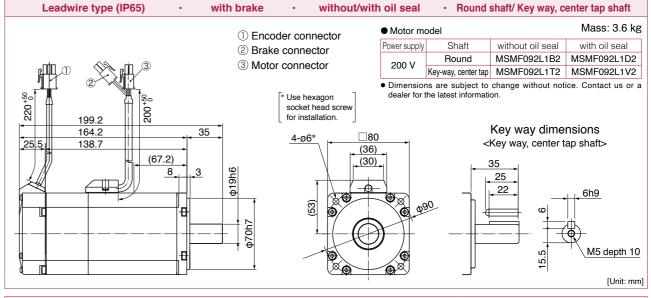
MSMF 1000 W

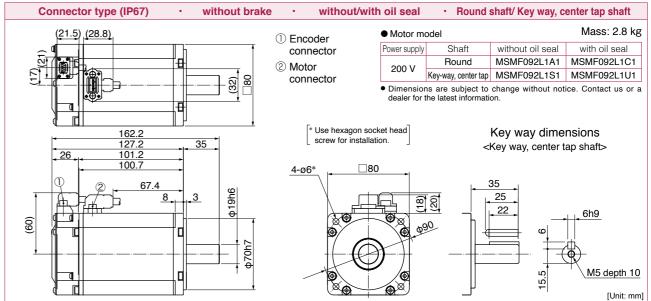


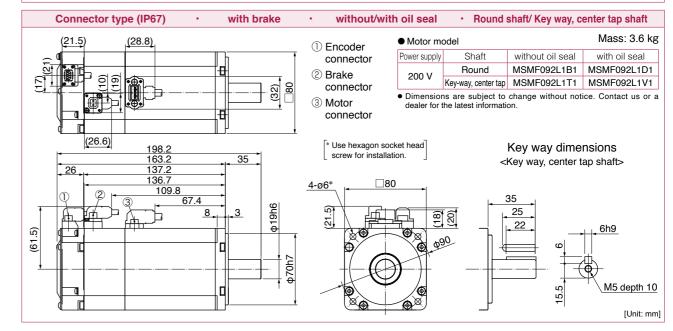
^{*} For motors specifications, refer to P.71, P.72.

MSMF 1000 W

MSMF 1000 W

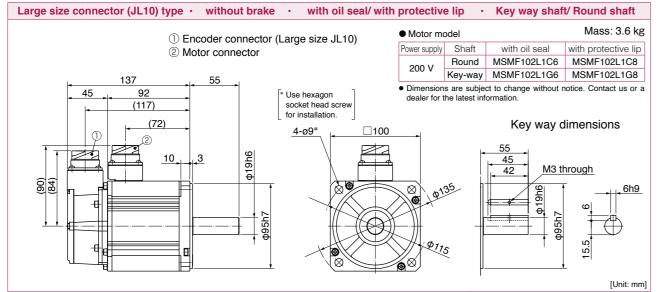


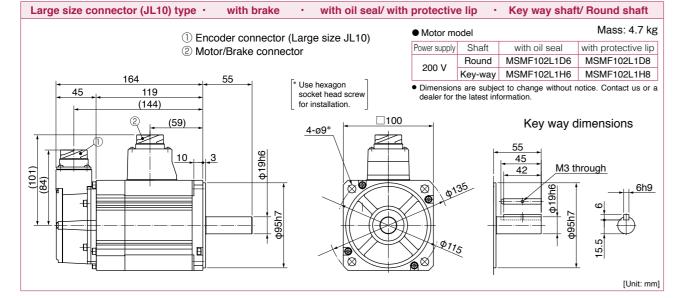


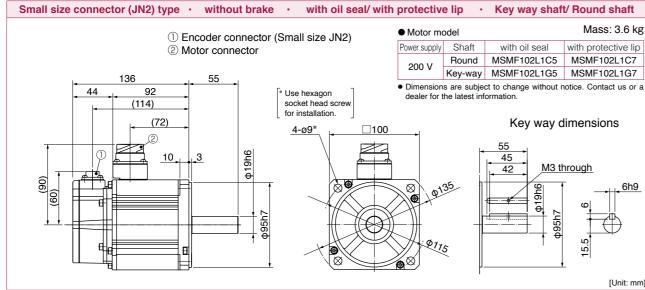


^{*} For motors specifications, refer to P.72.

MSMF 1.0 kW



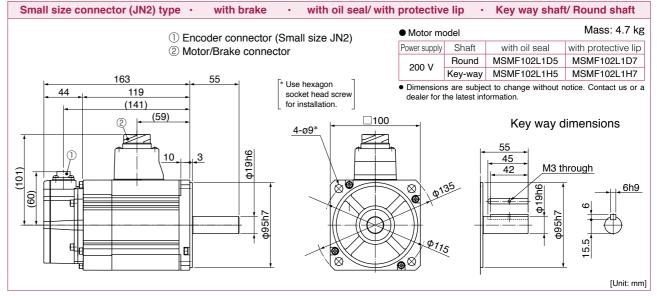




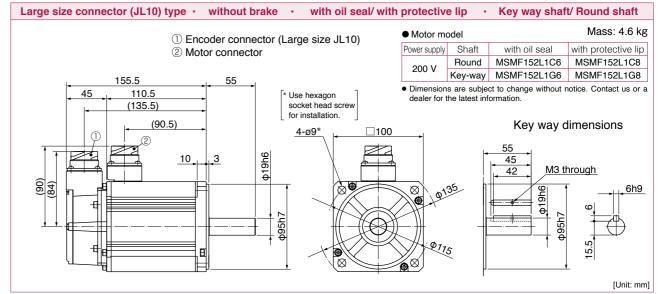
* For motors specifications, refer to P.73.

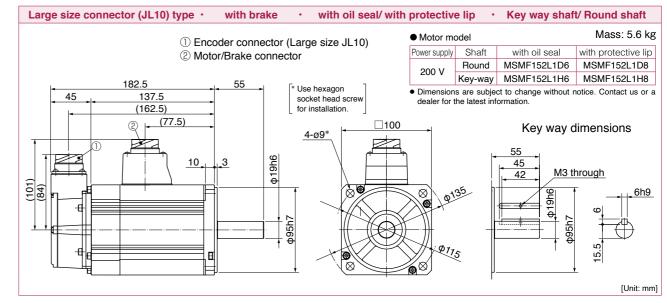
MSMF 1.0 kW

MSMF 1.0 kW to 1.5 kW



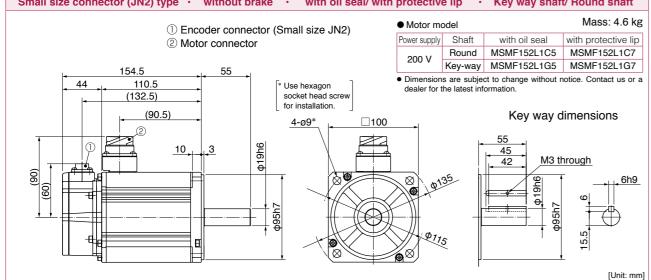
MSMF 1.5 kW

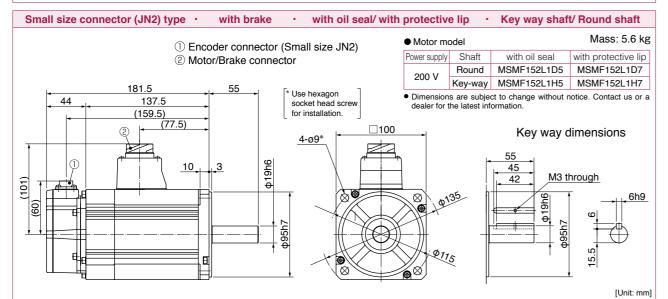




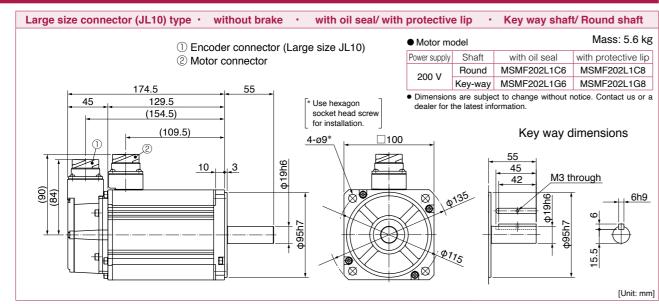
^{*} For motors specifications, refer to P.73, P.74.

MSMF 1.5 kW Small size connector (JN2) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Mass: 4 6 kg





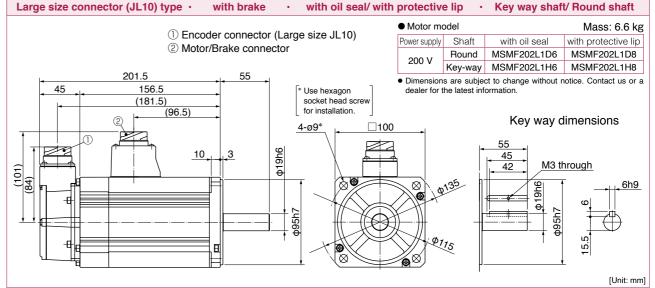
MSMF 2.0 kW

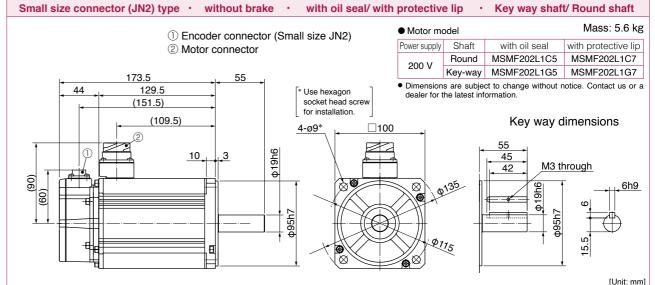


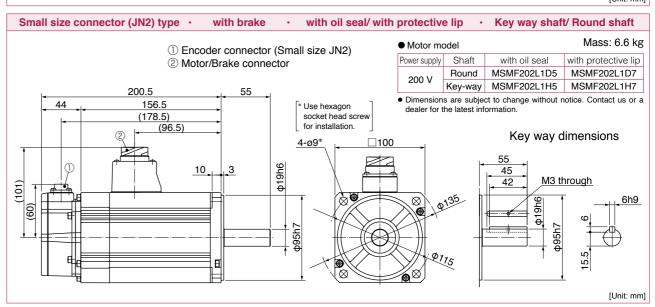
* For motors specifications, refer to P.74, P.75.

MSMF 2.0 kW

MSMF 2.0 kW





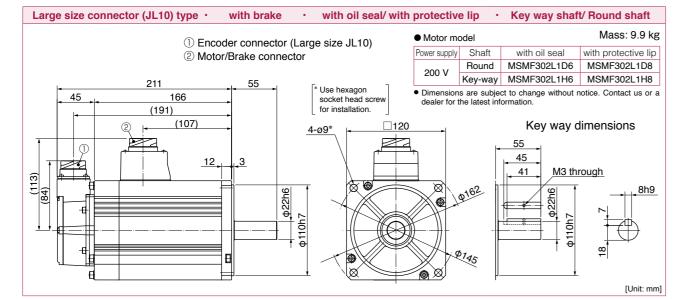


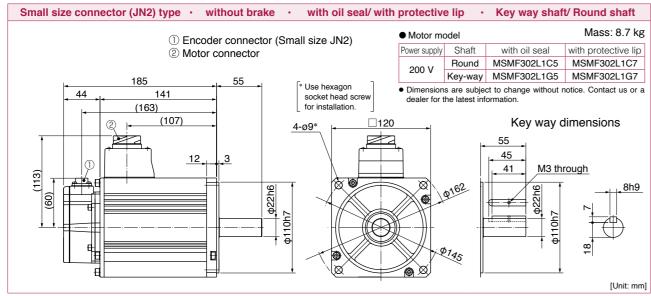
* For motors specifications, refer to P.75.

[Unit: mm]

MSMF 3.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Shaft with oil seal with protective lip ② Motor connector Round MSMF302L1C6 MSMF302L1C8 Key-way MSMF302L1G6 MSMF302L1G8 * Use hexagon Dimensions are subject to change without notice. Contact us or a 45 141 socket head screv dealer for the latest information (166)(107) Key way dimensions 4-ø9* 45 12 41 M3 through Ø,

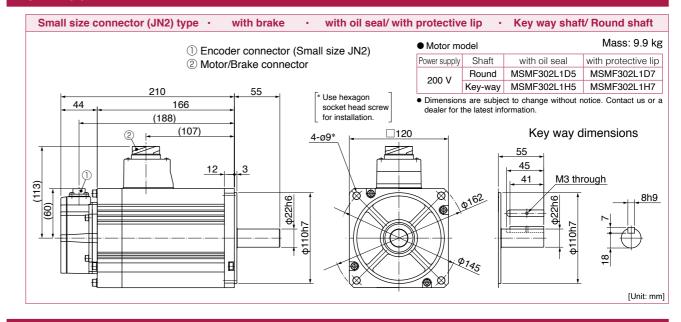
MSMF 3.0 kW



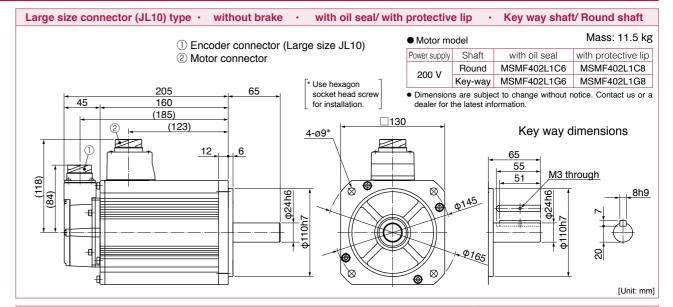


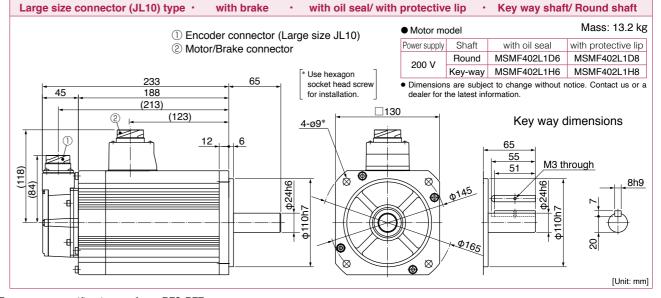
^{*} For motors specifications, refer to P.76.

MSMF 3.0 kW



MSMF 4.0 kW





^{*} For motors specifications, refer to P.76, P.77.

MSMF 4.0 kW Small size connector (JN2) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model (1) Encoder connector (Small size JN2) Power supply Shaft with oil seal with protective lip ② Motor connector Round MSMF402L1C5 MSMF402L1C7 Key-way MSMF402L1G5 MSMF402L1G7 * Use hexagon socket head screv Dimensions are subject to change without notice. Contact us or a 160 dealer for the latest information (182)(123)Key way dimensions 4-ø9* 12 M3 through

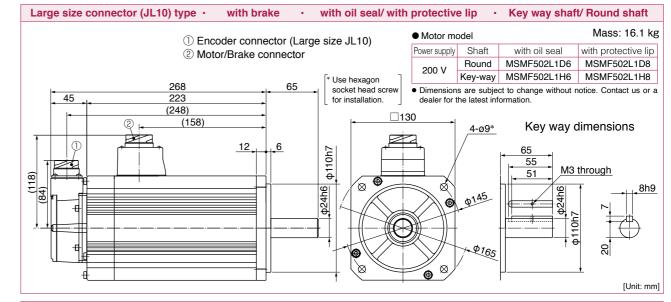
Small size connector (JN2) type · with brake · with oil seal/ w	ith protective lip · Key way shaft/ Round shaft
① Encoder connector (Small size JN2)	● Motor model Mass: 13.2
② Motor/Brake connector	Power supply Shaft with oil seal with protective li
©	200 V Round MSMF402L1D5 MSMF402L1D7
* Use hexagon	Key-way MSMF402L1H5 MSMF402L1H7
232 65 socket head screw for installation.	 Dimensions are subject to change without notice. Contact us o dealer for the latest information.
(210) (123) 12 6 (4-09* 4-09*	Key way dimensions 65 55 M3 through
	[Unit: n

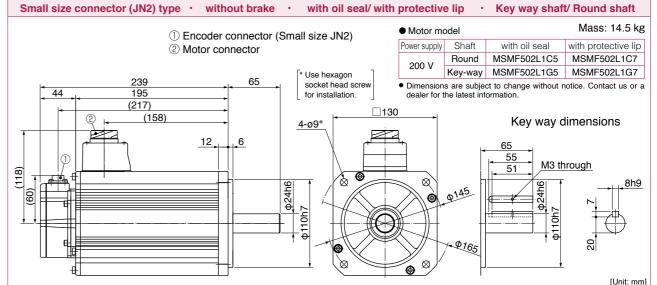
MSMF 5.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Mass: 14.5 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal with protective lip ② Motor connector Round MSMF502L1C6 MSMF502L1C8 Key-way MSMF502L1G6 MSMF502L1G8 * Use hexagon socket head screw Dimensions are subject to change without notice. Contact us or a 195 (220)(158)2 Key way dimensions 4-ø9* 12 55 51 M3 through [Unit: mm]

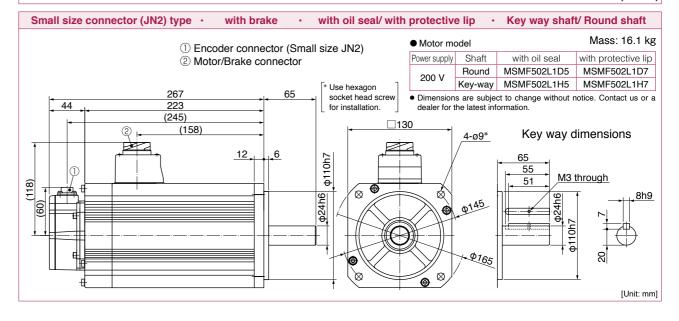
* For motors specifications, refer to P.77, P.78.

MSMF 5.0 kW

MSMF 5.0 kW



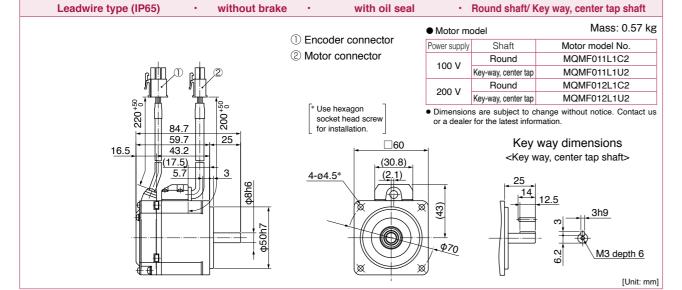




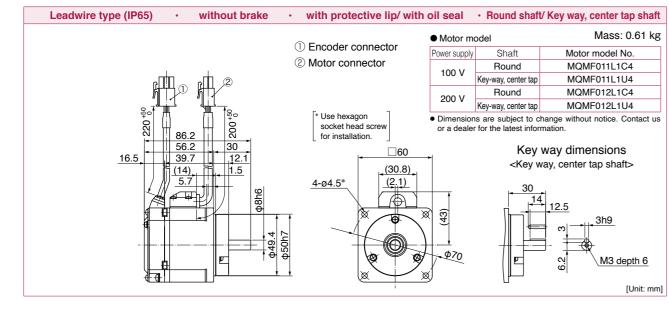
* For motors specifications, refer to P.78.

without brake

MQMF 100 W Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.54 kg Motor model (1) Encoder connector Shaft Motor model No. 2 Motor connector Round MQMF011L1A2 Key-way, center tap MQMF011L1S2 MQMF012L1A2 Round 200 V Key-way, center tap MQMF012L1S2 * Use hexagon · Dimensions are subject to change without notice. Contact us socket head screw 56.2 Key way dimensions <Key way, center tap shaft> (30.8) (2.1) 4-ø4.5* \oplus M3 depth 6 [Unit: mm]



with oil seal



* For motors specifications, refer to P.79, P.80.

MQMF 100 W

MQMF 100 W Leadwire type (IP65) with brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.79 kg Motor model (1) Encoder connector Shaft Motor model No. 2 Brake connector Round MQMF011L1B2 3 Motor connector Key-way, center tap MQMF011L1T2 MQMF012L1B2 Round 200 V Key-way, center tap MQMF012L1T2 * Use hexagon • Dimensions are subject to change without notice. Contact us socket head screw or a dealer for the latest information 102.5 77.5 Key way dimensions <Key way, center tap shaft> (30.8)(2.1) 4-ø4.5* \triangle M3 depth 6 [Unit: mm] . · Round shaft/ Key way, center tap shaft Leadwire type (IP65) with brake with oil seal

① Encoder connector

② Brake connector

③ Motor connector

* Use hexagon

for installation.

25

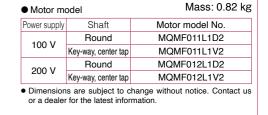
81

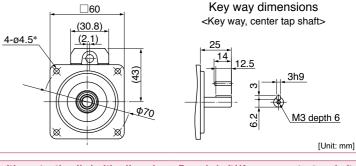
64.5

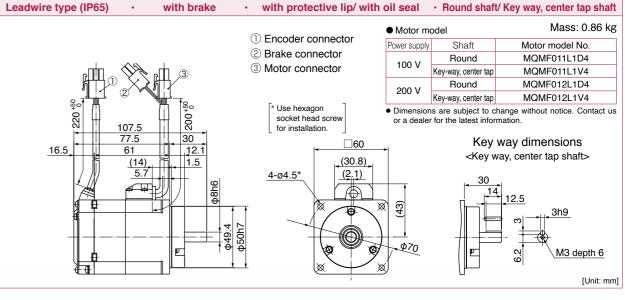
(17.5)

16.5

socket head screw

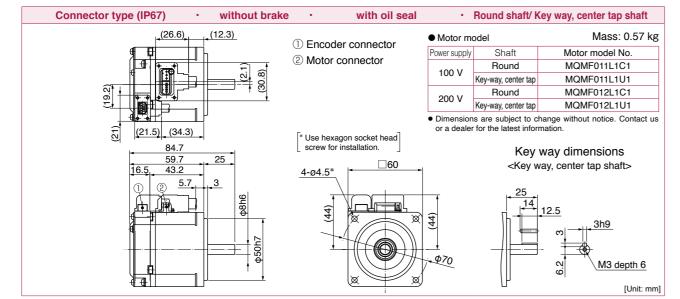


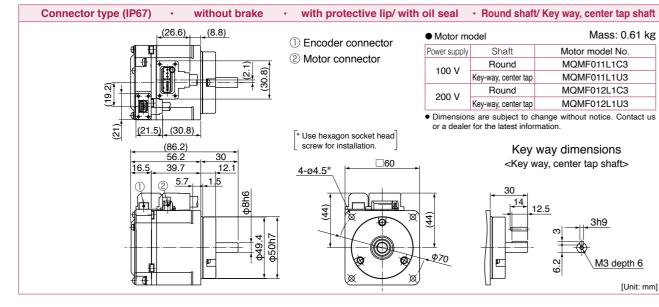




* For motors specifications, refer to P.79, P.80.

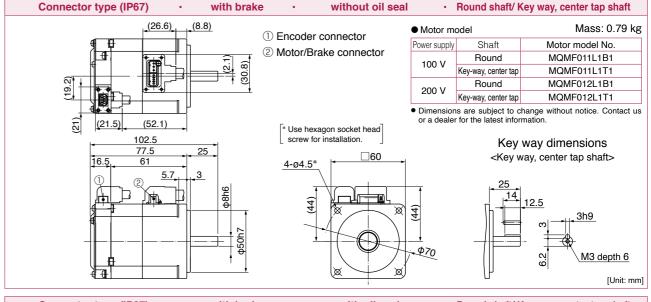
MQMF 100 W Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.54 kg Motor model Encoder connector Shaft Motor model No. 2 Motor connector Round MQMF011L1A1 Key-way, center tap MQMF011L1S1 MQMF012L1A1 Round 200 V Key-way, center tap MQMF012L1S1 · Dimensions are subject to change without notice. Contact us (21.5) (30.8) * Use hexagon socket head screw for installation. Key way dimensions <Key way, center tap shaft> 4-ø4.5* 5.7

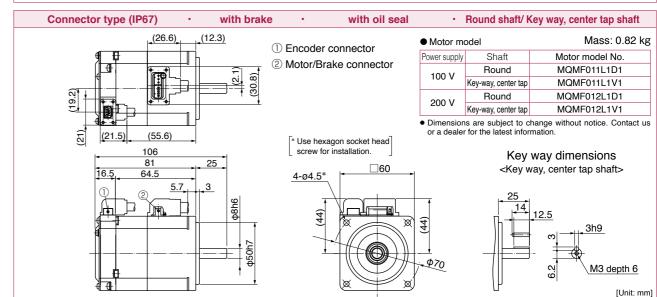


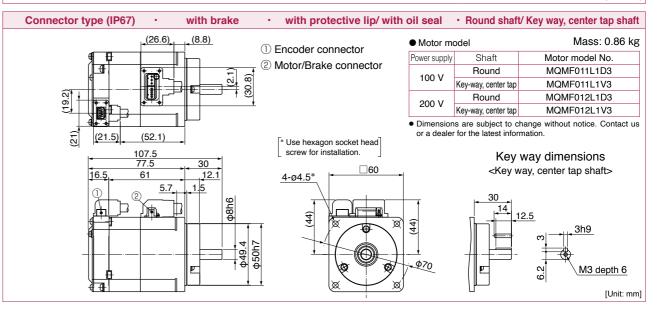


MQMF 100 W

MQMF 100 W







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M3 depth 6

[Unit: mm]

^{*} For motors specifications, refer to P.79, P.80.

^{*} For motors specifications, refer to P.79, P.80.

MQMF 200 W

16.5 49.3

Leadwire type (IP65) · without brake

Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Leadwire type (IP65) with brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 1.1 kg Mass: 1.5 kg Motor model Motor model (1) Encoder connector (1) Encoder connector Shaft Motor model No. Shaft Motor model No. 2 Brake connector ② Motor connector Round MQMF021L1A2 Round MQMF021L1B2 3 Motor connector Key-way, center tap MQMF021L1S2 Key-way, center tap MQMF021L1T2 MQMF022L1A2 MQMF022L1B2 Round Round 200 V 200 V Key-way, center tap MQMF022L1S2 Key-way, center tap MQMF022L1T2 * Use hexagon * Use hexagon Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Dimensions are subject to change without notice. Contact us socket head screw socket head screw or a dealer for the latest informat Key way dimensions Key way dimensions 85.9 4-ø6* 4-ø6* <Key way, center tap shaft> 16.5 69.4 <Key way, center tap shaft> (30.8)(30.8) $(18.9)_{-}$ _ 30 (2.1) (2.1) 20 20 18 18 M4 depth 8 M4 depth 8 [Unit: mm] [Unit: mm] · Round shaft/ Key way, center tap shaft Leadwire type (IP65) without brake with oil seal

Mass: 1.2 kg

M4 depth 8

Mass: 1.3 kg

M4 depth 8

[Unit: mm]

Motor model No.

MQMF021L1C4

MQMF021L1U4

MQMF022L1C4

MQMF022L1U4

[Unit: mm]

Motor model No.

MQMF021L1C2

MQMF021L1U2

MQMF022L1C2

MQMF022L1U2

Motor model

Shaft

Round

Key-way, center tap Round

Key-way, center tap

20

Shaft

Round

Key-way, center tap

Round

Key-way, center tap

or a dealer for the latest informa

Dimensions are subject to change without notice. Contact us

Key way dimensions

<Key way, center tap shaft>

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

Key way dimensions

<Key way, center tap shaft>

Power supply

100 V

200 V

· with protective lip/ with oil seal · Round shaft/ Key way, center tap shaft

Motor model

Power supply

100 V

200 V

① Encoder connector

② Motor connector

* Use hexagon socket head screv

for installation.

① Encoder connector

② Motor connector

* Use hexagon

4-ø6*

socket head screw

(30.8)

(2.1)

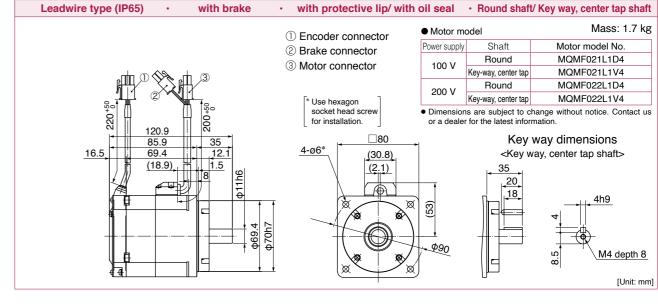
(2.1)

4-ø6*

MQMF 200 W

MQMF 200 W

Leadwire type (IP65) •	with brake	 with oil seal 	•	Round shaft/ K	Cey way, center tap shaft
		Encoder connector	• Motor m	odel	Mass: 1.6 kg
		② Brake connector	Power supply	Shaft	Motor model No.
		Motor connector	100 V	Round	MQMF021L1D2
mm (1) (3) m (3)		Wotor connector	100 V	Key-way, center tap	MQMF021L1V2
			200 V	Round	MQMF022L1D2
2 2		* Use hexagon	200 V	Key-way, center tap	MQMF022L1V2
09-002 119.4		socket head screw for installation.		ns are subject to cl r for the latest infor	hange without notice. Contact umation.
89.4 30)	□80	J	Key	way dimensions
16.5 72.9	→	4-ø6*			ay, center tap shaft>
(22.4) 3	ф11h6	(30.8)	<u> </u>	20	
	1	×	(53)	18	4h9
##	\$70h7		↓ ↓		
	+ 0	× ×	Φ90		M4 depth 8
			,	U	[Unit: m



^{*} For motors specifications, refer to P.81, P.82.

^{*} For motors specifications, refer to P.81, P.82.

MQMF 200 W

Connector type (IP67)

Connector type (IP67)

(21.5)

Connector type (IP67)

16.5 49.3

(26.6)

(36.9)

•

(40.4)

 $(36.9)_{2}$

95.8

65.8

(17.2)

without brake

without brake

92.3

62.3

16.5 45.8

(13.7)

without brake

with oil seal

1 Encoder connector

② Motor connector

* Use hexagon

socket head screw

· with protective lip/ with oil seal

1 Encoder connector

2 Motor connector

* Use hexagon

socket head screw

Motor model

100 V

Motor model

Power supply

100 V

200 V

Shaft

Round

Key-way, center tap

Round

Key-way, center tap

20

18

Shaft

Round

Key-way, center tap

Round

Key-way, center tap

18

or a dealer for the latest informati

• Dimensions are subject to change without notice. Contact us

Key way dimensions

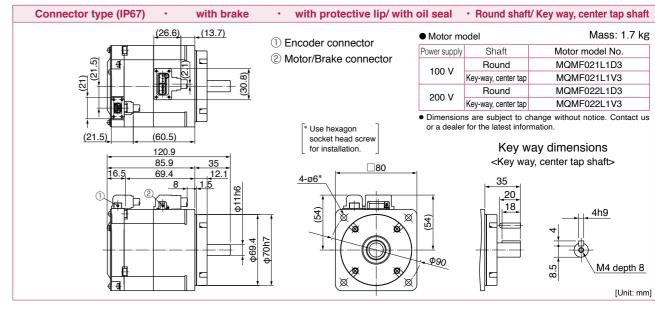
<Key way, center tap shaft>

or a dealer for the latest informati

MQMF 200 W without oil seal · Round shaft/ Key way, center tap shaft Connector type (IP67) with brake without oil seal · Round shaft/ Key way, center tap shaft (13.7) Mass: 1.1 kg (26.6) Mass: 1.5 kg Motor model Motor model ① Encoder connector ① Encoder connector Shaft Motor model No. Shaft Motor model No. Power supply ② Motor connector ② Motor/Brake connector MQMF021L1A1 MQMF021L1B1 Round Round Key-way, center tap MQMF021L1S1 Key-way, center tap MQMF021L1T1 MQMF022L1A1 MQMF022L1B1 Round Round 200 V 200 V Key-way, center tap MQMF022L1S1 Key-way, center tap MQMF022L1T1 · Dimensions are subject to change without notice. Contact us Dimensions are subject to change without notice. Contact us or a dealer for the latest information or a dealer for the latest information * Use hexagon socket head screw * Use hexagon socket head screw (60.5)Key way dimensions for installation Key way dimensions 115.9 <Key way, center tap shaft> <Key way, center tap shaft> 69.4 4-ø6* 20 20 18 18 M4 depth 8 M4 depth 8

MQMF 200 W

		I			[Unit: mm]
Connector type (IP67) ·	with brake •	with oil seal	•	Round shaft/ K	Cey way, center tap shaft
(26.6) (17.3		er connector	Motor me	odel	Mass: 1.6 kg
_ 1		Brake connector	Power supply	Shaft	Motor model No.
9		brake connector	100 V	Round	MQMF021L1D1
(213)	<u>3</u> <u>(3</u> .		100 V	Key-way, center tap	MQMF021L1V1
	<u></u>		200 V	Round	MQMF022L1D1
	<u>_</u>		200 V	Key-way, center tap	MQMF022L1V1
(21.5) (64)		se hexagon cket head screw		s are subject to che for the latest inform	hange without notice. Contact us mation.
		installation.		Kev w	ay dimensions
119.4 89.4 30	•	_		_	y, center tap shaft>
16.5 72.9 8 3	4-06	80	(54)	30 20 18	(Unit: mm)



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[Unit: mm]

Mass: 1.2 kg

Motor model No.

MQMF021L1C1

MQMF021L1U1 MQMF022L1C1

MQMF022L1U1

4h9

M4 depth 8

Mass: 1.3 kg

M4 depth 8

[Unit: mm]

Motor model No.

MQMF021L1C3

MQMF021L1U3

MQMF022L1C3

MQMF022L1U3

· Round shaft/ Key way, center tap shaft

Dimensions are subject to change without notice. Contact us

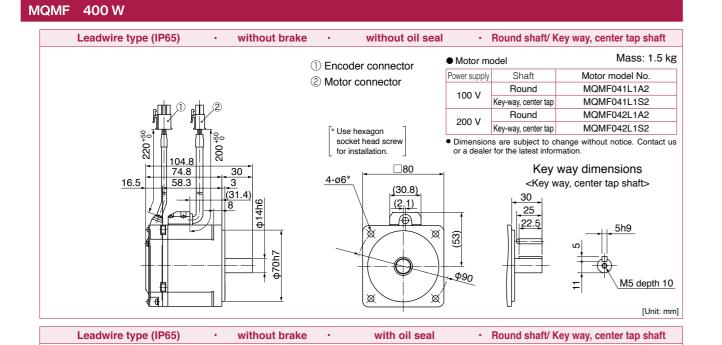
Key way dimensions

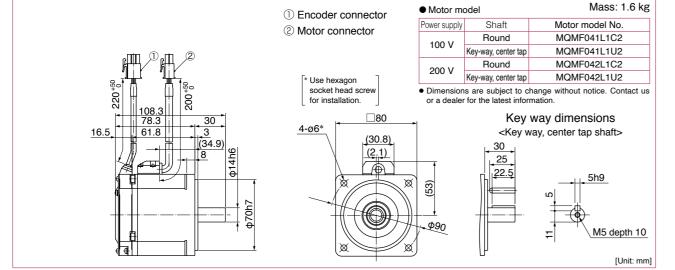
<Key way, center tap shaft>

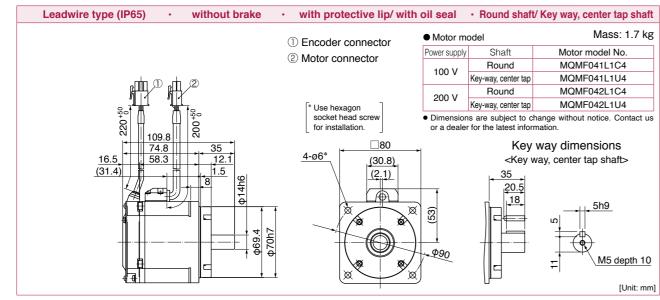
· Round shaft/ Key way, center tap shaft

^{*} For motors specifications, refer to P.81, P.82.

^{*} For motors specifications, refer to P.81, P.82.

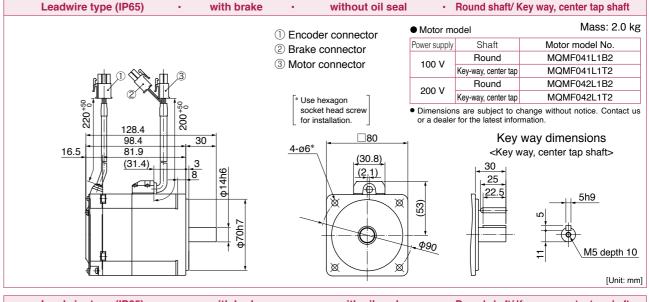


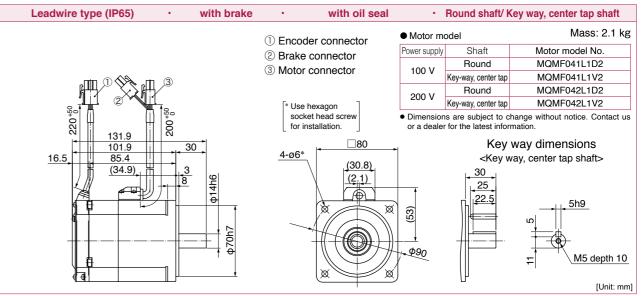


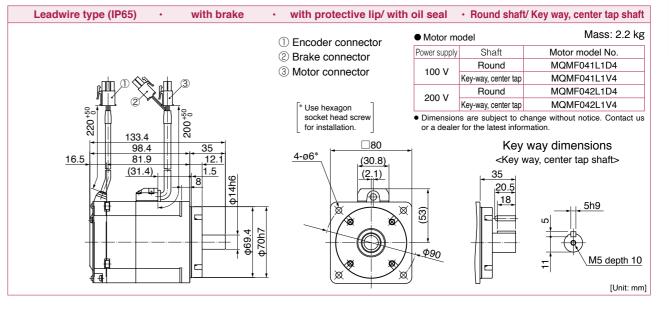


MQMF 400 W

MQMF 400 W







^{*} For motors specifications, refer to P.83, P.84.

^{*} For motors specifications, refer to P.83, P.84.

MQMF 400 W

Connector type (IP67)

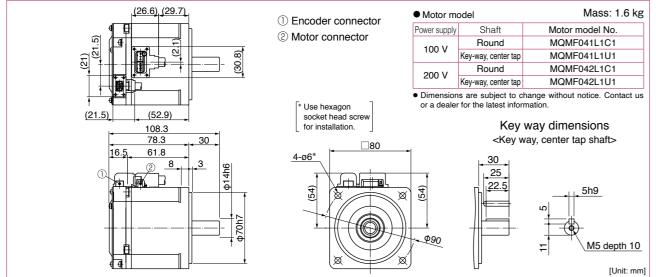
* For motors specifications, refer to P.83, P.84.

•

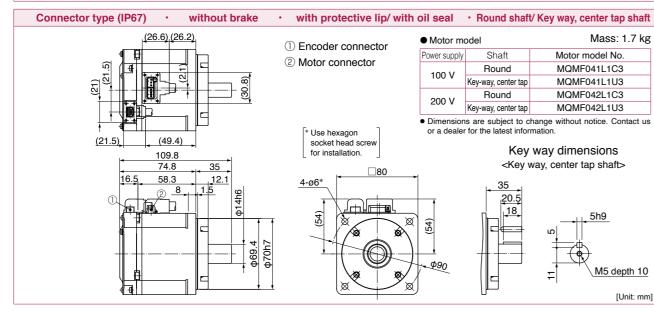
without brake

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Connector type (IP67) without oil seal without brake · Round shaft/ Key way, center tap shaft (26.6) (26.2) Mass: 1.5 kg Motor model ① Encoder connector Shaft Motor model No. ② Motor connector MQMF041L1A1 Round Key-way, center tap MQMF041L1S1 MQMF042L1A1 Round 200 V Key-way, center tap MQMF042L1S1 · Dimensions are subject to change without notice. Contact us * Use hexagon (21.5)(49.4)socket head screw Key way dimensions 104.8 <Key way, center tap shaft> 74.8 58.3 4-ø6* 2 8 25 22.5 M5 depth 10 [Unit: mm]



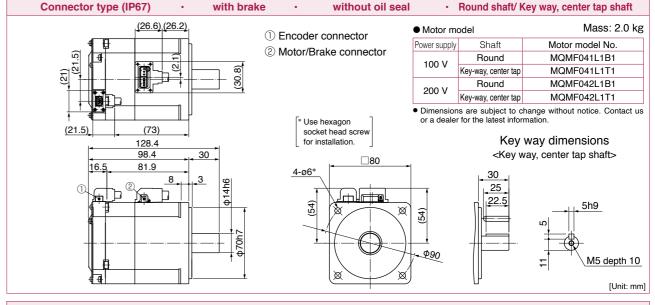
with oil seal

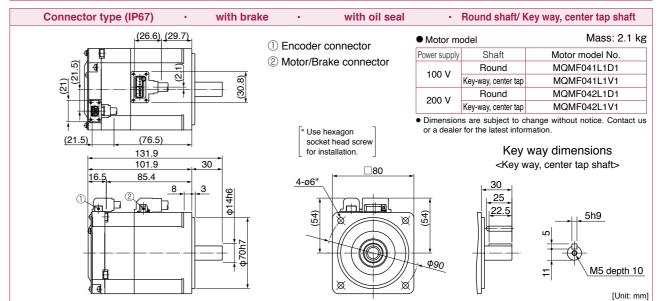


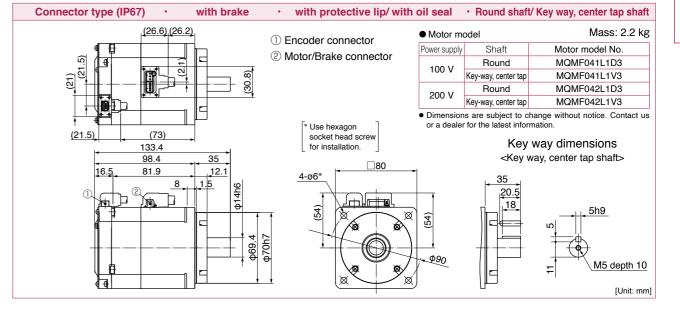
* For motors specifications, refer to P.83, P.84.

MQMF 400 W

MQMF 400 W



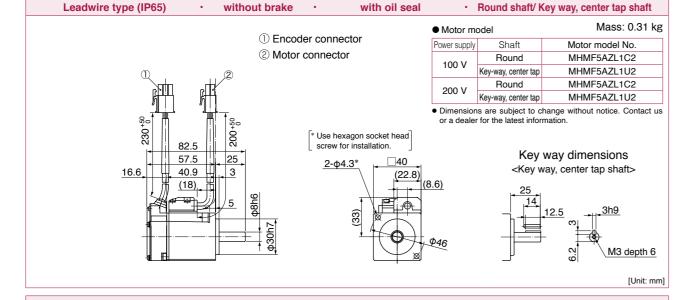


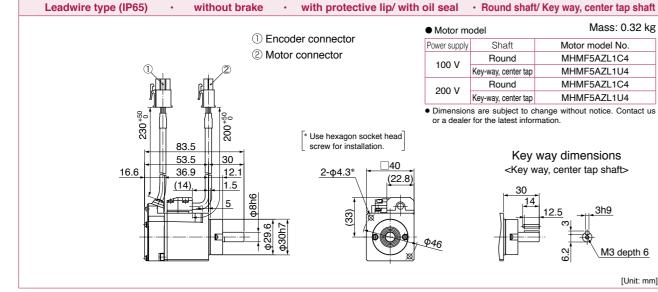


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· Round shaft/ Key way, center tap shaft

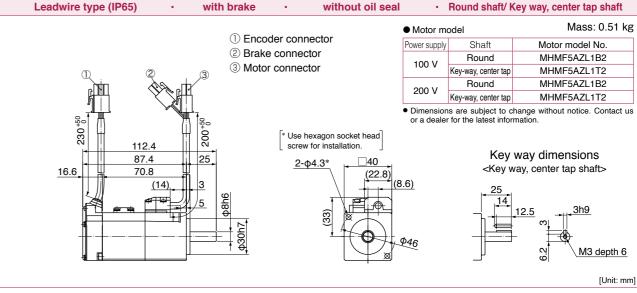
MHMF 50 W Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.29 kg Motor model ① Encoder connector Shaft Motor model No. 2 Motor connector MHMF5AZL1A2 Round MHMF5AZL1S2 Key-way, center tap MHMF5AZL1A2 Round 200 V Key-way, center tap MHMF5AZL1S2 Dimensions are subject to change without notice. Contact us Use hexagon socket head Key way dimensions 53.5 2-φ4.3* <Key way, center tap shaft> 16.6 36.9 (22.8) (14) M3 depth 6

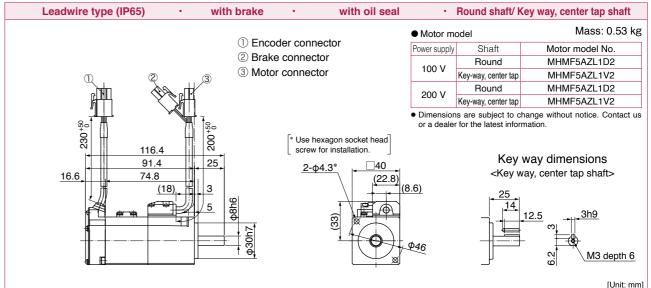


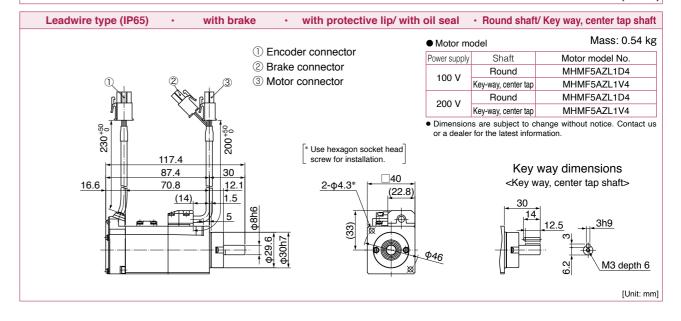


MHMF 50 W

MHMF 50 W







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[Unit: mm]

^{*} For motors specifications, refer to P.85, P.86.

^{*} For motors specifications, refer to P.85, P.86.

MHMF 50 W

Connector type (IP67)

Connector type (IP67)

78.5

<u>ω</u>

82.5

57.5

40.9

83.5

30

12.1

53.5

16.6 36.9

(2)<u>5</u>

1 2 5

16.6

25

without brake

53.5

16.6 36.9

① ② 5

without brake

1) Encoder connector

2 Motor connector

2-φ4.3*

① Encoder connector

Connector type (IP67) · without brake · with protective lip/ with oil seal · Round shaft/ Key way, center tap shaft

① Encoder connector

② Motor connector

<u>2-φ4.3*</u>

2 Motor connector

without oil seal

* Use hexagon socket head

□40

screw for installation.

with oil seal

* Use hexagon socket head

* Use hexagon socket head screw for installation.

screw for installation.

Motor model

Shaft

Round

Key-way, center tap Round

Key-way, center tap

or a dealer for the latest information

Power supply

100 V

200 V

Motor model

Shaft

Round

Key-way, center tap

Round

Key-way, center tap

or a dealer for the latest informat

Dimensions are subject to change without notice. Contact us

Key way dimensions

<Key way, center tap shaft>

Power supply

100 V

200 V

· Round shaft/ Key way, center tap shaft

• Dimensions are subject to change without notice. Contact us

Key way dimensions

<Key way, center tap shaft>

Mass: 0.31 kg

M3 depth 6

Mass: 0.32 kg

M3 depth 6
[Unit: mm]

Motor model No.

MHMF5AZL1C3

MHMF5AZL1U3

MHMF5AZL1C3

MHMF5AZL1U3

[Unit: mm]

Motor model No.

MHMF5AZL1C1

MHMF5AZL1U1

MHMF5AZL1C1

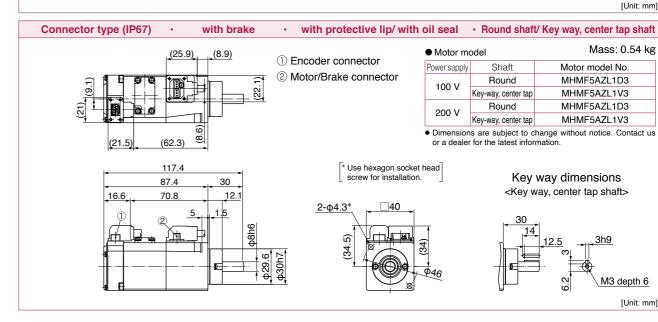
MHMF5AZL1U1

[Unit: mm]

MHMF 50 W · Round shaft/ Key way, center tap shaft Connector type (IP67) with brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.51 kg Mass: 0.29 kg Motor model Motor model (1) Encoder connector Shaft Motor model No. Shaft Motor model No. ② Motor/Brake connector MHMF5AZL1A1 MHMF5AZL1B1 Round Round MHMF5AZL1S1 Key-way, center tap Key-way, center tap MHMF5AZL1T1 MHMF5AZL1A1 MHMF5AZL1B1 Round Round 200 V 200 V Key-way, center tap MHMF5AZL1S1 Key-way, center tap MHMF5AZL1T1 • Dimensions are subject to change without notice. Contact us · Dimensions are subject to change without notice. Contact us or a dealer for the latest information (62.3)112.4 * Use hexagon socket head screw for installation. 87.4 25 Key way dimensions Key way dimensions <Key way, center tap shaft> 70.8 <Key way, center tap shaft> <u>2-φ4.3</u>* □40 M3 depth 6 M3 depth 6

MHMF 50 W

Connector type (IP67) · with bra	ke • with oil seal	•	Round shaft/ k	Key way, center tap shaft
(25.9), (12.9)	① F	Motor mo	odel	Mass: 0.53 kg
	① Encoder connector	Power supply	Shaft	Motor model No.
	② Motor/Brake connector	100 V	Round	MHMF5AZL1D1
(22.1)		100 V	Key-way, center tap	MHMF5AZL1V1
(12)		200 V	Round	MHMF5AZL1D1
<u>▼ ₩ ● </u>		200 V	Key-way, center tap	MHMF5AZL1V1
(21.5) (66.3) (21.5)			s are subject to c for the latest infor	hange without notice. Contact us mation.
116.4 91.4 25 16.6 74.8 948 948 968	* Use hexagon socket screw for installation 2-φ4.3* 40		-	way dimensions vay, center tap shaft> 12.5 M3 depth 6
				[Unit: mm]



^{*} For motors specifications, refer to P.85, P.86.

^{*} For motors specifications, refer to P.85, P.86.

MHMF 100 W

Leadwire type (IP65)

16.6

530

97.5

67.5

50.9

(28)

12.1

71.5

54.9

(32)

MHMF 100 W

without brake

① Encoder connector

② Motor connector

with oil seal

* Use hexagon socket head

screw for installation

Leadwire type (IP65) · without brake · with protective lip/ with oil seal · Round shaft/ Key way, center tap shaft

* Use hexagon socket head

(22.8)

screw for installation.

① Encoder connector

② Motor connector

2-φ4.3*

Motor model

Shaft

Round

Kev-way, center tap

Round

Key-way, center tap

or a dealer for the latest information

Power supply

100 V

200 V

Motor model

Shaft

Round

Key-way, center tap

Round

Key-way, center tap

or a dealer for the latest informati

Dimensions are subject to change without notice. Contact us

Key way dimensions

<Key way, center tap shaft>

Power supply

100 V

200 V

M3 depth 6

Mass: 0.42 kg

M3 depth 6

Mass: 0.43 kg

Motor model No.

MHMF011L1C4

MHMF011L1U4

MHMF012L1C4

MHMF012L1U4

[Unit: mm]

[Unit: mm]

Motor model No.

MHMF011L1C2

MHMF011L1U2

MHMF012L1C2

MHMF012L1U2

· Round shaft/ Key way, center tap shaft

· Dimensions are subject to change without notice. Contact us

Key way dimensions

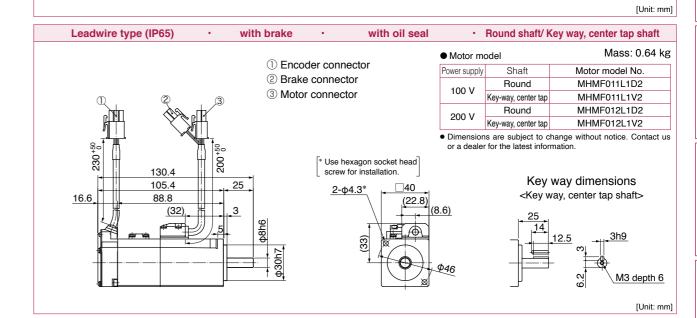
<Key way, center tap shaft>

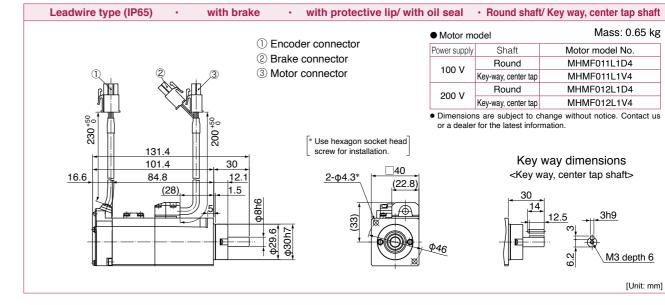
[Unit: mm]

M3 depth 6

MHMF 100 W Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Leadwire type (IP65) with brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.62 kg Mass: 0.40 kg Motor model Motor model ① Encoder connector 1) Encoder connector Shaft Motor model No. Shaft Motor model No. 2 Brake connector 2 Motor connector MHMF011L1A2 MHMF011L1B2 Round Round 3 Motor connector Key-way, center tap MHMF011L1S2 Key-way, center tap MHMF011L1T2 MHMF012L1A2 MHMF012L1B2 Round Round 200 V 200 V Key-way, center tap MHMF012L1S2 Key-way, center tap MHMF012L1T2 Dimensions are subject to change without notice. Contact us Dimensions are subject to change without notice. Contact us or a dealer for the latest information Use hexagon socket head * Use hexagon socket head Key way dimensions Key way dimensions 67.5 25 101.4 <u>2-φ4.3*</u> 2-φ4.3* <Key way, center tap shaft> <Key way, center tap shaft> 16.6 50.9 16.6 84.8 (22.8) (22.8)(28) (28)

MHMF 100 W



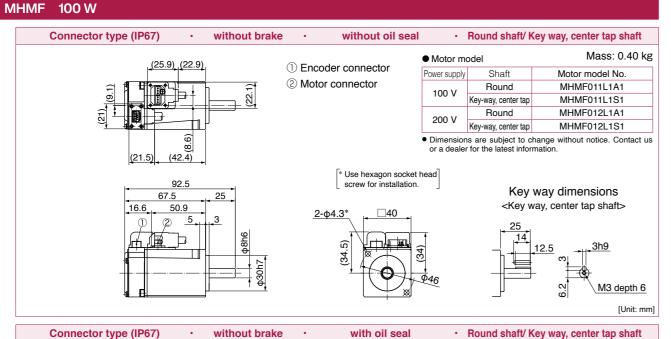


^{*} For motors specifications, refer to P.87, P.88.

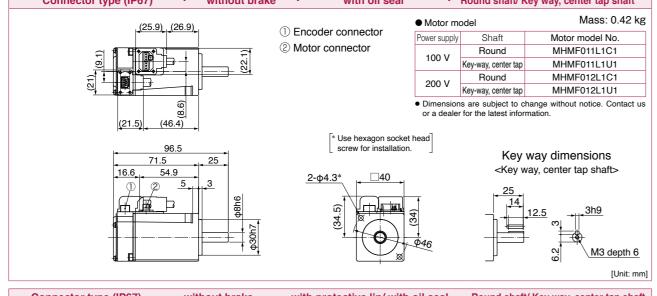
^{*} For motors specifications, refer to P.87, P.88.

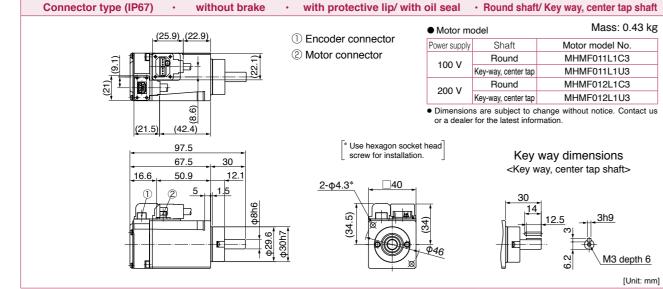
M3 depth 6

[Unit: mm]

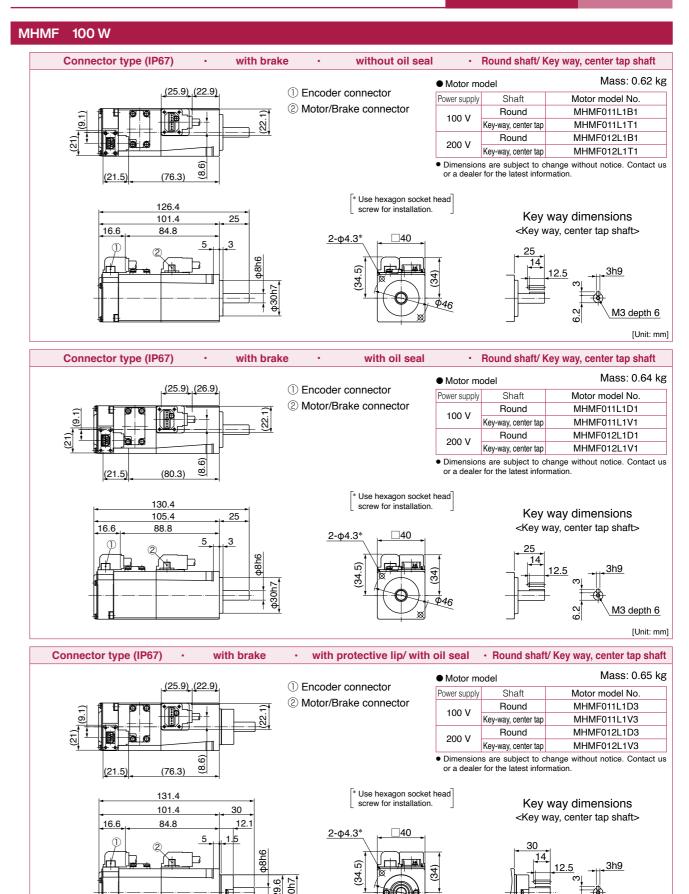


MHMF 100 W





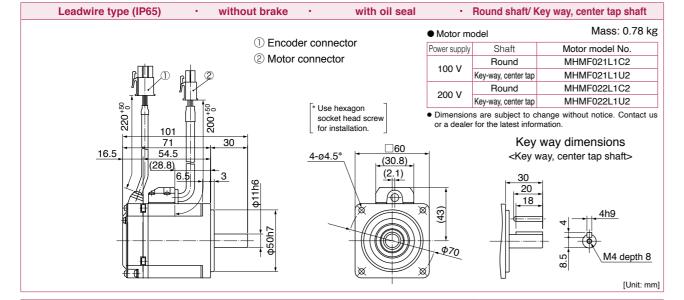
* For motors specifications, refer to P.87, P.88.

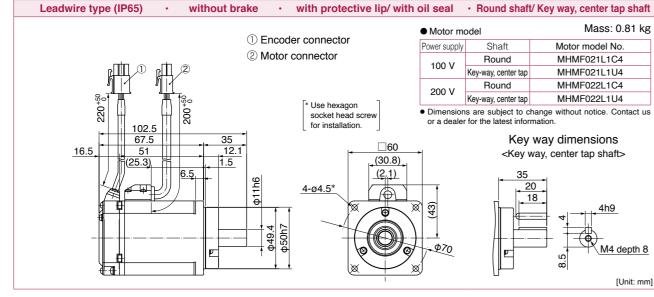


* For motors specifications, refer to P.87, P.88.

MHMF 200 W

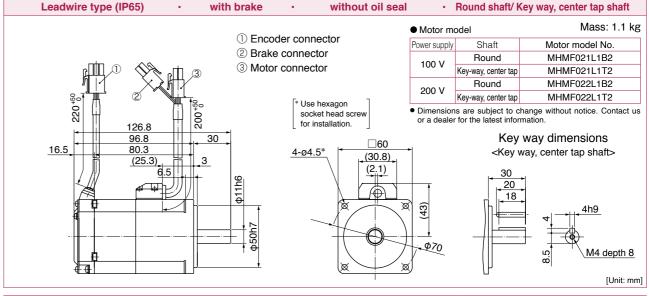
Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.75 kg Motor model ① Encoder connector Shaft Motor model No. ② Motor connector MHMF021L1A2 Round Key-way, center tap MHMF021L1S2 MHMF022L1A2 Round 200 V Key-way, center tap MHMF022L1S2 * Use hexagon · Dimensions are subject to change without notice. Contact us socket head screv 67.5 Key way dimensions <Key way, center tap shaft> 4-ø4.5* (30.8) (2.1) A M4 depth 8 [Unit: mm]

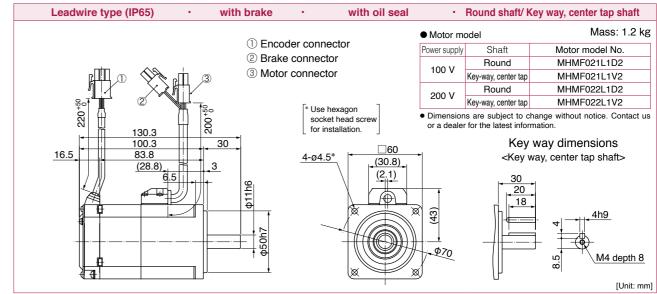


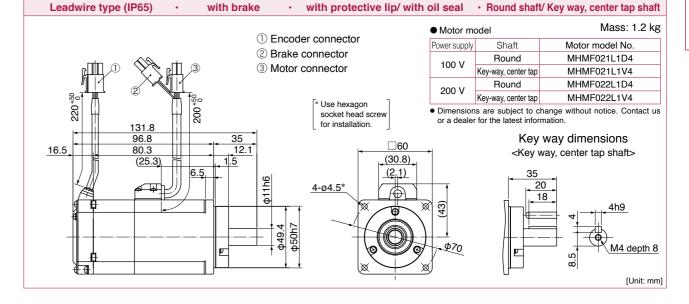


MHMF 200 W

MHMF 200 W







^{*} For motors specifications, refer to P.89, P.90.

^{*} For motors specifications, refer to P.89, P.90.

MHMF 200 W

Connector type (IP67)

Connector type (IP67)

without brake

30

without brake

102.5

67.5

with oil seal

① Encoder connector

2 Motor connector

* Use hexagon

socket head screv

· with protective lip/ with oil seal

① Encoder connector

2 Motor connector

* Use hexagon

4-ø4.53

socket head scree

Motor model

Shaft

Round

Kev-way, center tap

Round

Key-way, center tap

or a dealer for the latest information

Power supply

100 V

200 V

Motor model

Shaft

Round

Key-way, center tap

Round

Key-way, center tap

or a dealer for the latest informati

Dimensions are subject to change without notice. Contact us

18

Power supply

100 V

200 V

· Round shaft/ Key way, center tap shaft

· Dimensions are subject to change without notice. Contact us

Key way dimensions

<Key way, center tap shaft>

· Round shaft/ Key way, center tap shaft

Mass: 0.78 kg

M4 depth 8

Mass: 0.81 kg

Motor model No.

MHMF021L1C3

MHMF021L1U3

MHMF022L1C3

MHMF022L1U3

4h9

M4 depth 8

[Unit: mm]

Key way dimensions

<Key way, center tap shaft>

[Unit: mm]

Motor model No.

MHMF021L1C1

MHMF021L1U1

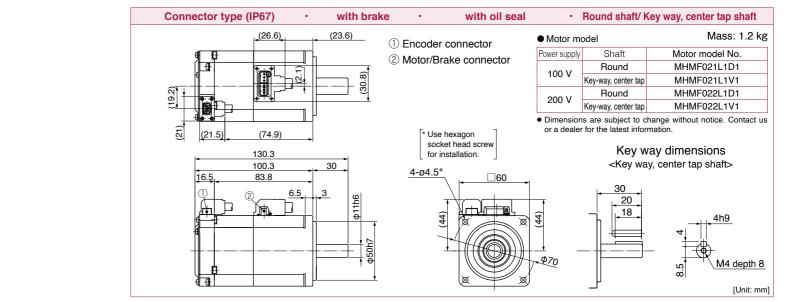
MHMF022L1C1

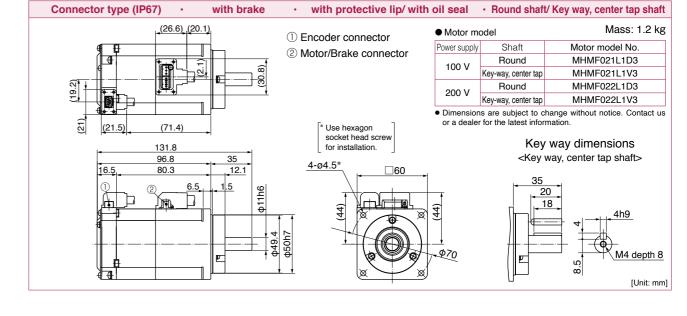
MHMF022L1U1

Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft Connector type (IP67) with brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.75 kg (26.6) (20.1) Mass: 1.1 kg Motor model Motor model (1) Encoder connector (1) Encoder connector Shaft Motor model No. Shaft Motor model No. ② Motor/Brake connector 2 Motor connector Round MHMF021L1A1 MHMF021L1B1 Round Key-way, center tap MHMF021L1S1 Key-way, center tap MHMF021L1T1 MHMF022L1A1 MHMF022L1B1 Round Round 200 V 200 V Key-way, center tap MHMF022L1S1 Key-way, center tap MHMF022L1T1 • Dimensions are subject to change without notice. Contact us · Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon * Use hexagon (71.4)socket head screw Key way dimensions Key way dimensions 126.8 <Key way, center tap shaft> <Key way, center tap shaft> 67.5 30 96.8 4-ø4.5* 4-ø4.5* 16.5 80.3 20 18 4h9 M4 depth 8 M4 depth 8 [Unit: mm] [Unit: mm]

MHMF 200 W

MHMF 200 W



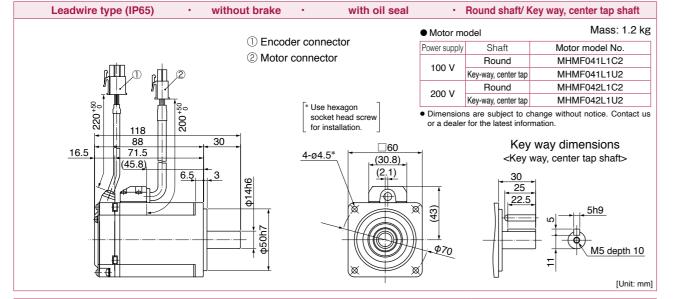


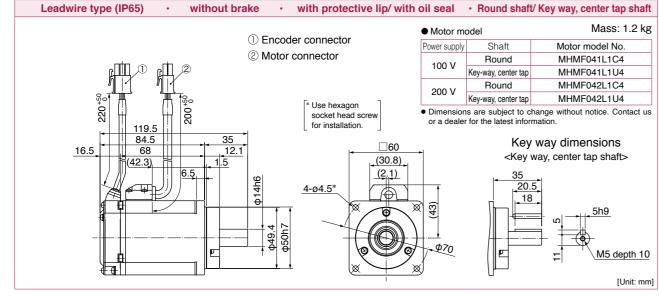
^{*} For motors specifications, refer to P.89, P.90.

^{*} For motors specifications, refer to P.89, P.90.

MHMF 400 W

without brake Leadwire type (IP65) without oil seal · Round shaft/ Key way, center tap shaft Mass: 1.1 kg Motor model ① Encoder connector Shaft Motor model No. ② Motor connector Round MHMF041L1A2 Key-way, center tap MHMF041L1S2 MHMF042L1A2 Round 200 V Key-way, center tap MHMF042L1S2 * Use hexagon · Dimensions are subject to change without notice. Contact us socket head screv 84.5 Key way dimensions 4-ø4.5* <Key way, center tap shaft> (30.8) (2.1) [Unit: mm]

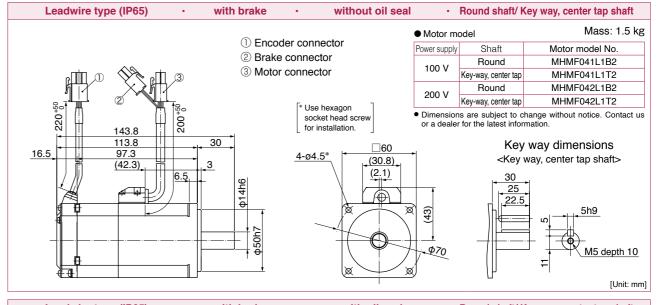


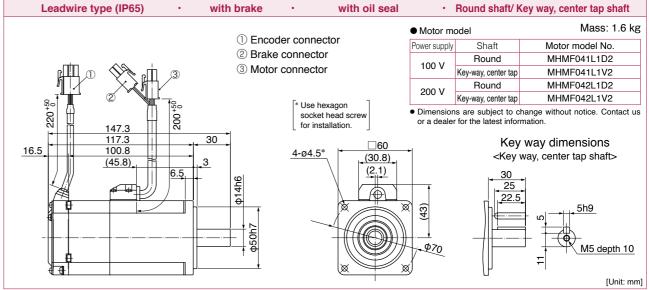


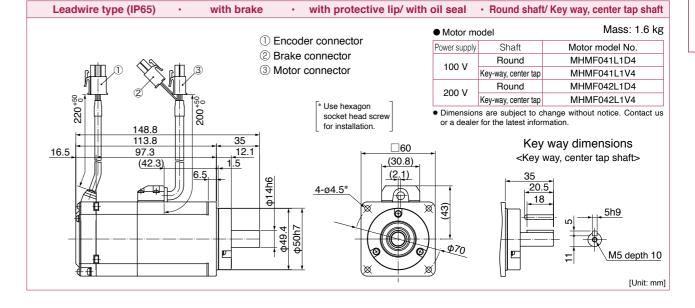
* For motors specifications, refer to P.91, P.92.

MHMF 400 W

MHMF 400 W







* For motors specifications, refer to P.91, P.92.

MHMF 400 W

Motor model

Shaft

Round

Key-way, center tap

Round

Key-way, center tap

or a dealer for the latest information

Dimensions are subject to change without notice. Contact us

18

Power supply

100 V

200 V

Encoder connector

② Motor/Brake connector

* Use hexagon

4-ø4.5*

socket head screw

Motor model No.

MHMF041L1B1

MHMF041L1T1

MHMF042L1B1

MHMF042L1T1

Key way dimensions

Mass: 1.5 kg

M5 depth 10

Mass: 1.6 kg

M5 depth 10 [Unit: mm]

Motor model No.

MHMF041L1D3

MHMF041L1V3

MHMF042L1D3

MHMF042L1V3

Key way dimensions

<Key way, center tap shaft>

[Unit: mm]

Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft Connector type (IP67) with brake without oil seal Round shaft/ Key way, center tap shaft Mass: 1.1 kg (26.6) (37.1) Motor model Motor model ① Encoder connector 1) Encoder connector Shaft Motor model No. Shaft Power supply ② Motor/Brake connector ② Motor connector Round MHMF041L1A1 Round Key-way, center tap MHMF041L1S1 Key-way, center tap MHMF042L1A1 Round Round 200 V 200 V Key-way, center tap MHMF042L1S1 Key-way, center tap • Dimensions are subject to change without notice. Contact us · Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw (59.1)* Use hexagon (21.5) (88.4)Key way dimensions 143.8 <Key way, center tap shaft> 84.5 <Key way, center tap shaft> 113.8 4-ø4.5* 4-ø4.5* 16.5 97.3 M5 depth 10 [Unit: mm]

Connector type (IP67) · without brake · with oil sea	 Round shaft/ Key way, center tap shaft 	Connector type (IP67) · with b	orake · with oil seal	 Round shaft/ Key way, center tap shaft
(40.6) ① Encoder connector	Motor model Mass: 1.2 kg	[*(26.6) _{[*} (40.6) *]	① Encoder connector	model Mass: 1.6 kg
② Motor connector	Power supply Shaft Motor model No.		② Motor/Brake connector	oply Shaft Motor model No.
Will connector	100 V Round MHMF041L1C1		100 \	, Round MHMF041L1D1
	Key-way, center tap MHMF041L1U1		5	Key-way, center tap MHMF041L1V1
	200 V Round MHMF042L1C1		200 \	, Round MHMF042L1D1
	Key-way, center tap MHMF042L1U1		200 \	Key-way, center tap MHMF042L1V1
	Dimensions are subject to change without notice. Contact us			sions are subject to change without notice. Contact us
(21.5) (62.6) * Use hexagon	or a dealer for the latest information.	(21.5) (91.9)	* Use hexagon or a de	aler for the latest information.
socket head screw	Vov. wov. dim on signs		socket head screw	Kay way dimanaiana
118 for installation.	Key way dimensions	147.3	for installation.	Key way dimensions
16.5, 71.5 4-04.5*	<key center="" shaft="" tap="" way,=""></key>	117.3 30	<u>4-ø4.5*</u> □60	<key center="" shaft="" tap="" way,=""></key>
- -	30		\	30
① ② 6.5 3 ©	30 25 25 22.5	(D) (Q) (6.5) 3 \(\varphi\)		25 22.5
	22.5			22.5
	₹		4 🕅 4	\h5h9
		† <u> </u>		
	H-+ - + + (\bar{\bar{\bar{\bar{\bar{\bar{\bar{			-
	Φ70 M5 depth 10		₹70	M5 depth 10
	₄ ∫ ∐ =	<u> </u>		=
	Unit: mm]	T T I		Unit: mm]
Connector type (IP67) · without brake · with protective lip/ with	th oil seal • Round shaft/ Key way, center tap shaft	Connector type (IP67) · with brake	with protective lip/ with oil sea	Round shaft/ Key way, center tap shaft

MHMF 400 W

MHMF 400 W

(21.5)

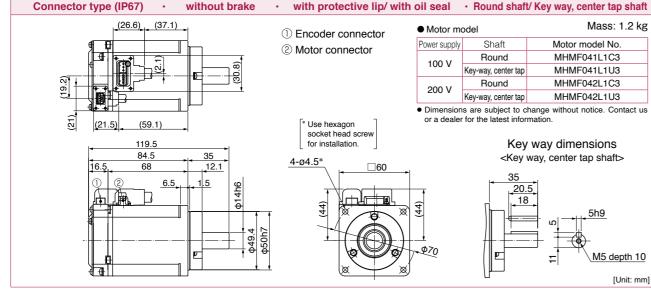
(88.4)

148.8

113.8

97.3

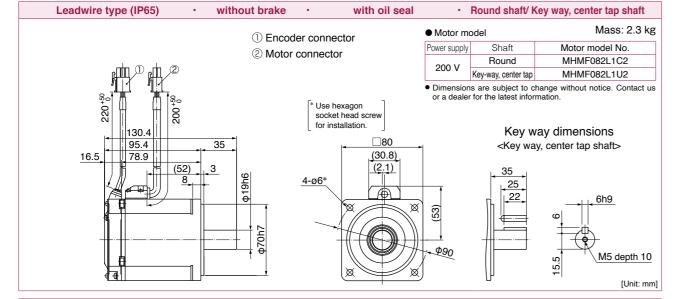
, 12.1

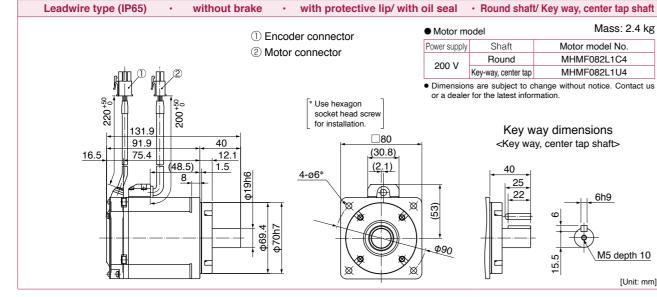


* For motors specifications, refer to P.91, P.92. * For motors specifications, refer to P.91, P.92.

161 | Panasonic Industry Co., Ltd. Panasonic Industry Co., Ltd. | 162 MHMF 750 W

without oil seal Leadwire type (IP65) without brake · Round shaft/ Key way, center tap shaft Mass: 2.2 kg Motor model (1) Encoder connector Shaft Motor model No. Power supply ② Motor connector MHMF082L1A2 Round Key-way, center tap MHMF082L1S2 Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screv for installation Key way dimensions 126.9 91.9 <Key way, center tap shaft> 4-ø6* (30.8)75.4 (2.1) M5 depth 10 [Unit: mm]

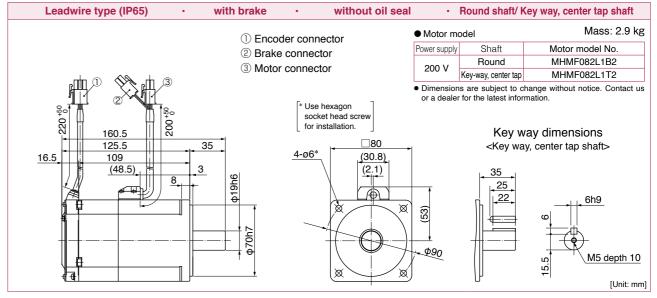


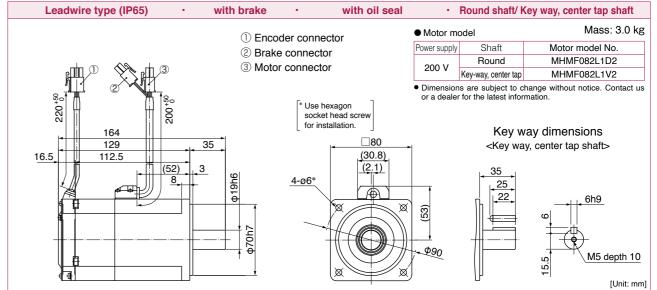


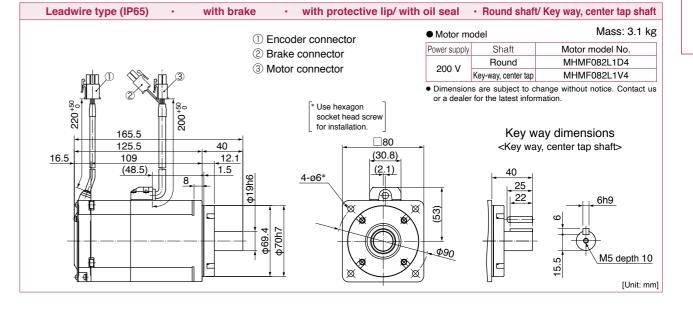
* For motors specifications, refer to P.93.

MHMF 750 W

MHMF 750 W





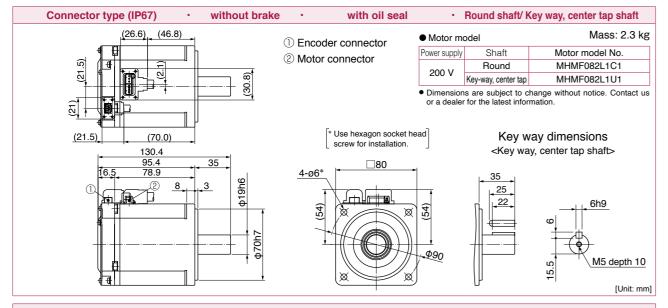


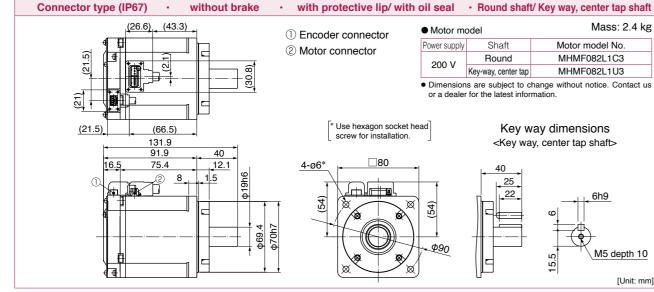
....

* For motors specifications, refer to P.93.

MHMF 750 W

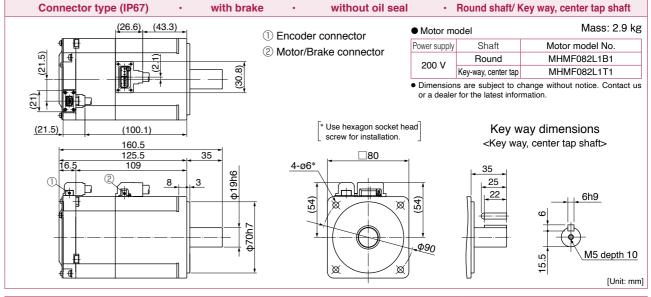
Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 2.2 kg Motor model (1) Encoder connector Shaft Motor model No. ② Motor connector MHMF082L1A1 Round Key-way, center tap MHMF082L1S1 · Dimensions are subject to change without notice. Contact us or a dealer for the latest information Use hexagon socket head screw for installation. (66.5)Key way dimensions <Key way, center tap shaft> 126.9 4-ø6* M5 depth 10 [Unit: mm]

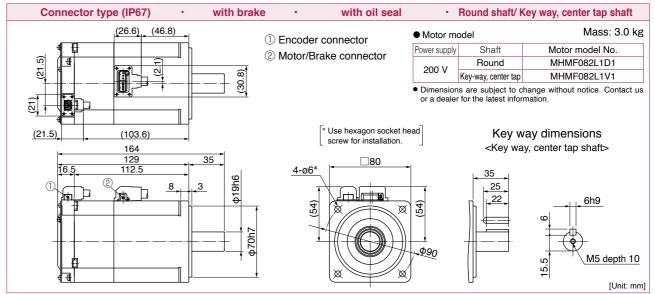


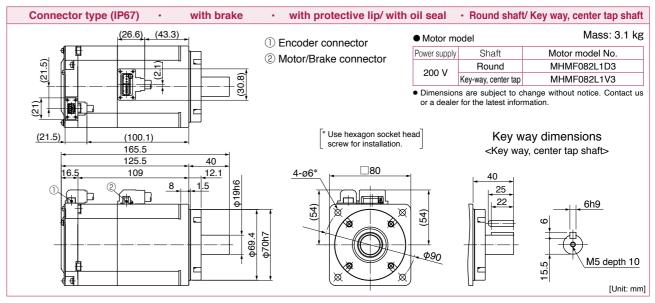


MHMF 750 W

MHMF 750 W





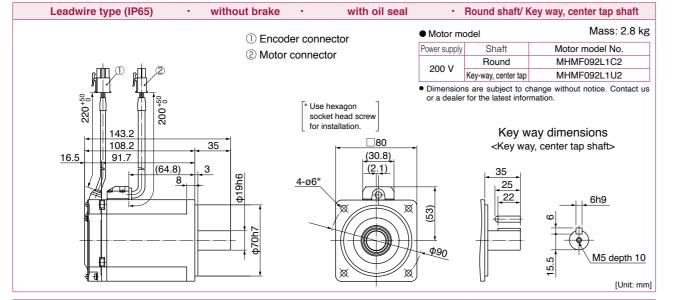


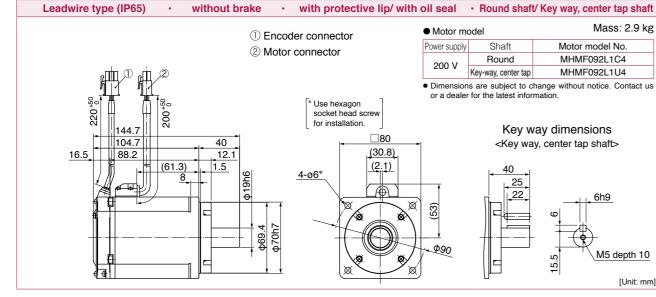
^{*} For motors specifications, refer to P.93.

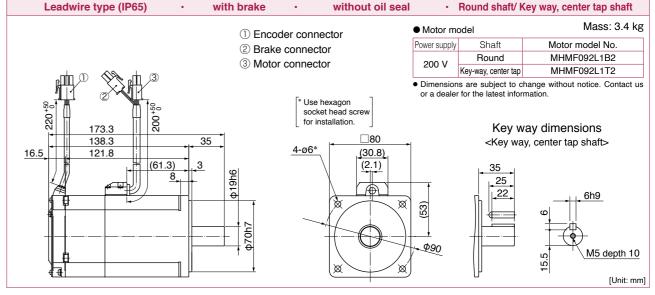
^{*} For motors specifications, refer to P.93.

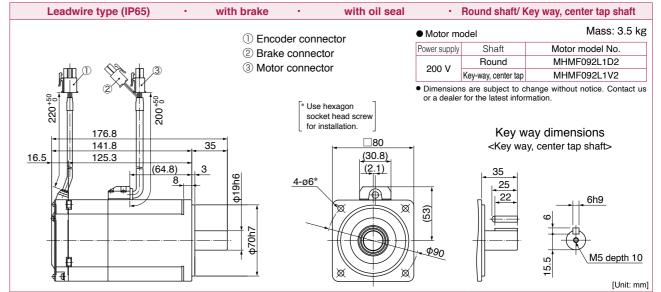
MHMF 1000 W

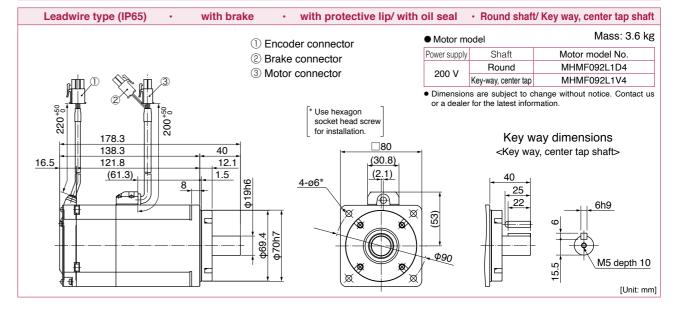
Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 2.7 kg Motor model ① Encoder connector Shaft Motor model No. ② Motor connector MHMF092L1A2 Round Key-way, center tap MHMF092L1S2 Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw for installation. Key way dimensions 104.7 <Key way, center tap shaft> 4-ø6* 88.2 (30.8)(2.1) M5 depth 10 [Unit: mm]











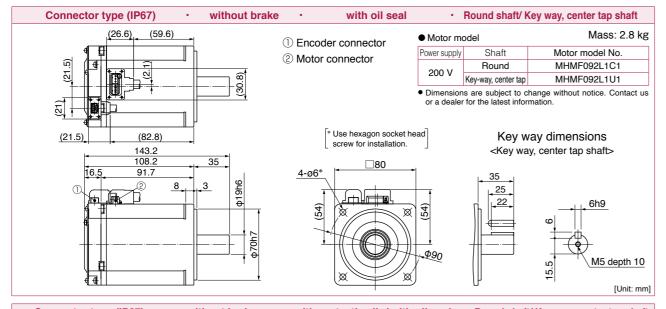
MHMF 1000 W

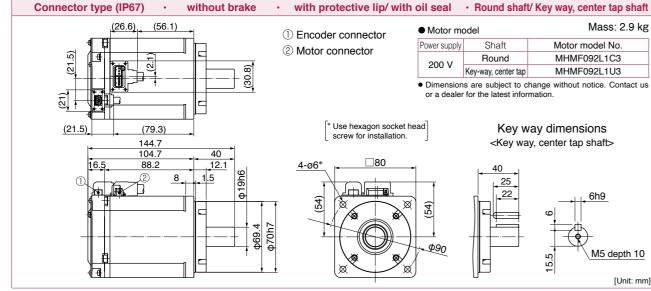
MHMF 1000 W

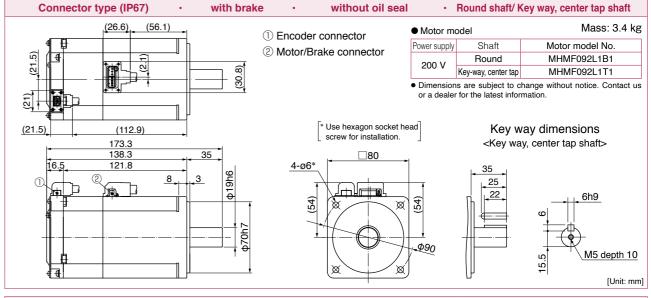
^{*} For motors specifications, refer to P.94.

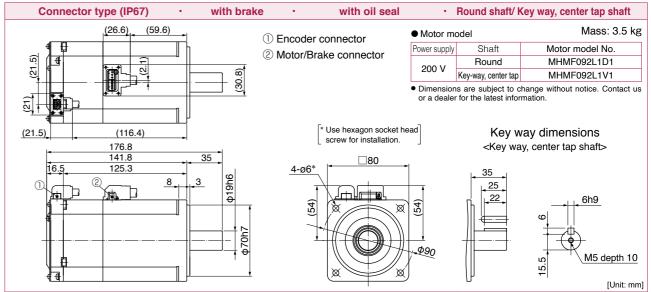
^{*} For motors specifications, refer to P.94.

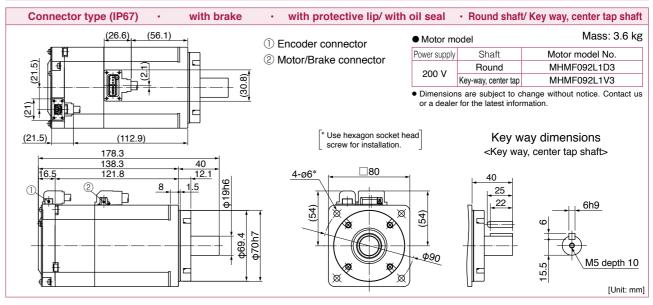
MHMF 1000 W Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 2.7 kg Motor model (1) Encoder connector Shaft Motor model No. ② Motor connector MHMF092L1A1 Round Key-way, center tap MHMF092L1S1 · Dimensions are subject to change without notice. Contact us or a dealer for the latest information Use hexagon socket head (79.3) Key way dimensions screw for installation. 139.7 <Key way, center tap shaft> 104.7 4-ø6* M5 depth 10 [Unit: mm]











MHMF 1000 W

MHMF 1000 W

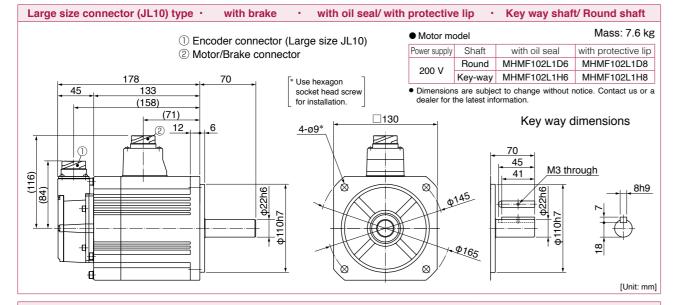
^{*} For motors specifications, refer to P.94.

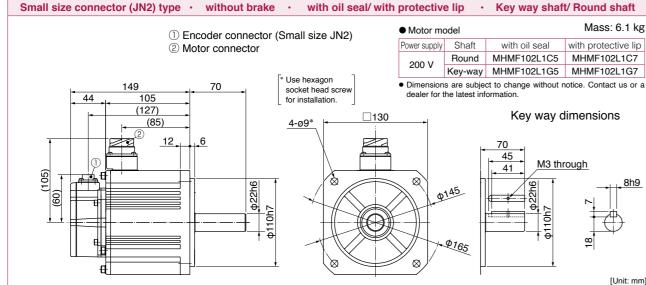
^{*} For motors specifications, refer to P.94.

MHMF 1.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Shaft with oil seal with protective lip ② Motor connector Round MHMF102L1C6 MHMF102L1C8 Key-way MHMF102L1G6 MHMF102L1G8 * Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw dealer for the latest information for installation. (130)Key way dimensions (85)4-ø9* 45 M3 through

Ф₁₆₅

[Unit: mm]

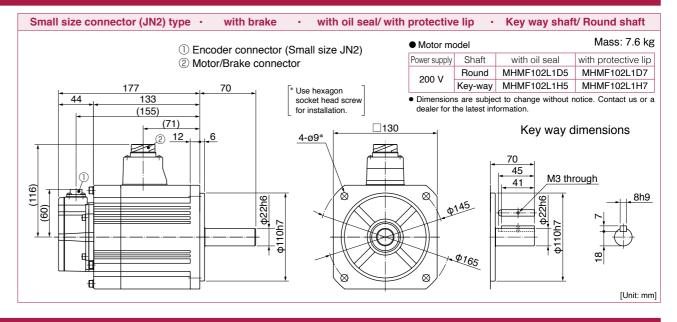




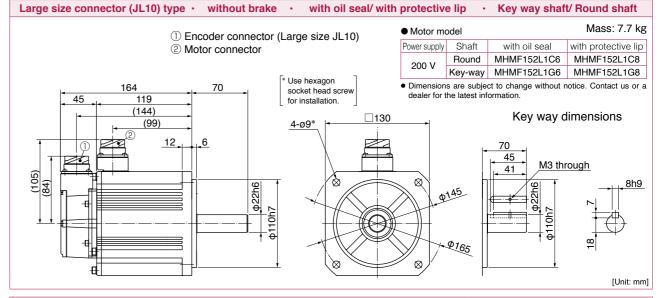
* For motors specifications, refer to P.95.

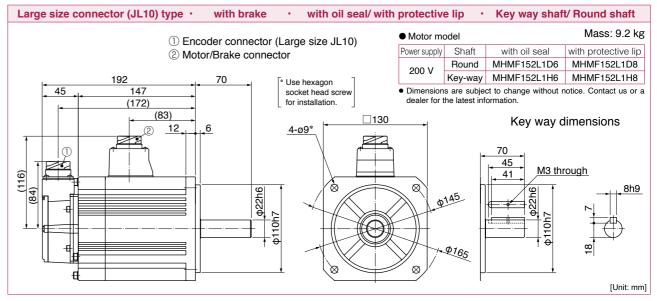
MHMF 1.0 kW

MHMF 1.0 kW to 1.5 kW



MHMF 1.5 kW



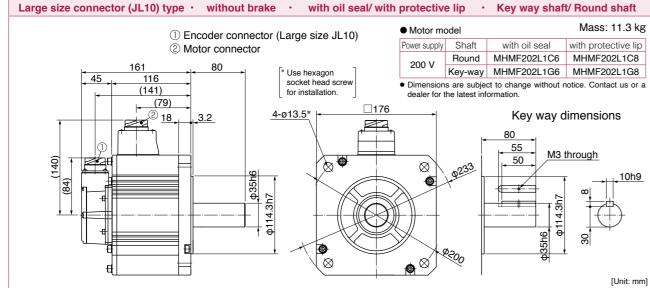


* For motors specifications, refer to P.95, P.96.

MHMF 1.5 kW Small size connector (JN2) type · without brake · with oil seal/ with protective lip Key way shaft/ Round shaft Motor model (1) Encoder connector (Small size JN2) Power supply Shaft with oil seal with protective lip ② Motor connector Round MHMF152L1C5 MHMF152L1C7 Key-way MHMF152L1G5 MHMF152L1G7 * Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw dealer for the latest information for installation. (141)Key way dimensions (99)4-ø9* 45 M3 through 41 Ф165

Small size connector (JN2) type · with brake · with oil seal/ with	th protectiv	e lip •	Key way shaf	t/ Round shaft
① Encoder connector (Small size JN2)	Motor me	odel		Mass: 9.2 kg
② Motor/Brake connector	Power supply	Shaft	with oil seal	with protective lip
	200 V	Round	MHMF152L1D5	MHMF152L1D7
191 → 1	200 V	Key-way	MHMF152L1H5	MHMF152L1H7
44 147 socket head screw for installation.		is are subject the latest inf		notice. Contact us or a
(83) ② 12 ————————————————————————————————————)		Key way o	limensions
(116) (116)		145	70 45 41 M3 thr	rough 8h9
	>	Φ165	10	ω (Unit: mm)

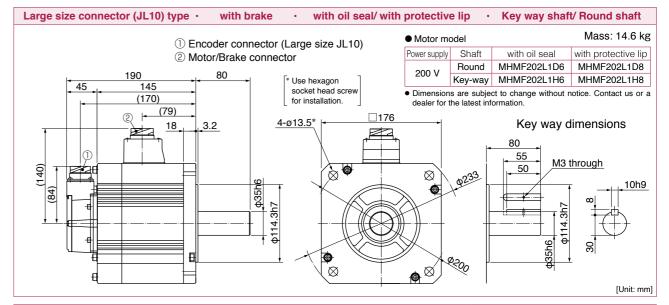
MHMF 2.0 kW

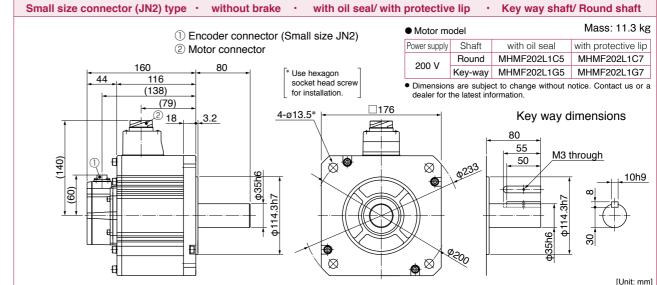


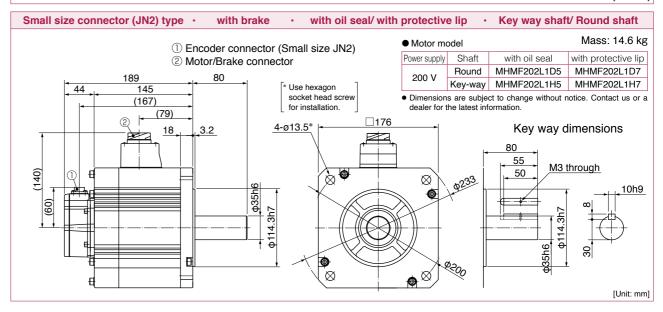
^{*} For motors specifications, refer to P.96, P.97.

MHMF 2.0 kW

MHMF 2.0 kW







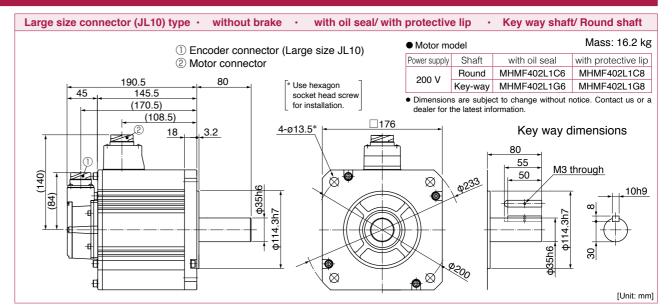
^{*} For motors specifications, refer to P.97.

[Unit: mm]

MHMF 3.0 kW Small size connector (JN2) type • with brake • with oil seal/ with protective lip • Key way shaft/ Round shaft ① Encoder connector (Small size JN2) ② Motor/Brake connector ② Motor/Brake connector

② Motor/Brake connector Round MHMF302L1D5 MHMF302L1D7 Key-way MHMF302L1H5 MHMF302L1H7 * Use hexagon 160 socket head screw for installation. Dimensions are subject to change without notice. Contact us or a (182)(92) ② |-4-ø13.5* Key way dimensions 18 3.2 55 M3 through (140) 50 \boxtimes

MHMF 4.0 kW

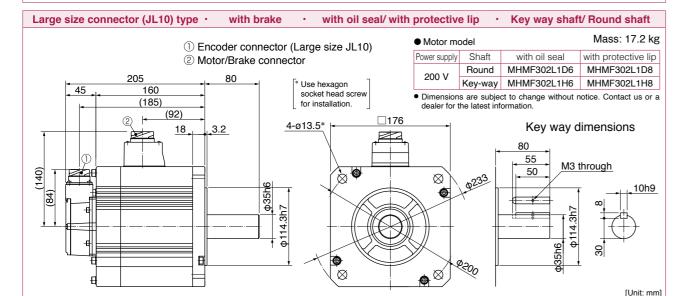


Large size connector (JL10) type · w	ith brake · with oil seal/ with	protectiv	e lip •	Key way shaf	t/ Round shaft
① Encoder	connector (Large size JL10)	Motor me	odel		Mass: 19.4 kg
	rake connector	Power supply	Shaft	with oil seal	with protective lip
9		000.1/	Round	MHMF402L1D6	MHMF402L1D8
219.5	0	200 V	Key-way	MHMF402L1H6	MHMF402L1H8
45 174.5 (199.5)	socket head screw for installation.		s are subje		notice. Contact us or a
(108.5)	<u>4-ø13.5*</u>			Key way d	limensions
(1.5) (1.5)			9233	80 55 50 M3	through
(84)	14.317			4.3h7	80
			2200	ф35h6 Ф11.	08
#	~		·		[Unit: mm

^{*} For motors specifications, refer to P.98, P.99.

MHMF 3.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft

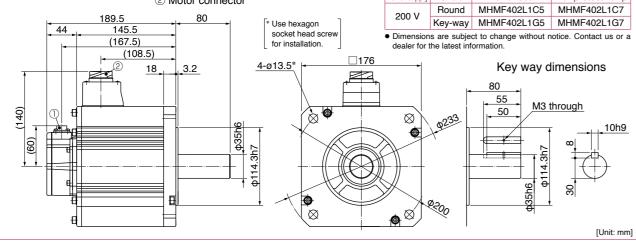
90 0: 00:::::00::: (0-:0) 1)p0			p. 01001111		no, na, ona.	
① F	ncoder connector	(Large size .ll 10)	Motor mo	odel		Mass: 13.8 kg
	lotor connector	(Largo dizo di 10)	Power supply	Shaft	with oil seal	with protective lip
			200.1/	Round	MHMF302L1C6	MHMF302L1C8
176		* Use hexagon	200 V	Key-way	MHMF302L1G6	MHMF302L1G8
45 131 (156) (92)		socket head screw for installation.	Dimensions dealer for the control of the contr		ct to change without rormation.	notice. Contact us or
(92) (2) 18	3.2 4	I-ø13.5* ☐ 176	-		Key way o	limensions
					80 55 50 M3	through
(84)	ф35h6 77		× •	0233		10hs
				1	74E.4	
	41			-	-	
			// /2	200	ф35h6 ф	<u>8</u>
d =		√⊗		.00	9	
						[Unit: m

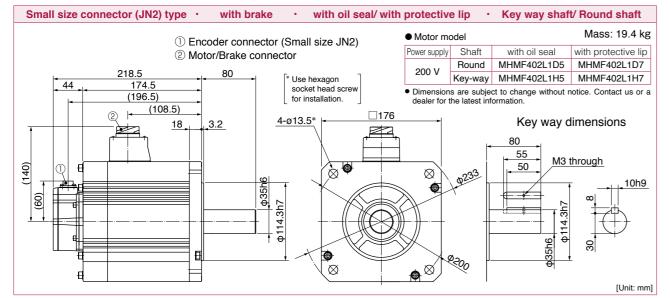


Small size connector (JN2) type · without brake · with oil seal/ with	protective	e lip •	Key way shaf	t/ Round shaft
① Encoder connector (Small size JN2)	Motor mo	odel		Mass: 13.8 kg
② Motor connector	Power supply	Shaft	with oil seal	with protective lip
_	200 V	Round	MHMF302L1C5	MHMF302L1C7
175 80 ** Use hexagon socket board occur.	200 V	Key-way	MHMF302L1G5	MHMF302L1G7
(153) socket head screw for installation.		s are subject he latest inf		notice. Contact us or a
(92) 2 18 3.2 4-Ø13.5*	-		Key way o	limensions
(140) (140) (140) (140)	×	0233	80 55 50 M3	through
(60) (60) (114.3h7		-	h6 0114.3h7	30
		200	ф ф ф	<u>.</u>
'				[Unit: mm]

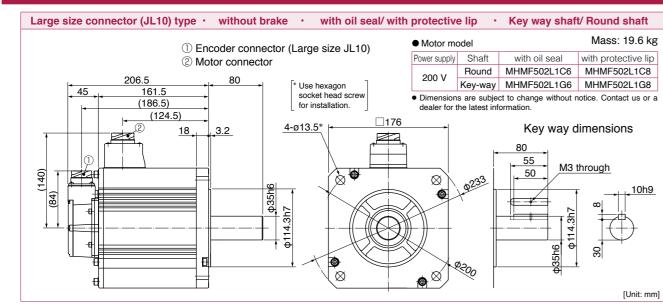
^{*} For motors specifications, refer to P.98.

MHMF 4.0 kW Small size connector (JN2) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Small size JN2) Shaft with oil seal with protective lip ② Motor connector Round MHMF402L1C5 MHMF402L1C7 Key-way MHMF402L1G5 MHMF402L1G7 * Use hexagon 145.5 socket head screw for installation. Dimensions are subject to change without notice. Contact us or a (167.5)(108.5)4-ø13.5*





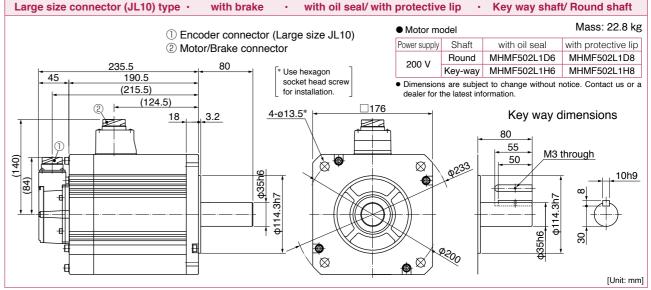
MHMF 5.0 kW

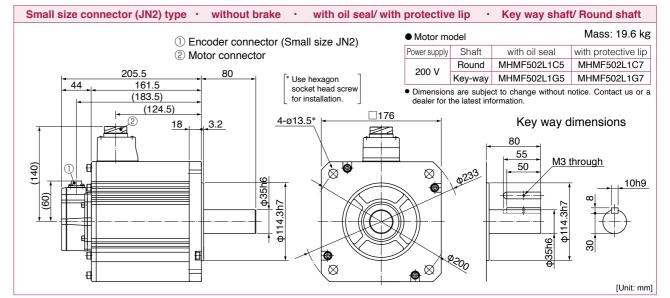


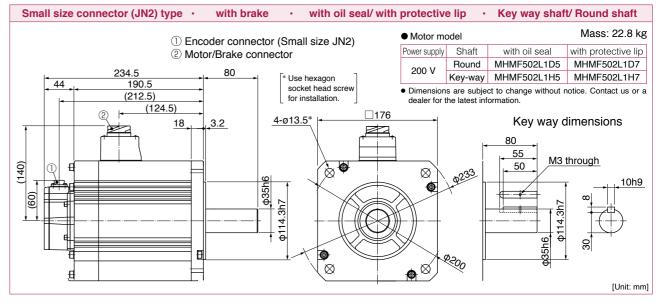
* For motors specifications, refer to P.99, P.100.

MHMF 5.0 kW

MHMF 5.0 kW







* For motors specifications, refer to P.100.

MHMF 7.5 kW Large size connector (JL10) type · without brake with oil seal · Key way shaft/ Round shaft Mass: 34.8 kg Motor model ① Encoder connector (Large size JL10) Shaft Power supply ② Motor connector MHMF752L1C6 Round Key-way MHMF752L1G6 * Use hexagon (303.5)socket head screw Dimensions are subject to change without notice. Contact us or a dealer for the latest information (43.5)(43.5)Key way dimensions Eye bolt (58) 24 3.2 M4 through 12h9

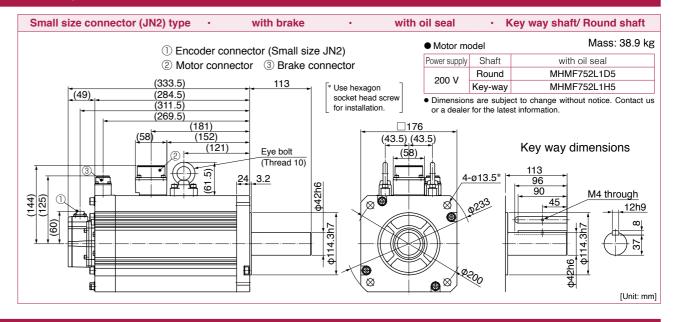
Large size connector (JL10) type ·	with brake	• wit	th oil seal	• к	ey way shaft/ Round shaft
① Encoder con	nector (Large size	e .II 10)	Motor mo	odel	Mass: 38.9 kg
	ctor ③ Brake co	,	Power supply	Shaft	with oil seal
_	_	JIII ECIOI	200.14	Round	MHMF752L1D6
(334.5)	113	* Use hexagon	200 V	Key-way	MHMF752L1H6
(50) (284.5) (314.5) (269.5)	→	socket head screw for installation.	or a dealer		ct to change without notice. Contact us tinformation.
(181) (181) (181) (181) (181) (181) (181)	Eye bolt (Thread 10) 24 3.2	(43.5)		013.5*	Key way dimensions 113 96 90 M4 through 12h9 25 80 12h9
	_				[Unit: mm]

Small size connector (JN2) type ·	without brake	• with	oil seal	• к	ey way shaft/ Round shaft	
① Encoder cor	nnector (Small size	e JN2)	Motor mod	del	Mass: 34.8 kg	5
② Motor conne	,		Power supply	Shaft	with oil seal	
			200 V	Round	MHMF752L1C5	
(302.5)	. 113	* Use hexagon	200 V	Key-way	MHMF752L1G5	
(49) (253.5) (280.5)	113	socket head screw for installation.			ct to change without notice. Contact us tinformation.	ì
(181) (58) (152) (121) (121)	Eye bolt (Thread 10)	0114.3h7 (43.2) (43.5)	43.5)	233	Key way dimensions 113 96 90 M4 through 12h9	
					[Unit: mm	ij

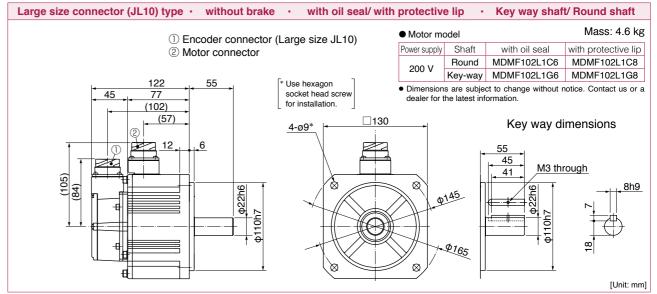
^{*} For motors specifications, refer to P.101.

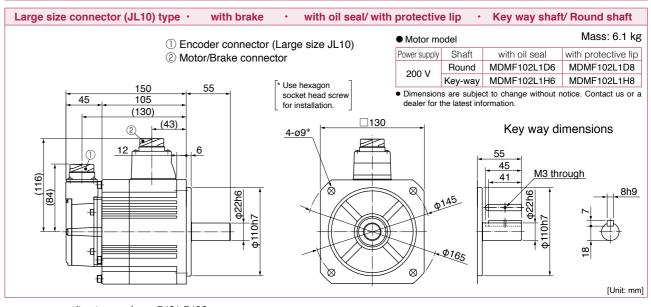
MHMF 7.5 kW

MHMF 7.5 kW / MDMF 1.0 kW



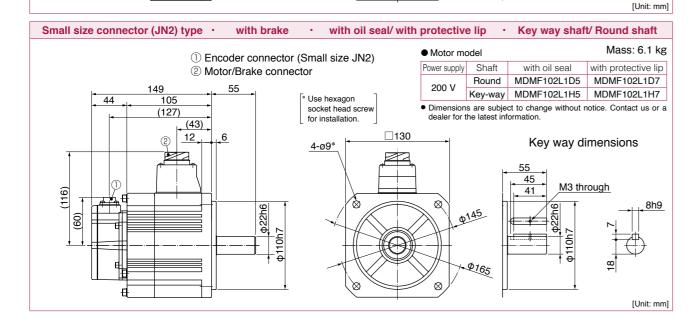
MDMF 1.0 kW



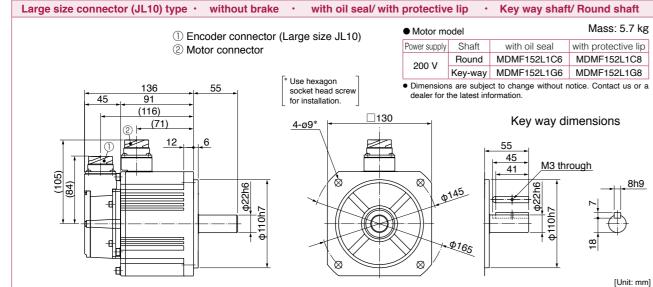


^{*} For motors specifications, refer to P.101, P.102.

MDMF 1.0 kW Small size connector (JN2) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Small size JN2) Power supply Shaft with oil seal with protective lip ② Motor connector Round MDMF102L1C5 MDMF102L1C7 Key-way MDMF102L1G5 MDMF102L1G7 * Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw dealer for the latest information for installation. (99)(57) Key way dimensions 4-ø9* M3 through 41 Ф₁₆₅



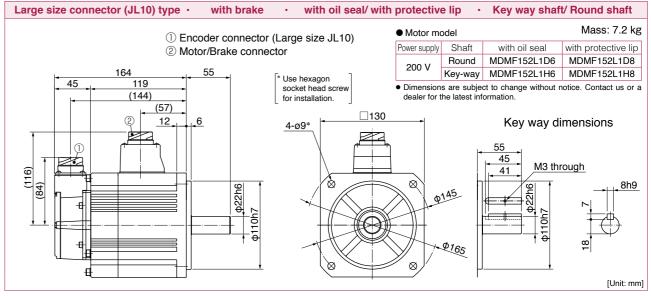
MDMF 1.5 kW

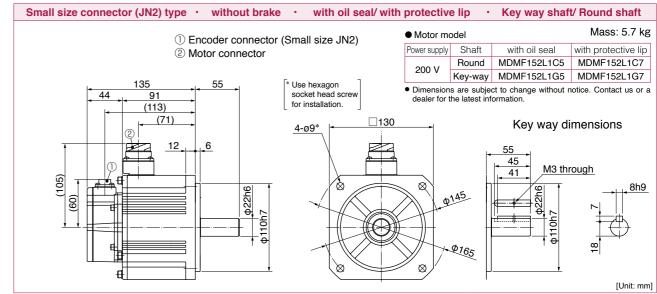


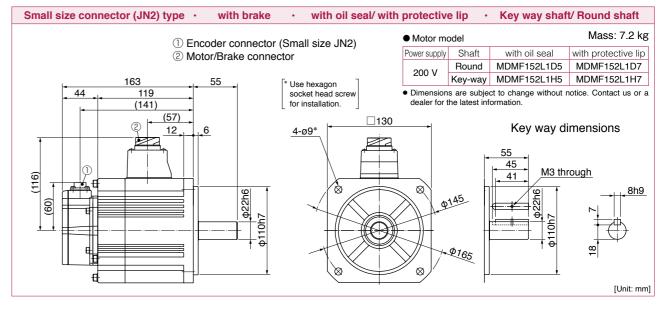
* For motors specifications, refer to P.102, P.103.

MDMF 1.5 kW

MDMF 1.5 kW





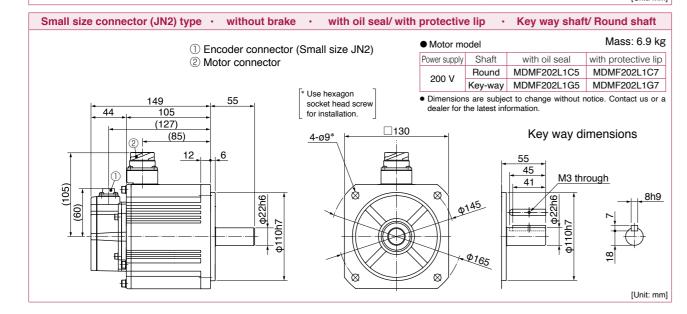


* For motors specifications, refer to P.103.

MDMF 2.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Shaft with oil seal with protective lip Power supply ② Motor connector Round MDMF202L1C6 MDMF202L1C8 Key-way MDMF202L1G6 MDMF202L1G8 * Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw dealer for the latest information for installation. (130)Key way dimensions (85)4-ø9* 12 45 M3 through 41 Φ165

	, ,,,,			<u> </u>			
	(1)	Encoder connec	ctor (Large size JL10)	Motor me	odel		Mass: 8.4 kg
		Motor/Brake cor	,	Power supply	Shaft	with oil seal	with protective lip
		Motor/Branc oor	illoctor	000.1/	Round	MDMF202L1D6	MDMF202L1D8
	470		* Use hexagon	200 V	Key-way	MDMF202L1H6	MDMF202L1H8
45	178 133 (158)	55	socket head screw for installation.		s are subje		notice. Contact us or a
	② (71)	•	4-ø9*	<u> </u>		Key way d	imensions
(116)	12	6				55 45 41 M3 th	rough
(84)		\$422h6		9	145	422h6	8h9
		H			Ф165	10	8
#_			0 +		٢		[Unit: mi

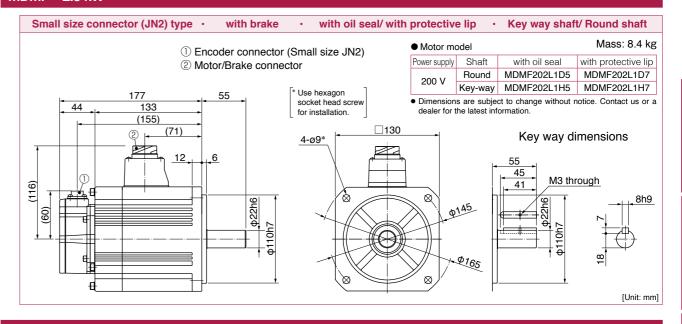
Large size connector (JL10) type · with brake · with oil seal/ with protective lip · Key way shaft/ Round shaft



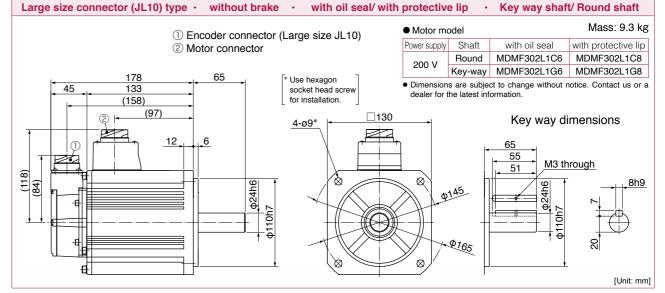
^{*} For motors specifications, refer to P.104.

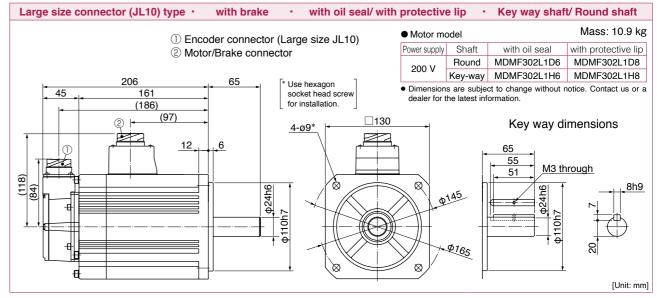
MDMF 2.0 kW

MDMF 2.0 kW to 3.0 kW



MDMF 3.0 kW





^{*} For motors specifications, refer to P.104, P.105.

A6 Family

MDMF 3.0 kW Small size connector (JN2) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Mass: 9.3 kg Motor model ① Encoder connector (Small size JN2) Power supply Shaft with oil seal with protective lip ② Motor connector Round MDMF302L1C5 MDMF302L1C7 Key-way MDMF302L1G5 MDMF302L1G7 * Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw 44 133 dealer for the latest information for installation. (155)(97) (2) H Key way dimensions 4-ø9* 12

M3 through

[| Init: mm]

Ф165

MDMF 3.0 kW to 4.0 kW

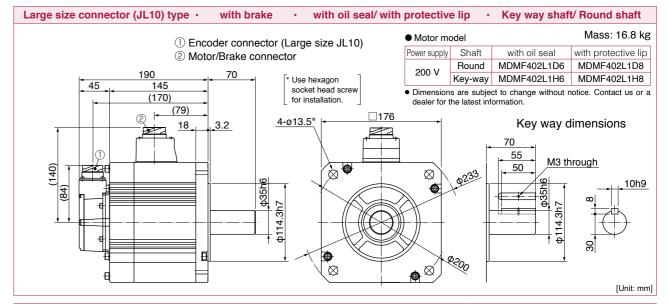
	① Encod	ler connector	r (Small size JN2)	● Motor mo	odel		Mass: 10.9 kg
		Brake conne	` ,	Power supply	Shaft	with oil seal	with protective lip
	© 	2.4.10 000		200 V	Round	MDMF302L1D5	MDMF302L1D7
205		65	* Use hexagon	200 V	Key-way	MDMF302L1H5	MDMF302L1H7
44	161		socket head screw for installation.	 Dimensions dealer for the 	s are subject he latest info	ct to change without rormation.	notice. Contact us or
2	(97)		4-ø9*	<u> </u>		Key way di	mensions
1	12	<u>6</u>				65 55 51 M3 th	nrough_
09		ф24h6		0	145	ф24h6 17	8h
		·-·	ф110h7		Φ ₁₆₅	4 110h 7	02

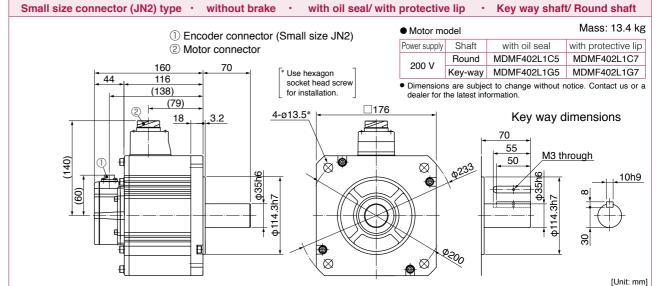
Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Mass: 13.4 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal with protective lip ② Motor connector Round MDMF402L1C6 MDMF402L1C8 161 Key-way MDMF402L1G6 MDMF402L1G8 Use hexagon socket head screw Dimensions are subject to change without notice. Contact us or a (141)for installation. ② |- (79) 4-ø13.5* Key way dimensions 18_ 55 M3 through () **(** 50 (140) \boxtimes \mathbf{A}^{\otimes} \boxtimes

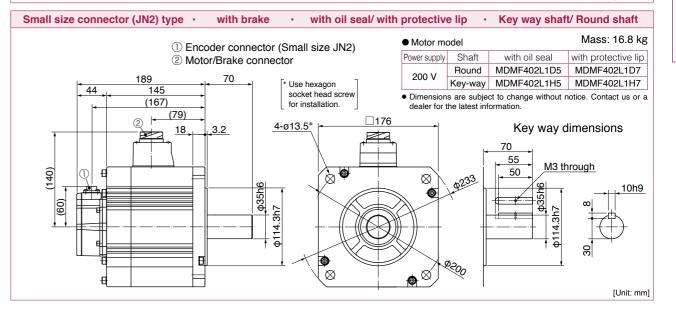
* For motors specifications, refer to P.105, P.106.

MDMF 4.0 kW

MDMF 4.0 kW





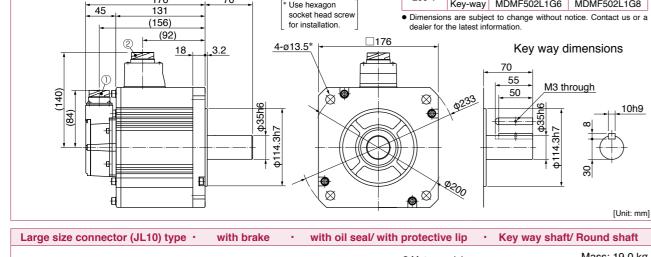


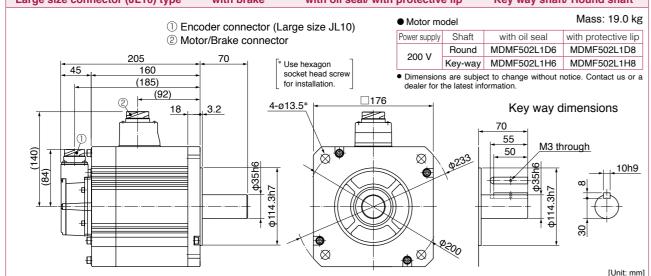
* For motors specifications, refer to P.106.

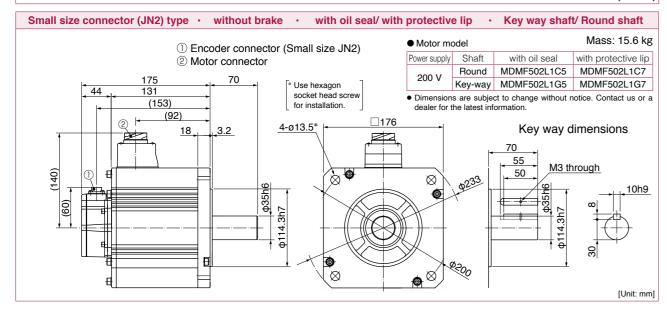
185 | Panasonic Industry Co., Ltd.

[Unit: mm]

MDMF 5.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Shaft with protective lip ② Motor connector Round MDMF502L1C6 MDMF502L1C8 Key-way MDMF502L1G6 MDMF502L1G8 * Use hexagon 131 socket head screw for installation. Dimensions are subject to change without notice. Contact us or a (156)(92) 4-ø13.5*



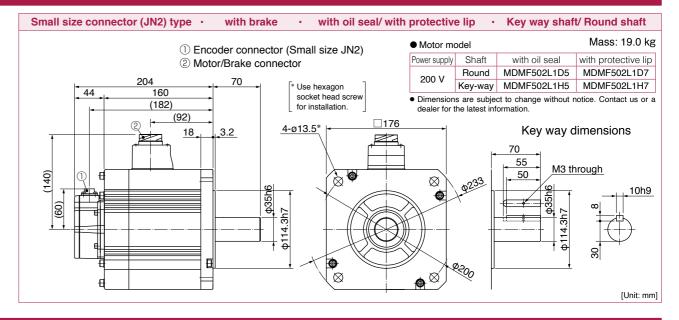




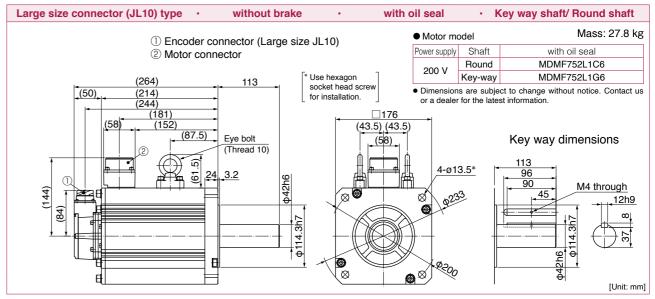
^{*} For motors specifications, refer to P.107.

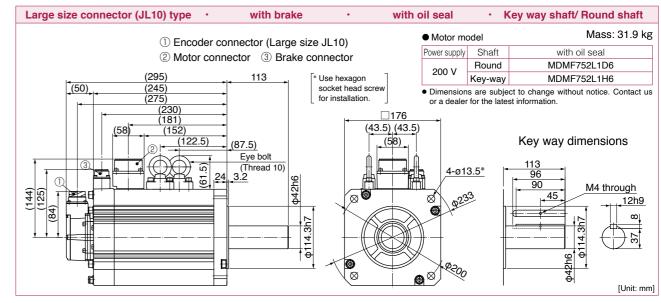
MDMF 5.0 kW

MDMF 5.0 kW to 7.5 kW





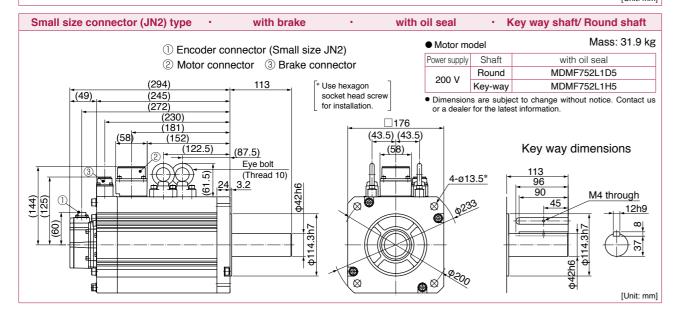




^{*} For motors specifications, refer to P.107, P.108.

MDMF 7.5 kW

Small size connector (JN2) type without brake with oil seal Key way shaft/ Round shaft Mass: 27.8 kg Motor model ① Encoder connector (Small size JN2) Shaft with oil seal Power supply 2 Motor connector MDMF752L1C5 Round * Use hexagon Key-way MDMF752L1G5 socket head screw Dimensions are subject to change without notice. Contact us for installation. or a dealer for the latest information (152 (43.5) (43.5) (87.5) Eye bolt Key way dimensions (58) 4-ø13.53 M4 through 12h9 (09) ω [Unit: mm]

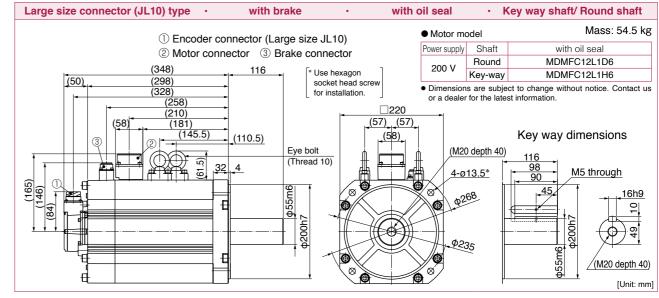


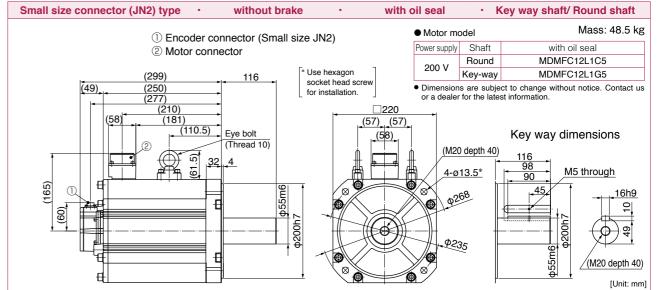
MDMF 11.0 kW Large size connector (JL10) type • without brake with oil seal · Key way shaft/ Round shaft Mass: 48.5 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal ② Motor connector MDMFC12L1C6 Round 200 V * Use hexagon MDMFC12L1G6 Key-way (300)socket head screw Dimensions are subject to change without notice. Contact us (250)for installation. □220 (57) (57) (110.5) Eye bolt Key way dimensions (58) (M20 depth 40) M5 through 위 (84) (M20 depth 40) [Unit: mm]

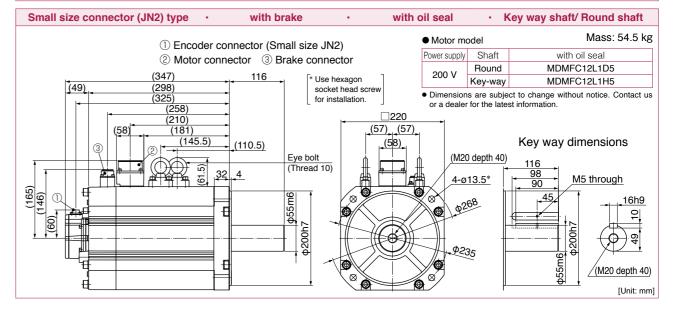
* For motors specifications, refer to P.108, P.109.

MDMF 11.0 kW

MDMF 11.0 kW



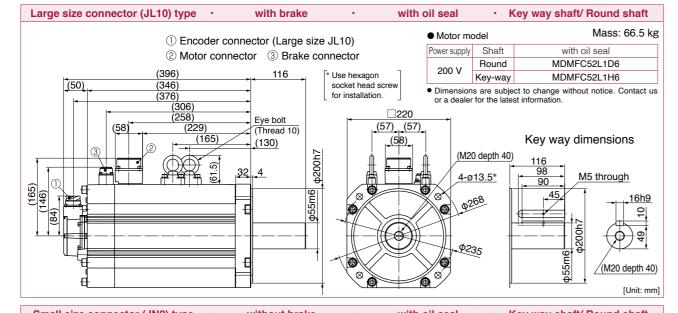


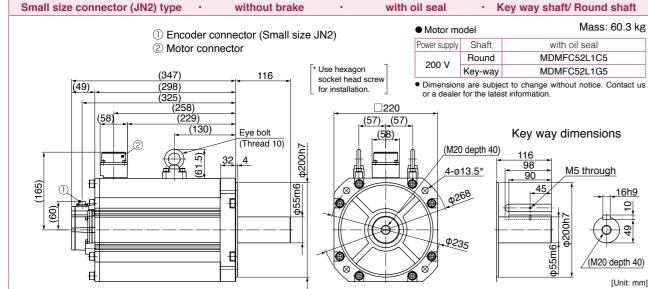


* For motors specifications, refer to P.109.

MDMF 15.0 kW

Large size connector (JL10) type without brake with oil seal Key way shaft/ Round shaft Mass: 60.3 kg Motor model ① Encoder connector (Large size JL10) Shaft with oil seal Power supply 2 Motor connector MDMFC52L1C6 Round * Use hexagon Key-way MDMFC52L1G6 (348)socket head screw Dimensions are subject to change without notice. Contact us for installation. (298)or a dealer for the latest information <u>220</u> (229 (57) (57) Eye bolt Key way dimensions _(58)_ (M20 depth 40) M5 through 4-ø13.5* 16h9 위 (`♦) & (M20 depth 40)

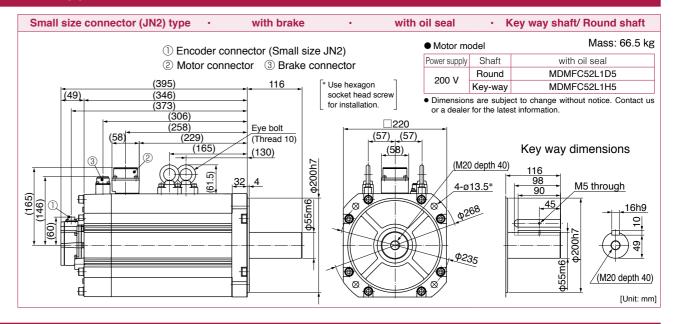




^{*} For motors specifications, refer to P.110.

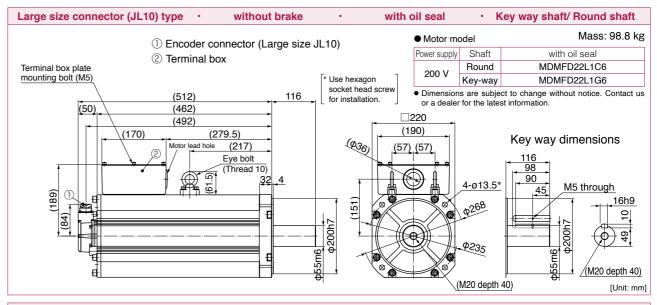
MDMF 15.0 kW

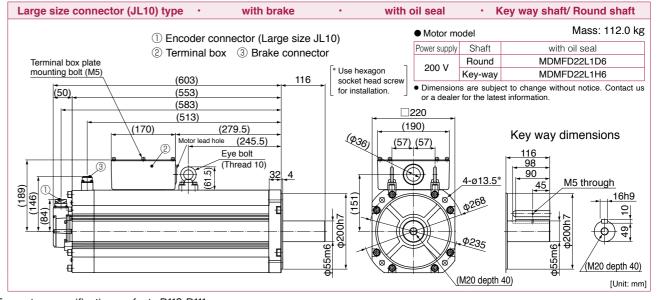
MDMF 15.0 kW to 22.0 kW



MDMF 22.0 kW

[Unit: mm]

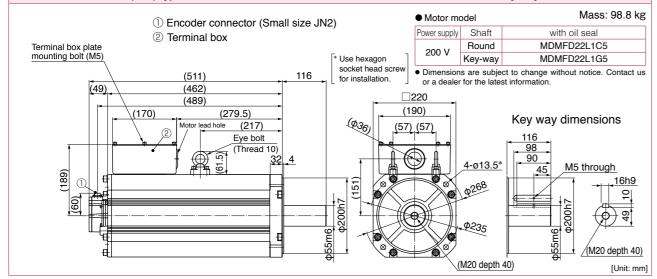


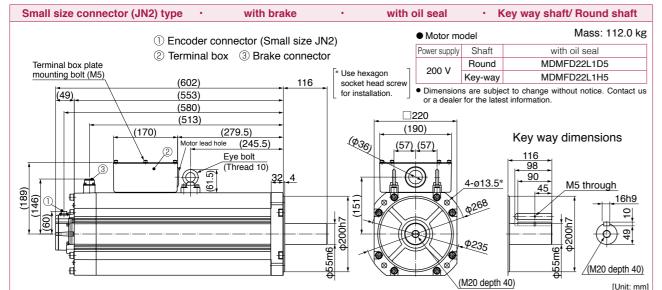


^{*} For motors specifications, refer to P.110, P.111.

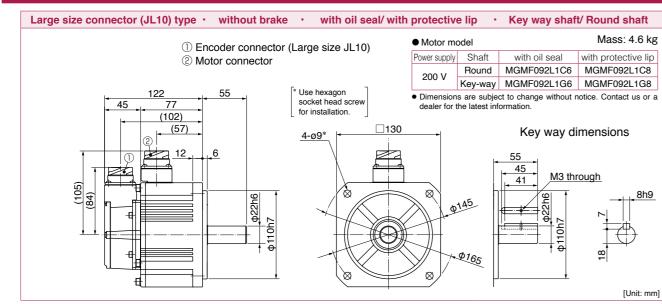
MDMF 22.0 kW Small size connector (JN2) type without brake with oil seal · Key way shaft/ Round shaft Mass: 98.8 kg Motor model ① Encoder connector (Small size JN2) Shaft with oil seal Power supply ② Terminal box MDMFD22L1C5 Terminal box plate mounting bolt (M5) Round * Use hexagon Key-way MDMFD22L1G5 socket head screw Dimensions are subject to change without notice. Contact us 116 (511)for installation. or a dealer for the latest information (49)(462)

MDMF 22.0 kW / MGMF 0.85 kW



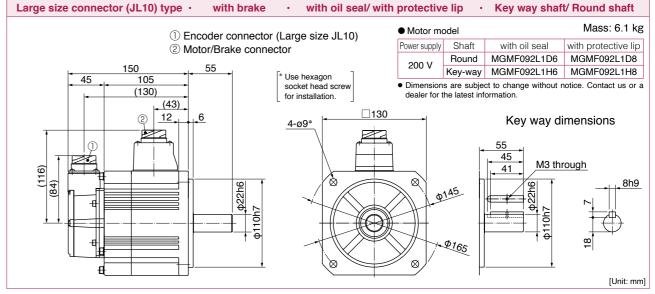


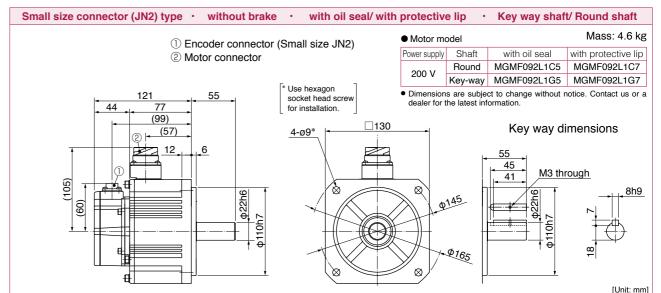
MGMF 0.85 kW

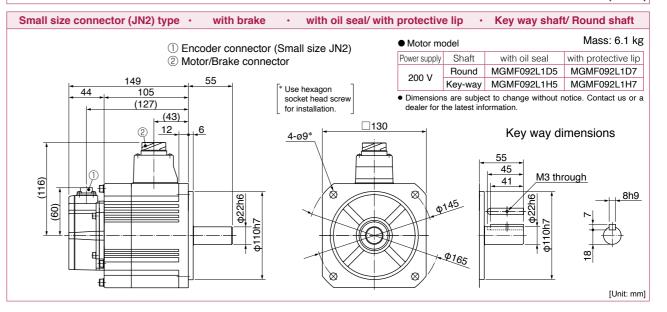


* For motors specifications, refer to P.111, P.112.

MGMF 0.85 kW



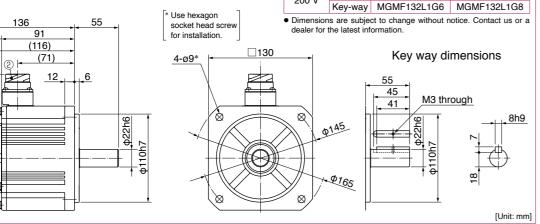


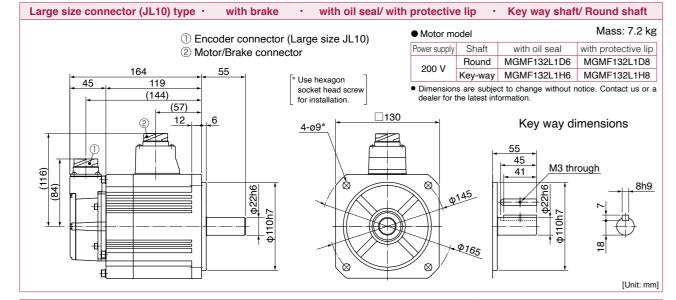


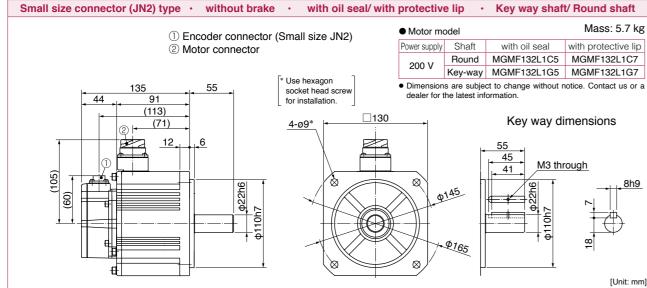
* For motors specifications, refer to P.112.

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A6 Family



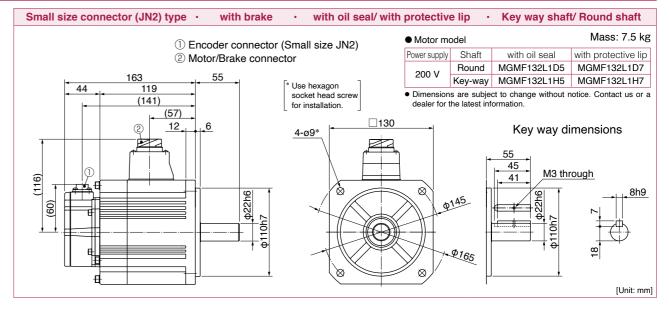




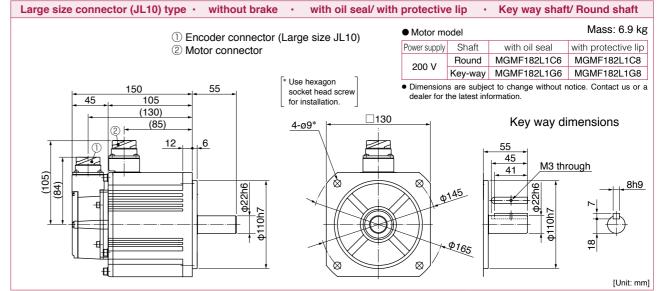
* For motors specifications, refer to P.113.

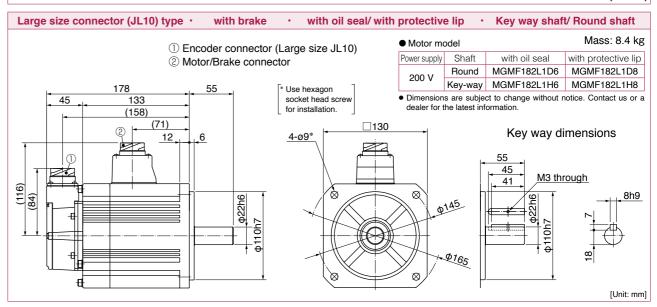
MGMF 1.3 kW

MGMF 1.3 kW to 1.8 kW



MGMF 1.8 kW





* For motors specifications, refer to P.113, P.114.

12

A6 Family

MGMF 1.8 kW Small size connector (JN2) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model (1) Encoder connector (Small size JN2) Power supply Shaft with oil seal with protective lip ② Motor connector Round MGMF182L1C5 MGMF182L1C7 Key-way MGMF182L1G5 MGMF182L1G7 * Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw dealer for the latest information for installation. (127)Key way dimensions (85)4-ø9*

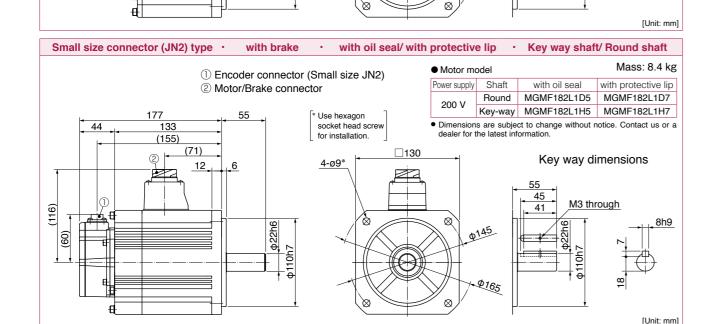
45

41

Ф₁₆₅

M3 through

MGMF 1.8 kW to 2.4 kW



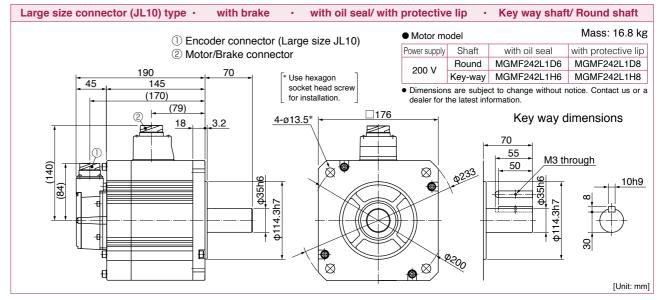
Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Mass: 13.4 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal with protective lip ② Motor connector

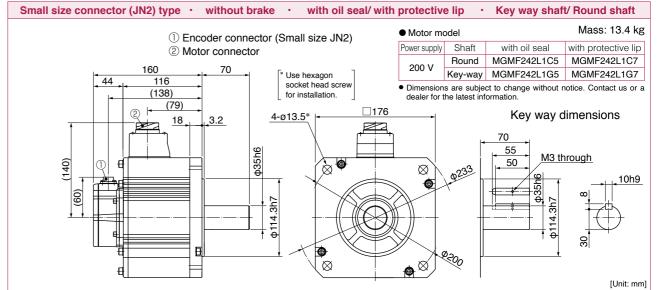
101 70		200 V	Round	MGMF242L1C6	MGMF242L1C8	ı
161 70	* Use hexagon	200 V	Key-way	MGMF242L1G6	MGMF242L1G8	ı
45 116 (141) (79)	socket head screw for installation.		is are subject the latest info		otice. Contact us or a	
2 18 3.2	<u>4-ø13.5</u> * ☐ 176	•		Key way d	imensions	
			*	70		
(140)		\otimes	9233	50 M3 th	rough	
1) (4)	354		4920	35h6	ω 10h9	
	4.347	7	-	ф 7-48.		
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		T	1 4 4		
		× ,	p200		30	
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		100			
	ı				[Unit: mm]	

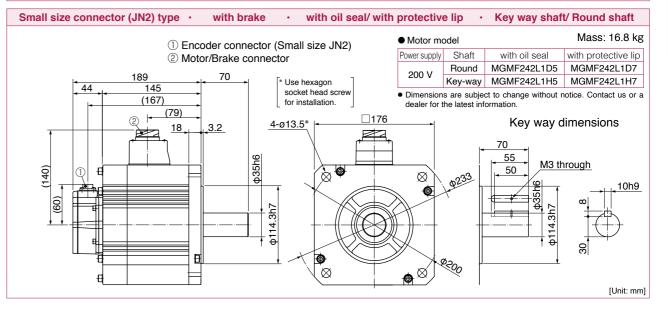
* For motors specifications, refer to P.114, P.115.

MGMF 2.4 kW

MGMF 2.4 kW



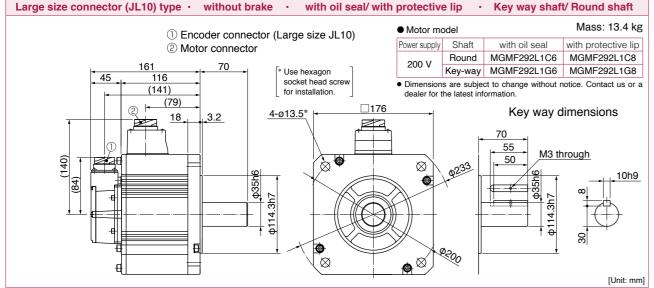


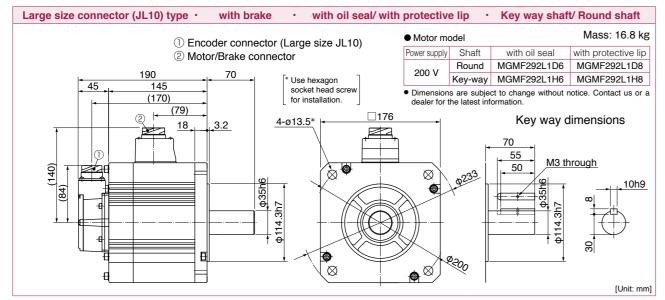


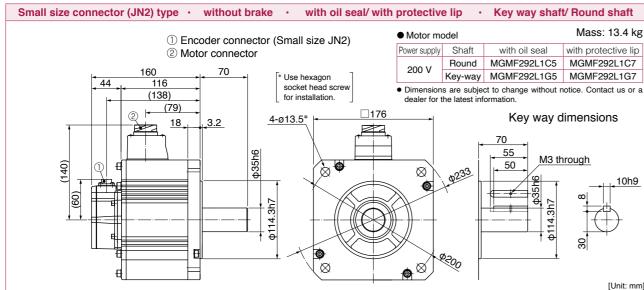
* For motors specifications, refer to P.115.

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MGMF 2.9 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft



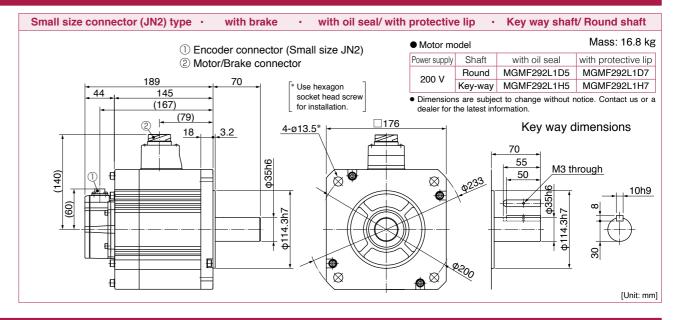




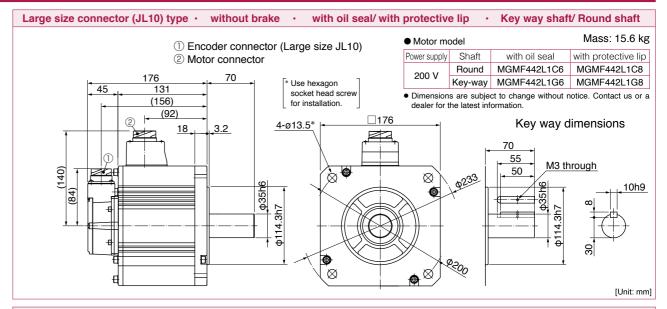
^{*} For motors specifications, refer to P.116.

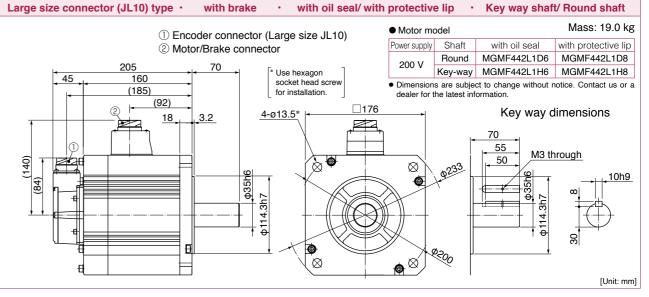
MGMF 2.9 kW

MGMF 2.9 kW to 4.4 kW



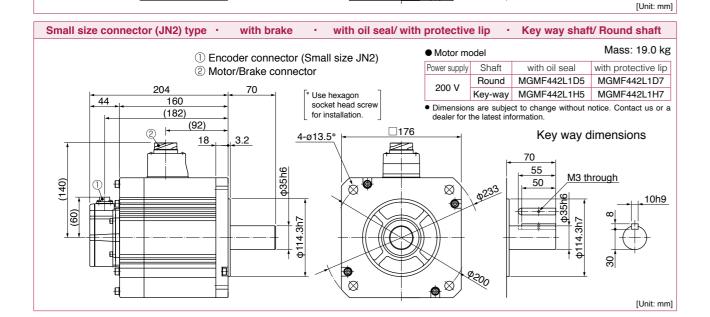
MGMF 4.4 kW





^{*} For motors specifications, refer to P.116, P.117.

MGMF 4.4 kW Small size connector (JN2) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Small size JN2) Power supply Shaft with oil seal with protective lip ② Motor connector Round MGMF442L1C5 MGMF442L1C7 Key-way MGMF442L1G5 MGMF442L1G7 * Use hexagon 131 socket head screw for installation. Dimensions are subject to change without notice. Contact us or a (153)(92)Key way dimensions 4-ø13.5* 18 55 M3 through 50 \boxtimes



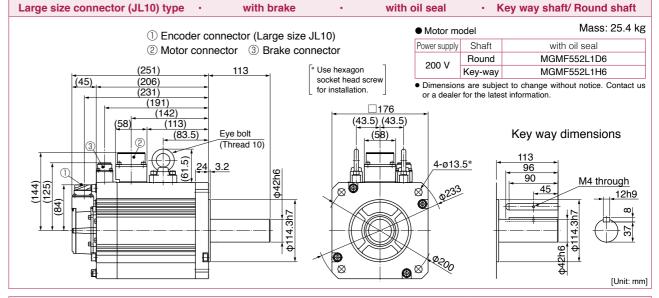
 \boxtimes

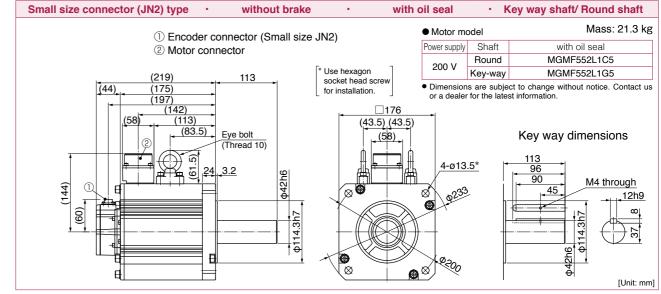
MGMF 5.5 kW Large size connector (JL10) type · · Key way shaft/ Round shaft without brake with oil seal Mass: 21.3 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal 2 Motor connector MGMF552L1C6 Round 200 V * Use hexagon MGMF552L1G6 Key-way 113 Dimensions are subject to change without notice. Contact us for installation. □176 (43.5) (43.5) (83.5) Eve bolt Key way dimensions (58) 4-ø13.5 M4 through 12h9 [Unit: mm]

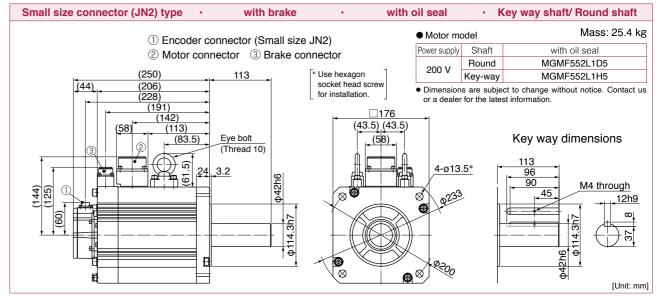
* For motors specifications, refer to P.117, P.118.

MGMF 5.5 kW

MGMF 5.5 kW







* For motors specifications, refer to P.118.

Features

Motor Lineup

sq. or less

more

ō

100 mm sq.

 Max speed: 6500r/min (MHMF 50 W to 400 W) · Low inertia (MSMF) to High inertia (MHMF).

· 23-bit absolute encoder (8388608 pulse).

Low cogging torque: Rated torque ratio 0.5 % (typical value).

Line-up IP67 motor: 1.0 kW to 7.5 kW

Model Designation

Refer to P.205 to P.210 for motor and driver combinations.

* For combination of elements of model number, refer to Index P.448.

Servo Motor "Oil seal with protective lip" option is not available for motors above 7.5 kW.

M S M F 5 A Z L A 2 *

① Type

Symbol		Туре
MSM	Low inertia	(50 W to 5.0 kW)
MQM	Middle inertia	(100 W to 400 W)
MDM	Middle inertia	(1.0 kW to 7.5 kW)
MGM	Middle inertia	(0.85 kW to 5.5 kW)
MHM	High inertia	(50 W to 7.5 kW)

2 Series

Symbol	Series name			
F	A6 Family			

3 Motor rated output

Symbol	Rated output	Symbol	Rated output
5A	50 W	18	1.8 kW
01	100 W	20	2.0 kW
02	200 W	24	2.4 kW
04	400 W	29	2.9 kW
08	750 W	30	3.0 kW
09	0.85 kW, 1000 W	40	4.0 kW
09	(130 mm sq.) (80 mm sq.)	44	4.4 kW
10	1.0 kW	50	5.0 kW
13	1.3 kW	55	5.5 kW
15	1.5 kW	75	7.5 kW

4 Voltage specifications

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

(5) Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
L	Absolute	23-bit	8388608	5
-Nlata>				

When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

6 Design order

Symbol	Specifications	l
1	Standard	

7 Motor specifications: 80 mm sq. or less Leadwire type IP65 MSMF 50 W to 1000 W

		Shaft		Holding	g brake	Oil seal	
Syn	nbol	Round	Key-way, center tap	without	with	without	with
Α	2	•		•		•	
В	2	•			•	•	
С	2	•		•			•
D	2	•			•		•
S	2		•	•		•	
Т	2		•		•	•	
U	2		•	•			•
V	2		•		•		•

7 Motor specifications: 80 mm sq. or less Leadwire type IP65 MHMF 50 W to 1000 W, MQMF 100 W to 400 W

Symbol		Shaft		Holding	g brake	Oil seal			
		Round	Key-way, center tap	without	with	without	with	With protective lip	
Α	2	•		•		•			
В	2	•			•	•			
С	2	•		•			•		
С	4	•		•				•	
D	2	•			•		•		
D	4	•			•			•	
S	2		•	•		•			
Т	2		•		•	•			
U	2		•	•			•		
U	4		•	•				•	
V	2		•		•		•		
٧	4		•		•			•	

7 Motor specifications: 100 mm sq. or more Encoder connector: JL10 IP67 MSMF, MHMF, MDMF, MGMF

Shaft Holding brake Oil seal Symbol Round Key-way without with With protecting C 6 ● ● ● ● C 8 ● ● ● ● D 6 ● ● ● ● D 8 ● ● ● ● G 6 ● ● ● ● G 8 ● ● ● ●								
C 6 • • • • C 8 • • • • D 6 • • • • D 8 • • • • G 6 • • • •	Symbol		Shaft		Holding	g brake	Oil seal	
C 8			Round Key-way without with		with	with	With protective lip	
D 6	С	6	•		•		•	
D 8	С	8	•		•			•
G 6 • • •	D	6	•			•	•	
	D	8	•			•		•
G 8 • • •	G	6		•	•		•	
	G	8		•	•			•
H 6 • • •	Н	6		•		•	•	
H 8 • • •	Н	8		•		•		•

^{*} Encoder connector JL10: Also applicable to screwed type

Motor Contents MSMF (200 V)

MSMF Low inertia

Max. speed : 6000 r/min Rated speed: 3000 r/min Rated output: 50 W to 1000 W Enclosure:

IP65: Leadwire type



Middle inertia Max. speed : 6500 r/min Rated speed: 3000 r/min Rated output: 100 W to 400 W Enclosure:

IP65: Leadwire type



Max. speed : 6500 r/min 6000 r/min (750 W,1000 W) Rated speed: 3000 r/min Rated output: 50 W to 1000 W Enclosure: IP65: Leadwire type



MSMF Low inertia

Max. speed : 5000 r/min 4500 r/min (4.0 kW,5.0 kW)

Rated speed: 3000 r/min Rated output: 1.0 kW to 5.0 kW Enclosure : IP67



MDMF Middle inertia

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

: 1500 r/min (7.5 kW)

Rated output: 1.0 kW to 7.5 kW Enclosure : IP67



(Low speed/ High torque type) Middle inertia

Max. speed : 3000 r/min Rated speed: 1500 r/min Rated output: 0.85 kW to 5.5 kW



High inertia

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

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

Rated output: 1.0 kW to 7.5 kW

: 1500 r/min (7.5 kW) Enclosure : IP67

Motor Specification Description

Environmental Conditions......P.303 Notes on [Motor specification] page P.303

Special Order Product

... P.211

. P.223

. P.226

.P.239

50 W to 5.0 kW

MQMF (200 V)

MHMF (200 V)

MDMF (200 V)

MGMF (200 V)

Dimensions MSME

MOME

MDMF

MGMF

(50 W to 1000 W).....

(1.0 kW to 5.0 kW).....

(100 W to 400 W)....

(50 W to 1000 W)....

(1.0 kW to 7.5 kW).....

(1.0 kW to 7.5 kW).....

(0.85 kW to 5.5kW).....

0.85 kW to 5.5 kW P.246

1.0 kW to 7.5 kW....

50 W to 7.5 kW...

100 W to 400 W..

Permissible Load at

Output Shaft.... Built-in Holding Brake

(4) Max. current rating

O					O		- 3	
Symbol	Frame	Symbol	Frame		Symbol	Current rating	Symbol	Current
MAD	A-Frame	MED	E-Frame		0	6 A	8	60
MBD	B-Frame	MFD	F-Frame		1	8 A	9	80
MCD	C-Frame	MGD	G-Frame		2	12 A	Α	100
MDD	D-Frame				3	22 A	В	120
					4	24 A	С	160
@ Corion					-	40.4		

② Series

Symbol	Series name
L	A6 Family

1) Frame symbol

3 Safety Function

`		.,
;	Symbol	Specifications
	N	without the safety function
Т	Т	with the safety function

Servo Driver "Basic" and "RS485 communication" types are not available for G-Frame drivers.

M A D L N 1 5 S E ***

<u>2</u> <u>3</u> <u>4</u> <u>6</u> <u>6</u> <u>7</u>

O							
Symbol	Current rating	Symbol	Current rating				
0	6 A	8	60 A				
1	8 A	9	80 A				
2	12 A	Α	100 A				
3	22 A	В	120 A				
4	24 A	С	160 A				
5	40 A						

Supply voltage specifications						
Symbol	mbol Specifications					
3	3-phase 200 V					
5	Single/3-phase 200 V					

(6) I/f specifications (7) Classification of type

Symbol (specification)	Symbol	Specification
	Е	Basic type (Pulse train only)
S (Analog/Pulse)	F	Multi fanction type (Pulse, analog, full-closed)
	G	RS485 communication type (Pulse train only)

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Special specifications

	ries
DV0P4170 V0PM20042	Information

DV0PM20042

DV0PM20042

DV0P4220

DV0P227 DV0P220

DV0P228 DV0P220

DV0P228

DV0P222

			Motor				Driver							Optional p	parts					
						A6SF series	A6 G series		Power		Encoder Ca	ible Note)3	Motor Cab	le Note)3						
M	lotor series	Power supply	Output (W)	Part No. Note)1	Rating/ Spec. Dimensions (page)	Multi fanction type (Pulse, analog, full-closed	RS485 communication A6 SE series Basic (Pulse signal input)	Frame	capacity (at rated load) (kVA)	absolution (with l	23-bit Al se in the lute system battery box) Note)5	Use in the Incremental system (without battery box)	without Brake	with Brake	Brake Cable Note)3	External Regenerative Resistor	(5			
							Note)2, Note)4				Fixed	cable	Movable	cable	Movable cable					
			50	MSMF5AZL1 □ 2M	211 253	MADLT05SF	MADLN05S♦		A-frame Approx. 0.5 B-frame Approx. 0.9 C-frame Approx. 1.8										DV0P4281	
			100	MSMF012L1 ☐ 2M	212 253	MADLT05SF	MADLN05S♦									DV01 4201	[[
Low inertia	MSMF (Leadwire) type	Single phase/	200	MSMF022L1 ☐ 2M	213 254	MADLT15SF	MADLN15S♦			I	MFECA	MFECA	MFM	ICA	MFMCB					
nertia	3000 r/min IP65	3-phase 200 V	400	MSMF042L1 ☐ 2M	214 255	MBDLT25SF	MBDLN25S♦	B-frame ★			0 * * 0EAE (For fixed)	0 * * 0EAD (For fixed)	0 * * 0EED		0 * * 0GET	DV0P4283	С			
			750	MSMF082L1 ☐ 2M	215 255	MCDLT35SF	MCDLN35S♦	C-frame											Ē	
			1000	MSMF092L1 ☐ 2M	216 256	MDDLT45SF	MDDLN45S♦	D-frame	Approx. 2.4							DV0P4284	[[
Middle inertia	MQMF	O' a a la	100	MQMF012L1 2M MQMF012L1 4M	223 261	MADLT05SF	MADLN05S♦		Δ.		Approx.							DV0P4281	[
	(Leadwire type) 3000 r/min	Single phase/	200	MQMF022L1 2M MQMF022L1 4M	224 263	MADLT15SF	MADLN15S♦		0.5	0*	MFECA * * 0EAE For fixed)	MFECA 0 * * 0EAD (For fixed)	MFM 0**(MFMCB 0 * * 0GET	DV0D4002	Ē			
Flat type	IP65	200 V	400	MQMF042L1 2M MQMF042L1 4M	225 265	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9						Note)6	DV0P4283	[
			50	MHMF5AZL1 ☐ 2M MHMF5AZL1 ☐ 4M	226 267	MADLT05SF	MADLN05S♦									DV0D4004				
			100	MHMF012L1 2M MHMF012L1 4M	227 269	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5							DV0P4281	[[
High	MHMF (Leadwire)	Single phase/	200	MHMF022L1 ☐ 2M MHMF022L1 ☐ 4M	228 271	MADLT15SF	MADLN15S♦				MFECA	MFECA	MFN	ICA	MFMCB					
High inertia	(type / 3000 r/min IP65	3-phase 200 V	400	MHMF042L1 2M MHMF042L1 4M	229 273	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9		* * 0EAE For fixed)	0 * * 0EAD (For fixed)	0**(0 * * 0GET Note)6	DV0P4283	[
			750	MHMF082L1 ☐ 2M MHMF082L1 ☐ 4M	230 275	MCDLT35SF	MCDLN35S♦	C-frame	Approx.								ĺ			
			1000	MHMF092L1 ☐ 2M MHMF092L1 ☐ 4M	231 277	MDDLT55SF	MDDLN55S♦	D-frame	Approx.							DV0P4284				

regenerative resistor.

☐ : Represents the motor specifications. (refer to "Model designation" P.204.)

Note)2 \diamondsuit : Represents the driver specifications. (refer to "Model designation" P.204.)

Note)3 * *: Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030EAE

Note)4 Because A6SE series driver (dedicated for position control) does not support the absolute system specification, only incremental system can be used in combination.

Note)5 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box).

Please buy the battery part number "DV0P2990" separately.

A6 Series

Note)6 Brake cable and motor cable are required for the motor with brake.

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			Motor				Driver				Oţ	otional parts > re	fer to P.306		
					Poting/	A6 SF series Multi fanction type / Pulse, analog, \	A6 SG series RS485 communication		Power capacity	JL10 (Large size) One-touch lock type N/MS screwed type	J (One-touc	ble Note)3,5 L10 ch lock type rewed type			
ı	Motor series	Power supply	Output (W)	Part No. Note)1	Rating/ Spec. Dimensions (page)	(full-closed)	A6 SE series Basic (Pulse signal input) Note)2, Note)4	Frame	(at (rated load) (kVA)	Use in the absolute system (with battery box) Note) 7 Use in the absolute Incremen system (without batter)	e al without Brake	with Brake	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
										Fixed cable	Moval	ole cable			
		Single phase/	1000	MSMF102L1 6M MSMF102L1 8M	217 257	MDDLT55SF	MDDLN55S♦	D-frame	Approx. 2.4		MFMCD 0**2EUD	MFMCA 0 * *2FUD	DV0P4284	DV0P228 / DV0P222	DV0P4220
_	MSMF	3-phase 200 V	1500	MSMF152L1 ☐ 6M MSMF152L1 ☐ 8M	218 257	MDDLT55SF	MDDLN55S♦		Approx. 2.9	MFECA MFECA		MFMCA		DV0PM20047 / DV0P222	
Low i	Large size JL10 type		2000	MSMF202L1 \square 6M MSMF202L1 \square 8M	219 258	MEDLT83SF	MEDLN83S♦	E-frame	Approx. 3.8	0 * * 0 E P		0 * * 2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
inertia	3000 r/min	3-phase	3000	MSMF302L1 ☐ 6M MSMF302L1 ☐ 8M	220 259	MFDLTA3SF	MFDLNA3S♦		Approx. 5.2	MFECA MFECA 0 * * 0ESE 0 * * 0ES	MFMCA D 0**3EUT	MFMCA 0 * *3FUT		DV0P224	
	IP67	200 V	4000	MSMF402L1 ☐ 6M MSMF402L1 ☐ 8M	221 259	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx. 6.5	0 % % OLSE	MFMCA	MFMCA	DV0P4285 ×2 in parallel	DV0P225	DV0P3410
			5000	MSMF502L1 ☐ 6M MSMF502L1 ☐ 8M	222 260	MFDLTB3SF	MFDLNB3S♦		Approx. 7.8		0 * *3ECT	0 * * 3FCT		DV01 223	
		Single phase/	1000	MDMF102L1 ☐ 6M MDMF102L1 ☐ 8M	239 283	MDDLT45SF	MDDLN45S♦	D-frame	Approx. 2.4		MFMCD	MFMCD MFMCA 0**2EUD 0**2FUD MFMCD MFMCA	DV0P4284	DV0P228 / DV0P222	DV0P4220
	MDMF	3-phase 200 V	1500	MDMF152L1 ☐ 6M MDMF152L1 ☐ 8M	240 284	MDDLT55SF	MDDLN55S♦	D-trame	Approx. 2.9	MFECA MFECA				DV0PM20047 / DV0P222	D 101 7220
	Large size JL10 type		2000	MDMF202L1 ☐ 6M MDMF202L1 ☐ 8M	241 285	MEDLT83SF	MEDLN83S♦	E-frame	Approx. 3.8	0 * * 0 E P		0 * * 2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
	2000 r/min	3-phase	3000	MDMF302L1 ☐ 6M MDMF302L1 ☐ 8M	242 285	MFDLTA3SF	MFDLNA3S♦		Approx. 5.2	MFECA MFECA 0 * * 0ESE 0 * * 0ES	MFMCA	MFMCA		DV0P224	
	IP67	200 V	4000	MDMF402L1 ☐ 6M MDMF402L1 ☐ 8M	243 286	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx. 6.5	0 * * 0 E S E O * * 0 E S	0 * * 3EUT ———— MFMCA	0 * * 3FUT ———— MFMCA	DV0P4285 ×2 in parallel	DV0P225	DV0P3410
Middle			5000	MDMF502L1 ☐ 6M MDMF502L1 ☐ 8M	245 287	MFDLTB3SF	MFDLNB3S♦		Approx. 7.8		0**3ECT	0 * * 3FCT		DV0P225	
dle ir		Single phase/	850	MGMF092L1 ☐ 6M MGMF092L1 ☐ 8M	246 288	MDDLT45SF	MDDLN45S♦	D-frame	Approx. 2.0		MFMCD	MFMCA	DV0P4284	DV0P228 / DV0P221	DV0P4220
inertia	MOME	3-phase 200 V	1300	MGMF132L1 ☐ 6M MGMF132L1 ☐ 8M	247 289	MDDLT55SF	MDDLN55S♦	D-trame	Approx. 2.6		0 * * 2EUD ———— MFMCD	0 * * 2FUD MFMCA	DV0F4264	DV0PM20047 / DV0P222	DV0F4220
	MGMF Large size		1800	MGMF182L1 ☐ 6M MGMF182L1 ☐ 8M	248 289	MEDLT83SF	MEDLN83S♦		Approx. 3.4	MFECA MFECA	0 * * 2ECD	0 * * 2FCD		DV0P223	
	JL10 type /Low speed/\		0.400	MGMF242L1 ☐ 6M	249	MEDITOROE	MEDIALOGO	E-frame	Approx.	0 * * 0 E P E	0 * * 3EUT	MFMCD 0 * * 3FUT	DV0P4285	DV0P224	DV0PM20043
	High torque type	3-phase 200 V	2400	MGMF242L1 ☐ 8M	290	MEDLT93SF	MEDLN93S♦		4.5	MFECA MFECA 0**0ESE 0**0ES	D MFMCE 0**3ECT	MFMCD 0 * * 3FCT			
	1500 r/min IP67	250 (2900	MGMF292L1	250 291	MFDLTB3SF	MFDLNB3S♦		Approx. 5.0		MFMCA 0 * *3EUT	MFMCA MFMCA	DV0P4285		
			4400	MGMF442L1 6M MGMF442L1 8M	251 291	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.		MFMCA 0 * * 3ECT	MFMCA 0 * * 3FCT	×2 in parallel	DV0P225	
		Single	1000	MHMF102L1	232 279	MDDLT45SF	MDDLN45S♦		Approx.		MFMCD 0 * * 2EUD	MFMCA 0 * * 2FUD		DV0P228 / DV0P222	
		phase/ 3-phase	1500	MHMF152L1 ☐ 6M	233 279	MDDLT55SF	MDDLN55S♦	D-frame	Approx. 2.9		MFMCD	MFMCA	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
_	MHMF	200 V		MHMF152L1 8M					2.5	MFECA MFECA	0 * * 2ECD MFMCE	0 * * 2FCD MFMCE			
High in	Large size JL10 type		2000	MHMF202L1 ☐ 6M MHMF202L1 ☐ 8M	234 280	MEDLT83SF	MEDLN83S♦	E-frame	Approx. 3.8	0 * * 0EPE	D	0 * * 2FUD MFMCE	DV0P4285 Note)6	DV0P223	DV0PM20043
inertia	2000 r/min IP67	3-phase	3000	MHMF302L1 6M	235	MFDLTA3SF	MFDLNA3S⟨>		Approx.	MFECA MFECA 0 * * 0ESE 0 * * 0ES	n	0 * * 2FCD		DV0P224	
	11.07	200 V	4000	MHMF302L1 8M MHMF402L1 6M	281 236	MFDLTB3SF	MFDLNB3S	F-frame	5.2 Approx.		MFMCA 0 * * 3EUT	MFMCA 0 * *3FUT	DV0P4285	DVOF ZZ4	DV0P3410
			5000	MHMF402L1 ☐ 8M MHMF502L1 ☐ 6M	281 237	MFDLTB3SF	MFDLNB3S	r-trame	6.5 Approx.		MFMCA 0 * *3ECT	MFMCA 0 * * 3FCT	×2 in parallel	DV0P225	DV0P3410
Note)	1	eente the r		MHMF502L1 8M ecifications. (refer to "N	282		INII DEIADOO		7.8	Note)5 Use of JL10 type encod			uch lock connection	una Conventional agraved t	type N/MS and

♦ : Represents the driver specifications. (refer to "Model designation" P.204.) Note)2

* * : Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030EPE

Note)4 Because A6SE series driver (dedicated for position control) does not support the absolute system specification, only incremental system can be used in combination.

- Note)5 Use of JL10 type encoder cables and motor cables enable one-touch lock connections. Conventional screwed type N/MS and JL04V type cables can also be used.
- Note)6 For other possible combinations, refer to P.343.

Note)7 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box). Please buy the battery part number "DV0P2990" separately.

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A6 Family

A6N Series

A6B Series
Special Order Product

HF3080C-SZA

(Recommended components)

P.413

Note)5

Motor Driver Optional parts refer to P.306 Encoder Cable Note)2,3 **Motor Cable** JL10 (Large size) A6SF series A6SG series Power (One-touch lock type) Note)6 RS485 Multi fanction type capacity N/MS screwed type Rating/ communication External / Pulse, analog, Power Output Part No. Spec. 23-bit Absolute Noise Filter **Motor series** Regenerative full-closed Reactor A6SE series supply (W) Note)1 Use in the Resistor Use in the (Single phase / 3-phase) **Basic** Incremental (page) (kVA) absolute system system without Brake with Brake (Pulse signal input) (with battery box) (without battery box) Note)4 Fixed cable MDMF **MFECA MFECA** HF3080C-SZA Large size 0 * * 0EPE 0 * * 0 EPD 245 DV0P4285 3-phase (Recommended) components JL10 type 7500 MDMF752L1 ☐ 6M MGDLTC3SF G-frame Note)6 Note)6 200 V 287 x3 in parallel MFECA MFECA 1500 r/min Note)5 P.413 0 * * 0ESE 0 * * 0 ESD IP67 MGMF Large size MFECA MFECA JL10 type HF3080C-SZA 0 * * 0 EPE 0 * * 0 EPD 252 3-phase /Low speed/\ (Recommended) MGMF552L1 ☐ 6M MGDLTC3SF 5500 G-frame Note)6 Note)6 High torque 200 V 8.5 components 292 MFECA MFECA P.413 type Note)5

■ About dynamic brake

1500 r/min IP67

MHMF

Large size

JL10 type

1500 r/min

IP67

G frame is built in / external, H frame is external

3-phase

200 V

Built-in / {external} The standard of the dynamic brake resistance's capability is up to three consecutive emergency stops from the rated speed at the maximum allowable inertia (load inertia moment ratio 10 times the rotor inertia moment). If it is used under more conditions, the resistance may be broken and the dynamic brake may not operate.

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MGDLTC3SF

G-frame

Recommended resistance: $1.2 \Omega 400 \text{ W}$ or more $\times 3 \text{ pieces}$

For inquiries: Iwaki Musen Kenkyusho Co., Ltd. Tel: +81-44-833-4311

7500

MHMF752L1

6M

Note)1 : Represents the motor specifications. (refer to "Model designation" P.204.)

Note)4 Please note that a battery is not supplied together with 23-bit absolute encoder cable (with battery box).

Please buy the battery part number "DV0P2990" separately.

Note)5 Please prepare reactor for customer.

Note)6 We recommend purchasing an optional connector kit.

■ Connector kit (option) Component parts Note)6

0 * * 0 ESD

MFECA

0 * * 0 EPD

MFECA

0 * * 0 ESD

Note)6

0 * * 0ESE

MFECA

0 * * 0EPE

MFECA

0 * * 0ESE

	D	river	Option No.	Encoder C	able	Motor	Cable	Brake Cable							
Motor	Frame	Connection terminal	Connector Kit for motor, encoder connection	Motor side	Driver side	Motor side Driver side		Motor side	Power supply for brake						
			DV0PM20107	Large size connector				not included							
MDMF 7.5 kW MGMF 5.5 kW		ME	M5	ME	ME	ME	ME	ME	DV0PM20108	One-touch lock type	For	Connector	(to be supplied by customer)	Connector Screwed type	/to be supplied)
MHMF 7.5 kW	G	G		DV0PM20111	Large size connector	Connector X6	Screwed type	M5 Round terminal	not included	(by customer)					
			DV0PM20112	Screwed type				Connector Screwed type							

Note)6

DV0P4285 ×3 in parallel

Note)2 * * : Represents the cable length (03/3 m, 05/5 m, 10/10 m, 20/20 m). Example. 3 m/MFECA0030ETE

Note)3 Use of JL10 type encoder cables and motor cables enable one-touch lock connections. Conventional screwed type N/MS and JL04V type cables can also be used.

A6 Family

A6N Series

Series

Series

• Please contact us for more information.

Specifications

		AC200 V				
Motor model*1		MSMF5AZL1□□M				
			function type	MADLT05SF		
Applicable	Model No	RS48	5 communication type *2	MADLN05SG		
driver		Basic	type *2	MADLN05SE		
	Fram	e sym	bol	A-frame		
Power supply	capacit	у	(kVA)	0.5		
Rated output			(W)	50		
Rated torque			(N·m)	0.16		
Continuous st	all torqu	ie	(N·m)	0.16		
Momentary M	ax. pea	k torqu	ıe (N·m)	0.48		
Rated current			(A(rms))	1.1		
Max. current			(A(o-p))	4.7		
Regenerative	brake		Without option	No limit Note)2		
frequency (time	es/min)	Note)1	DV0P4281	No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	al speed		(r/min)	6000		
Moment of ine	ertia		Without brake	0.026		
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.029		
Recommende ratio of the loa		30 times or less				
Rotary encode	er speci	ficatio	ns*³	23-bit Absolute		
	Re	solutio	n per single turn	8388608		

Brake specifications (For details, refer to P.305)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Please contact us for more information.

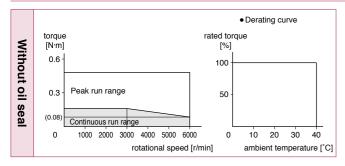
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

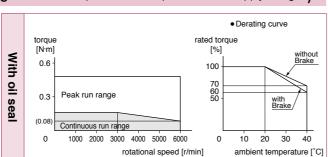
• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88.0
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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \(\subseteq \) in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Motor specifications	Round shaft/ Key way, center tap shaft							
			without brake		with brake				
	·	without oil seal with oil seal		with protective lip/ with oil seal	without oil seal with oil sea		with protective lip/ with oil seal		
	Leadwire type (IP65)	P.253		_	P.2	253	_		

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

Dimensions are subject to change without notice. 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.

Specifications

					AC200 V		
Motor model*1		MSMF012L1□□M					
		Multifunction type			MADLT05SF		
Applicable	Model No	RS48	5 communication type	e *2	MADLN05SG		
driver	140.	Basic	type *2		MADLN05SE		
	Frame	e sym	bol		A-frame		
Power supply	capacit	y	(kV	A)	0.5		
Rated output			(V	V)	100		
Rated torque			(N·r	n)	0.32		
Continuous st	all torqu	е	(N·r	n)	0.32		
Momentary M	ax. peal	k torqu	ıe (N·r	n)	0.95		
Rated current			(A(rms	s))	1.1		
Max. current			(A(o-p)))	4.7		
Regenerative	brake		Without option		No limit Note)2		
frequency (time	es/min)	Note)1	DV0P4281		No limit Note)2		
Rated rotation	al spee	d	(r/mi	n)	3000		
Max. rotationa	al speed		(r/mi	n)	6000		
Moment of ine	ertia		Without brake		0.048		
of rotor (×10 ⁻⁴	kg·m²)		With brake		0.051		
Recommended moment of inertia ratio of the load and the rotor					30 times or less		
Rotary encode	er speci	ficatio	ns*3		23-bit Absolute		
	Res	solutio	n per single turn		8388608		

• Brake specifications (For details, refer to P.305)
/This brake will be released when it is energized.

Do not use this for braking the motor in motion.

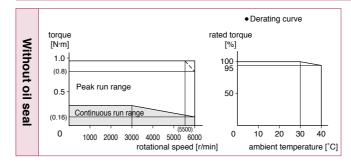
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

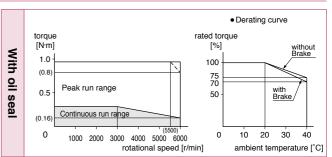
• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88.0
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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \(\subseteq\) in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Leadwire type (IP65)	P.253		_	P.254		_	

<Cautions>

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

Dimensions are subject to change without notice. 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.

Please contact us for more information.

				AC200 V
Motor model ^{*1}				MSMF022L1□□M
		Multi	function type	MADLT15SF
Applicable	Model No	RS48	5 communication type *2	MADLN15SG
driver	140.	Basic	type *2	MADLN15SE
	Fram	e sym	bol	A-frame
Power supply	capacit	у	(kVA)	0.5
Rated output			(W)	200
Rated torque			(N·m)	0.64
Continuous st	all torqu	ie	(N·m)	0.64
Momentary M	ax. pea	k torqı	ue (N·m)	1.91
Rated current			(A(rms))	1.5
Max. current			(A(o-p))	6.5
Regenerative brake		Without option	No limit Note)2	
frequency (tim	es/min)	Note)1	DV0P4283	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	6000
Moment of ine	Moment of inertia		Without brake	0.14
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	0.17
Recommended moment of inertia ratio of the load and the rotor Note)3				30 times or less
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	8388608		

Brake specifications (For details, refer to P.305)
 (This brake will be released when it is energized. Do not use this for braking the motor in motion.)

Please contact us for more information.

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.304)

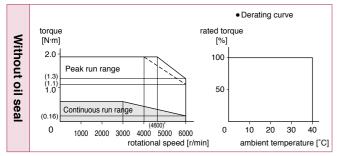
. •		,
	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147
document	Thrust load B-direction (N)	196
During	Radial load P-direction (N)	245
operation	Thrust load A, B-direction (N)	98.0

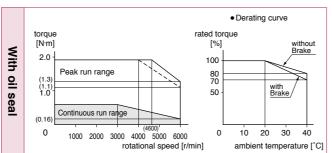
- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \(\subseteq \) in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

Detail of model designation, refer to P.204.

*3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft						
Motor specifications	without brake			with brake			
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Leadwire type (IP65)	P.2	254	_	P.254		_	

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

Dimensions are subject to change without notice. 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.

Specifications

				AC200 V
Motor model*1				MSMF042L1□□M
Mu		Multi	function type	MBDLT25SF
Applicable	Model No	RS48	5 communication type	MBDLN25SG
driver	140.	Basic	c type *2	MBDLN25SE
	Frame	e sym	bol	B-frame
Power supply	capacity	/	(kVA	0.9
Rated output			(W	400
Rated torque				1.27
Continuous st	all torqu	е	(N·m	1.27
Momentary M	ax. peal	c torqu	3.82	
Rated current			(A(rms)	2.4
Max. current			(A(o-p)	10.2
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min) I	Note)1	DV0P4283	No limit Note)2
Rated rotation	al spee	d	(r/min	3000
Max. rotationa	al speed		(r/min	6000
Moment of ine	ertia		Without brake	0.27
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.30
Recommended moment of inertia ratio of the load and the rotor				30 times or less
Rotary encode	er specif	icatio	ns ^{*3}	23-bit Absolute
Resoluti		solutio	n per single turn	8388608

Brake specifications (For details, refer to P.305)
 (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.304)

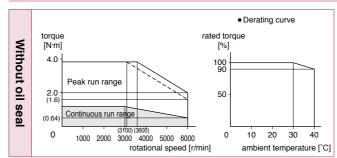
	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147
accombiy	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98.0

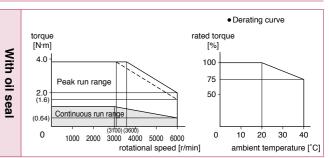
- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \(\subseteq \) in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

Detail of model designation, refer to P.204.

*3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Leadwire type (IP65)	P.255		_	P.255		_	

<Cautions>

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

Dimensions are subject to change without notice. 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.

A6N Series

Series

E Series

Information

Please contact us for more information.

Specifications

				AC200 V
Motor model	1	MSMF082L1□□M		
			function type	MCDLT35SF
Applicable	Model No.	RS48	5 communication type *2	MCDLN35SG
driver	140.	Basic	type *2	MCDLN35SE
	Fram	e sym	bol	C-frame
Power supply	capacit	у	(kVA)	1.8
Rated output			(W)	750
Rated torque			(N·m)	2.39
Continuous s	tall torqu	ie	(N·m)	2.39
Momentary Max. peak torque			ue (N·m)	7.16
Rated current			(A(rms))	4.1
Max. current			(A(o-p))	17.4
Regenerative	Regenerative brake		Without option	No limit Note)2
frequency (times/min)		Note)1	DV0P4283	No limit Note)2
Rated rotation	tational speed		(r/min)	3000
Max. rotation	al speed		(r/min)	6000
Moment of in	ertia		Without brake	0.96
of rotor (×10	4 kg·m²)		With brake	1.06
Recommended moment of i ratio of the load and the roto				20 times or less
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

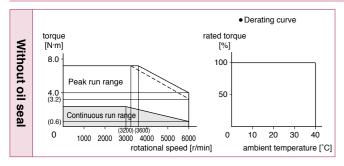
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

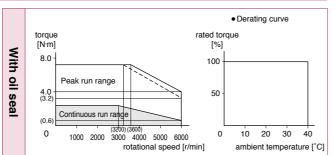
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- · Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

			R	ound shaft/ Key w	ay, center tap sha	aft	
	Motor specifications		without brake		with brake		
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
	Leadwire type (IP65)	P.255		_	P.256		_

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

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

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

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

Specifications

Special Order

				AC200 V	
Motor model	1	MSMF092L1□□M			
		Multi	function type	MDDLT45SF	
Applicable	Model No	RS48	5 communication type *2	MDDLN45SG	
driver	140.	Basic	type *2	MDDLN45SE	
	Fram	e sym	bol	D-frame	
Power supply	capacit	у	(kVA)	2.4	
Rated output			(W)	1000	
Rated torque			(N·m)	3.18	
Continuous s	tall torqu	е	3.18		
Momentary M	lax. peal	9.55			
Rated curren	t		(A(rms))	5.7	
Max. current			(A(o-p))	24.2	
Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2		
		Note)1	DV0P4284	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	3000	
Max. rotation	al speed		(r/min)	6000	
Moment of in	ertia		Without brake	1.26	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	1.36		
Recommended moment of i ratio of the load and the roto				15 times or less	
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute	
	Re	solutio	n per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

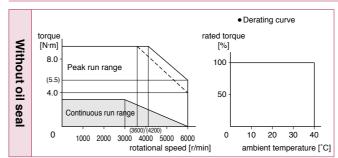
3.80 or more
70 or less
20 or less
0.42
1 or more
24±2.4

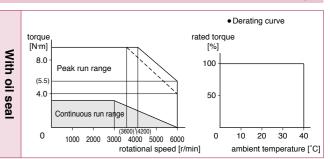
• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

		Round shaft/ Key way, center tap shaft							
Motor specifications		without brake			with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal			
Leadwire type (IP65)	P.2	256	_	P.256		_			

<Cautions>

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

Dimensions are subject to change without notice. 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.

A6N Series

Series

Specifications

				AC200 V
Motor model*1		MSMF102L1□□M		
			function type	MDDLT55SF
Applicable	Model No	RS48	5 communication type *2	MDDLN55SG
driver	110.	Basic	type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	y	(kVA)	2.4
Rated output			(W)	1000
Rated torque			(N·m)	3.18
Continuous st	all torqu	ie	3.82	
Momentary M	Momentary Max. peak torque			9.55
Rated current			(A(rms))	6.6
Max. current			(A(o-p))	28
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/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	2.15
of rotor (×10 ⁻⁴	kg·m²)		With brake	2.47
Recommended moment of ir ratio of the load and the roto				15 times or less
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

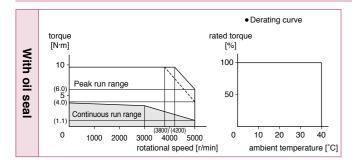
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft						
		without brake		with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.257			P.257		

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model	1			MSMF152L1□□M
		Multifunction type		MDDLT55SF
Applicable	Model No	RS48	5 communication type *2	MDDLN55SG
driver	110.	Basic	type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	у	(kVA)	2.9
Rated output	:		(W)	1500
Rated torque			(N·m)	4.77
Continuous s	tall torqu	ie	(N·m)	5.72
Momentary N	Max. peak torque (N·m)			14.3
Rated curren	t		(A(rms))	8.2
Max. current			(A(o-p))	35
Regenerative	e brake	rake Without option		No limit Note)2
frequency (tin	nes/min)	Note)1	DV0P4284	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	5000
Moment of in	ertia		Without brake	3.10
of rotor (×10	of rotor (×10 ⁻⁴ kg·m ²)		With brake	3.45
Recommended moment of inertiratio of the load and the rotor				15 times or less
Rotary encod	der speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

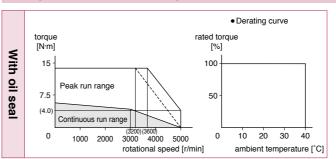
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft					
Motor specifications	without brake			with brake		
motor opeomoduleno	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.257		_	P.2	258

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

Dimensions are subject to change without notice. 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.

A6N Series

Series

Specifications

				AC200 V	
Motor model	' 1			MSMF202L1□□M	
		Multi	function type	MEDLT83SF	
Applicable	Model No.	RS48	5 communication type *2	MEDLN83SG	
driver	110.	Basic	type *2	MEDLN83SE	
	Fram	e sym	bol	E-frame	
Power supply	/ capacit	у	(kVA)	3.8	
Rated output			(W)	2000	
Rated torque			(N·m)	6.37	
Continuous s	tall torqu	ie	(N·m)	7.64	
Momentary N	Лах. pea	k torqı	ue (N·m)	19.1	
Rated curren	t		(A(rms))	11.3	
Max. current			(A(o-p))	48	
Regenerative	brake		Without option	No limit Note)2	
frequency (tin	nes/min)	Note)1	DV0P4285	No limit Note)2	
Rated rotatio	nal spee	d	(r/min)	3000	
Max. rotation	al speed		(r/min)	5000	
Moment of in	ertia		Without brake	4.06	
of rotor (×10	$(x10^{-4} \text{ kg} \cdot \text{m}^2)$		rotor (×10 ⁻⁴ kg·m²) With brake		4.41
Recommended moment of inertia ratio of the load and the rotor Note):			15 times or less		
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute	
	Re	solutio	n per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

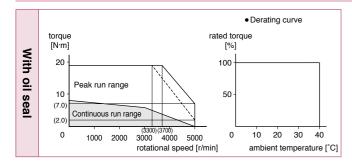
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	,	,
	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)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
iviole: epecinicalierio	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.258		_	P.258		

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model*1				MSMF302L1□□M
			function type	MFDLTA3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNA3SG
driver	140.	Basic	type *2	MFDLNA3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	5.2
Rated output			(W)	3000
Rated torque			(N·m)	9.55
Continuous st	all torqu	ie	(N·m)	11.0
Momentary M	ax. peal	x. peak torque (N·m)		28.6
Rated current			(A(rms))	18.1
Max. current			(A(o-p))	77
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	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	7.04
of rotor (×10 ⁻⁴	kg·m²)		With brake	7.38
Recommende ratio of the loa		noment of inertia and the rotor Note)3		15 times or less
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

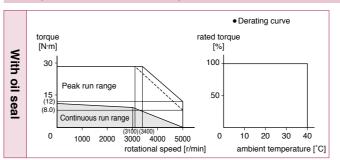
Static friction torque (N·m)	12.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

Permissible load (For details, refer to P.304)

	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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

		Key way shaft/ Round shaft					
	Motor specifications	without brake			with brake		
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
	Encoder connector Large size (JL10) type	_	P.259		_	P.:	259

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

Dimensions are subject to change without notice. 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.

A6N Series

A6B Series

Please contact us for more information.

Specifications

		AC200 V		
Motor model *1		MSMF402L1□□M		
			function type	MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver		Basic	type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	6.5
Rated output			(W)	4000
Rated torque			(N·m)	12.7
Continuous st	all torqu	ie	(N·m)	15.2
Momentary M	ax. pea	k torqı	ue (N·m)	38.2
Rated current			(A(rms))	19.6
Max. current			(A(o-p))	83
Regenerative	brake	Without option		No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	4500
Moment of ine	ertia		Without brake	14.4
of rotor (x10 ⁻⁴ kg·m²) Recommended moment of in ratio of the load and the rotor			With brake	15.6
				15 times or less
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutic	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

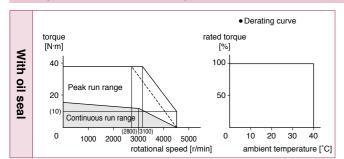
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications		without brake		with brake			
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.259			P.260		

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V	
Motor model*1		MSMF502L1□□M			
		Multi	function type	MFDLTB3SF	
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG	
driver	140.	Basic	type *2	MFDLNB3SE	
	Frame	e sym	bol	F-frame	
Power supply	capacity	y	(kVA)	7.8	
Rated output			(W)	5000	
Rated torque			(N·m)	15.9	
Continuous sta	all torqu	(N·m)	19.1		
Momentary Max. peak torqu			ue (N·m)	47.7	
Rated current			(A(rms)) 24.0		
Max. current			(A(o-p))	102	
Regenerative	brake		Without option	No limit Note)2	
frequency (time	es/min) I	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	19.0	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	20.2	
Recommended moment of i ratio of the load and the roto				15 times or less	
Rotary encode	er specif	icatio	ns*³	23-bit Absolute	
	Res	solutio	n per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

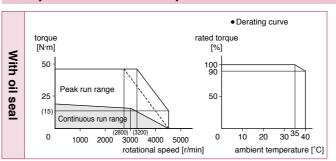
Static friction torque (N·m)	22.0 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft					
Motor specifications		without brake		with brake		
motor operations	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.2	260	_	P.2	260

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

Dimensions are subject to change without notice. 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.

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A6N Series

Series

Specifications

		AC200 V		
Motor model *	1	MQMF012L1□□M		
		Multi	function type	MADLT05SF
Applicable	Model No	RS48	5 communication type *2	MADLN05SG
driver		Basic	type *2	MADLN05SE
	Fram	e sym	bol	A-frame
Power supply	capacit	y	(kVA)	0.5
Rated output			(W)	100
Rated torque			(N·m)	0.32
Continuous st	tall torqu	ie (N·m)		0.33
Momentary M	lax. peal	k torqı	ue (N·m)	1.11
Rated current			(A(rms))	1.1
Max. current			(A(o-p))	5.5
Regenerative	legenerative brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4281	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	6500
Moment of ine	ertia		Without brake	0.15
of rotor (×10 ⁻⁴	¹ kg·m²)		With brake	0.18
Recommended moment of i				20 times or less
Rotary encod	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Please contact us for more information.

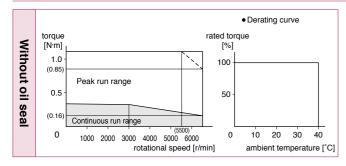
Static friction torque (N·m)	0.39 or more
Engaging time (ms)	15 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

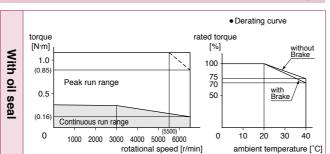
• Permissible load (For details, refer to P.304)

	,	,
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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Motor specifications	Round shaft/ Key way, center tap shaft							
			without brake		with brake				
	·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Leadwire type (IP65)	P.261	P.261	P.261	P.262	P.262	P.262		

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

Dimensions are subject to change without notice. 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.

Specifications

				AC200 V
Motor model*1	r model *1		MQMF022L1□□M	
	Multi		function type	MADLT15SF
Applicable	Model No	RS48	5 communication type	MADLN15SG
driver	140.	Basic	type *2	MADLN15SE
Frame syr			bol	A-frame
Power supply	capacit	y	(kVA	0.5
Rated output			(W	/) 200
Rated torque			(N·m	0.64
Continuous st	all torqu	е	(N·m	0.76
Momentary M	ax. peal	k torqu	ue (N·m	n) 2.23
Rated current			(A(rms))) 1.4
Max. current			(A(o-p)	6.9
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4283	No limit Note)2
Rated rotation	al spee	d	(r/min	3000
Max. rotationa	al speed		(r/min	n) 6500
Moment of ine	ertia		Without brake	0.50
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m ²)		With brake	0.59
Recommende ratio of the loa				20 times or less
Rotary encode	er speci	ficatio	ns ^{⁺3}	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

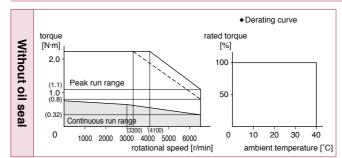
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

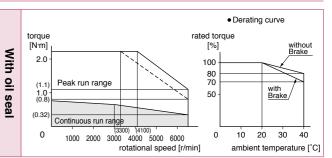
• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147
accombiy	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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

		Round shaft/ Key way, center tap shaft						
	Motor specifications	without brake			with brake			
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
	Leadwire type (IP65)	P.263	P.263	P.263	P.264	P.264	P.264	

<Cautions>

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

Dimensions are subject to change without notice. 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.

A6N Series

Series

Specifications

				AC200 V	
Motor model *1		MQMF042L1 M			
			function type	MBDLT25SF	
Applicable	Model No.	RS48	5 communication type *2	MBDLN25SG	
driver		Basic	type *2	MBDLN25SE	
	Fram	e sym	bol	B-frame	
Power supply	capacit	у	(kVA)	0.9	
Rated output			(W)	400	
Rated torque			(N·m)	1.27	
Continuous st	all torqu	ie	(N·m)	1.40	
Momentary M	ax. pea	c torque (N·m)		4.46	
Rated current			(A(rms))	2.1	
Max. current			(A(o-p))	10.4	
Regenerative	Regenerative brake frequency (times/min) Note)1 Rated rotational speed		Without option	No limit Note)2	
frequency (time			DV0P4283	No limit Note)2	
Rated rotation			(r/min)	3000	
Max. rotationa	al speed		(r/min)	6500	
Moment of ine	ertia		Without brake	0.98	
of rotor (×10 ⁻⁴	kg·m²)		With brake	1.06	
Recommended moment of inertia ratio of the load and the rotor			20 times or less		
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute	
	Re	solutio	on per single turn	8388608	

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Please contact us for more information.

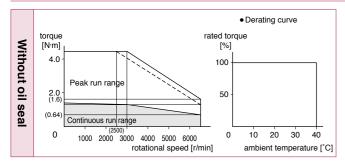
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

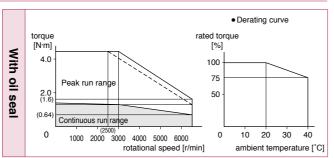
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications	without brake			with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.265	P.265	P.265	P.266	P.266	P.266		

Specifications

Special Order

				AC200 V
Motor model*1				MHMF5AZL1 M
Multifunction type		function type	MADLT05SF	
Applicable	Model No	RS48	5 communication type *2	MADLN05SG
driver	140.	Basic	type *2	MADLN05SE
	Fram	e sym	bol	A-frame
Power supply	capacit	y	(kVA)	0.5
Rated output			(W)	50
Rated torque			(N·m)	0.16
Continuous stall torque			(N·m)	0.18
Momentary M	ax. pea	k torque (N·m)		0.56
Rated current			(A(rms))	1.1
Max. current		(A(o-p))	5.5	
Regenerative brake			Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4281	No limit Note)2
Rated rotation	onal speed		(r/min)	3000
Max. rotationa	l speed		(r/min)	6500
Moment of ine	ertia		Without brake	0.038
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.042
Recommended moment of inertia ratio of the load and the rotor			30 times or less	
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	Resolution per single turn		8388608

200 V MHMF 50 W [High inertia 40 mm sq.] IP65

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

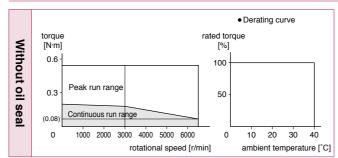
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

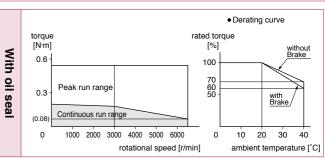
• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
docombry	Thrust load B-direction (N)	117.6
During operation	Radial load P-direction (N)	68.6
	Thrust load A, B-direction (N)	49

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft						
Motor specifications	without brake			with brake			
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Leadwire type (IP65)	P.267	P.267	P.267	P.268	P.268	P.268	

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

Dimensions are subject to change without notice. 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.

<Cautions>

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

Dimensions are subject to change without notice. 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.

A6N Series

Series

Specifications

				AC200 V
Motor model*1		MHMF012L1 M		
			unction type	MADLT05SF
Applicable	Model No.	RS48	communication type *2	MADLN05SG
driver		Basic	type *2	MADLN05SE
	Fram	e sym	bol	A-frame
Power supply	capacit	у	(kVA)	0.5
Rated output			(W)	100
Rated torque			(N·m)	0.32
Continuous st	all torqu	0.33		
Momentary M	ax. pea	k torqu	ıe (N·m)	1.11
Rated current			(A(rms))	1.1
Max. current			(A(o-p))	5.5
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4281	No limit Note)2
Rated rotation	al spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	6500
Moment of ine	ertia		Without brake	0.071
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.074
Recommended moment of inertia ratio of the load and the rotor				30 times or less
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutic	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Please contact us for more information.

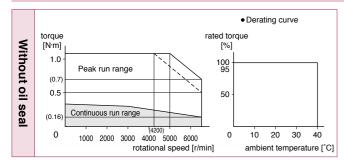
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

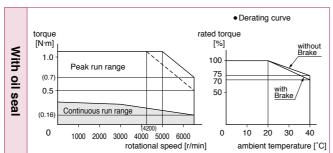
• Permissible load (For details, refer to P.304)

		,	,
	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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.269	P.269	P.269	P.270	P.270	P.270		

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

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

Specifications

				AC200 V
Motor model*1		MHMF022L1□□M		
		Multif	function type	MADLT15SF
Applicable	Model No	RS48	5 communication type *2	MADLN15SG
driver	140.	Basic	type *2	MADLN15SE
	Frame	e sym	bol	A-frame
Power supply	capacit	y	(kVA)	0.5
Rated output			(W)	200
Rated torque			(N·m)	0.64
Continuous stall torque (N·m)				0.76
Momentary Max. peak torque			ue (N·m)	2.23
Rated current			(A(rms))	1.4
Max. current			(A(o-p))	6.9
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4283	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	6500
Moment of ine	ertia		Without brake	0.29
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	0.31
Recommended moment of i ratio of the load and the roto			30 times or less	
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

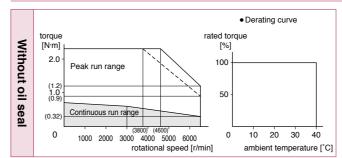
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

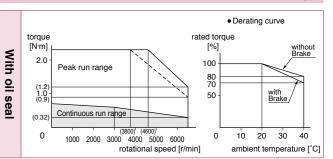
• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Motor specifications	Round shaft/ Key way, center tap shaft							
		without brake			with brake				
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Leadwire type (IP65)	P.271	P.271	P.271	P.272	P.272	P.272		

<Cautions>

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

Dimensions are subject to change without notice. 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.

A6N Series

Series

Please contact us for more information.

Specifications

				AC200 V
Motor model *1		MHMF042L1□□M		
			function type	MBDLT25SF
Applicable	Model No.	RS48	5 communication type *2	MBDLN25SG
driver	110.	Basic	type *2	MBDLN25SE
	Fram	e sym	bol	B-frame
Power supply	capacit	у	(kVA)	0.9
Rated output			(W)	400
Rated torque			(N·m)	1.27
Continuous st	all torqu	1.40		
Momentary M	ax. pea	k torqu	ue (N·m)	4.46
Rated current			(A(rms))	2.1
Max. current			(A(o-p))	10.4
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4283	No limit Note)2
Rated rotation	al spee	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	6500
Moment of ine	ertia		Without brake	0.56
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.58
	Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less
Rotary encode	er speci	ficatio	ns*³	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

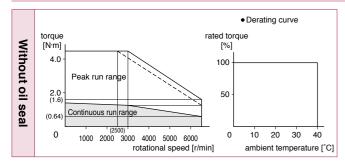
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

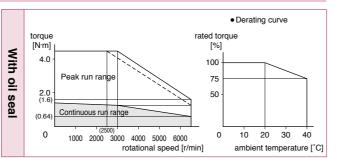
• Permissible load (For details, refer to P.304)

	,	,
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)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

	Round shaft/ Key way, center tap shaft							
Motor specifications		without brake		with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Leadwire type (IP65)	P.273	P.273	P.273	P.274	P.274	P.274		

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model	1	MHMF082L1□□M		
			function type	MCDLT35SF
Applicable	Model No	RS48	5 communication type *2	MCDLN35SG
driver	110.	Basic	type *2	MCDLN35SE
	Fram	e sym	bol	C-frame
Power supply	capacit	у	(kVA)	1.8
Rated output			(W)	750
Rated torque			(N·m)	2.39
Continuous s	tall torqu	ie	(N·m)	2.86
Momentary N	1ax. pea	8.36		
Rated curren	t		(A(rms))	3.8
Max. current			(A(o-p))	18.8
Regenerative	brake		Without option	No limit Note)2
frequency (tim	nes/min)	Note)1	DV0P4283	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6000
Moment of in	ertia		Without brake	1.56
of rotor (×10 ⁻⁴ kg·m ²)			With brake	1.66
Recommended moment of inertia ratio of the load and the rotor Note)3				20 times or less
Rotary encoder specifications *3			ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

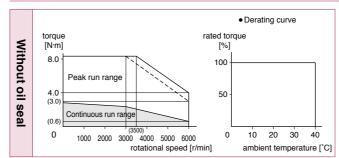
Static friction torque (N·m)	3.8 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

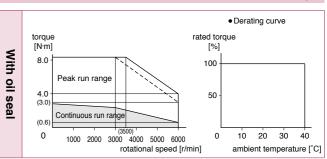
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

		Round shaft/ Key way, center tap shaft					
	Motor specifications	without brake			with brake		
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
	Leadwire type (IP65)	P.275	P.275	P.275	P.276	P.276	P.276

<Cautions>

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

Dimensions are subject to change without notice. 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.

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Specifications

				AC200 V
Motor model *1				MHMF092L1□□M
			function type	MDDLT55SF
Applicable	Model No	RS48	5 communication type *2	MDDLN55SG
driver	140.	Basic	c type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	у	(kVA)	2.4
Rated output			(W)	1000
Rated torque			(N·m)	3.18
Continuous s	tall torqu	ie	(N·m)	3.34
Momentary M	lax. pea	k torqı	ue (N·m)	11.1
Rated current	t	(A(rms))		5.7
Max. current	(A(o-			28.2
Regenerative	Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2
frequency (tim			DV0P4284	No limit Note)2
Rated rotation	nal spee	d	(r/min)	3000
Max. rotation	al speed		(r/min)	6000
Moment of inc	ertia		Without brake	2.03
of rotor (×10	⁴ kg·m²)		With brake	2.13
Recommended moment of ratio of the load and the rot				15 times or less
Rotary encod	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutic	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Static friction torque (N·m)	3.8 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±2.4

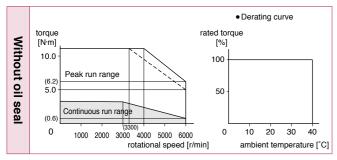
Please contact us for more information.

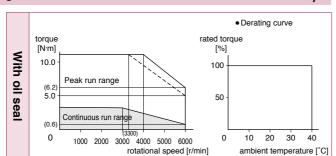
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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





Dimensions

		Round shaft/ Key way, center tap shaft						
	Motor specifications	without brake			with brake			
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
	Leadwire type (IP65)	P.277	P.277	P.277	P.278	P.278	P.278	

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model *1				MHMF102L1 M
		Multi	function type	MDDLT45SF
Applicable	Model No	RS48	5 communication type	MDDLN45SG
driver	140.	Basic	type *2	MDDLN45SE
	Frame	sym	bol	D-frame
Power supply	capacity	/	(kVA	A) 2.4
Rated output			(V	V) 1000
Rated torque			(N·n	n) 4.77
Continuous st	all torqu	е	(N·n	n) 5.25
Momentary M	ax. peal	torqu	ıe (N·n	n) 14.3
Rated current			(A(rms	5.2
Max. current			(A(o-p))) 22
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min) I	Note)1	DV0P4284	No limit Note)2
Rated rotation	al spee	b	(r/mir	n) 2000
Max. rotationa	al speed		(r/mir	n) 3000
Moment of ine	ertia		Without brake	22.9
of rotor (×10 ⁻⁴	of rotor (×10 ⁻⁴ kg·m ²)		With brake	24.1
Recommended moment of in ratio of the load and the roto				5 times or less
Rotary encode	er specif	icatio	ns*3	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

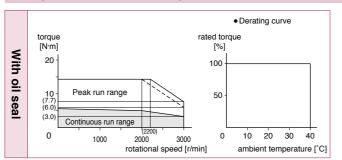
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	980
	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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

		Key way shaft/ Round shaft						
	Motor specifications	without brake			with brake			
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
	Encoder connector Large size (JL10) type	_	P.279		_	P.2	279	

<Cautions>

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

Dimensions are subject to change without notice. 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.

A6N Series

Series

Please contact us for more information.

Specifications

				AC200 V
Motor model *1	Motor model *1			MHMF152L1 M
			function type	MDDLT55SF
Applicable	Model No	RS48	5 communication type *2	MDDLN55SG
driver		Basic	type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	у	(kVA)	2.9
Rated output			(W)	1500
Rated torque			(N·m)	7.16
Continuous st	Continuous stall torque (N·m			7.52
Momentary M	ax. pea	k torqı	ue (N·m)	21.5
Rated current			(A(rms))	8.0
Max. current			(A(o-p))	34
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4284	No limit Note)2
Rated rotation	nal spee	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	33.4
of rotor (×10 ⁻⁴	kg·m²)		With brake	34.6
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutic	on per single turn	8388608

• Brake specifications (For details, refer to P.305) 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
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

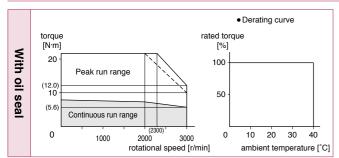
		,	,
		Radial load P-direction (N)	980
	During assembly	Thrust load A-direction (N)	588
		Thrust load B-direction (N)	686
	During	Radial load P-direction (N)	490
	operation	Thrust load A, B-direction (N)	196

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

Detail of model designation, refer to P.204.

*3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
co. opcomediiciic	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.279			P.280		

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model *1				MHMF202L1 M
	Multifu		function type	MEDLT83SF
Applicable	Model No	RS48	5 communication type *	MEDLN83SG
driver	140.	Basic	type *2	MEDLN83SE
	Frame	e sym	bol	E-frame
Power supply	capacity	/	(kVA)	3.8
Rated output			(W)	2000
Rated torque			(N·m)	9.55
Continuous st	all torqu	е	(N·m)	11.5
Momentary Max. peak torque (N·m)				28.6
Rated current			(A(rms))	12.5
Max. current			(A(o-p))	53
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min) I	Note)1	DV0P4285	No limit Note)2
Rated rotation	al spee	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	55.7
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	61.0
Recommended moment of ine ratio of the load and the rotor				5 times or less
Rotary encode	er specif	icatio	ns ^{*3}	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

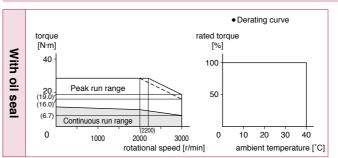
During assembly During operation	Radial load P-direction (N)	1666
	Thrust load A-direction (N)	784
	Thrust load B-direction (N)	980
	Radial load P-direction (N)	784
	Thrust load A, B-direction (N)	343

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

Detail of model designation, refer to P.204.

*3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

		Key way shaft/ Round shaft					
	Motor specifications	without brake			with brake		
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
	Encoder connector Large size (JL10) type	_	P.280		_	P.2	280

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

Dimensions are subject to change without notice. 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.

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Series

2 or more

24±2.4

Please contact us for more information.

Specifications

				AC200 V
Motor model*1		MHMF302L1□□M		
			function type	MFDLTA3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNA3SG
driver	110.	Basic	type *2	MFDLNA3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	5.2
Rated output			(W)	3000
Rated torque			(N·m)	14.3
Continuous st	all torqu	17.2		
Momentary M	ax. pea	k torqı	ue (N·m)	43.0
Rated current			(A(rms))	17.0
Max. current			(A(o-p))	72
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	nal spee	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	85.3
of rotor (×10 ⁻⁴ kg·m ²)		With brake	90.7	
Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less	
Rotary encode	er speci	ficatio	ns*³	23-bit Absolute
	Re	8388608		

Brake specifications (For details, refer to P.305) (This brake will be released when it is energized. Do not use this for braking the motor in motion.)

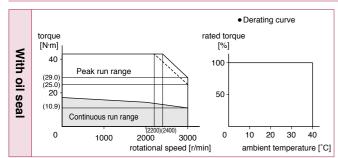
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	,	,
During assembly	Radial load P-direction (N)	1666
	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)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \(\subseteq \) in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

			Key way shaft	/ Round shaft		
Motor specifications	without brake			with brake		
motor opeomoditerio	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.281		_	P.281	

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model*1		MHMF402L1 M		
		Multi	function type	MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver	140.	Basic	type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	6.5
Rated output			(W)	4000
Rated torque			(N·m)	19.1
Continuous st	all torqu	е	(N·m)	22.0
Momentary Ma	ax. peal	k torqu	ue (N·m)	57.3
Rated current			(A(rms))	20
Max. current			(A(o-p))	85
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/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	104
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	110	
Recommended moment of inertia ratio of the load and the rotor Note)3				5 times or less
Rotary encode	er speci	ficatio	ns ^{∗3}	23-bit Absolute
	Re	solutio	n per single turn	8388608

Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

Static friction torque (N·m) 25.0 or more
Engaging time (ms) 80 or less
Releasing time (ms) Note)4 25 or less
Exciting current (DC) (A) 1.29

• Permissible load (For details, refer to P.304)

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

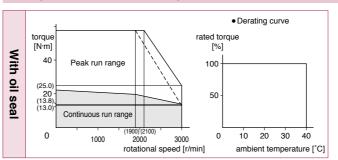
- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.

Releasing voltage (DC) (V)

Exciting voltage (DC) (V)

- *1 \(\subseteq \) in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft					
Motor specifications	without brake			with brake		
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.281		_	P.2	282

<Cautions>

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

Dimensions are subject to change without notice. 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.

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Specifications

				AC200 V
Motor model *1		MHMF502L1□□M		
			function type	MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver	110.	Basic	type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	y	(kVA)	7.8
Rated output			(W)	5000
Rated torque			(N·m)	23.9
Continuous st	all torqu	ie	(N·m)	26.3
Momentary Ma	ax. pea	k torqu	ue (N·m)	71.6
Rated current			(A(rms))	23.3
Max. current			(A(o-p))	99
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/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	146
of rotor (×10 ⁻⁴ kg·m ²)			With brake	151
	Recommended moment of inertia ratio of the load and the rotor Note)3			5 times or less
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutic	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

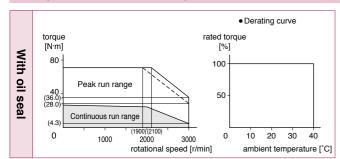
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
motor operations	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.282		_	P.2	282	

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model*	1	MHMF752L1□□M		
			function type	MGDLTC3SF
Applicable	Model No	RS48	5 communication type *	_
driver	140.	Basic	type *2	_
	Fram	e sym	bol	G-frame
Power supply	capacit	у	(kVA)	11
Rated output			(W)	7500
Rated torque			(N·m)	47.8
Continuous st	tall torqu	ie	(N·m)	47.8
Momentary M	lax. peal	k torqı	ue (N·m)	125
Rated current	:		(A(rms))	40.2
Max. current			(A(o-p))	154
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4285×3	No limit Note)2
Rated rotation	nal spee	d	(r/min)	1500
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	272
of rotor (×10 ⁻⁴ kg·m ²)			With brake	279
Recommended moment of inertia ratio of the load and the rotor Note)3				5 times or less
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Res	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

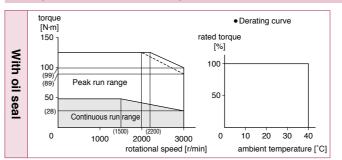
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.60.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications		without brake		with brake			
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.283	_	_	P.283	_	

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

Dimensions are subject to change without notice. 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.

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A6N Series

Series

Special Order

200 V MDMF 1.0 kW [Middle inertia 130 mm sq.] IP67

Please contact us for more information.

Specifications

				AC200 V
Motor model*1		MDMF102L1□□M		
		Multi	function type	MDDLT45SF
Applicable	Model No	RS48	5 communication type *2	MDDLN45SG
driver		Basic	type *2	MDDLN45SE
	Fram	e sym	bol	D-frame
Power supply	capacit	y	(kVA)	2.4
Rated output			(W)	1000
Rated torque			(N·m)	4.77
Continuous st	all torqu	ie	(N·m)	5.25
Momentary Ma	ax. pea	k torqu	ue (N·m)	14.3
Rated current			(A(rms))	5.2
Max. current			(A(o-p))	22
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/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	6.18
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	7.40
	Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutic	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

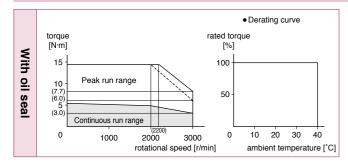
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft							
Motor specifications	without brake			with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Encoder connector Large size (JL10) type	_	P.283			P.2	284		

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

Dimensions are subject to change without notice. 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

200 V MDMF 1.5 kW [Middle inertia 130 mm sq.] IP67

Motor Specifications

A6 Series

Please contact us for more information.

Specifications

				AC200 V
Motor model	1	MDMF152L1 M		
			function type	MDDLT55SF
Applicable	Model No	RS48	5 communication type *2	MDDLN55SG
driver	140.	Basic	type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	у	(kVA)	2.9
Rated output			(W)	1500
Rated torque			(N·m)	7.16
Continuous s	tall torqu	ie	(N·m)	7.52
Momentary N	lax. pea	k torqu	ue (N·m)	21.5
Rated curren	t		(A(rms))	8.0
Max. current			(A(o-p))	34
Regenerative	brake		Without option	No limit Note)2
frequency (tim	nes/min)	Note)1	DV0P4284	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	2000
Max. rotation	al speed		(r/min)	3000
Moment of in	ertia		Without brake	9.16
of rotor (×10	4 kg·m²)		With brake	10.4
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times or less
Rotary encod	ler speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

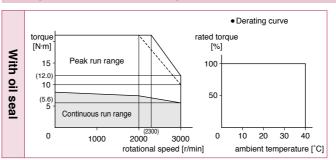
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.284		_	P.2	284	

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

Dimensions are subject to change without notice. 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.

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A6N Series

Series

Please contact us for more information.

Specifications

		AC200 V		
Motor model	1	MDMF202L1□□M		
		Multi	function type	MEDLT83SF
Applicable	Model No.	RS48	5 communication type *2	MEDLN83SG
driver		Basic	type *2	MEDLN83SE
	Fram	e sym	bol	E-frame
Power supply	capacit	у	(kVA)	3.8
Rated output			(W)	2000
Rated torque			(N·m)	9.55
Continuous s	tall torqu	ie	(N·m)	10.0
Momentary M	lax. pea	k torqu	ue (N·m)	28.6
Rated current	t		(A(rms))	9.9
Max. current			(A(o-p))	42
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4285	No limit Note)2
Rated rotation	nal spee	d	(r/min)	2000
Max. rotation	al speed		(r/min)	3000
Moment of in	ertia		Without brake	12.1
of rotor (×10	⁴ kg·m²)		With brake	13.3
Recommender ratio of the load		10 times or less		
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

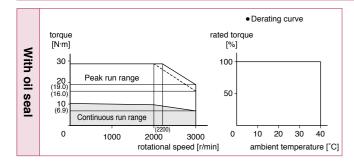
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft						
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.285			P.2	285	

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model*1		MDMF302L1□□M		
		Multi	function type	MFDLTA3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNA3SG
driver	140.	Basic	type *2	MFDLNA3SE
	Frame	e sym	bol	F-frame
Power supply	capacity	y	(kVA)	5.2
Rated output			(W)	3000
Rated torque			(N·m)	14.3
Continuous sta	all torqu	е	(N·m)	15.0
Momentary Ma	ax. peal	c torqu	ue (N·m)	43.0
Rated current			(A(rms))	16.4
Max. current			(A(o-p))	70
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/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	18.6
of rotor (×10 ⁻⁴ kg·m ²)		With brake	19.6	
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times or less
Rotary encode	er speci	icatio	ns ^{⁺3}	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

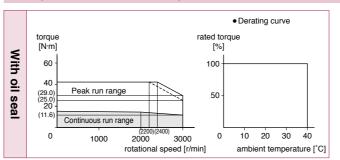
Static friction torque (N·m)	22.0 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

				Key way shaft	t/ Round shaft		
Motor specifications		without brake			with brake		
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
	Encoder connector Large size (JL10) type	_	P.285		_	P.2	286

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

Dimensions are subject to change without notice. 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.

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Special Order

200 V MDMF 4.0 kW [Middle inertia 176 mm sq.] IP67

Specifications

				AC200 V
Motor model *1		MDMF402L1 M		
			function type	MFDLTB3SF
Applicable	Model No.	RS48	5 communication type *2	MFDLNB3SG
driver		Basic	type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	6.5
Rated output			(W)	4000
Rated torque			(N·m)	19.1
Continuous st	all torqu	ie	(N·m)	22.0
Momentary M	ax. pea	k torqı	ue (N·m)	57.3
Rated current	ated current (A(rms)) 20.4		20.0	
Max. current	current (A(o-p))		85	
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	al spee	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	46.9
of rotor (×10 ⁻⁴	kg·m²)		With brake	52.3
	Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

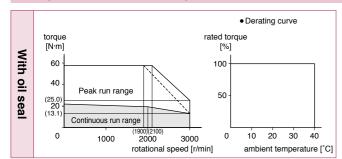
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Motor specifications	Key way shaft/ Round shaft							
		without brake			with brake				
		without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
	Encoder connector Large size (JL10) type	_	P.2	286		P.2	286		

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

Dimensions are subject to change without notice. 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

200 V MDMF 5.0 kW [Middle inertia 176 mm sq.] IP67

Motor Specifications **A6 Series**

Please contact us for more information.

Specifications

				AC200 V
Motor model*1				MDMF502L1□□M
		Multi	function type	MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver	140.	Basic	type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	7.8		
Rated output			(W)	5000
Rated torque			(N·m)	23.9
Continuous stall torque (N·m)				26.3
Momentary Max. peak torque (N·m)				71.6
Rated current			(A(rms))	23.3
Max. current			(A(o-p))	99
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	al spee	d	(r/min)	2000
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	58.2
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	63.0	
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized.

Do not use this for braking the motor in motion.

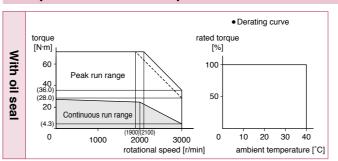
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

				Key way shaft	t/ Round shaft		
Motor specifications		without brake			with brake		
	·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
	Encoder connector Large size (JL10) type	_	P.287		_	P.2	287

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

Dimensions are subject to change without notice. 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.

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A6 Family

Series

Please contact us for more information.

Specifications

				AC200 V		
Motor model	1			MDMF752L1□□M		
		Multi	function type	MGDLTC3SF		
Applicable	Model No	RS48	5 communication type *2	_		
driver		Basic	type *2	_		
	Fram	e sym	bol	G-frame		
Power supply	/ capacit	у	(kVA)	11		
Rated output			(W)	7500		
Rated torque			(N·m)	47.8		
Continuous s	tall torqu	ie	(N·m)	47.8		
Momentary N	Лах. pea	k torqı	ue (N·m)	125		
Rated curren	current (ent (A(rms))		(A(rms))	40.2
Max. current		(A(o		154		
Regenerative	brake		Without option	No limit Note)2		
frequency (tin	nes/min)	Note)1	DV0P4285×3	No limit Note)2		
Rated rotatio	nal spee	d	(r/min)	1500		
Max. rotation	al speed		(r/min)	3000		
Moment of in	ertia		Without brake	122		
of rotor (×10 ⁻⁴ kg·m ²) Wit		With brake	127			
Recommended moment of inertia ratio of the load and the rotor			10 times or less			
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute		
	Re	solutio	n per single turn	8388608		

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

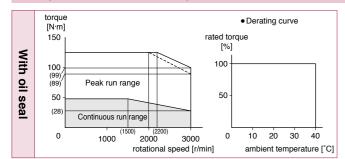
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

		,	,
		Radial load P-direction (N)	2058
During assembly	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)4, refer to P.303.
- Dimensions of Driver, refer to P.60.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft						
	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type		P.287	_		P.288	_	

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model*1		MGMF092L1□□M		
		Multifunction type		MDDLT45SF
Applicable	Model No	RS48	5 communication type *2	MDDLN45SG
driver	140.	Basic	type *2	MDDLN45SE
	Frame	e sym	bol	D-frame
Power supply	capacit	у	(kVA)	2.0
Rated output			(W)	850
Rated torque			(N·m)	5.41
Continuous st	all torqu	5.41		
Momentary Max. peak torque (N·m)				14.3
Rated current			(A(rms))	5.9
Max. current			(A(o-p))	22
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4284	No limit Note)2
Rated rotation	nal spee	d	(r/min)	1500
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	6.18
of rotor (×10 ⁻⁴	kg·m²)		With brake	7.40
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

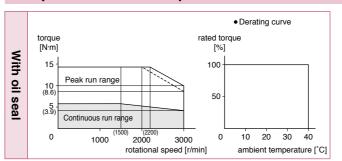
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

	Key way shaft/ Round shaft					
Motor specifications	without brake			with brake		
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.288		_	P.2	288

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

Dimensions are subject to change without notice. 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.

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Specifications

		AC200 V		
Motor model *1		MGMF132L1□□M		
			function type	MDDLT55SF
Applicable	Model No	RS48	5 communication type *2	MDDLN55SG
driver		Basic	type *2	MDDLN55SE
	Fram	e sym	bol	D-frame
Power supply	capacit	y	(kVA)	2.6
Rated output			(W)	1300
Rated torque			(N·m)	8.28
Continuous st	all torqu	e	(N·m)	8.28
Momentary M	ax. pea	k torqu	ue (N·m)	23.3
Rated current			(A(rms))	9.3
Max. current			(A(o-p))	37
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4284	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	9.16
of rotor (×10 ⁻⁴	kg·m²)		With brake	10.4
	Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) 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
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

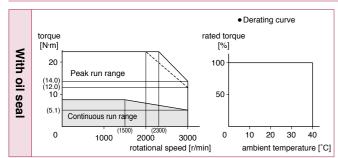
	, ,					
		Radial load P-direction (N)	980			
	During	Thrust load A-direction (N)	588			
		Thrust load B-direction (N)	686			
		Radial load P-direction (N)	686			
		Thrust load A, B-direction (N)	196			

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.58.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

Detail of model designation, refer to P.204.

*3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft							
	without brake			with brake				
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal		
Encoder connector Large size (JL10) type	_	P.289		_	P.2	289		

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

Dimensions are subject to change without notice. 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.

Specifications

Special Order

				AC200 V
Motor model*1		MGMF182L1□□M		
		Multifunction type		MEDLT83SF
Applicable	Model No	RS48	5 communication type *2	MEDLN83SG
driver	140.	Basic	type *2	MEDLN83SE
	Frame	e sym	bol	E-frame
Power supply	capacit	/	(kVA)	3.4
Rated output			(W)	1800
Rated torque			(N·m)	11.5
Continuous st	all torqu	11.5		
Momentary Max. peak torque (N·m)				28.7
Rated current			(A(rms))	11.8
Max. current			(A(o-p))	42
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	al spee	d	(r/min)	1500
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	12.1
of rotor (×10 ⁻⁴	kg·m²)		With brake	13.3
Recommended moment of inertia ratio of the load and the rotor Note)3			10 times or less	
Rotary encode	er speci	icatio	ns ^{*3}	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) 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
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

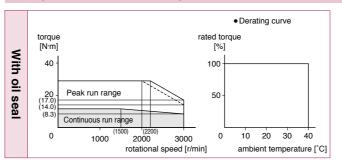
During assembly	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
During	Radial load P-direction (N)	686
operation	Thrust load A, B-direction (N)	196

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

Detail of model designation, refer to P.204.

*3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

		Key way shaft/ Round shaft					
	Motor specifications	without brake			with brake		
motor opcomeduone	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
	Encoder connector Large size (JL10) type	_	P.2	289	_	P.2	290

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

Dimensions are subject to change without notice. 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.

A6N Series

Series

Series

Information

IP67

Please contact us for more information.

Specifications

				AC200 V
Motor model *1		MGMF242L1□□M		
		Multi	function type	MEDLT93SF
Applicable	Model No.	RS48	5 communication type *2	MEDLN93SG
driver		Basic	type *2	MEDLN93SE
	Fram	e sym	bol	E-frame
Power supply	capacit	y	(kVA)	4.5
Rated output			(W)	2400
Rated torque			(N·m)	15.3
Continuous st	all torqu	ie	(N·m)	15.3
Momentary M	ax. pea	k torqı	ue (N·m)	45.2
Rated current			(A(rms))	16.0
Max. current			(A(o-p))	67
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	nal spee	d	(r/min)	1500
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	46.9
of rotor (×10 ⁻⁴ kg·m ²)			With brake	52.3
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times or less
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

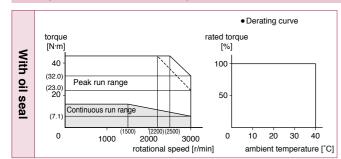
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

Motor specifications	Key way shaft/ Round shaft						
	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
Encoder connector Large size (JL10) type	_	P.290		_	P.2	290	

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

Dimensions are subject to change without notice. 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.

Specifications

				AC200 V
Motor model*1				MGMF292L1□□M
		Multifunction type		MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver	140.	Basic	type *2	MFDLNB3SE
	Frame	e sym	bol	F-frame
Power supply	capacit	/	(kVA)	5.0
Rated output			(W)	2900
Rated torque			(N·m)	18.5
Continuous st	all torqu	е	(N·m)	18.5
Momentary M	ax. peal	c torqu	ue (N·m)	45.2
Rated current			(A(rms))	19.3
Max. current			(A(o-p))	67
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	al spee	d	(r/min)	1500
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	46.9
of rotor (×10 ⁻⁴	kg·m²)		With brake	52.3
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times or less
Rotary encode	er speci	icatio	ns ^{*3}	23-bit Absolute
	Res	solutio	n per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

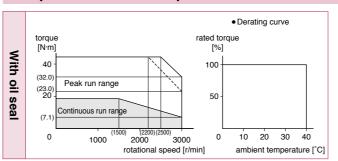
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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)4, refer to P.303.
- Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

				Key way shaft	t/ Round shaft		
Motor specifications	without brake			with brake			
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal	
	Encoder connector Large size (JL10) type	_	P.2	291	_	P.2	291

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

Dimensions are subject to change without notice. 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.

A6N Series

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Please contact us for more information.

Specifications

				AC200 V
Motor model	' 1			MGMF442L1□□M
		Multi	function type	MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver	140.	Basic	type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	/ capacit	у	(kVA)	7.0
Rated output			(W)	4400
Rated torque			(N·m)	28.0
Continuous s	tall torqu	ie	(N·m)	28.0
Momentary N	Лах. pea	k torqı	ue (N·m)	70.0
Rated curren	t		(A(rms))	27.2
Max. current			(A(o-p))	96
Regenerative	brake		Without option	No limit Note)2
frequency (tin	nes/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotatio	nal spee	d	(r/min)	1500
Max. rotation	al speed		(r/min)	3000
Moment of in	ertia		Without brake	58.2
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	63.0	
Recommended moment of inertia ratio of the load and the rotor Note)3				10 times or less
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on per single turn	8388608

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

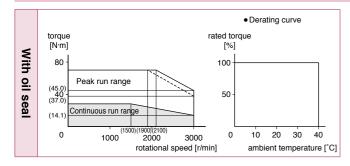
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

	, , ,						
	During assembly	Radial load P-direction (N)	1666				
		Thrust load A-direction (N)	784				
		Thrust load B-direction (N)	980				
	During	Radial load P-direction (N)	1470				
	operation	Thrust load A, B-direction (N)	490				

- For details of Note)1 to Note)4, refer to P.303.
- · Dimensions of Driver, refer to P.59.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

			Key way shaft	/ Round shaft		
Motor specifications	without brake			with brake		
	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.291		_	P.292	

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

Dimensions are subject to change without notice. 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.

Specifications

				AC200 V		
Motor model	1			MGMF552L1□□M		
			function type	MGDLTC3SF		
Applicable	Model No	RS48	5 communication type *2	_		
driver		Basic	type *2	_		
Frame syr		e sym	bol	G-frame		
Power supply	/ capacit	у	(kVA)	8.5		
Rated output (W)				5500		
Rated torque (N·m)				35.0		
Continuous stall torque (N·m)				35.0		
Momentary Max. peak torque (N·m)			102			
Rated curren	t		(A(rms))	39.8		
Max. current			(A(o-p))	164		
Regenerative	brake		Without option	No limit Note)2		
frequency (tin	nes/min)	Note)1	DV0P4285×3	No limit Note)2		
Rated rotatio	nal spee	d	(r/min)	1500		
Max. rotation	al speed		(r/min)	3000		
Moment of in	ertia		Without brake	83.0		
of rotor (×10 ⁻⁴ kg·m ²)		With brake	88.0			
Recommended moment of in ratio of the load and the roto			10 times or less			
Rotary encoder specifications *3			ns*3	23-bit Absolute		
	Re	solutio	n per single turn	8388608		

• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

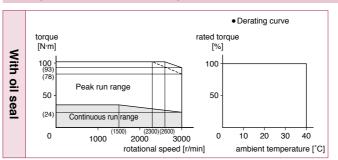
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.60.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".
- Detail of model designation, refer to P.204.
- *3 When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

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



Dimensions

			Key way shaft	t/ Round shaft		
Motor specifications	without brake			with brake		
·	without oil seal	with oil seal	with protective lip/ with oil seal	without oil seal	with oil seal	with protective lip/ with oil seal
Encoder connector Large size (JL10) type	_	P.292	_	_	P.292	_

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

Dimensions are subject to change without notice. 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.

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24

Leadwire type (IP65) · without brake · without/with oil seal · Round shaft/ Key way, center tap shaft ① Encoder connector ② Motor model Power supply Shaft without oil seal with oil seal ② WSMF5AZL1A2M MSMF5AZL1C2M ② WSMF5AZL1S2M MSMF5AZL1U2M ④ Dimensions are subject to change without notice. Contact us or a dealer

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

* Use hexagon socket head screw for installation.

4-\phi 3.4*

(27)

(20)

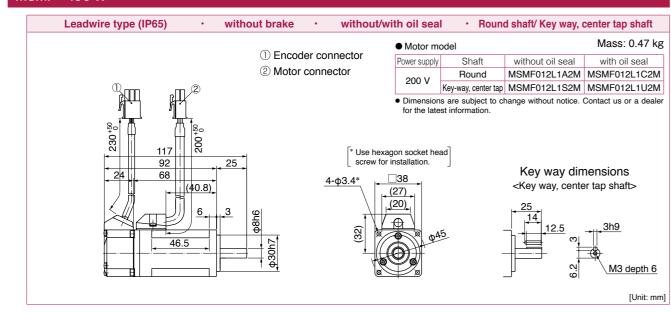
(20)

<Key way, center tap shaft>
25
14
12.5
N
M3 depth 6
[Unit: mm]

Key way dimensions

		·					center tap shaft
		① F		Motor mo	odel		Mass: 0.53 kg
			oder connector	Power supply	Shaft	without oil seal	with oil seal
			e connector	200 V	Round	MSMF5AZL1B2M	MSMF5AZL1D2M
Q _{nm}		3 Moto	or connector	200 V	Key-way, center tap	MSMF5AZL1T2M	MSMF5AZL1V2M
					s are subject to cl st information.	hange without notice.	Contact us or a dealer
05+082	127 102 78	25 (20.8) 3 948 Φ		exagon socket hear for installation.]	Key way din <key cente<="" td="" way,=""><td></td></key>	

MSMF 100 W

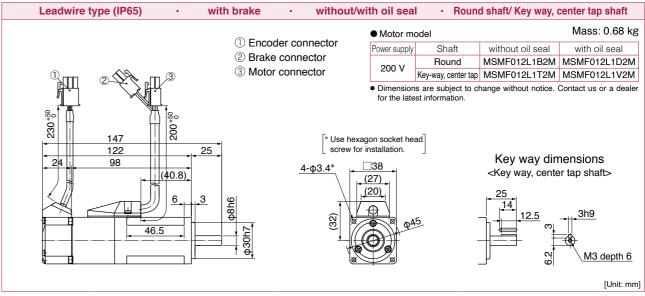


^{*} For motors specifications, refer to P.211, P.212.

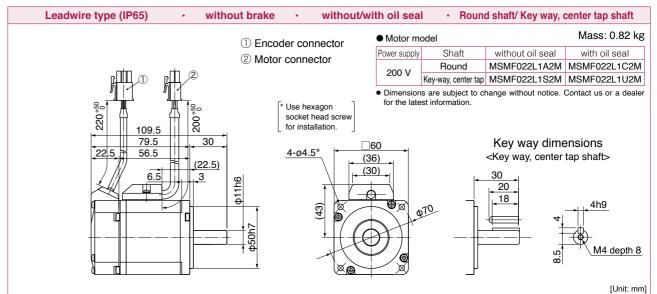
MSMF 100 W

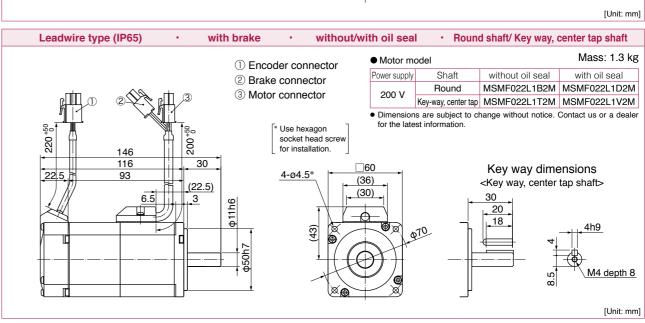
MSMF 100 W to 200 W

Special Order









^{*} For motors specifications, refer to P.212, P.213.

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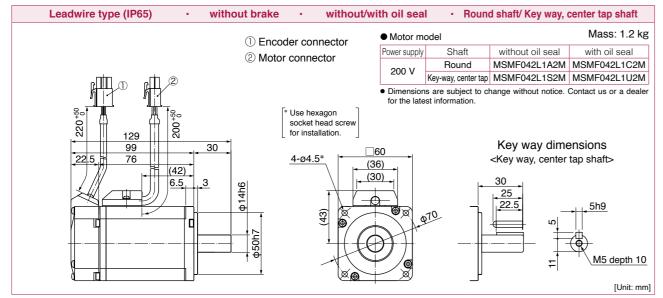
A6N Series

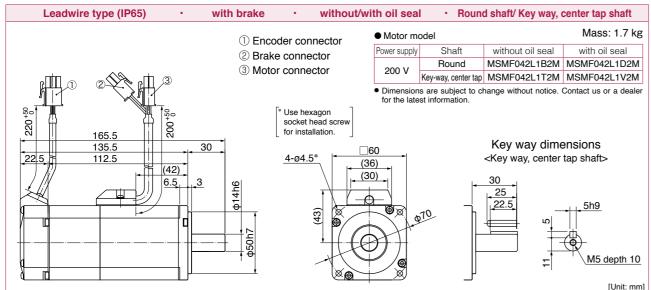
A6B Series

E Series

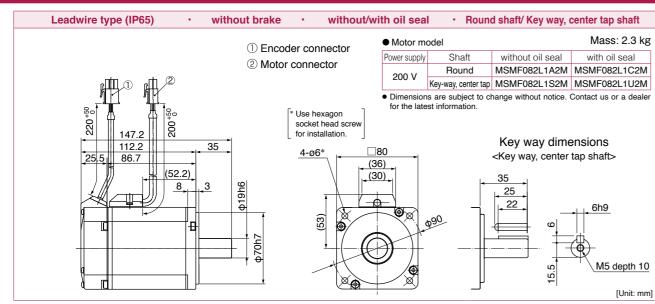
Information

MSMF 400 W





MSMF 750 W

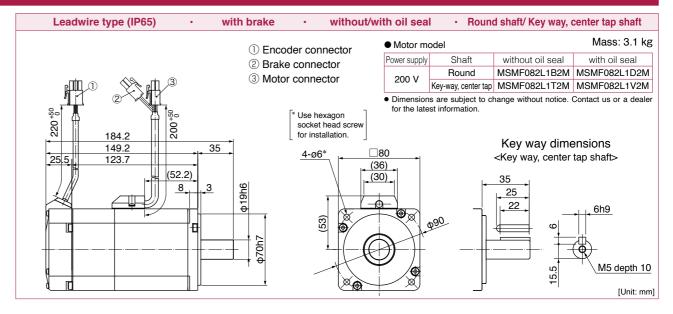


* For motors specifications, refer to P.214, P.215.

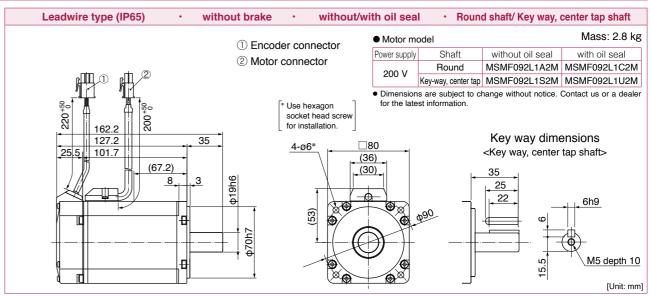
MSMF 750 W

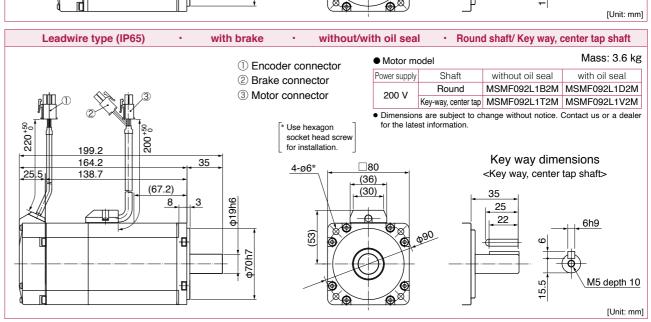
MSMF 750 W to 1000 W

Special Order



MSMF 1000 W





* For motors specifications, refer to P.215, P.216.

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A6 Family

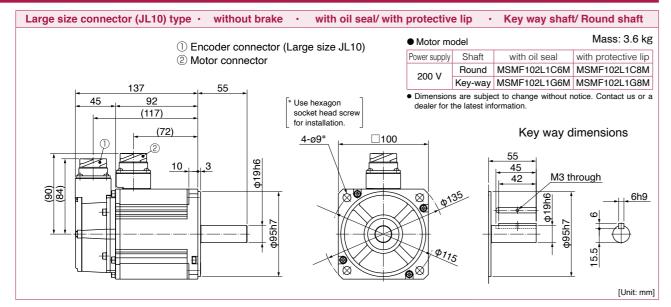
A6N Series

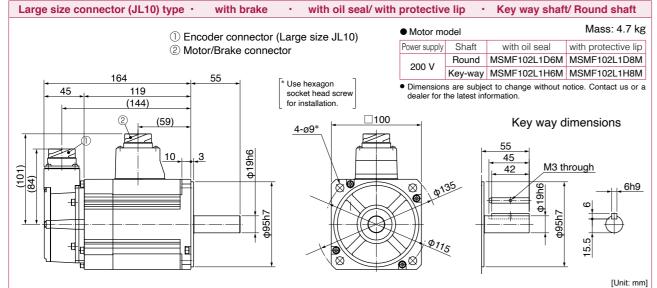
A6B Series

E Series

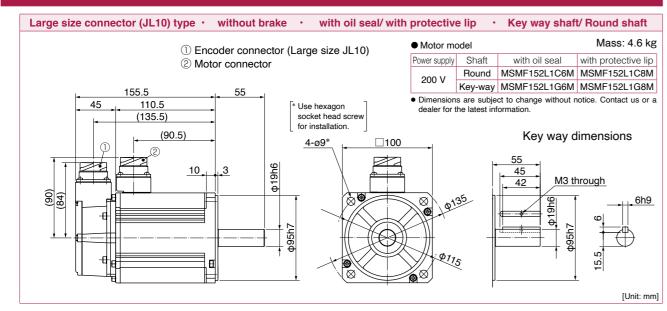
Information

MSMF 1.0 kW





MSMF 1.5 kW

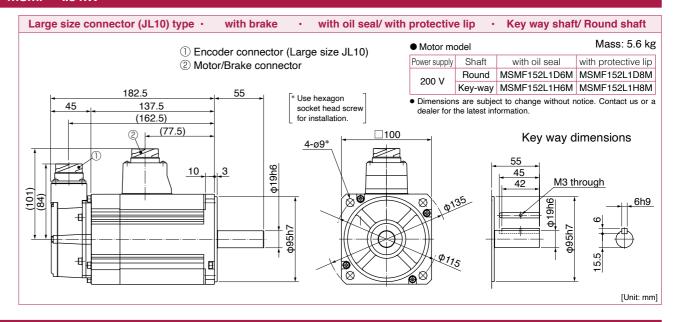


* For motors specifications, refer to P.217, P.218.

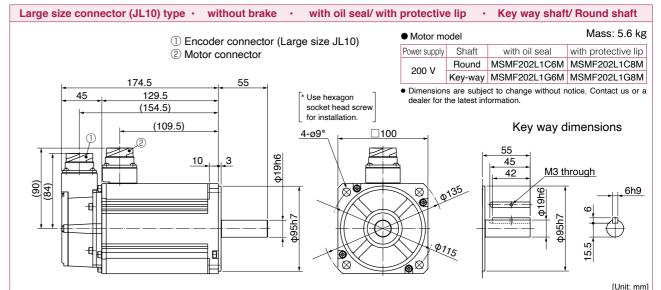
MSMF 1.5 kW

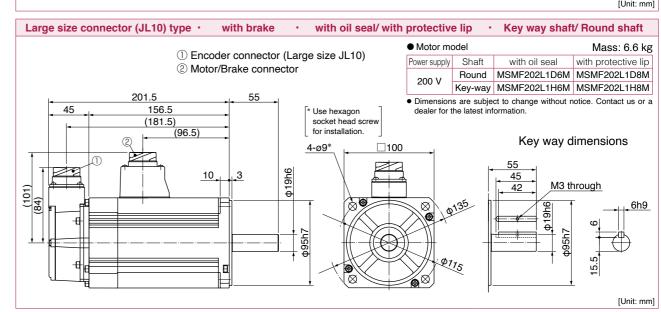
MSMF 1.5 kW to 2.0 kW

Special Order



MSMF 2.0 kW

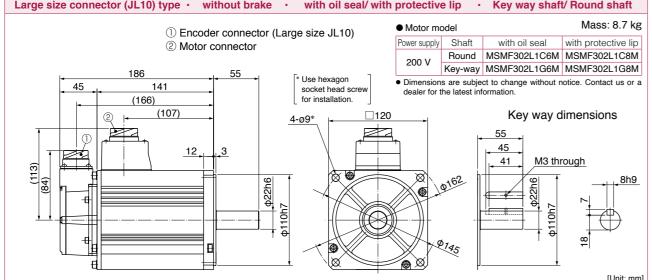


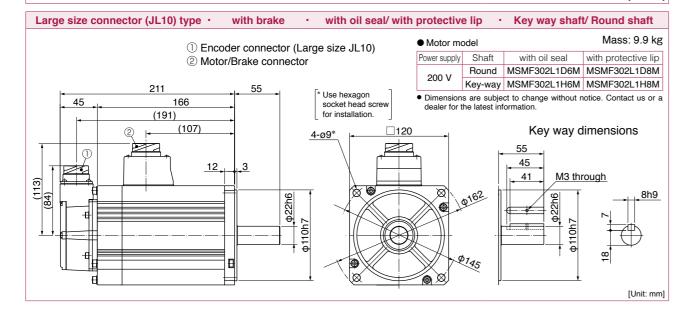


* For motors specifications, refer to P.218, P.219.

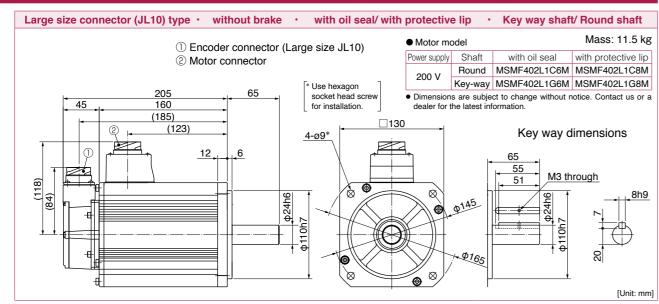
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MSMF 3.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft





MSMF 4.0 kW

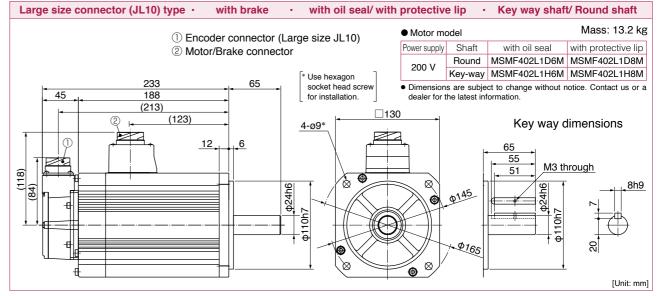


^{*} For motors specifications, refer to P.220, P.221.

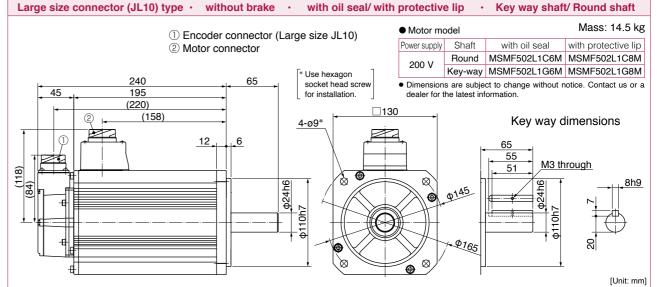
MSMF 4.0 kW

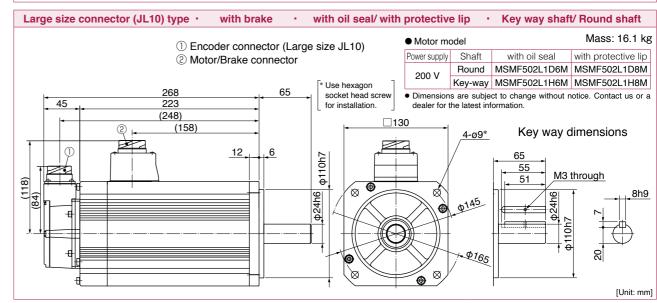
MSMF 4.0 kW to 5.0 kW

Special Order



MSMF 5.0 kW



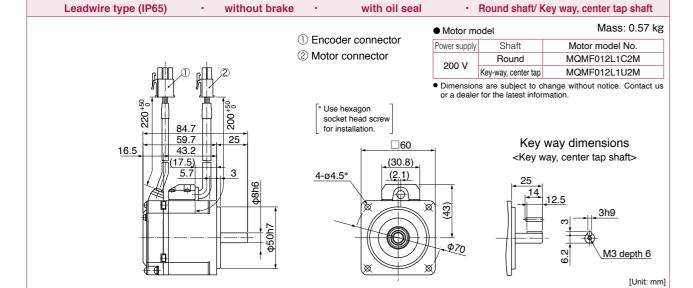


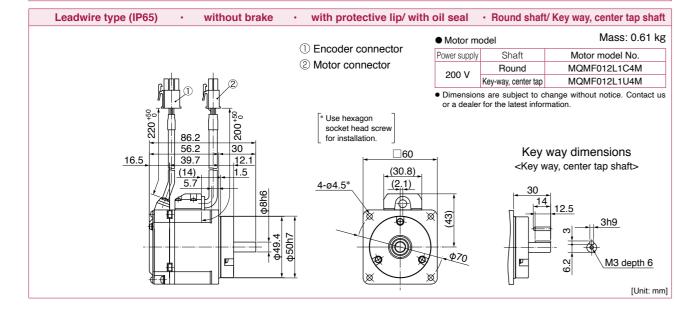
^{*} For motors specifications, refer to P.221, P.222.

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A6N Series

MQMF 100 W Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.54 kg Motor model (1) Encoder connector Shaft Motor model No. 2 Motor connector MQMF012L1A2M Round Key-way, center tap MQMF012L1S2M Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw 56.2 Key way dimensions <Key way, center tap shaft> (30.8) (2.1) 4-ø4.5* \oplus

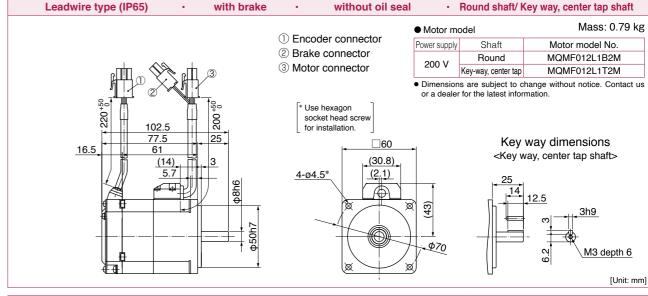


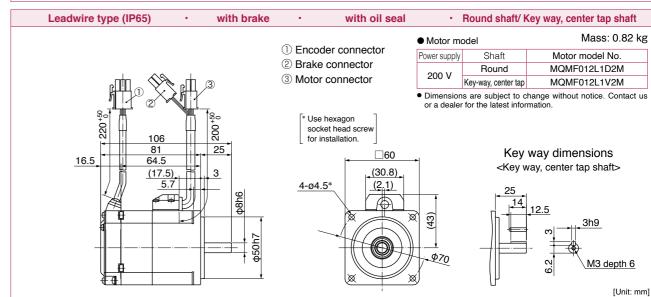


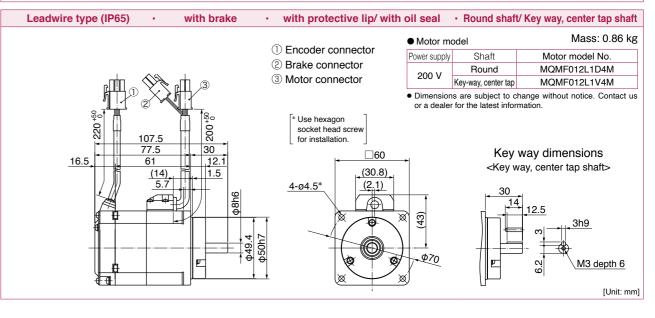
MQMF 100 W

MQMF 100 W

Special Order







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M3 depth 6

^{*} For motors specifications, refer to P.223.

^{*} For motors specifications, refer to P.223.

MQMF 200 W

Leadwire type (IP65)

without brake

Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 1.1 kg Motor model (1) Encoder connector Shaft Motor model No. 2 Motor connector MQMF022L1A2M Round Key-way, center tap MQMF022L1S2M • Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw Key way dimensions 4-ø6* <Key way, center tap shaft> (2.1) 20 18 M4 depth 8 [Unit: mm]

	Encoder connector	Motor m	odel	Mass: 1.2 kg
	② Motor connector	Power supply	Shaft	Motor model No.
	2 Motor connector	000.1/	Round	MQMF022L1C2M
mm (1) mh (2)		200 V	Key-way, center tap	MQMF022L1U2M
250 ⁶⁵ 0 000 000 000 000 000 000 000 000 000	* Use hexagon socket head screw for installation.		ns are subject to c r for the latest infor	hange without notice. Contact us mation.
	80	1	Key	way dimensions
16.5 49.3 3	4-ø6*		-	vay, center tap shaft>
(22.4) 94110 24020	(30.8) (2.1)	(53)	30 20 18	4h9 4h9 M4 depth 8

with oil seal

· Round shaft/ Key way, center tap shaft

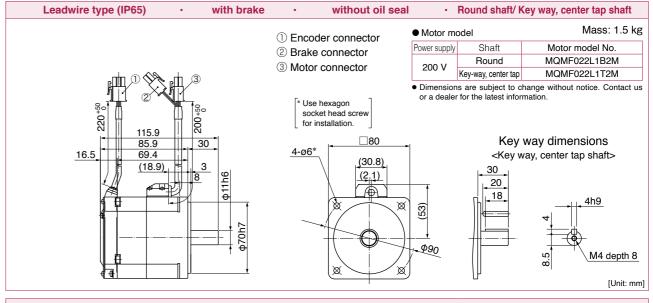
[Unit: mm]

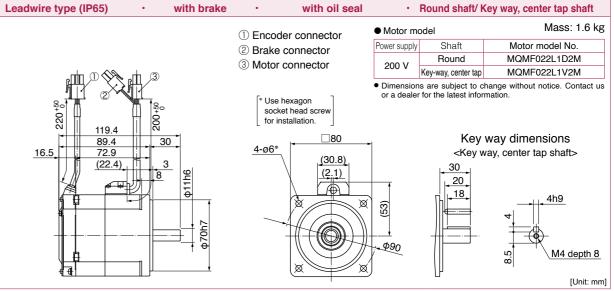
Leadwire type (IP65) · without brake	 with protective lip/ with 	oil seal	 Round shaft 	/ Key way, center tap shaft
	Encoder connector	• Motor m	odel	Mass: 1.3 kg
	② Motor connector	Power supply	Shaft	Motor model No.
	© Motor connector	200 V	Round	MQMF022L1C4M
mm () mh (2)		200 V	Key-way, center tap	MQMF022L1U4M
97.3	* Use hexagon socket head screw for installation.		ns are subject to cl r for the latest inform	nange without notice. Contact us nation.
62.3 35			Key v	way dimensions
16.5 45.8 12.1	4-ø6* (30.8)		-	ay, center tap shaft>
(18.9) 	(2.1)	(53)	35 20 18	4h9 4h9 4h9 4h9 4h9 4h9
% 911			<u> </u>	[Unit: mm

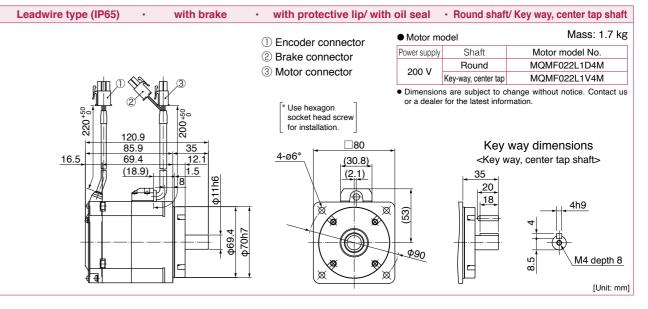
MQMF 200 W

MQMF 200 W

Special Order







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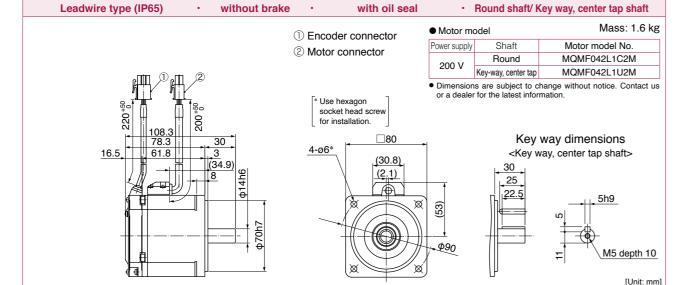
^{*} For motors specifications, refer to P.224.

^{*} For motors specifications, refer to P.224.

MQMF 400 W

M5 depth 10

Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 1.5 kg Motor model (1) Encoder connector Shaft Motor model No. ② Motor connector MQMF042L1A2M Round Key-way, center tap MQMF042L1S2M Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw Key way dimensions 4-ø6* 58.3 <Key way, center tap shaft> (30.8)(2.1) 25 22.5 M5 depth 10 [Unit: mm]



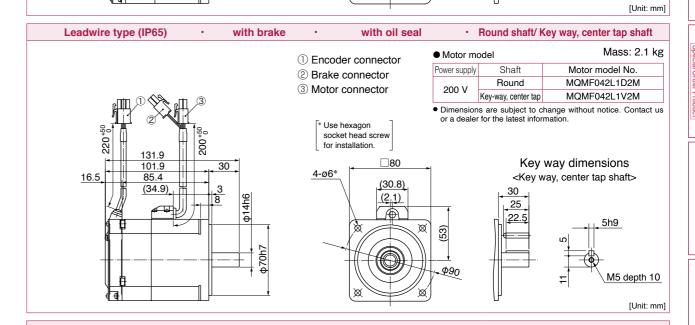
Motor connector Motor connector Motor model No. Round MQMF042L1C4M No. Roy-way, center tap MQMF042L1U4M Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Key way dimensions Key way, center tap shaft> A-ø6* (2.1) Rower supply Shaft Motor model No. Roy-way, center tap MQMF042L1C4M No. Roy-way, center tap MQMF042L1U4M No. Roy-way, center tap MQMF042L1U4M No. Roy-way, center tap without notice. Contact us or a dealer for the latest information. Key way dimensions Key way, center tap shaft>	Leadwire type (IP65) · witho	brake · with protective lip/ with	oil seal	· Round shaft	/ Key way, center tap shaft
2 Motor connector Power supply Shaft Motor model No. 200 V Round MQMF042L1C4M Key-way, center tap MQMF042L1U4M Dimensions are subject to change without notice. Contact us or a dealer for the latest information. *Use hexagon socket head screw for installation. Society Shaft Motor model No. Round MQMF042L1C4M MQMF042L1U4M Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Key way dimensions Key way, center tap shafts		① Encoder connector	Motor m	odel	Mass: 1.7 kg
200 V Round MCMH-042L1C4M Key-way, center tap MQMF042L1U4M • Dimensions are subject to change without notice. Contact us or a dealer for the latest information. **Rey way, center tap MQMF042L1U4M • Dimensions are subject to change without notice. Contact us or a dealer for the latest information. **Rey way dimensions **Key way dimensions **Key way, center tap shaft> **T4.8		-	Power supply	Shaft	Motor model No.
Sey-way, center tap MCMF042L1U4M Dimensions are subject to change without notice. Contact us or a dealer for the latest information.		© Motor connector	200.1/	Round	MQMF042L1C4M
*Use hexagon socket head screw for installation. **Use hexagon socket head screw for installation. **Use hexagon socket head screw for installation. **Key way dimensions *Key way, center tap shaft **The state of the latest information. **Wey way dimensions *The state of the latest information. **Wey way dimensions </td **Key way, center tap shaft> **The state of the latest information. **Mean screw for installation. **Mean scr	ntn 1) ntn 2		200 V	Key-way, center tap	MQMF042L1U4M
16.5 74.8 35 35 12.1 35 35 35 31.4 35 35 35 35 35 35 35 3	\$\frac{1}{2} \\ \frac{1}{2} \\ \frac	socket head screw			
(31.4) (31.5) 944 (2.1) (2.1) (3.6)			→ I	Key	way dimensions
8 9 4 1 0 20.5 18 18 18 5h9 M5 depth 10	16.5 58.3	4-ø6* (30.8)		<key td="" v<=""><td>vay, center tap shaft></td></key>	vay, center tap shaft>
		φ φ φ φ φ φ φ φ φ φ φ φ φ φ φ φ φ φ φ	φ90	20.5	

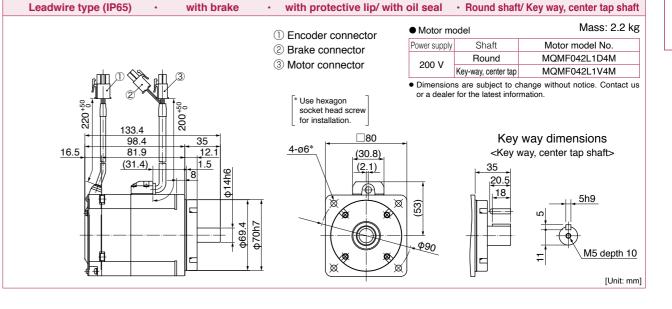
* For motors specifications, refer to P.225.

Special Order

MQMF 400 W

MQMF 400 W Leadwire type (IP65) with brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 2.0 kg Motor model (1) Encoder connector Shaft Motor model No. Power supply 2 Brake connector Round MQMF042L1B2M 3 Motor connector 200 V Key-way, center tap MQMF042L1T2M • Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw Key way dimensions 98 4 4-ø6* 81.9 16.5 <Key way, center tap shaft> (30.8)(31.4)30 (2.1) _25 22.5



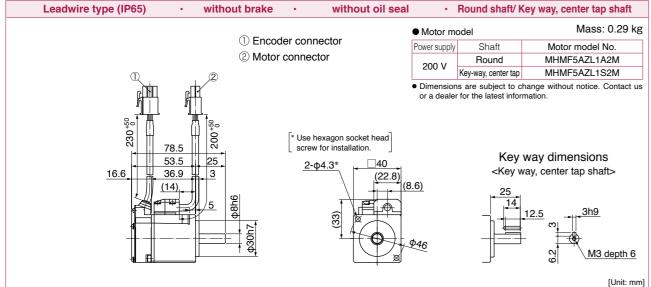


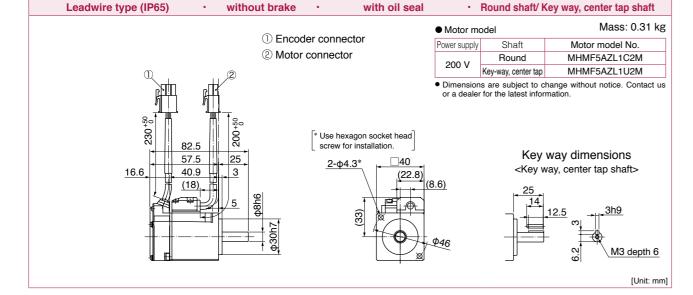
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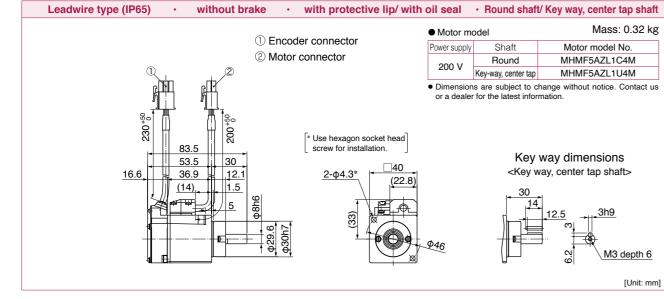
* For motors specifications, refer to P.225.

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MHMF 50 W Leadwire type (IP65) · without brake · without oil seal · Round shaft/ Key way, center tap shaft • Motor model Mass: 0.29



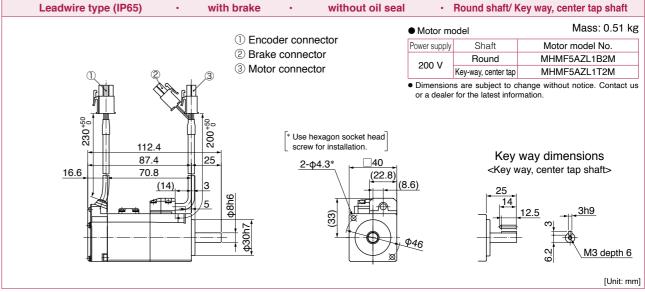


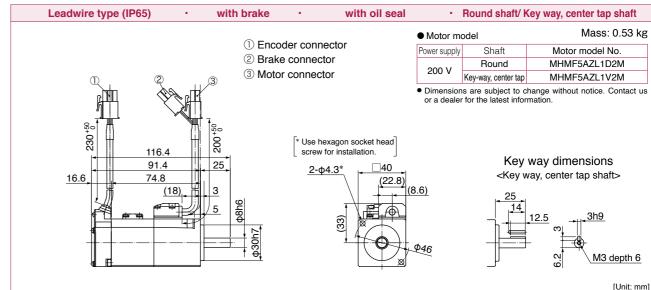


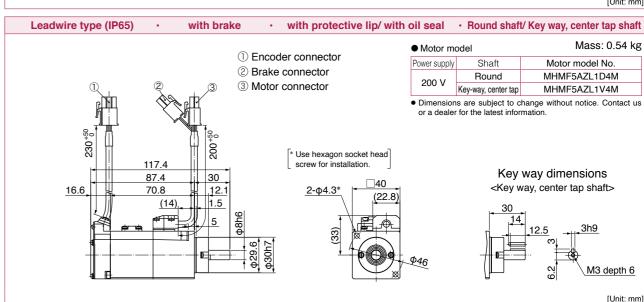
MHMF 50 W

MHMF 50 W

Special Order







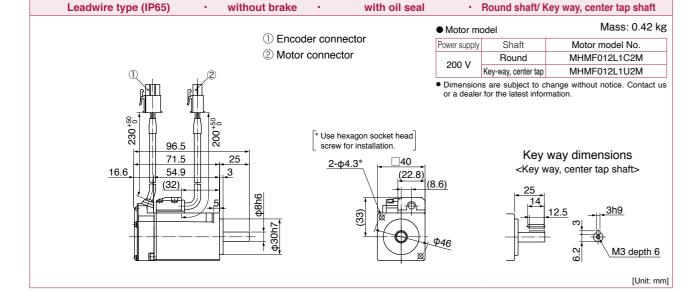
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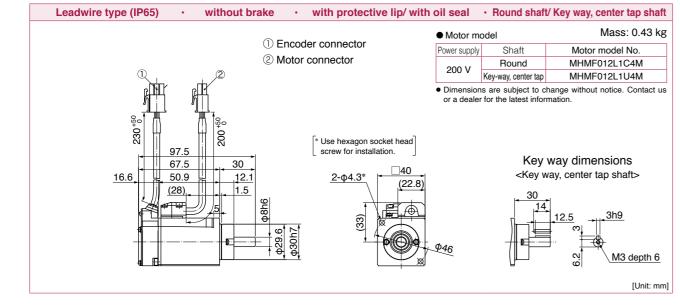
^{*} For motors specifications, refer to P.226.

^{*} For motors specifications, refer to P.226.

A6 Family

MHMF 100 W Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.40 kg Motor model ① Encoder connector Shaft Motor model No. 2 Motor connector MHMF012L1A2M Round Key-way, center tap MHMF012L1S2M Dimensions are subject to change without notice. Contact us or a dealer for the latest information Use hexagon socket head Key way dimensions 67.5 25 □40 2-φ4.3* <Key way, center tap shaft> 16.6 50.9 (22.8) (28)

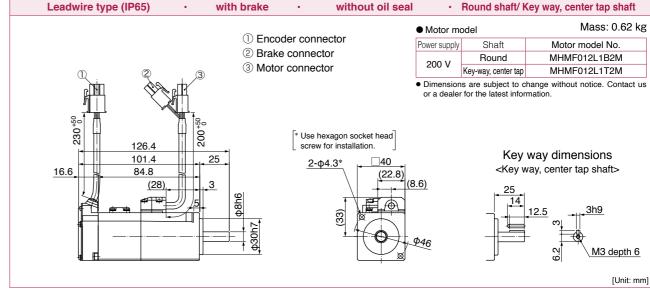


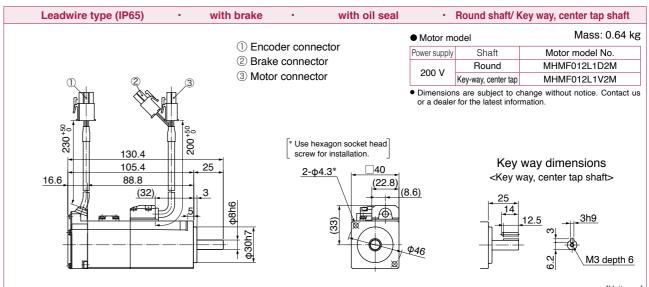


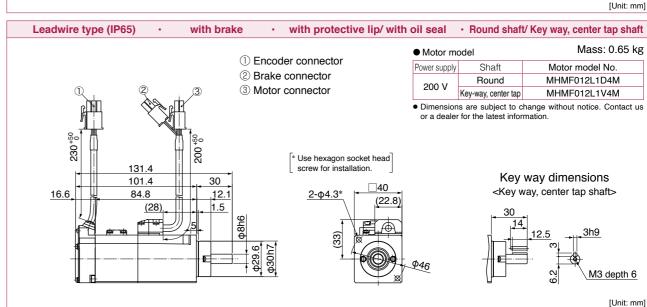
MHMF 100 W

MHMF 100 W

Special Order







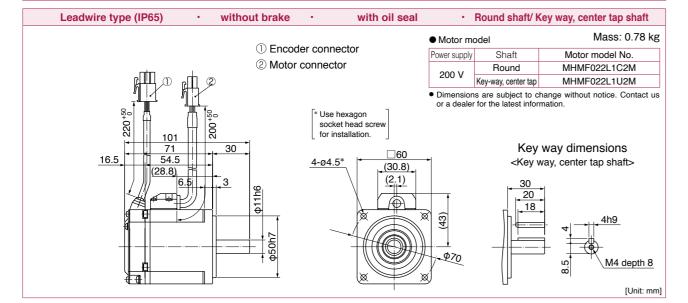
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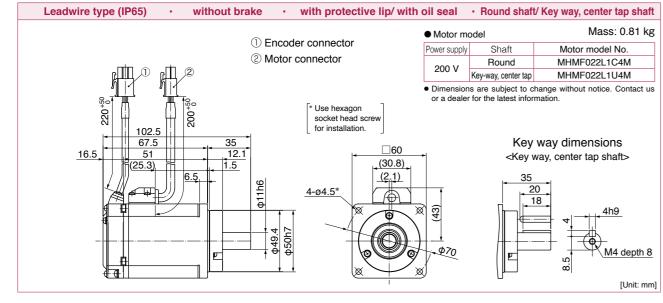
M3 depth 6

^{*} For motors specifications, refer to P.227.

^{*} For motors specifications, refer to P.227.

MHMF 200 W Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.75 kg Motor model ① Encoder connector Shaft Motor model No. ② Motor connector MHMF022L1A2M Round Key-way, center tap MHMF022L1S2M Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw 67.5 Key way dimensions <Key way, center tap shaft> 4-ø4.5* (30.8) (2.1)

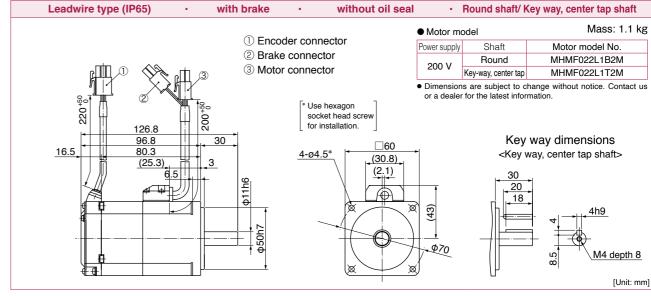


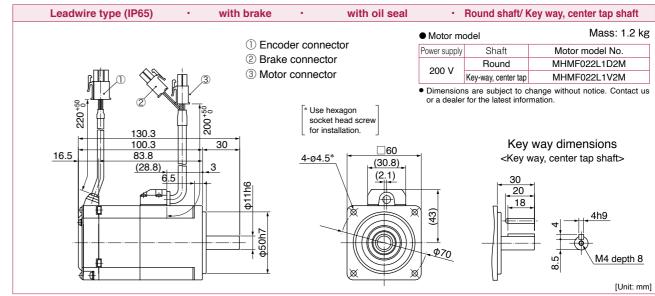


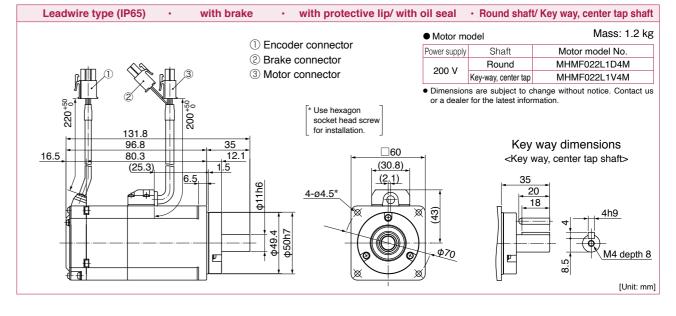
MHMF 200 W

MHMF 200 W

Special Order







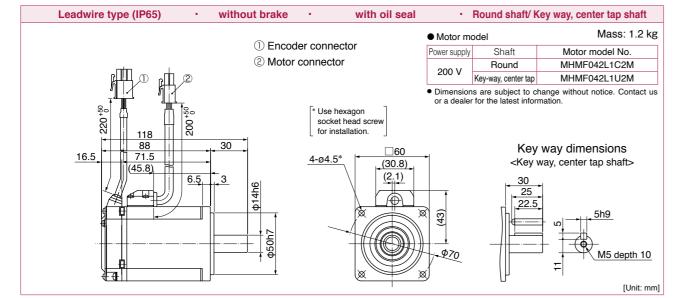
271 | Panasonic Industry Co., Ltd.

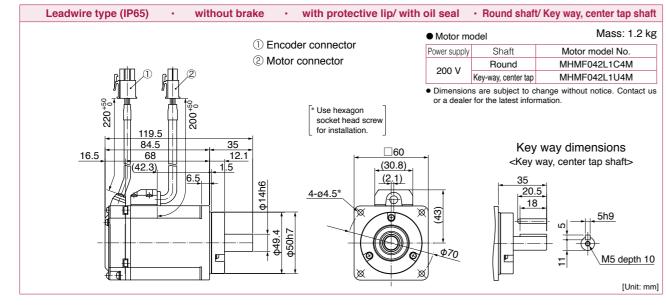
M4 depth 8

^{*} For motors specifications, refer to P.228.

^{*} For motors specifications, refer to P.228.

MHMF 400 W without oil seal Leadwire type (IP65) without brake · Round shaft/ Key way, center tap shaft Mass: 1.1 kg Motor model ① Encoder connector Shaft Motor model No. ② Motor connector MHMF042L1A2M Round Key-way, center tap MHMF042L1S2M Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw 84.5 Key way dimensions 4-ø4.5* <Key way, center tap shaft> (30.8) (2.1) 25 \triangle 5h9

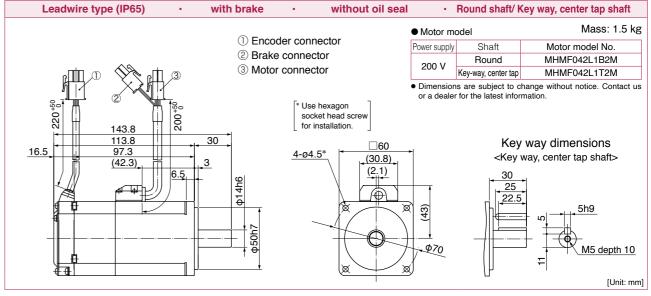


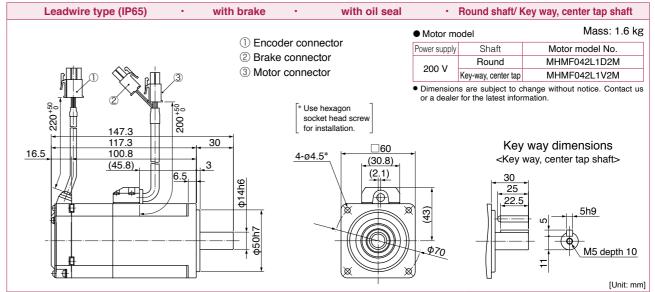


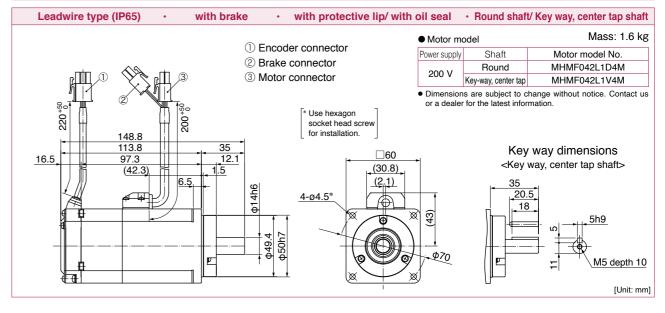
MHMF 400 W

MHMF 400 W

Special Order





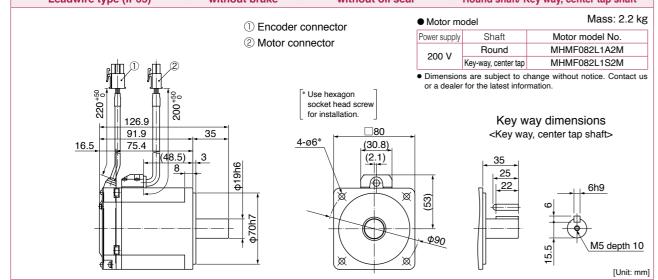


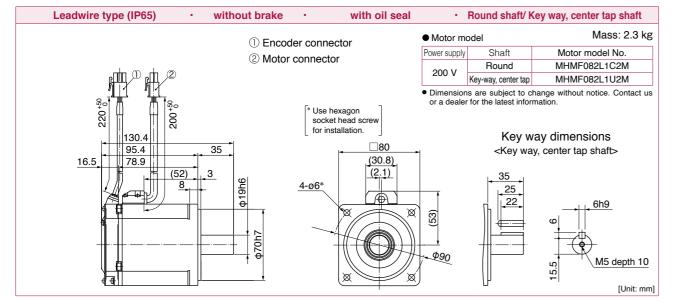
273 | Panasonic Industry Co., Ltd.

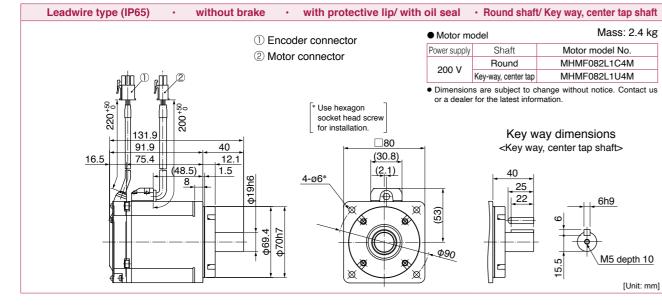
^{*} For motors specifications, refer to P.229.

^{*} For motors specifications, refer to P.229.

MHMF 750 W Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Motor model (1) Encoder connector Shaft Motor model No.



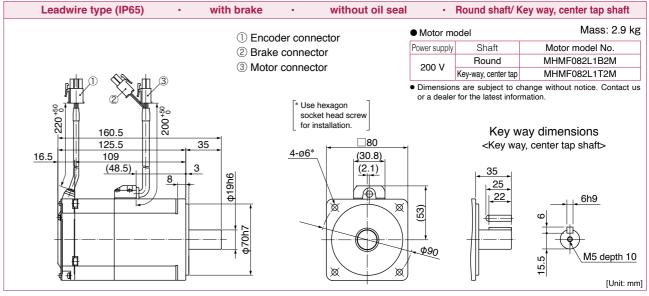


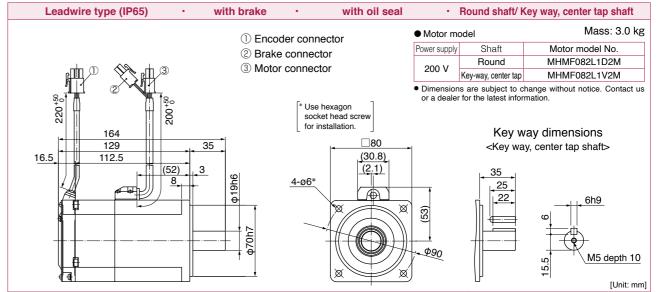


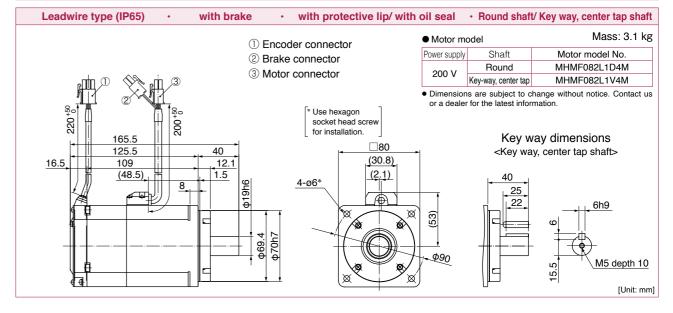
MHMF 750 W

MHMF 750 W

Special Order





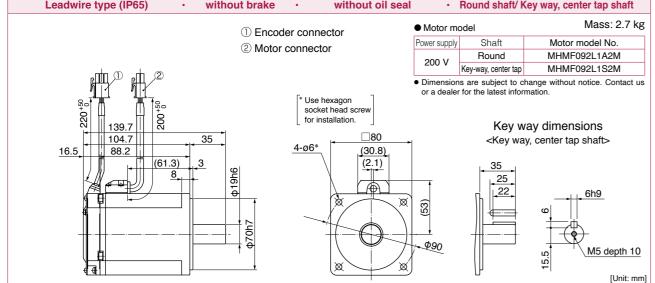


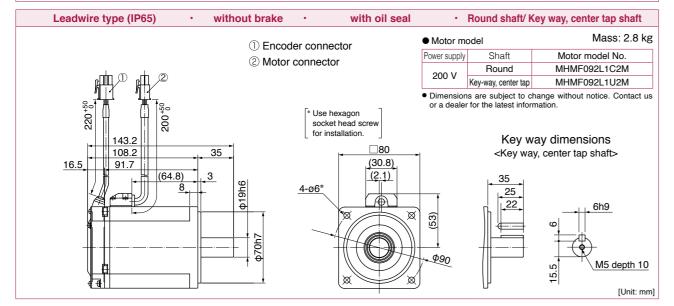
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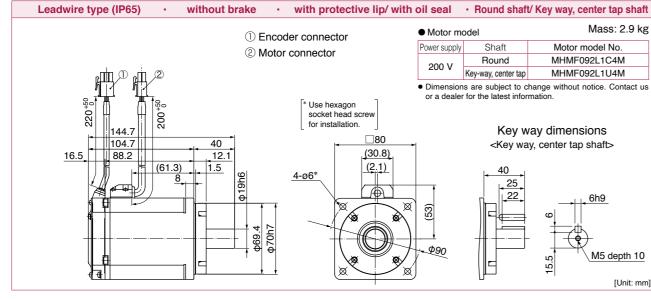
^{*} For motors specifications, refer to P.230.

^{*} For motors specifications, refer to P.230.

MHMF 1000 W Leadwire type (IP65) • without brake • without oil seal • Round shaft/ Key way, center tap shaft ① Encoder connector • Motor model Mass: 2.7 kg



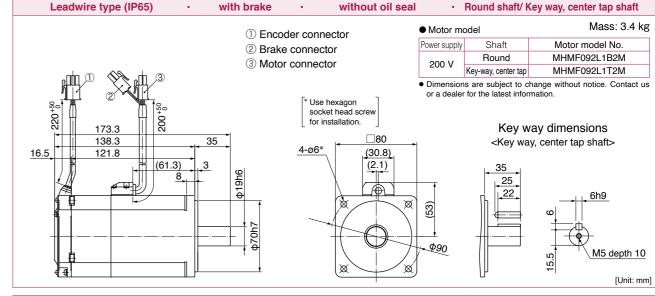


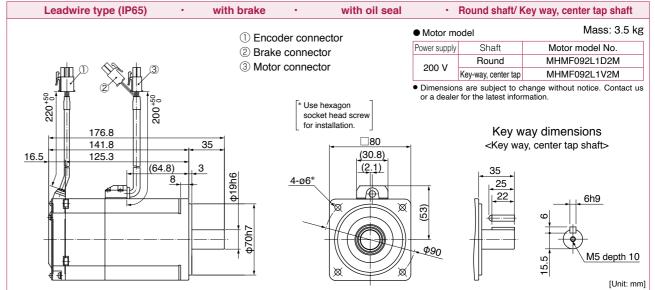


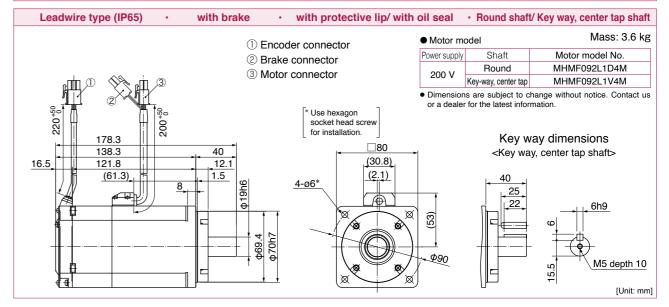
MHMF 1000 W

MHMF 1000 W

Special Order





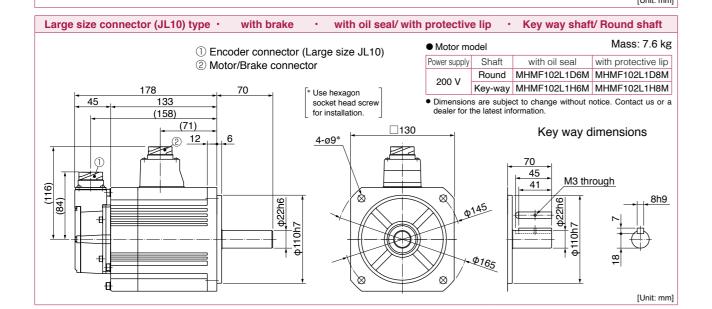


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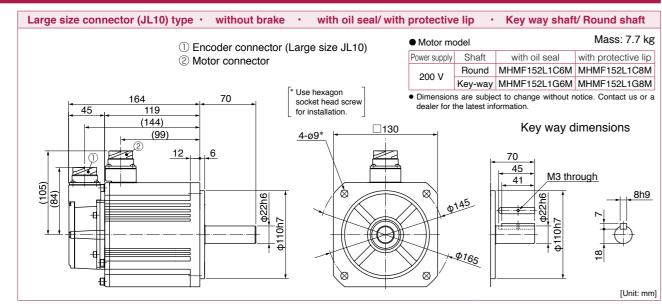
^{*} For motors specifications, refer to P.231.

^{*} For motors specifications, refer to P.231.

Large size connector (JL10) type · without brake · with oil seal/ with protective lip Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Shaft with oil seal ② Motor connector Round MHMF102L1C6M MHMF102L1C8M Key-way MHMF102L1G6M MHMF102L1G8M * Use hexagon • Dimensions are subject to change without notice. Contact us or a socket head screw dealer for the latest information for installation. (130)Key way dimensions (85)4-ø9* 45 M3 through 41 Ф₁₆₅



MHMF 1.5 kW

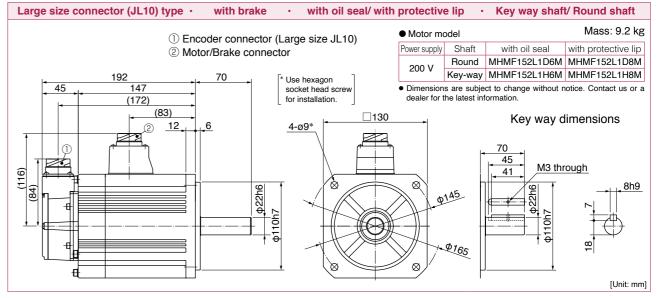


^{*} For motors specifications, refer to P.232, P.233.

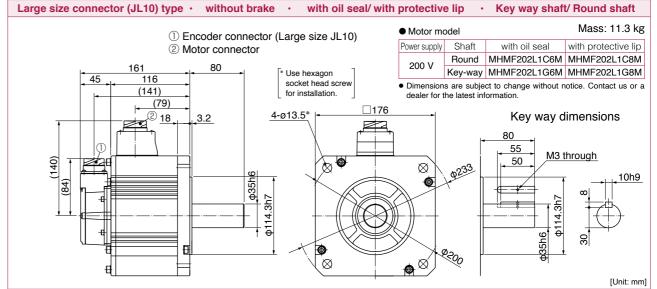
MHMF 1.5 kW

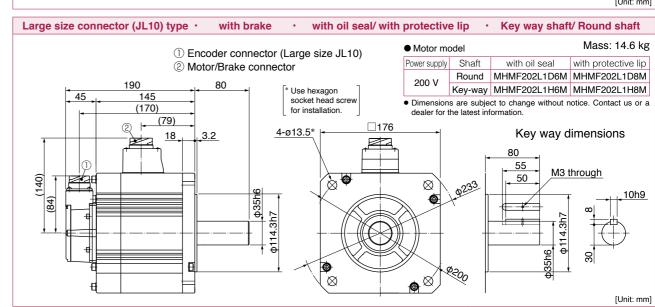
MHMF 1.5 kW to 2.0 kW

Special Order



MHMF 2.0 kW



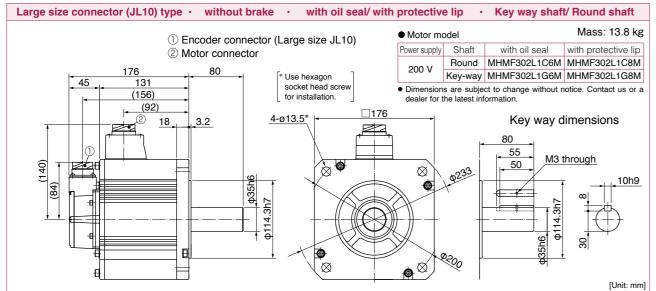


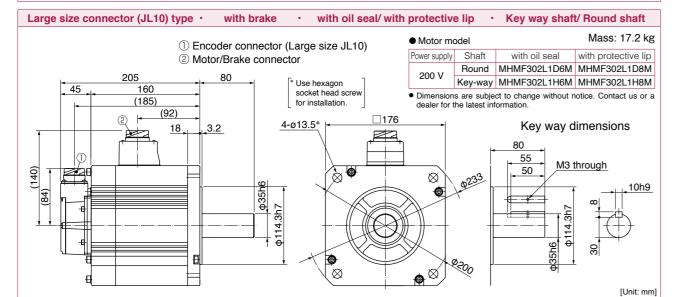
^{*} For motors specifications, refer to P.233, P.234.

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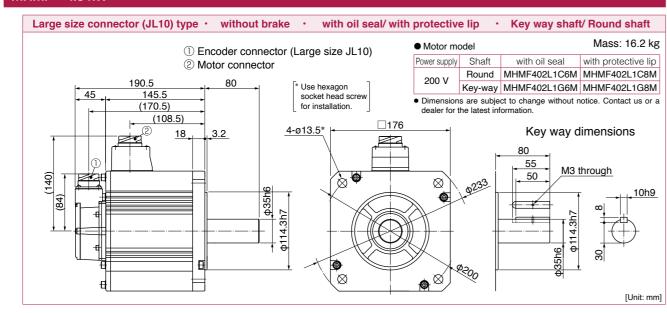
MHMF 3.0 kW

MHMF 3.0 kW to 4.0 kW



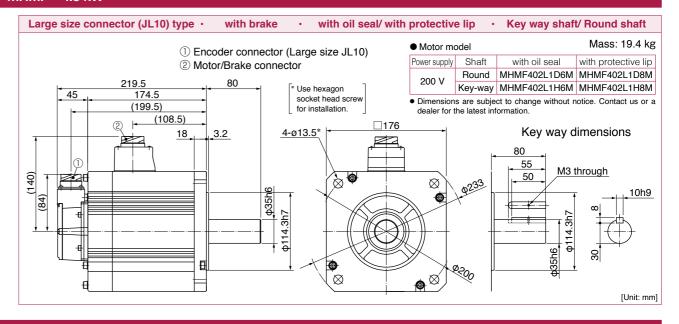


MHMF 4.0 kW

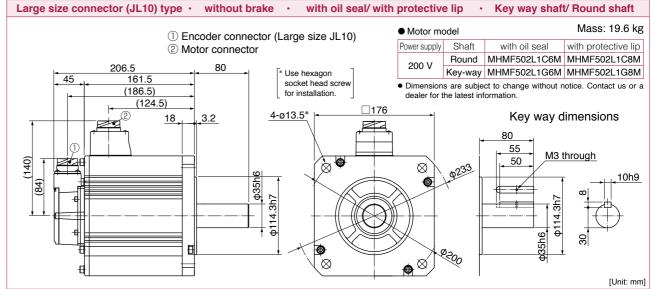


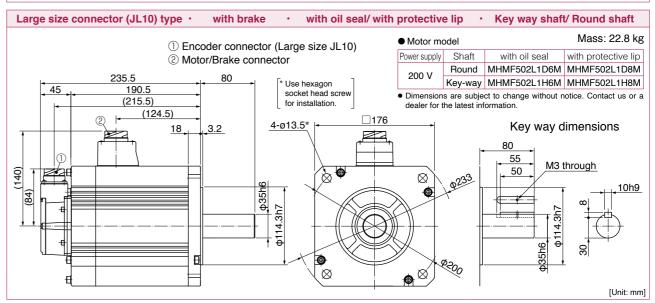
^{*} For motors specifications, refer to P.235, P.236.

MHMF 4.0 kW



MHMF 5.0 kW



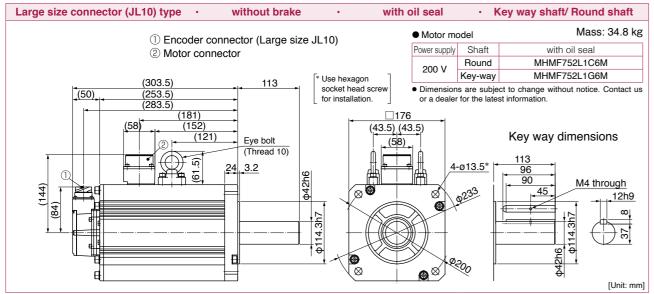


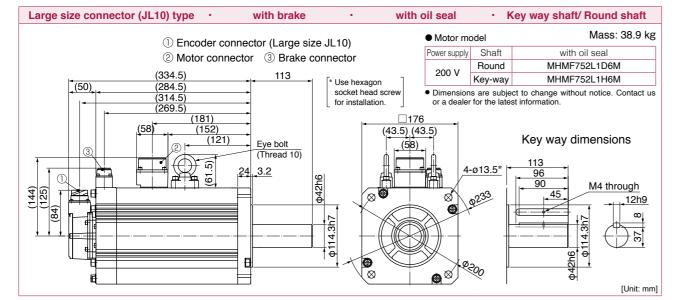
^{*} For motors specifications, refer to P.236, P.237.

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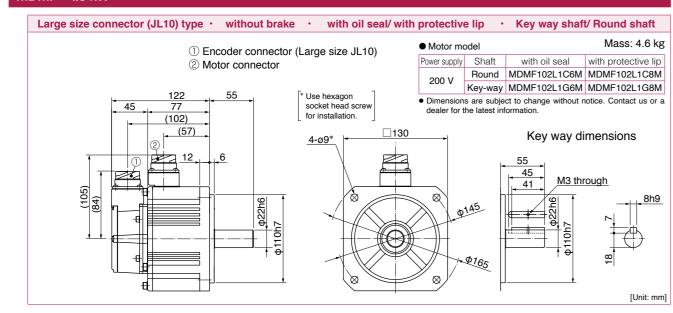
MHMF 7.5 kW Large size connector (JL10) type without brake with oil seal

MHMF 7.5 kW / MDMF 1.0 kW





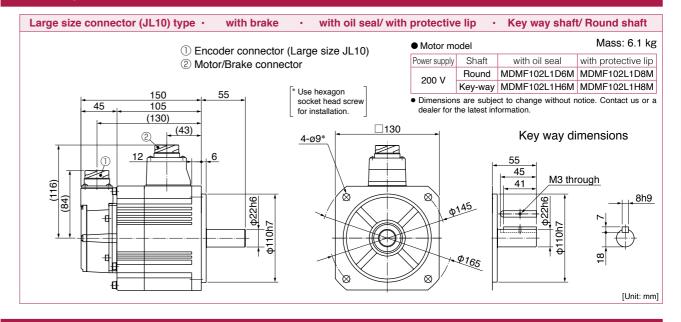
MDMF 1.0 kW



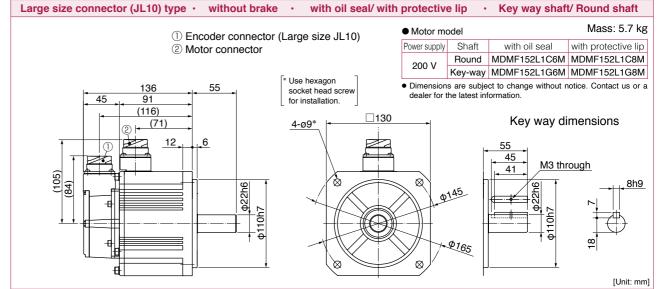
* For motors specifications, refer to P.238, P.239.

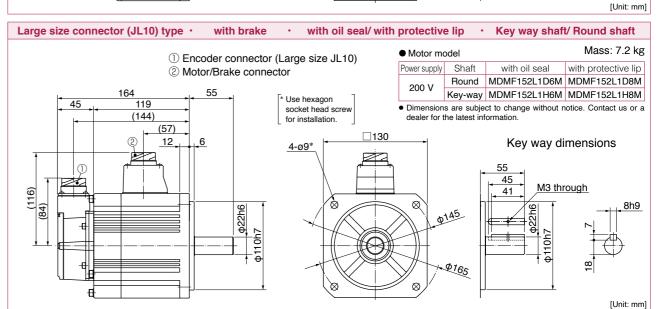
MDMF 1.0 kW

Special Order



MDMF 1.5 kW





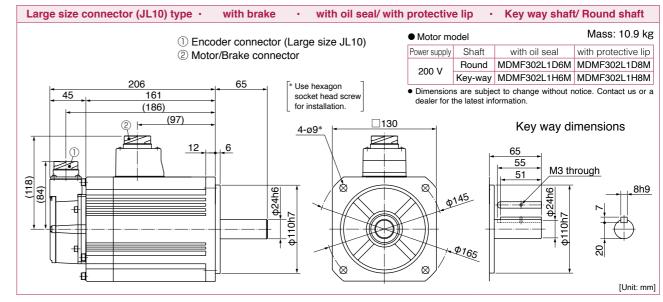
* For motors specifications, refer to P.239, P.240.

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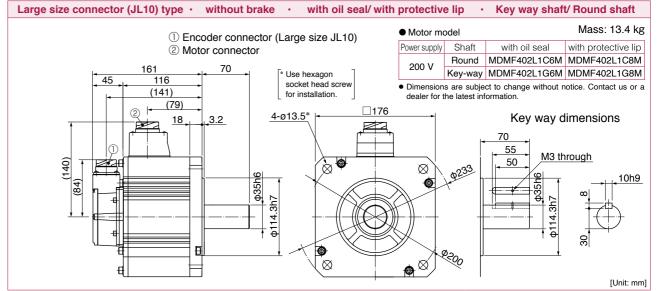
MDMF 3.0 kW

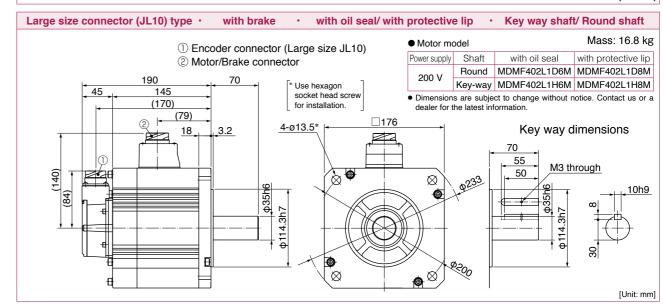
MDMF 3.0 kW to 4.0 kW

Special Order



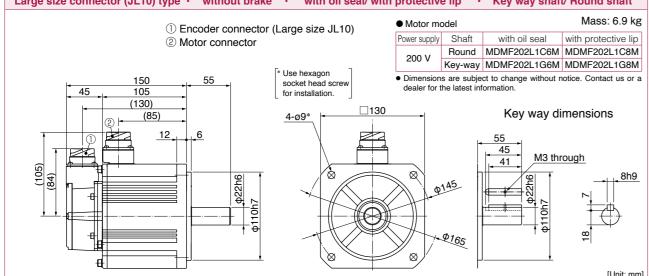
MDMF 4.0 kW

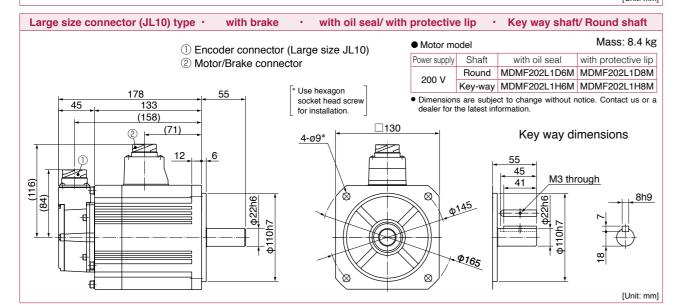




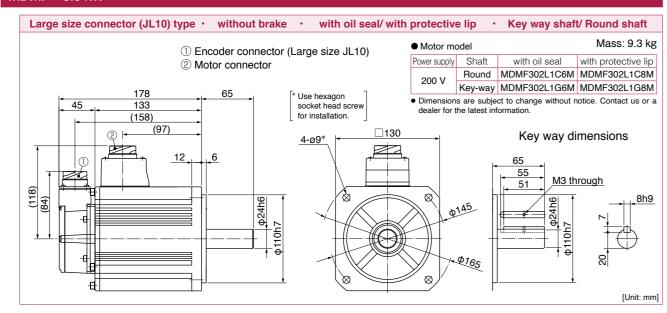
^{*} For motors specifications, refer to P.242, P.243.

MDMF 2.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft





MDMF 3.0 kW



* For motors specifications, refer to P.241, P.242.

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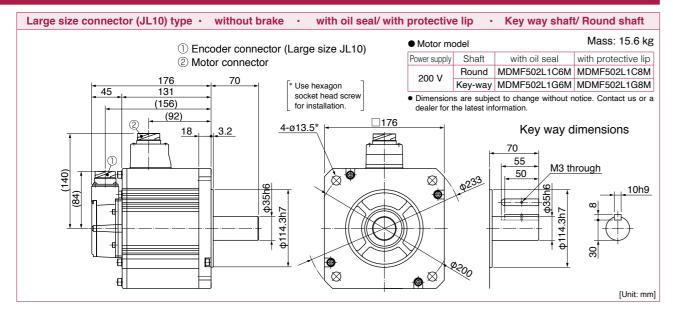
A6N Series

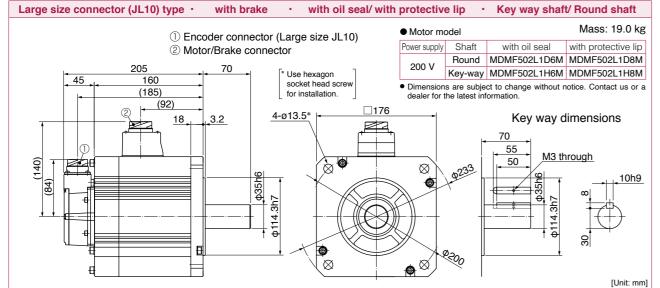
A6B Series

E Series

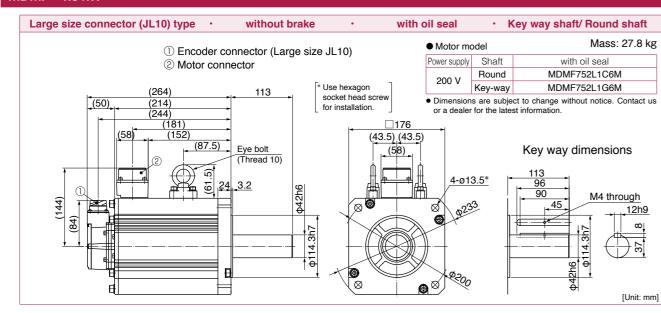
Information

MDMF 5.0 kW





MDMF 7.5 kW

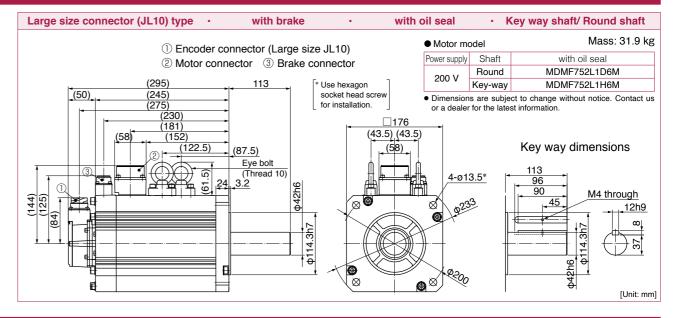


* For motors specifications, refer to P.244, P.245.

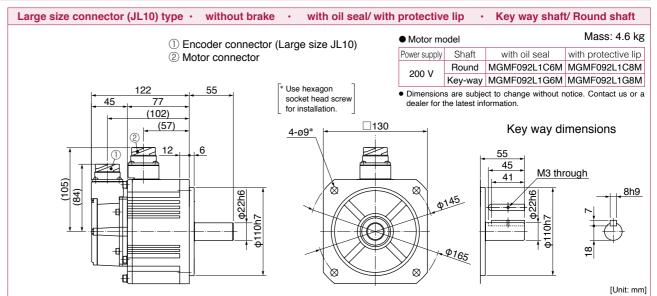
MDMF 7.5 kW

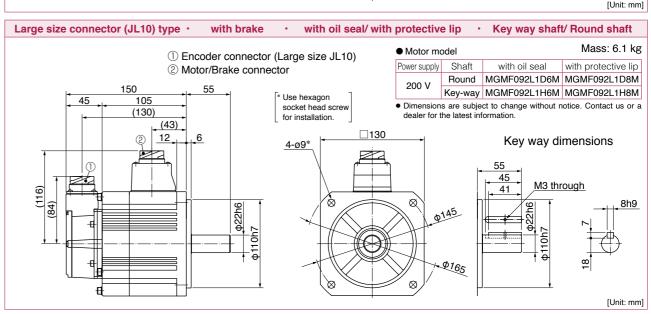
MDMF 7.5 kW / MGMF 0.85 kW

Special Order

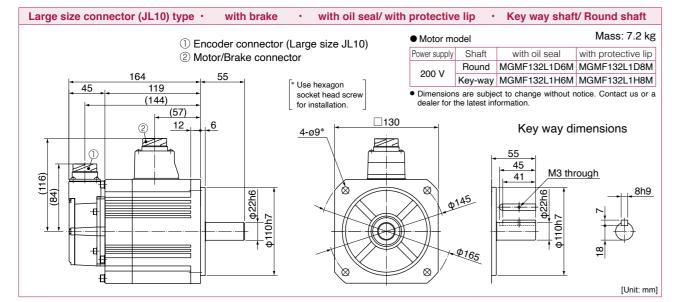


MGMF 0.85 kW

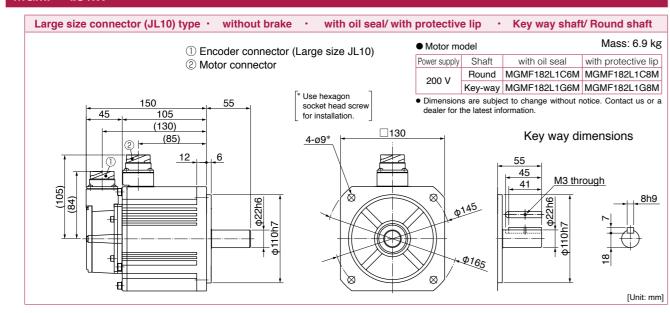




* For motors specifications, refer to P.245, P.246.



MGMF 1.8 kW

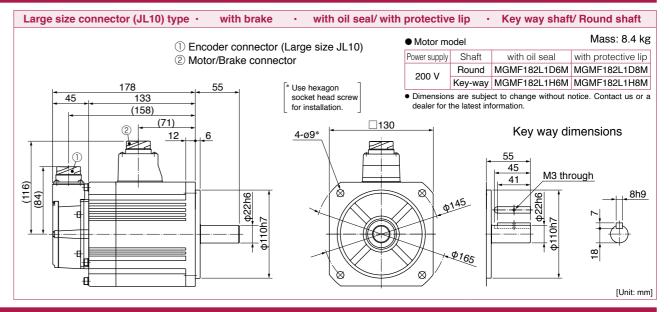


* For motors specifications, refer to P.247, P.248.

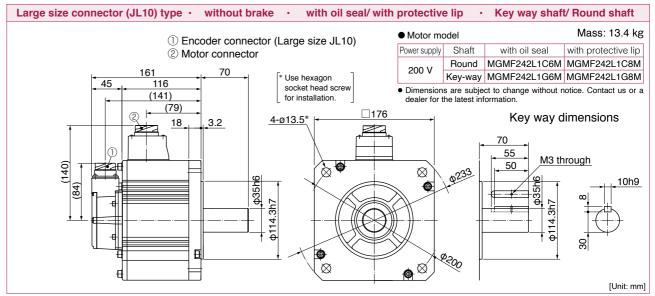
MGMF 1.8 kW

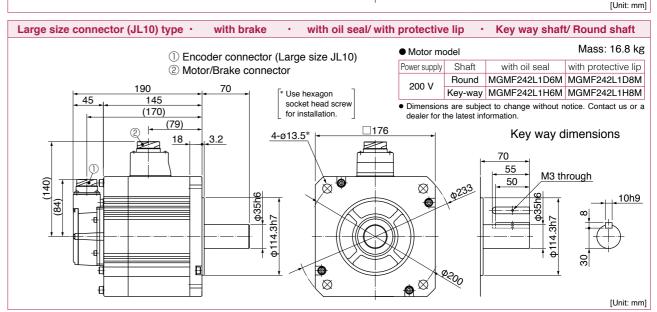
MGMF 1.8 kW to 2.4 kW

Special Order



MGMF 2.4 kW



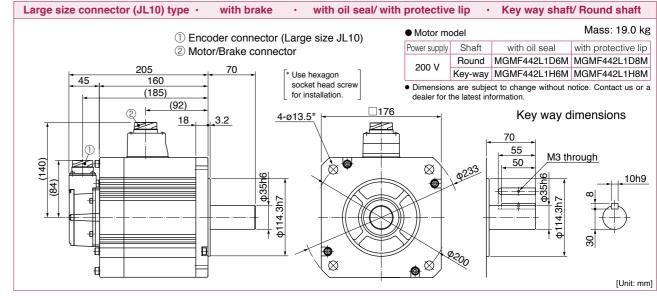


* For motors specifications, refer to P.248, P.249.

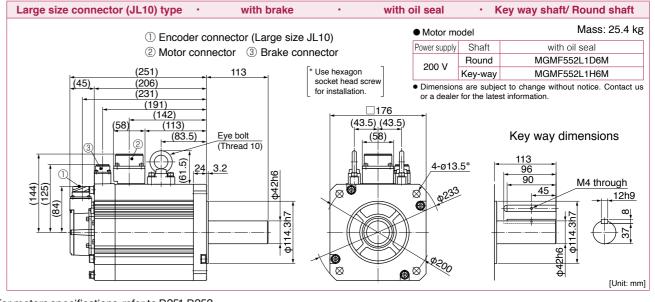
MGMF 4.4 kW

MGMF 4.4 kW to 5.5 kW

Special Order



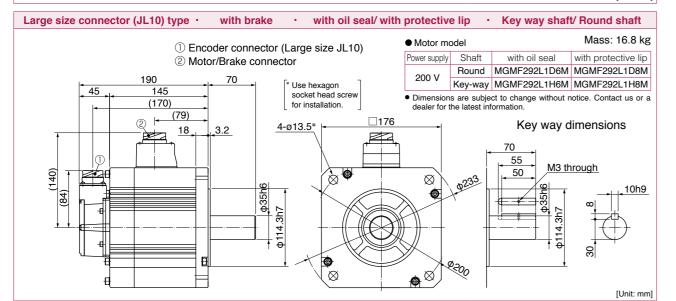
MGMF 5.5 kW Large size connector (JL10) type · without brake with oil seal Key way shaft/ Round shaft Mass: 21.3 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft ② Motor connector with oil seal Round MGMF552L1C6M 200 V * Use hexagon Key-way MGMF552L1G6M socket head screw for installation. • Dimensions are subject to change without notice. Contact us or a dealer for the latest information (200 (43.5)(43.5)Key way dimensions (58) M4 through (144) ф114.3h7 [Unit: mm]



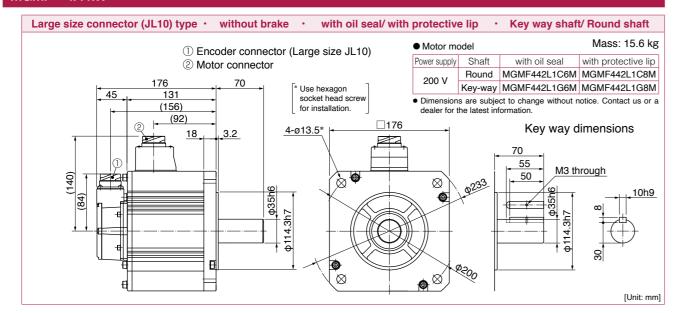
^{*} For motors specifications, refer to P.251, P.252.

MGMF 2.9 kW

Large size connector (JL10) type · without brake · with oil seal/ with	th protective	e lip •	Key way shaf	t/ Round shaft
① Encoder connector (Large size JL10)	Motor mo	odel		Mass: 13.4 kg
② Motor connector	Power supply	Shaft	with oil seal	with protective lip
0 111 111	200 V	Round	MGMF292L1C6M	MGMF292L1C8M
161 70 ** Use hexagon socket band organi	200 V	Key-way	MGMF292L1G6M	MGMF292L1G8N
socket head screw for installation.		s are subje the latest inf	ct to change without rormation.	notice. Contact us or
② 18 3.2 4-Ø13.5*	3		Key way d	limensions
640		-03	70 55 50 M3 th	nrough
(84) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1		0233	4.3h7	10h9
		200	411	08
		×		[Unit: mr



MGMF 4.4 kW



^{*} For motors specifications, refer to P.250, P.251.

Motor Types with Gear Reducer

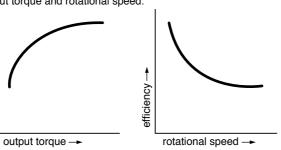


MHMF
100 W to 750 W

Reduction		Motor ou	utput (W)		Type of
ratio	100	200	400	750	reducer
1/5	•	•	•	•	
1/9	•	•	•	•	For high
1/15	•	•	•	•	precision
1/25	•	•	•	•	

- * MQMF 750 W is not prepared.
- * MHMF 100 W 1/25, 400 W 1/25 are not prepared.

Efficiency of the gear reducer show the following inclination in relation
to output torque and rotational speed



Specifications of Motor with Gear Reducer

	Items	Specifications
	Backlash	3 minutes or smaller (initial value) at output shaft of the reducer
	Composition of gear	Planetary gear
	Gear efficiency	76 % to 87 %
Gear reducer	Lubrication	Grease lubrication
Gear reducer	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
	Enclosure rating	IP44 (at gear reducer)
	Ambient temperature	0 °C to 40 °C (free from freezing)
	Storage temperature	-20 °C to 65 °C (Max.temperature guarantee: 80 °C for 72 hours free from condensation)
Environment	Ambient humidity, Storage humidity	20 %RH to 85 %RH (free from condensation)
	Vibration	Lower than 49 m/s² (5G) at runninng, 24.5 m/s² (2.5G) at stall
	Impact	Lower than 98 m/s ² (10G)
	Altitude	Lower than 1000 m

Model Designation

M Q M	F	0	1	1	L	3	1	N					
	Мо	otor rated	d output					l	N: Star	ndard			
Type	Sy	mbol Spe	ecifications										
Middle inertia		01	100 W				Motor ty	pes with	gear r	educe	r		
Flat type 100 W to 400 W		02	200 W					Reduction		otor ou		W)	Type of
High inertia		04 4	400 W				Symbol	ratio	100	200	400	750	reducer
100 W to 750 W		08	750 W				1N	1/5	•	•	•	•	
	_						2N	1/9	•	•	•	•	For high
Series		Voltage	specific	ations			3N	1/15	•	•	•	•	precision
A6 Family		Symbo	Rated o	output			4N	1/25	•	•	•	•	-
		1	100	V				750 W is r	ot pre	nared			
		2	200	V				100 W 1/2				not pr	epared.

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wire
L	Absolute	23-bit	8388608	7

Symbol

MQMF

MHMF

Symbol

When using it as an incremental system (not using multi-turn data), do not connect the battery for absolute encoder.

Motor structure

Motor I/C	Shaft	Holding brake						
IVIOLOT I/F	Key way	without	with					
Connector	•	•						
Connector	•		•					
Loodwiro	•	•						
Leauwire	•		•					
	Motor I/F Connector Leadwire	Connector	Motor I/F Key way without Connector					

The Combination of the Driver and the Motor

		otor		Dri	ver			
	IVIC	otor		A6SF series	A6SE series			
	Power	Output		Multi fanction type Pulse, analog, full-closed MADLT11SF MADLN11S MBDLT21SF MCDLN31S MCDLT31SF MADLN05S MADLT15SF MADLN15SF MADLN15S MBDLT25SF MADLN15S MADLT11SF MCDLN31S MADLT15SF MADLN15S MADLT15SF MADLN15S MADLT11SF MCDLN31S MADLT11SF MCDLN31S MADLT11SF MCDLN31S MCDLT31SF MCDLN31S MCDLT31SF MCDLN31S MADLT05SF MADLN05S MADLT05SF MADLN15S MADLN15SF	Basic type			
Motor series	supply	(W)	Part No.*	_	Pulse signal input (Incremental only)			
	Single	100	MQMF011L 🗆 🗆 N	MADLT11SF	MADLN11SE			
	phase	200	MQMF021L □□ N	MBDLT21SF	MBDLN21SE			
MQMF	Single	400	MQMF041L □□ N	MCDLT31SF	MCDLN31SE			
Middle inertia Flat type		MQMF012L 🗆 🗆 N	MADLT05SF	MADLN05SE				
Flat type		200	MQMF022L □□ N	MADLT15SF	MADLN15SE			
	'	400	MQMF042L □□ N	MBDLT25SF	MBDLN25SE			
	Single	100	MHMF011L 🗆 🗆 N	MADLT11SF	MADLN11SE			
	phase	200	MHMF021L 🗆 🗆 N	MBDLT21SF	MBDLN21SE			
	100 V	400	MHMF041L 🔲 🗆 N	MCDLT31SF	MCDLN31SE			
MHMF High inertia	0: 1	100	MHMF012L 🔲 🗆 N	MADLT05SF	MADLN05SE			
ingii ilici ud	Single phase/	200	MHMF022L □□ N	MADLT15SF	MADLN15SE			
	3-phase	400	MHMF042L □□ N	MBDLT25SF	MBDLN25SE			
	200 V	750	MHMF082L □□ N	MCDLT35SF	MCDLN35SE			

The symbols of the motor structure and the gear reduction ratio are entered in $\Box\Box$ of the motor part number. Please refer to the above "Model Designation".

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A6N Series

^{*} Motor options: Please check the upper 9th digit of the motor part number. If the motor is connector type, refer to P.31 to P.32. And if the motor is leadwire type, refer to P.29 to P.30.

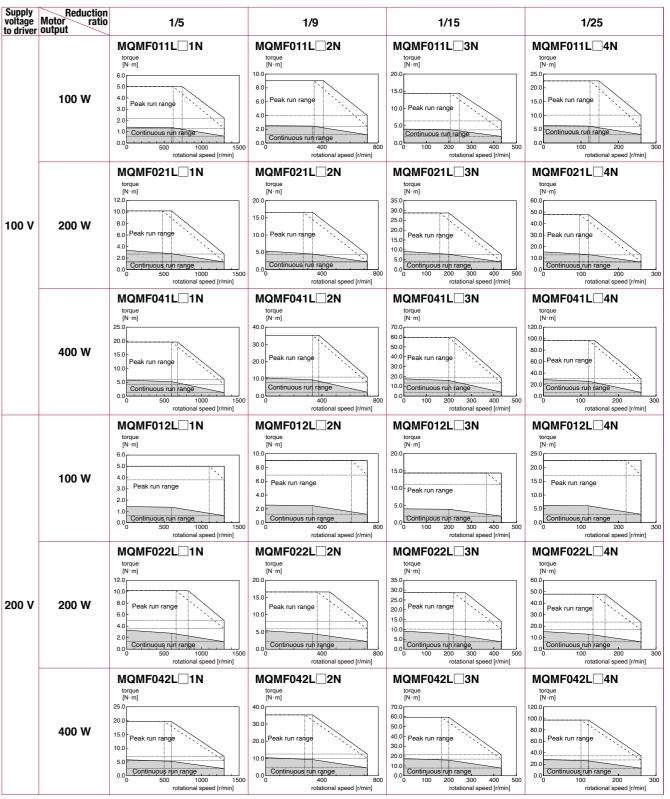
Table of Motor Specifications

	Part No.*	Motor Output	Reduction ratio	Output	Rated speed	Max. speed	Rated torque	Peak max. torque	to moto	reducer/ erted er shaft)		ass	Permissible radial load	Permissible thrust load
		(w)	-	(w)	(r/min)	(r/min)	(N·m)	(Nam)	w/o brake			w/ brake	(N)	(N)
	MQMF01 L 1N	(VV)	1/5	85	600	1300	1.36	5.01	0.210	0.240	1.2	1.4	490	245
	MQMF01□L□2N	_	1/9	85	333	722	2.45	9.02	0.200	0.230	1.2	1.4	588	294
	MQMF01□L□3N	100	1/15	81	200	433	3.89	14.4	0.207	0.237	1.4	1.7	784	392
MQMF	MQMF01□L□4N		1/25	76	120	260	6.08	22.5	0.287	0.317	2.6	2.9	1670	833
	MQMF02□L□1N		1/5	175	600	1300	2.78	10.2	0.650	0.740	1.9	2.3	490	245
Middle inertiaa Flat type	MQMF02□L□2N	000	1/9	157	333	722	4.49	16.6	0.770	0.860	3.0	3.4	1180	588
nertia	MQMF02□L□3N	200	1/15	163	200	433	7.78	28.7	0.800	0.890	3.4	3.8	1470	735
aa Fle	MQMF02□L□4N		1/25	163	120	260	13.0	47.9	0.790	0.880	3.4	3.8	1670	833
ıt typ	MQMF04□L□1N		1/5	331	600	1300	5.27	19.6	1.35	1.43	3.4	3.9	980	490
Ø	MQMF04□L□2N	400	1/9	331	333	722	9.49	35.3	1.25	1.33	3.4	3.9	1180	588
	MQMF04□L□3N	400	1/15	335	200	433	16.0	59.4	1.28	1.36	3.8	4.3	1470	735
	MQMF04□L□4N		1/25	327	120	260	26.0	96.9	1.31	1.39	5.4	5.9	2060	1030
	MHMF01□L□1N		1/5	85	600	1300	1.36	5.01	0.131	0.134	1.0	1.2	490	245
	MHMF01□L□2N	100	1/9	85	333	722	2.45	9.02	0.121	0.124	1.0	1.2	588	294
	MHMF01□L□3N		1/15	81	200	433	3.89	14.4	0.124	0.127	1.1	1.3	784	392
	MHMF02□L□1N		1/5	175	600	1300	2.78	10.2	0.437	0.457	1.5	1.8	490	245
	MHMF02□L□2N	200	1/9	157	333	722	4.49	16.6	0.563	0.583	2.5	2.8	1180	588
MHMF	MHMF02 L 3N		1/15	163	200	433	7.78	28.7	0.592	0.612	2.9	3.2	1470	735
I	MHMF02 L 4N		1/25	163	120	260	13.0	47.9	0.583	0.603	2.9	3.2	1670	833
igh inertia	MHMF04_L_1N	-	1/5	339	600	1300	5.39	19.6	0.930	0.950	2.8	3.2	980	490
ertia	MHMF04□L□2N	400	1/9	332	333	722	9.51	35.3	0.833	0.853	2.8	3.2	1180	588
	MHMF04 L 3N		1/15	335	200	433	16.0	59.4	0.862	0.882	3.2	3.6	1470	735
	MHMF082L 1N	_	1/5	672	600	1200	10.7	38.4	2.38	2.48	4.3	5.0	980	490
	MHMF082L 2N	750	1/9	645	333	667	18.5	68.4	2.32	2.42	5.6	6.3	1470	735
	MHMF082L□3N	_	1/15	637	200	400	30.4	111	2.25	2.35	6.0	6.7	1760	882
	MHMF082L□4N		1/25	637	120	240	50.7	186	2.22	2.32	6.0	6.7	2060	1030

^{*} The symbols of the voltage specifications and the motor structure are entered in ☐ of the motor part number. Please refer to "Model Designation" in P.294.

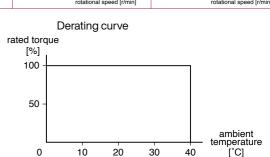
MQMF series (100 W to 400 W)

Torque Characteristics of Motor



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

^{*} The symbols of the motor structure are entered in ☐ of the motor part number. Please refer to "Model Designation" in P.294.



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A6 Family

A6N Serie

A6B Series

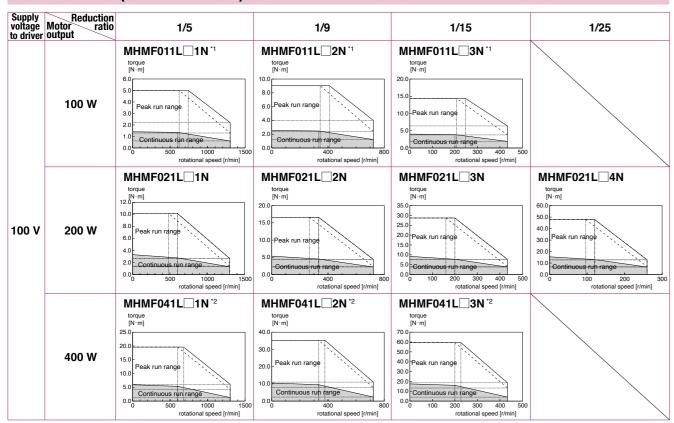
E Series

Information

1/25

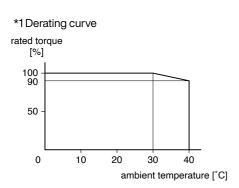
MHMF022L 4N

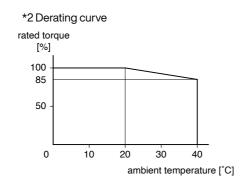
MHMF082L 4N *3

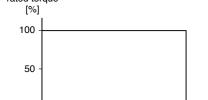


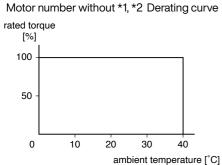
Dotted line represents the torque at 10 % less supply voltage to driver.

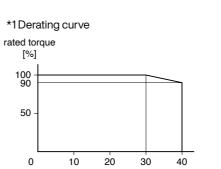
* The symbols of the motor structure are entered in \square of the motor part number. Please refer to "Model Designation" in P.294.

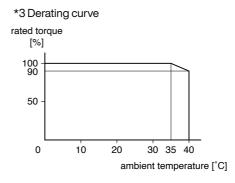


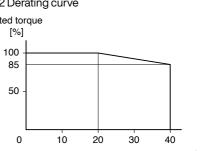












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MHMF012L 3N 1

Continuous run range

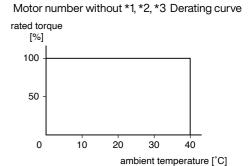
MHMF022L 3N

MHMF042L 3N 2

MHMF082L 3N 3

80.0

torque [N·m]



rotational speed [r/min] Dotted line represents the torque at 10 % less supply voltage to driver.

1/5

MHMF012L 1N 11

Continuous run range

MHMF022L 1N

MHMF042L 1N '2

MHMF082L 1N

Supply voltage Motor ratio to driver output

100 W

200 W

400 W

750 W

200 V

* The symbols of the motor structure are entered in \square of the motor part number. Please refer to "Model Designation" in P.294.

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MHMF012L 2N 1

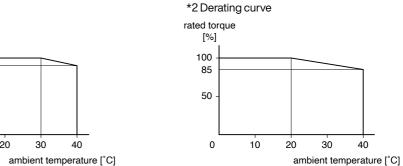
MHMF022L 2N

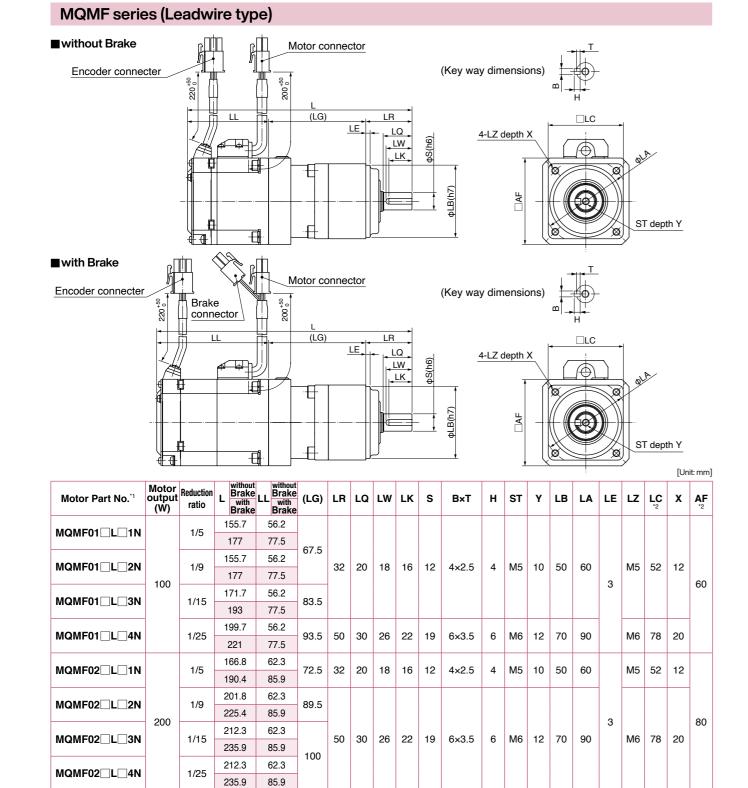
MHMF042L 2N 2

Peak run range

MHMF082L 2N

torque [N·m]





40 35 30 24

100

50 30 26 22 19 6×3.5 6 M6 12 70 90 3

M8 16 90 115

8×4

214.3

237.9

214.3

237.9

224.8

248.4

239.8

263.4

1/5

1/9

1/15

1/25

MQMF04□L□1N

MQMF04□L□2N

 $MQMF04 \square L \square 3N$

MQMF04□L□4N

74.8

98.4

74.8

98.4

74.8

98.4

74.8

98.4

MQMF series (Connector type)

MQMF serie	es (Co	onne	ctor ty	/pe)																	
∎without Brake															-	T	-				
Ē	Encoder	connec	cter	Motor	connec	ctor					(Key way	/ dim	ensi	ons)	=		-				
			LL		(LG)			-	Q LW LK	ФS(h6)	ф. — ф. В. (h.7)	4-LZ (depth	×		H LC			T dept	th Y	
with Brake																: T					
Encode	er conne	ecter		Motor/I	Brake (conne	ector				(Key wa ₎	/ dim	ensi	ons)			-				
	-	/ L	L /	/ L	(LG)		- -	LR							_ →	H					
							+	LE لما	_Q	-1		4-LZ (depth	x	•	□LC					
								- -	LW LK	фS(h6)	-		-					× 8)	A		
		1	' -E		-					Ψ	1		Ì		8/		Ø				
	#_		<u></u>			<u> </u>				_	φLB(h7)		□AF		(L.A			Д			
		 -						╟			Φ		Ч					∬ s⁻	T dept	th Y	
			E					لے					<u> </u>	Ų	<u> </u>	*	<u>//</u> ø				
	Motor	Reduction	without	without Brake												•				[Un	
Motor Part No. ^{*1}	output (W)	ratio	L With Brake			LR	LQ	LW	LK	S	B×T	Н	ST	Υ	LB	LA	LE	LZ	LC 2	Х	A
MQMF01□L□1N		1/5	155.7	56.2																	
	-		177 155.7	77.5 56.2	67.5																
MQMF01□L□2N		1/9	177	77.5		32	20	18	16	12	4×2.5	4	M5	10	50	60		M5	52	12	
MOMEOT I I I I I	100	4/45	171.7	56.2	00.5												3				6
MQMF01□L□3N		1/15	193	77.5	83.5																
MQMF01□L□4N		1/25	199.7	56.2	93.5	50	30	26	22	19	6×3.5	6	M6	12	70	90		M6	78	20	
		_	221	77.5	ļ		<u> </u>	_	<u> </u>			_	<u> </u>	_	_			_		<u> </u>	
MQMF02□L□1N		1/5	166.8	62.3	72.5	32	20	18	16	12	4×2.5	4	M5	10	50	60		M5	52	12	
	-		190.4 201.8	85.9 62.3													-				
MQMF02 L2N		1/9	225.4	85.9	89.5																
	200		212.3	62.3													3				8
MQMF02□L□3N		1/15	235.9	85.9		50	30	26	22	19	6×3.5	6	M6	12	70	90		M6	78	20	
	-		212.3	62.3	100																
MQMF02 L 4N		1/25	235.9	85.9																	
MQMF04_L_1N		1/5	214.3	74.8																	
		1/0	237.9	98.4	89.5																
MQMF04□L□2N		1/9	214.3	74.8	03.3	50	30	26	22	19	6×3.5	6	M6	12	70	90	3	M6	78		
	400	.,,	237.9	98.4 50 3					23.0.0	3.5 6 M6	12 70	90		M6 7	6 78	20	8				
MQMF04□L□3N		1/15	224.8		74.8																
	-		248.4	98.4		00	$\perp \perp \perp$	$\perp \!\!\! \perp \!\!\! \perp$													
MONEOA DI DAN			239.8	74.8				0-		١.,							l _			l l	

^{*1} The symbols of the voltage specifications and the motor structure are entered in □ of the motor part number. Please refer to "Model Designation" in P.294.

104 61 40 35 30 24 8×4

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MQMF04 L 4N

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20 80

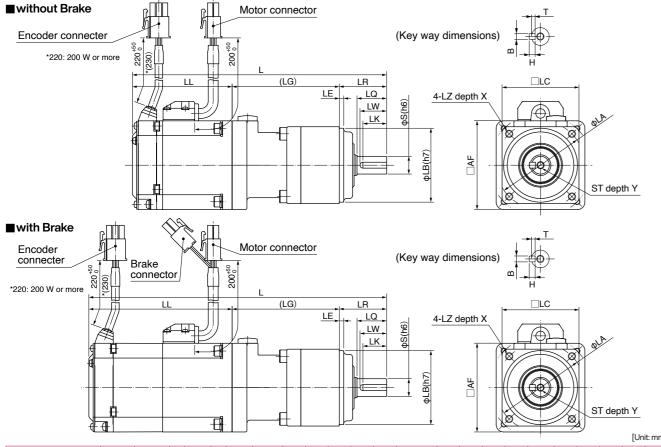
^{*1} The symbols of the voltage specifications and the motor structure are entered in □ of the motor part number. Please refer to "Model Designation" in P.294.

^{*2} \Box LC: flange size of the reduction gear \Box , AF: \Box flange size of the motor

^{*2 ☐}LC: flange size of the reduction gear ☐, AF: ☐ flange size of the motor

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MHMF series (Leadwire type)



٠.	ч														-	!				[Un	nit: mn
Motor Part No. 1	Motor output (W)	Reduction ratio	L Without Brake with Brake	LL Brake	(LG)	LR	LQ	LW	LK	s	B×T	н	ST	Y	LB	LA	LE	LZ	LC *2	x	AF
MHMF01 L 1N		1/5	167	67.5																	
		170	200.9	101.4	67.5																
MHMF01 L2N	100	1/9	167	67.5	07.0	32	20	18	16	12	4×2.5	4	M5	10	50	60	3	M5	52	12	40
			200.9	101.4			20				12 172.0	·							0_		
MHMF01 L 3N		1/15	177.5	67.5	78																
			211.4	101.4																	
MHMF02 L 1N		1/5	172	67.5	72.5	32	2 20	18	8 16	6 12	4×2.5	4	M5	10	50	60		M5	52	12	
			201.3	96.8								•									-
MHMF02 L2N		1/9	207	67.5	89.5																
	200		236.3	96.8	.8		30				6×3.5	6	M6 1				3	M6	78	20	60
MHMF02□L□3N		1/15	217.5	67.5		50		26	22	19				12	70	90					
		2	246.8	96.8																	
MHMF02 L 4N		1/25	217.5	67.5																	
			246.8	96.8	 															<u> </u>	
MHMF04 L 1N		1/5	224	84.5												90					
			253.3	113.8	89.5						9 6×3.5	6	M6	12	70						
MHMF04□L□2N	400	1/9	224	84.5		50	30	26	22	19							3	M6	78	20	60
			253.3	113.8						.5											
MHMF04 L 3N		1/15	234.5	84.5	100																
			263.8	113.8																	-
MHMF082L 1N		1/5	235.4	91.9	93.5	50	30	26	22	19	6×3.5	6	M6	12	70	90	3	M6	78		
			269	125.5																	
MHMF082L 2N		1/9	250.4	91.9	97.5																
	750		284	125.5																20	80
MHMF082L□3N		1/15	262.9	91.9		61	40	35	30	24	8×4	7	M8	16	90	115	5	M8	98		
	296.5 125.5			ან			24 034		IVIO												
MHMF082L□4N		1/25	262.9	91.9	- 110																
WITHWIFU82L 4N		296.5	125.5																		

^{*1} The symbols of the voltage specifications and the motor structure are entered in \square of the motor part number. Please refer to "Model Designation" in P.294.

MHMF series (Connector type)

IVII IIVII SCIII	00 (0.		را الحال	Pol																	
■ without Brake																_					
	ncoder c	onnect	or	Motor co	nnacto	or.									ı ¬	- -	-				
<u> </u>	icouei c	OTITIECT	7 /		milecio						(Key way	/ dim	ensi	ons)	<u> </u>		-				
					L										m .						
		- /	<u> </u>	- -	((LG)		- -	LR	-						Н					
		/						-	LE							□LC					
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				λΙ.					-L	Ν_	фS(h6)			$ \setminus $	\square						
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	-	<u> </u>		1									<u>+</u>		×	\perp		9)			
■ with Brake																_					
	Encoder connecter Motor/Brake connector																				
Encoder col	nnecter	7	/	IVIOTOT/Bra	аке со	nnec	tor				(Key way	/ dim	ensi	ons)	<u> </u>		_				
دا	/	/	/	L										,	m .						
-		LL		- -	((LG)		- -	LR	_					, 	Н					
	/		/					-	<u>LE</u>							□LC					
	_/								L(2	_ 4	l-LZ c	lepth :	x İ				1			
		3 (λ Ι.						N .	фS(h6)			$ \setminus $	\Box	 _					
4	<u>"•</u>	- - [.	<u> </u>		Ξ.			_U_	₊ L	.K <u>-</u>	ΦS		+	- K				(é (A		
4	-			-4	4	‡]		1 1			- 11	Ø/		NØ.	\mathbb{H}			
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Щ	#1			4	·								+		` ., `	7		3)		Fi. i	s1
	Makau		without	without																ĮUn	it: mm]
Motor Part No.*1	output	Reduction	L Brake	LL Brake	(LG)	LR	LQ	LW	LK	s	B×T	н	ST	Υ	LB	LA	LE	LZ	ĻÇ	х	AF
	(W)	ratio	Brake	Brake															*2		*2
MHMF01 L 1N		1/5	167	67.5																	
	_		200.9	101.4	67.5																
MHMF01□L□2N	100	1/15	167	67.5		32	20	18	16	12	4×2.5	4	M5 10	10	50 60	60	3	M5	52	12	40
			200.9	101.4																	
MHMF01□L□3N			177.5	67.5	78	78															
VI			211.4	101.4	10																Ш
MHMF02□L□1N		1/5	172	67.5	72.5	32	20	18	16	12	4×2.5	4	M5	10	50	60		M5	52	12	
V2	_		201.3	96.8					10	12	7^2.5	7				33					
MHMF02□L□2N		1/9	207	67.5	89.5																
UZ_L_ZIV	200	1,3	236.3	96.8	30.0												3				60
MHMF02□L□3N		1/15	217.5	67.5		50	30	26	22	19	6×3.5	6	M6	12	70	90		M6	78	20	
IVII UZ_L_JIV		1/13	246.8	96.8	100	30	30	20		13	0.0.0	"	1010	12	, 0	30		1010	/ 0	20	
MHMF02□L□4N		1/25	217.5	67.5	100																
WITHWIT UZ_L_4IN		1/23	246.8	96.8																	Ш
MHMF04□L□1N		1/5	224	84.5]
WITH HINT UM LL IN		1/3	253.3	113.8	89.5																
MHMF04□L□2N	400	1/0	224	84.5	09.5	E0	30	26	20	10	6225	6	Me	10	70	00	,	Me	70	20	60
WITHINFU4_L_ZN	N 400 1/9 253.3 113.8 50 30 26 22 19 6x3.5 6 M6 12 70 90 3 M6 78 20 60																				
MUMEO4TI TON		4/45	234.5	84.5	100																
MHMF04 L 3N		1/15	263.8	113.8	100																
MUMEOOO!		4.5	235.4	91.9	00.5		00	00	00	40	00.5	_	N40	40	70	00		N 4 0	70		
MHMF082L 1N		1/5	269	125.5	93.5	50	30	26	22	19	6×3.5	6	M6	12	70	90	3	M6	78		
MUMEOCOL TON	1	4 10	250.4	91.9	07.5																
MHMF082L 2N	750	1/9	284	125.5	97.5																
MUMEOCO: CC:	750	47	262.9	91.9		۱				٠.		_					_			20	80
MHMF082L 3N		1/15	296.5	125.5		61	40	35	30	24	8×4	7	M8	16	90	115	5	M8	98		
	4				110									I .	1		1				

^{*1} The symbols of the voltage specifications and the motor structure are entered in \square of the motor part number. Please refer to "Model Designation" in P.294.

1/25

MHMF082L 4N

262.9 91.9

296.5 125.5

2 = 25 mange 5/25 or ano notation goal = 1,7 a 1 = 1 mange 5/25 or ano most

^{*2} \Box LC: flange size of the reduction gear \Box , AF: \Box flange size of the motor

^{*2} \square LC: flange size of the reduction gear \square , AF: \square flange size of the motor

Environmental Conditions

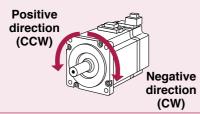
A6 Series

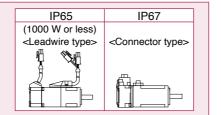
Item		Conditions					
Ambient temperature *1		0 °C to 40 °C (free from freezing)					
Ambient humidity		20 %RH to 85 %RH (free from condensation*5*6)					
Storage tem	perature *2	-20 °C to 65 °C (Max.temperature guarantee: 80 °C for 72 hours free from condensation					
Storage humidity		20 %RH to 85 %RH (free from condensation*5*6)					
Vibration Motor only Lower than 49 m/s² (5 G) at running, 24.5 m/s² (2.5 G) a		Lower than 49 m/s ² (5 G) at running, 24.5 m/s ² (2.5 G) at stall ⁷					
Impact	Motor only	Lower than 98 m/s ² (10 G)					
	IP65 *3	MSMF, MQMF, MHMF (except rotating portion of output shaft and leadwire end.) (MSMF, MQMF, MHMF In case of leadwire type.)					
Enclosure rating (Motor only)	IP67 *3*4	IP67 motor (except rotating portion of output shaft and connecting pin part of the motor connector and the encoder connector)					
	IP44 *3	Excludes output shaft rotating part, connector connection pin part, and motor lead hole part of terminal box.					
Altit	ude	Lower than 1000 m					

- $^{\star}1$ $\,$ 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.
- *6 The terminal block of MDMFD22L1 is between 45%RH to 85%RH.
- *7 For motors with rated output capacity of 5.5 kW or more, both motor rotation and stop will be 24.5 m/s² (2.5 G) or less.

<Note>

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





Notes on [Motor specification] page

Note) 1. Regenerative resistors are not built in drivers of A and B frames. When regeneration occurs, prepare an optional external regenerative resistor.

[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.

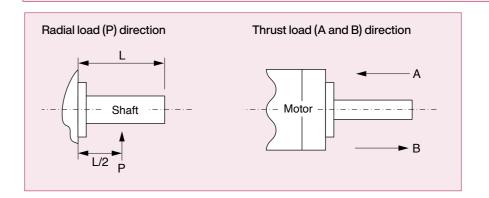
- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC230 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.
- 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.

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.

Motor Specification Description

• Specifications of Built-in Holding Brake

Options

Motor series	Motor output	Static friction torque N·m	Rotor inertia × 10 ⁻⁴ kg·m²	time	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	0.294 or more	0.002	35 or less	20 or less	0.30	1 or more	39.2	4.9	
MSMF	200 W,400 W	1.27 or more	0.018	50 or less	15 or less	0.36		137	44.1	
/80 mm sq.∖	750 W	2.45 or more					24±1.2	196	147	30000
or less /	1000 W	3.80 or more	0.075	70 or less	20 or less	0.42	1 or more 24±2.4	185	80.0	
	1.0 kW, 1.5 kW, 2.0 kW	8.0 or more	0.175	50 or less	15 or less	0.81	_	600	50	
MSMF /100 mm sq.\	3.0 kW	12.0 or more		80 or less			2 or more		900	10000
or more	4.0 kW	16.2 or more	1.12	110 or less	50 or less	0.90	24±2.4	1470	2160	
	5.0 kW	22.0 or more	1.12	110 01 1033	30 01 1033	0.50		1545	2000	
MQMF	100 W	0.39 or more	0.018	15 or less	20 or less	0.30	1 or more	105	44.1	30000
(80 mm sq.) or less	200 W, 400 W	1.6 or more	0.075	70 or less	20 01 1635	0.36	24±2.4	185	80	30000
MHMF	50 W, 100 W	0.38 or more	0.002	35 or less		0.30	1 or more	39.2	4.9	
/80 mm sq.\	200 W, 400 W	1.6 or more	0.018	50 or less	20 or less	0.36		105	44.1	30000
\ or less /	750 W, 1000 W	3.8 or more	0.075	70 or less		0.42	24±2.4	185	80	
	1.0 kW, 1.5 kW	13.7 or more	1.12	100 or less	50 or less	0.79		1470	2160	10000
MHMF /100 mm sq.\	2.0 kW, 3.0 kW, 4.0 kW	25.0 or more	4.7	80 or less	25 or less		2 or more		3000	5440
or more	5.0 kW	44.1 or more	4.1	150 or less	30 or less	1.29	24±2.4	1800	3100	5108
	7.5 kW	63.0 or more	3.9	200 or less	80 or less				0.00	0.00
	1.0 kW, 1.5 kW, 2.0 kW	13.7 or more	1.12	100 or less	50 or less	0.79		1470	2160	10000
	3.0 kW	22.0 or more		110 or less		0.90		1545	2000	
	4.0 kW	25.0 or more	4.7	80 or less	25 or less				3000	5440
MDMF /100 mm sq.\	5.0 kW	44.1 or more	4.1	150 or less	30 or less	1.29	2 or more	1800	3100	
or more	7.5 kW	63.0 or more	3.9	200 or less	80 or less		24±2.4		0.00	5108
	11.0 kW	100 or more	7.1		140 or less	1.08		2000		0100
	15.0 kW	100 01 111010	7.1	300 or less	140 01 1000	1.00		2000	4000	
	22.0 kW	200 or more	28		150 or less	1.72		3000		3000
	0.85 kW, 1.3 kW, 1.8 kW	13.7 or more	1.12	100 or less	50 or less	0.79	0	1470	2160	10000
MGMF /100 mm sq.\	2.9 kW	25.0 or more	4.7	80 or less	25 or less		2 or more		3000	5440
or more	4.4 kW	44.1 or more	3.93	150 or less	30 or less	1.29	24±2.4	1800	3100	5108
	5.5 kW	63.0 or more	3.9	200 or less	80 or less					

- The engaging time and releasing time represent the delay time of the brake operation.
- Releasing time values represent the ones with DC-cutoff using a varistor.
- Above values (except static friction torque, releasing voltage and exciting voltage) represent typical values.
- Backlash of the built-in holding brake is kept 2° 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.)
- The motor brake power supply must be different from the power supply for the driver's connectors X1, X2, X3, X4, X5, X6.

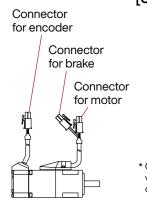
Contents
Specifications of Motor connector
Encoder Cable
Motor Cable
Brake Cable321
Interface Cable
Connector Kit
Battery for Absolute Encoder
Surge Absorber for Motor Brake
Mounting Bracket
Reactor 342
External Regenerative Resistor343
Daisy Chain
Cable part No. Designation
List of Peripheral Devices Manufacturers

50 W to 1000 W 80 mm sq. or less

• When the motors of <MSMF, MQMF, MHMF (Leadwire type)> are used, they are connected as shown below. Connector: Tyco Electronics Japan G.K. (The figures below show connectors for the motor.)

Specifications of Motor connector

[Connector for encoder]



			,			
	3	2	1		PIN No.	Application
	6	5	4		1	BAT+*
	9	8	7		2	BAT-*
L			<u> </u>		3	FG(SHIELD)
		2169			4	PS
2	3-bit	Abs	solut	е	5	PS
		1	<u>ሕ</u>		6	NC
					7	E5V
	W.				8	E0V

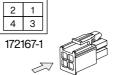
onnector pin diagram is
ewed from the direction

of the arrow.

<Remarks> Do not connect anything

NC

[Connector for motor]



PIN No.	Application
1	U-phase
2	V-phase
3	W-phase
4	Ground

* Connector pin diagram is viewed from the direction of the arrow.

[Connector for Brake]



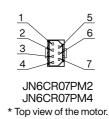
1 Brake
2 Brake

- is a nonpolar device.
- $\ensuremath{^\star}$ Connector pin diagram is viewed from the direction of the arrow

• When the motors of <MSMF, MQMF, MHMF (Connector type)> 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





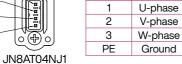
Tightening torque of the screw (M2) 0.19 N·m to 0.21 N·m

- * Be sure to use only the screw supplied with the connector, to avoid damage.
- * When using the motor as an incremental system, BAT+ and BAT- can be left unconnected

<MSMF>



* Top view of the motor.



Tightening torque of the screw (M2) PIN No. Application 0.085 N·m to 0.095 N·m (screwed to plastic)

without Brake

- * Be sure to use only the screw supplied with the connector, to avoid damage
- * Secure the gasket in place without removing it from the connector.

with Brake

Connector for motor





JN11AH06NN2 * Top view of the motor.

<MQMF, MHMF 200 W to 1000 W>



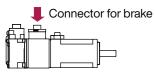
JN11AH06NN1 * Top view of the motor.

PIN No. Application PIN No. Application U-phase U-phase V-phase V-phase W-phase 3 W-phase 4 NC 4 Brake NC 5 Brake PΕ Ground PE Ground

Tightening torque of the screw (M2) 0.085 N·m to 0.095 N·m

- * Electromagnetic brake is a nonpolar device.
- * Be sure to use only the screw supplied with the connector, to avoid damage.
- * Secure the gasket in place without removing it from the connector.
- <Remarks> Do not connect anything to NC.

[Motor with brake] <MSMF>







JN4AT02PJM-R * Top view of the motor.

Tightening torque of the screw (M2) 019 N·m to 021 N·m

- * Electromagnetic brake is a nonpolar device. * Be sure to use only the screw supplied with the connector, to avoid damage.
- * Secure the gasket in place without removing it from the connector.

0.85 kW to 5.0 kW 100 mm sq. or more

• When the motors of <MSMF, MDMF, MGMF, MHMF> 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

IP67 motor Connector for encoder (Large size)



IP67 motor Connector for encoder (Small size)



<pre><large connector="" encoder="" size=""></large></pre>
II 10_2 \ 20_2\ D

23-bit Absolute

PIN No.	Application		PIN No.	Application				
Α	NC		K	PS				
В	NC		L	PS				
С	NC		М	NC				
D	NC		N	NC				
Е	NC		Р	NC				
F	NC		R	NC				
G	E0V		S	BAT-*				
Н	E5V		Т	BAT+*				
J	FG(SHIELD)							

<Small size Encoder connector>



JN2AS10ML3-R

23-bit Absolute					
PIN No.	Application				
1	E0V				
2	NC				
3	PS				
4	E5V				
5	BAT-*				
6	BAT+*				
7	PS				
8	NC				
9	FG(SHIELD)				
10	NC				

Connector for

brake

<Remarks> Do not connect anything to NC.

* When using the motor system, BAT+ and BATcan be left unconnected.

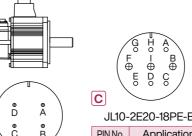
Connector for motor

Terminal box for motor

Connector for motor/brake

Table for motor connector and brake connector

Motor	Motor output	200 V				
part No.	Wotor output	without Brake	with Brake			
MSMF	1.0 kW to 2.0 kW	Α	С			
IVIOIVII	3.0 kW to 5.0 kW	В	D			
MDMF	1.0 kW to 2.0 kW	Α	С			
	3.0 kW to 5.0 kW	В	D			
	7.5 kW to 15.0 kW	Е	E, F			
	22.0 kW	G	G, F			
MGMF	0.85 kW to 1.8 kW	Α	С			
	2.4 kW to 4.4 kW	В	D			
	5.5 kW	Е	E, F			
	1.0 kW to 1.5 kW	Α	С			
MHMF	2.0 kW to 5.0 kW	В	D			
	7.5 kW	E	E, F			



Connector for motor/brake

JL10-2E20-4PE-B В

JL10-2E22-22PE-B				
PIN No.	Application			
Α	U-phase			
В	V-phase			
С	W-phase			
D	Ground			

JL10-2E20-18PE-B				
PIN No.	Application			
G	with Brake: Brake			
G	without Brake : NC			
Н	with Brake: Brake			
п	without Brake : NC			
Α	NC			
F	U-phase			
I	V-phase			
В	W-phase			
Е	Ground			

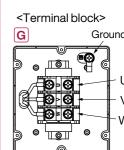
Ground

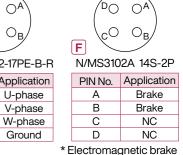
D JL10-2E24-11PE-B PIN No. Application with Brake: Brake without Brake : NC with Brake: Brake В vithout Brake : NC С NC D U-phase V-phase W-phase G Ground Н Ground

is a nonpolar device.

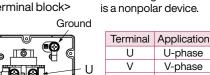
E

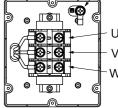
Connector for brake <Motor> DO 0 * Electromagnetic brake CO JL04V-2E32-17PE-B-R PIN No. Application В С D





<Brake>





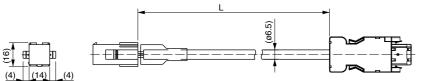
W W-phase Ground Ground U. V. W. Earth screw Nominal: M8 Tightening torque:

12.0 N·m

<Remarks> Do not connect anything to NC.

^{*} When using the motor as an incremental system. BAT+ and BAT- can be left unconnected.

Part No	MFECAO ** 0EAD	80 mm sq. or less Applicable model	MSMF 50 W to 1000 W, MQMF 100 W to 400 W MHMF 50 W to 1000 W (Leadwire type)			
Specification	23-bit absolute encoder When used in incremental system (without battery box)					



Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030EAD
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050EAD
Connector (Motor side)	172161-1	Tyco Electronics Japan	10	MFECA0100EAD
Connector pin	170365-1	G.K.	20	MFECA0200EAD
Cable	0.20 mm ² ×3P (6-wire)	Oki Electric Cable Co., Ltd.		

Part No.	MFECAO * * OEAE	80 mm sq. or less Applicable model			
Specifications	23-bit absolute encoder When used in absolute system (with battery box) *				

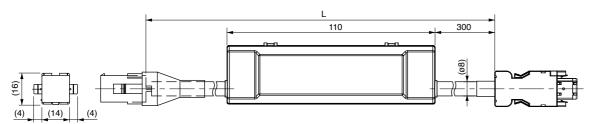
^{*} Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.

Part No.(ex.) MFECA0030EAE MFECA0050EAE

MFECA0100EAE

MFECA0200EAE

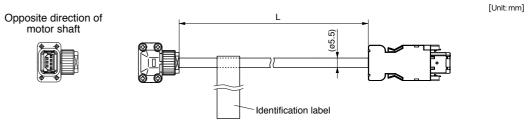
[Unit: mm]



Title	Part No.	Manufacturer	L (m)	
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	Γ
Shell kit	3E306-3200-008	(or equivalent)	5	Ī
Connector (Motor side)	172161-1	Tyco Electronics Japan	10	
Connector pin	170365-1	G.K.	20	
Cable	0.20 mm ² ×4P (8-wire)	Oki Electric Cable Co., Ltd.		_

Don't No.	MFECAO * * OMJD (Highly bendable type, Direction of motor shaft)	80 mm sq.	MSMF 50 W to 1000 W
	MFECAO * * OMKD (Highly bendable type, Opposite direction of motor shaft)	or less	MQMF 100 W to 400 W
Part No.	MFECAO * * OTJD (Standard bendable type, Direction of motor shaft)	Applicable model	
	MFECAO * * OTKD (Standard bendable type, Opposite direction of motor shaft)	model	(Connector type)
Specifications	23-bit absolute encoder When used in incremental system (without	t battery b	ox)
			Par or 1



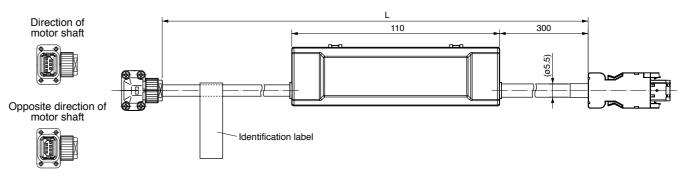


Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030MJD
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050MJD
Connector (Motor side)	JN6FR07SM1	Japan Aviation	10	MFECA0100MJD
Connector pin	LY10-C1-A1-10000	Electronics Ind.	20	MFECA0200MJD
Cable	AWG24 4-wire, AWG22 2-wire (ø5.5)	Hitachi Cable, Ltd.		

Part No.	MFECAO * * OMJE (Highly bendable type, Direction of motor shaft) MFECAO * OMKE (Highly bendable type, Opposite direction of motor shaft) MFECAO * OTJE (Standard bendable type, Direction of motor shaft) MFECAO * OTKE (Standard bendable type, Opposite direction of motor shaft)	80 mm sq. or less Applicable model	MQMF 100 W to 400 W
Specifications	23-bit absolute encoder When used in absolute system (with battery box) *		

* Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.

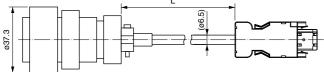
[Unit: mm]



Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030MJE
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050MJE
Connector (Motor side)	JN6FR07SM1	Japan Aviation	10	MFECA0100MJE
Connector pin	LY10-C1-A1-10000	Electronics Ind.	20	MFECA0200MJE
Cable	AWG24 4-wire、AWG22 2-wire (φ5.5)	Hitachi Cable, Ltd.		

Cable

Part No.	MFECAO * * 0EPD	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW	
Specifications	23-bit absolute encoder When used in incremental system (without battery box) <large lock="" one-touch="" type=""></large>			



<u>. </u>		
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	JL10-6A20-29S-EB	Japan Aviation
Cable clamp	JL04-2022CK(09)-R	Electronics Ind.

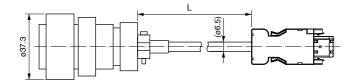
0.2 mm² x3P (6-wire)

	Manufacturer		L (m)	Part No.(ex.)
	Sumitomo 3M		3	MFECA0030EPD
-]	(or equivalent)		5	MFECA0050EPD
	Japan Aviation		10	MFECA0100EPD
-	Electronics Ind.	ĺ	20	MFECA0200EPD
	Oki Electric Cable Co., Ltd.			

[Unit: mm]

[Unit: mm]

Part No.	MFECAO * * 0ESD	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW
Specifications	23-bit absolute encoder V <large screwed="" type=""></large>	When used in increr	mental system (without battery box)



Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030ESD
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050ESD
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation	10	MFECA0100ESD
Cable clamp	N/MS3057-12A	Electronics Ind.	20	MFECA0200ESD
Cable	0.2 mm ² x3P (6-wire)	Oki Electric Cable Co., Ltd.		

Part No.	MFECAO * * OEPE	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW (IP67 motor)	
Specifications	23-bit absolute encoder When used in absolute system (with battery box) * <large lock="" one-touch="" type=""></large>			

 $\mbox{\ensuremath{^{\star}}}$ Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.

attery is not included. Please buy the absolut	ncoder battery "DVUP2990" separately.		[Unit: mm]
l a.	L		
	110	300	
037.3		(90)	

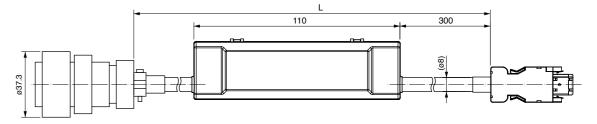
Title	Part No.	Manufacturer
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M
Shell kit	3E306-3200-008	(or equivalent)
Connector (Motor side)	JL10-6A20-29S-EB	Japan Aviation
Cable clamp	JL04-2022CK(09)-R	Electronics Ind.
Cable	0.2 mm ² ×3P (6-wire)	Oki Electric Cable Co., Ltd.

L (m)	Part No.(ex.)
3	MFECA0030EPE
5	MFECA0050EPE
10	MFECA0100EPE
20	MFECA0200EPE

Part No.	MFECA0 * * 0ESE	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW (IP67 motor)		
Specifications	23-bit absolute encoder When used in absolute system (with battery box) * <large screwed="" type=""></large>				

 * Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.

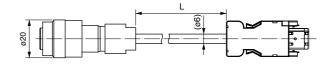
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Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030ESE
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050ESE
Connector (Motor side)	N/MS3106B20-29S	Japan Aviation	10	MFECA0100ESE
Cable clamp	N/MS3057-12A	Electronics Ind.	20	MFECA0200ESE
Cable	0.2 mm ² ×4P (8-wire)	Oki Electric Cable Co., Ltd.		

Part No.	MFECA0 * * 0ETD	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW (IP67 motor)		
Specifications	23-bit absolute encoder When used in incremental system (without battery box)				
	<small lock="" one-touch="" type=""></small>				

[OIIII.IIIII]

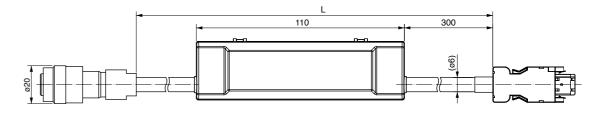


Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030ETD
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050ETD
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation	10	MFECA0100ETD
Connector pin	JN1-22-22S-PKG100	Electronics Ind.	20	MFECA0200ETD
Cable	0.2 mm ² ×3P (6-wire)	Oki Electric Cable Co., Ltd.	•	

Part No.	MFECA0 ** 0ETE	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW (IP67 motor)
Specifications	23-bit absolute encoder \ <small lock="" one-touch="" th="" typ<=""><th></th><th>ute system (with battery box) *</th></small>		ute system (with battery box) *

* Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.

Ft 1-24 ----



Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030ETE
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050ETE
Connector (Motor side)	JN2DS10SL1-R	Japan Aviation	10	MFECA0100ETE
Connector pin	JN1-22-22S-PKG100	Electronics Ind.	20	MFECA0200ETE
Cable	0.2 mm ² x3P (6-wire)	Oki Flectric Cable Co., Ltd.		

[Unit: mm]

MSMF 50 W to 1000 W, MQMF 100 W to 400 W 80 mm sq. or less MFMCA0 * * 0EED MHMF 50 W to 1000 W Part No. Applicable model (Leadwire type)

> (50) (50)=____

Title	Part No.	Manufacturer
Connector	172159-1	Tyco Electronics Japan
Cable clamp	170366-1	G.K.
Rod terminal	AI0.75-8GY	PHOENIX CONTACT
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 0.75 mm ² 4-wire	DYDEN CORPORATION

L (m)	Part No.(ex.)
3	MFMCA0030EED
5	MFMCA0050EED
10	MFMCA0100EED
20	MFMCA0200EED

Part No.	MFMCA0 * * ONJD (Highly bendable type, Direction of motor shaft) MFMCA0 * * ORJD (Standard bendable type, Direction of motor shaft) MFMCA0 * * ONKD (Highly bendable type, Opposite direction of motor shaft)	80 mm sq. or less Applicable model
	MFMCA0 * * ORKD (Standard bendable type, Opposite direction of motor shaft)	model

MSMF 50 W to 1000 W (Connector type) MSMF 200 W to 1000 W

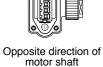
(Connector type)

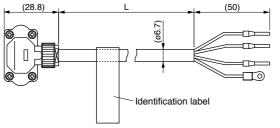
[Unit: mm]

[Unit: mm]

[Unit: mm]

Direction of motor shaft





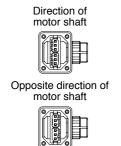
<Remarks>

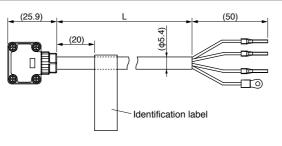
Motor cable for opposite direction of motor shaft cannot be used with a motor 50 W and 100 W.

Title	Part No.	Manufacturer	
Connector	JN8FT04SJ1	Japan Aviation	
Cable clamp	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 (φ6.7 mm)	Hitachi Cable, Ltd.	

L (m)	Part No.(ex.)
3	MFMCA0030NJD
5	MFMCA0050NJD
10	MFMCA0100NJD
20	MFMCA0200NJD

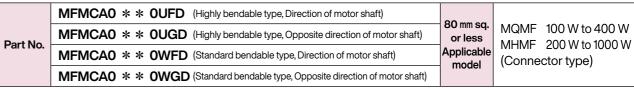
Part No.	MFMCAU * * 70FD direction of motor shaft	80 mm sq. or less	MHMF 50 W, 100 W	
Part NO.	MFMCA0 * * 7UGD	(Movable/fixed common-use, opposite directionof motor shaft)	Applicable model	(Connector type)

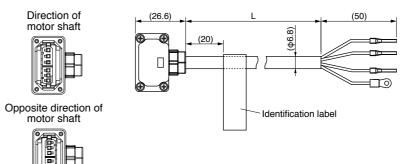




Title	Part No.	Manufacturer		
Connector	JN11FH06SN2	Japan Aviation		
Cable clamp	JN11S10K4A1	Electronics Ind.		
Rod terminal	AI0.34-8TQ	PHOENIX CONTACT		
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.		
Cable	AWG22 6-wire (φ5.4 mm)	NIKKO ELECTRIC WIRE CO.,LTD		

	L (m)	Part No.(ex.)
	3	MFMCA0037UFD
	5	MFMCA0057UFD
	10	MFMCA0107UFD
	20	MFMCA0207UFD
וכ		





Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector	JN11FH06SN1	Japan Aviation	3	MFMCA0030UFD
Cable clamp	JN11S35H3A1	Electronics Ind.		MFMCA0050UFD
Rod terminal	AI0.75-8GY	PHOENIX CONTACT	10	MFMCA0100UFD
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	20	MFMCA0200UFD
Cable	AWG18 6-wire (φ6.8)	NIKKO ELECTRIC WIRE CO.,LTD		

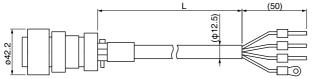
Part No.	MFMCDO * * 2EUD	100 mm sq. or more Applicable model		1.0 kW to 2.0 kW, 1.0 kW, 1.5 kW, ouch lock type>	MDMF MGMF	1.0 kW to 2.0 kW 0.85 kW to 1.8 kW
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	L	(50)
037.3	(412.5)	

Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector	JL10-6A20-4SE-EB	Japan Aviation	3	MFMCD0032EUD
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.	5	MFMCD0052EUD
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.	10	MFMCD0102EUD
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.	20	MFMCD0202EUD
Cable	BOBO-TOP 600V 2 0mm ² 4-wire	DYDEN CORPORATION		

Part No.	MFMCDO * * 2ECD	100 mm sq. or more Applicable model	MSMF MHMF	1.0 kW to 2.0 kW, 1.0 kW, 1.5 kW,	MDMF MGMF	1.0 kW to 2.0 kW 0.85 kW to 1.8 kW	
		, applicable model	<screw< th=""><th>ed type></th><th></th><th></th><th></th></screw<>	ed type>			

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

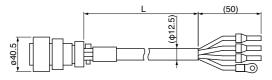


Title	Part No.	Manufacturer		
Connector	JL10-6A22-22SE-EB	Japan Aviation		
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.		
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.		
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.		
Cable	ROBO-TOP DP6/2501 2.0 mm ² 4-wire	DYDEN CORPORATION		

	L (m)	Part No.(ex.)
	3	MFMCE0032EUD
	5	MFMCE0052EUD
	10	MFMCE0102EUD
	20	MFMCE0202EUD
ı		

Part No. MFMCEO * * 2ECD No. MFMCEO * * 2ECD No. MHMF 2.0 kW
--

[Unit: mm]

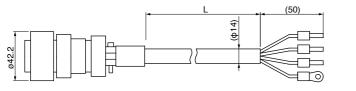


Title	Part No.	Manufacturer
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP 600V 2.0 mm ² 4-wire	DYDEN CORPORATION

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

100 mm sq. or more Part No. MFMCE0 * * 3EUT MGMF 2.4 kW <One-touch lock type> Applicable model

[Unit: mm]

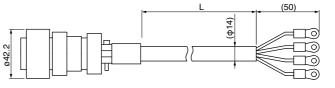


Title	Part No.	Manufacturer
Connector	JL10-6A22-22SE-EB	Japan Aviation
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.
Rod terminal	TMENTC3.5-11S	NICHIFU Co., Ltd.
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.
Cable	ROBO-TOP DP6/2501 3.5 mm ² 4-wire	DYDEN CORPORATION

L (m)	Part No.(ex.)
3	MFMCE0033EUT
5	MFMCE0053EUT
10	MFMCE0103EUT
20	MFMCE0203EUT

Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation	3	MFMCE0033ECT
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.	5	MFMCE0053ECT
Rod terminal	TMENTC3.5-11S	NICHIFU Co., Ltd.	10	MFMCE0103ECT
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.	20	MFMCE0203ECT
Cable	BOBO-TOP 600V 3.5 mm ² 4-wire	DYDEN CORPORATION		

MSMF 3.0 kW to 5.0 kW, MDMF 3.0 kW to 5.0 kW 100 mm sq. or more MFMCAO * * 3EUT MHMF 3.0 kW to 5.0 kW, MGMF 2.9 kW to 4.4 kW Applicable model <One-touch lock type>



Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector	JL10-6A22-22SE-EB	Japan Aviation	3	MFMCA0033EUT
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.	5	MFMCA0053EUT
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.	10	MFMCA0103EUT
Cable	ROBO-TOP DP6/2501 3.5 mm ² 4-wire	DYDEN CORPORATION	20	MFMCA0203EUT

MSMF 3.0 kW to 5.0 kW, 3.0 kW to 5.0 kW MDMF 100 mm sq. or more MFMCAO * * 3ECT MHMF 3.0 kW to 5.0 kW, MGMF 2.9 kW to 4.4 kW Applicable model <Screwed type>

Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation	3	MFMCA0033ECT
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.	5	MFMCA0053ECT
Nylon insulated round terminal	N5.5-5	J.S.T Mfg. Co., Ltd.	10	MFMCA0103ECT
Cable	ROBO-TOP 600V 3.5 mm ² 4-wire	DYDEN CORPORATION	20	MFMCA0203ECT

[Unit: mm]

Information

315 | Panasonic Industry Co., Ltd.

A6B Series
Special Order Product

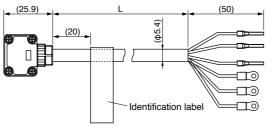
[Unit: mm]

80 mm sq. or MHMF 50 W, 100 W (Connector type)

[Unit: mm]

Direction of motor shaft

Opposite direction of motor shaft



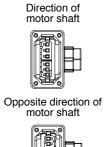
Title	Part No.	Manufacturer
Connector	JN11FH06SN2	Japan Aviation
Cable clamp	JN11S10K4A1	Electronics Ind.
Rod terminal	AI0.34-8TQ	PHOENIX CONTACT
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	AWG22 6-wire (φ5.4 mm)	NIKKO ELECTRIC WIRE CO.,LTD

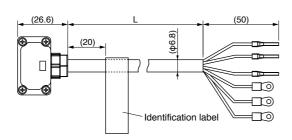
	L (m)	Part No.(ex.)
	3	MFMCA0037VFD
	5	MFMCA0057VFD
	10	MFMCA0107VFD
	20	MFMCA0207VFD
)		

MFMCA0 * * OVFD (Highly bendable type, Direction of motor shaft) 80 mm sq. MFMCA0 * * OVGD (Highly bendable type, Opposite direction of motor shaft) or less Part No. Applicable MFMCAO * * OXFD (Standard bendable type, Direction of motor shaft) model MFMCA0 * * OXGD (Standard bendable type, Opposite direction of motor shaft)

MQMF 100 W to 400 W MHMF 200 W to 1000 W (Connector type)

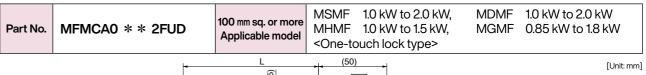
[Unit: mm]

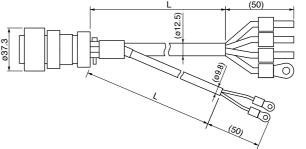




Title	Part No.	Manufacturer
Connector	JN11FH06SN1	Japan Aviation
Cable clamp	JN11S35H3A1	Electronics Ind.
Rod terminal	AI0.75-8GY	PHOENIX CONTACT
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	AWG18 6-wire (φ6.8 mm)	NIKKO ELECTRIC WIRE CO.,LTD

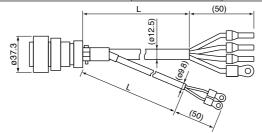
L (m)	Part No.(ex.)
3	MFMCA0030VFD
5	MFMCA0050VFD
10	MFMCA0100VFD
20	MFMCA0200VFD



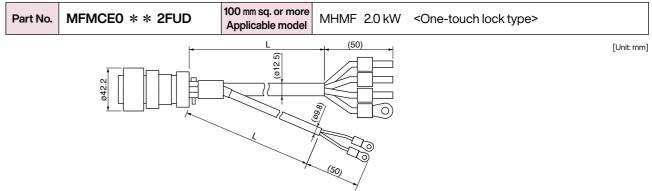


			/		
Title		Part No.	Manufacturer	L (m)	Part No.(ex.)
Connecto	or	JL10-6A20-18SE-EB	Japan Aviation	3	MFMCA0032FUD
Cable clar	np	JL042022CK(14)-R	Electronics Ind.	5	MFMCA0052FUD
Rod termin	nal	NTUB-2	J.S.T Mfg. Co., Ltd.	10	MFMCA0102FUD
Nylon insulated	Earth	N2-M4	LS T Mfg. Co. Ltd	20	MFMCA0202FUD
round terminal	Brake	N1.25-M4	J.S.T Mfg. Co., Ltd.		
Cable		ROBO-TOP 600V 2.0 mm ² 4-wire	DYDEN CORPORATION		

Part No.	MFMCA0 * * 2FCD	100 mm sq. or more	MSMF MHMF	1.0 kW to 2.0 kW, 1.0 kW to 1.5 kW,	 1.0 kW to 2.0 kW 0.85 kW to 1.8 kW
		Applicable model	<screwe< th=""><th>ed type></th><th></th></screwe<>	ed type>	



Title		Part No.	Manufacturer	L (m)	Part No.(ex.)
Connecto	r	JL04V-6A20-18SE-EB-RK	Japan Aviation	3	MFMCA0032FCD
Cable clan	np	JL04-2022CK(14)-R	Electronics Ind.	5	MFMCA0052FCD
Rod termin	nal	NTUB-2	J.S.T Mfg. Co., Ltd.	10	MFMCA0102FCD
Nylon insulated	Earth	N2-M4	J.S.T Mfg. Co., Ltd.	20	MFMCA0202FCD
round terminal	Brake	N1.25-M4	3.3.1 Wilg. Co., Ltd.		
Cable		ROBO-TOP 600V 2.0 mm ² 4-wire ROBO-TOP 600V 0.75 mm ² 2-wire	DYDEN CORPORATION		



Title		Part No.	Manufacturer	L (m)	Part No.(ex.)
Connecto	r	JL10-6A24-11SE-EB	Japan Aviation	3	MFMCE0032FUD
Cable clan	np	JL04-2428CK(17)-R	Electronics Ind.	5	MFMCE0052FUD
Rod termir	nal	NTUB-2	J.S.T Mfg. Co., Ltd.	10	MFMCE0102FUD
Nylon insulated	Earth	N2-M4	LC TMfa Co Ltd	20	MFMCE0202FUD
round terminal	Brake	N1.25-M4	J.S.T Mfg. Co., Ltd.	•	
Cable		ROBO-TOP DP6/2501 2.0 mm ² 4-wire	DYDEN CORPORATION		

MGMF 2.4 kW <One-touch lock type>

DYDEN CORPORATION

100 mm sq. or more Part No. MFMCE0 * * 2FCD MHMF 2.0 kW <Screwed type> Applicable model [Unit: mm]

Title		Part No.	Manufacturer
Connecto	r	JL04V-6A24-11SE-EB-R	Japan Aviation
Cable clan	пр	JL04-2428CK(17)-R	Electronics Ind.
Rod termin	nal	NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated	Earth	N2-M4	J.S.T Mfg. Co., Ltd.
round terminal	Brake	N1.25-M4	J.S.1 Wilg. Co., Ltd.
Cable		ROBO-TOP 600V 2.0 mm ² 4-wire ROBO-TOP 600V 0.75 mm ² 2-wire	DYDEN CORPORATION

CE0032FCD
CE0052FCD
CE0102FCD
CE0202FCD

[Unit: mm]

[Unit: mm]

Part No.	MFMCD0 * * 3FUT	100 mm sq. or more Applicable model	MGMF	2.4 k
	0422	T (410)	(50)	

Cable

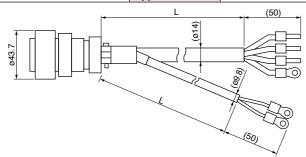
			(50	
Title			Part No.	Manufacturer
	Connector		JL10-6A24-11SE-EB	Japan Aviation
	Cable clamp		JL04-2428CK(17)-R	Electronics Ind.
	Rod terminal		TMENTC3.5-11S	NICHIFU Co., Ltd.
Nylon insulated Earth		Earth	N5.5-5	J.S.T Mfg. Co., Ltd.
	round terminal Brake		N1.25-M4	J.S. Fiving. Co., Ltd.

N1.25-M4 ROBO-TOP DP6/2501 3.5 mm² 4-wire

ROBO-TOP DP6/2501 0.75 mm² 2-wire

Part No.(ex.)
MFMCD0033FUT
MFMCD0053FUT
MFMCD0103FUT
MFMCD0203FUT

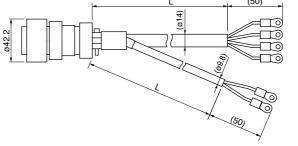
100 mm sq. or more MFMCD0 * * 3FCT MGMF 2.4 kW <Screwed type> Applicable model



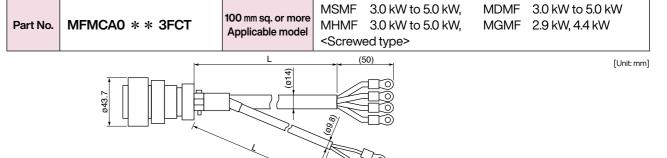
Title		Part No.	Manufacturer
Connecto	r	JL04V-6A24-11SE-EB-R	Japan Aviation
Cable clan	np	JL04-2428CK(17)-R	Electronics Ind.
Rod termir	nal	TMENTC3.5-11S	NICHIFU Co., Ltd.
Nylon insulated	Earth	N5.5-5	J.S.T Mfg. Co., Ltd.
round terminal	Brake	N1.25-M4	J.S. 1 Wilg. Co., Ltd.
Cable		ROBO-TOP 600V 3.5 mm ² 4-wire ROBO-TOP 600V 0.75 mm ² 2-wire	DYDEN CORPORATION

_		
	L (m)	Part No.(ex.)
	3	MFMCD0033FCT
	5	MFMCD0053FCT
	10	MFMCD0103FCT
	20	MFMCD0203FCT
\neg		

MSMF 3.0 kW to 5.0 kW, MDMF 3.0 kW to 5.0 kW 100 mm sq. or more Part No. MFMCA0 * * 3FUT MHMF 3.0 kW to 5.0 kW, MGMF 2.9 kW, 4.4 kW Applicable model <One-touch lock type> [Unit: mm]



Title Connector Cable clamp		Part No.	Manufacturer	L (m)	Part No.(ex.)
		JL10-6A24-11SE-EB	Japan Aviation	3	MFMCA0033FUT
		JL04-2428CK(17)-R	Electronics Ind.	5	MFMCA0053FUT
Nylon insulated	Earth	N5.5-5	S I S T Mfa Co I td		MFMCA0103FUT
round terminal	Brake	N1.25-M4	J.S.T Mfg. Co., Ltd.	20	MFMCA0203FUT
Cable		ROBO-TOP DP6/2501 3.5 mm ² 4-wire ROBO-TOP DP6/2501 0.75 mm ² 2-wire	DYDEN CORPORATION		



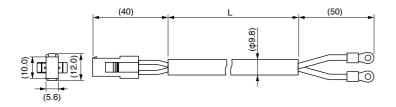
			/		
Title		Part No. Manufacturer		L (m)	Part No.(ex.)
Connecto	r	JL04V-6A24-11SE-EB-R	Japan Aviation	3	MFMCA0033FCT
Cable clamp		JL04-2428CK(17)-R	Electronics Ind.	5	MFMCA0053FCT
Nylon insulated Earth		N5.5-5	J.S.T Mfg. Co., Ltd.	10	MFMCA0103FCT
round terminal Brake		N1.25-M4	J.S. 1 Mig. Co., Ltd.	20	MFMCA0203FCT
Cable		ROBO-TOP 600V 3.5 mm ² 4-wire ROBO-TOP 600V 0.75 mm ² 2-wire	DYDEN CORPORATION		

Part No. MFMCB0 * * OGET

80 mm sq. or less Applicable model

MSMF 50 W to 1000 W, MQMF 100 W to 400 W (Leadwire type)

[Unit: mm]



Title	Part No.	Manufacturer		L (m)
Connector	172157-1	Tyco Electronics Japan		3
Connector pin	170366-1, 170362-1	G.K.		5
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	Γ	10
Cable	ROBO-TOP 600V 0.75 mm ² 2-wire	DYDEN CORPORATION	Γ	20

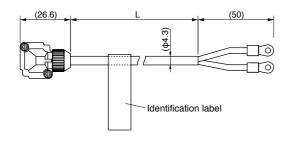
	L (m)	Part No.(ex.)
	3	MFMCB0030GET
	5	MFMCB0050GET
	10	MFMCB0100GET
	20	MFMCB0200GET

	MFMCBO * * OPJT (Highly bendable type, Direction of motor shaft)	90 mm om	
Dowt No.	MFMCBO * * OPKT (Highly bendable type, Opposite direction of motor shaft)	80 mm sq. or less	MSMF 50 W to 1000 W
Part No.	MFMCBO * * OSJT (Standard bendable type, Direction of motor shaft)	Applicable model	(Connector type)
	MFMCBO * * OSKT (Standard bendable type, Opposite direction of motor shaft)	modei	

[Unit: mm]



Direction of



Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector	JN4FT02SJMR	Japan Aviation	3	MFMCB0030PJT
Connector pin	ST-TMH-S-C1B-3500	Electronics Ind.	5	MFMCB0050PJT
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	10	MFMCB0100PJT
Cable	AWG22 2-wire (φ4.3)	Hitachi Cable, Ltd.	20	MFMCB0200PJT

Cable for Interface

Interface Cable

Part No. DV0P4360

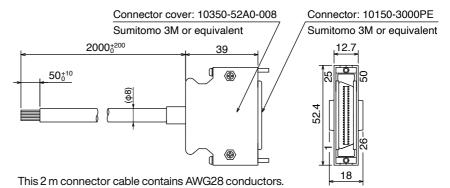


Table for wiring

		3							
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

[Unit: mm]

cable

<Caution>

Cable pin No. 50 is not connected to the connector shell (housing) or shielded wire (net wire).

Pin No. 50 of the Driver is connected to the shell (housing) of the connector.

The shielded wire (net wire) of the cable is connected to the shell (housing) of the connector of the cable, and by connecting the connector of the optional cable to the Driver, pin No. 50 of the cable and the shielded wire (net wire) of the cable gets connected via the Driver.

Interface Conversion Cable

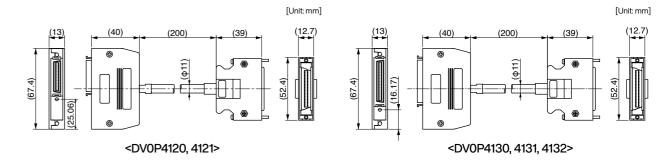
Part No. DV0P4120, 4121, 4130, 4131, 4132

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 → A6 series (A5II, A5, A4, A series) for position control/ velocity control
DV0P4121	MINAS XX → A6 series (A5II, A5, A4, A series) for torque control
DV0P4130	MINAS V → A6 series (A5II, A5, A4, A series) for position control
DV0P4131	MINAS V → A6 series (A5II, A5, A4, A series) for velocity control
DV0P4132	MINAS V → A6 series (A5II, A5, A4, A series) for torque control

^{*} For details of wiring, contact our sales department.

Converts 36-pin configuration to 50-pin.



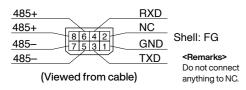
Connector Kit

Part No. DV0PM20102

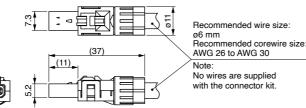
Components

Title	Part No.	Manufacturer	Note
Connector	CIF-PCNS08KK-072R	J.S.T Mfg. Co., Ltd.	For Connector X2 (8-pins)

Pin disposition of connector, connector X2



Dimensions



[Unit: mm]

[Unit: mm]

[Unit: mm]

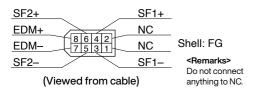
Connector Kit for Safety (Excluding A6SE, A6SG, A6NE, A6BE Series)

Part No.	DV0PM20103

Components

Title	Part No.	Manufacturer	Note
Connector	CIF-PCNS08KK-071R	J.S.T Mfg. Co., Ltd.	For Connector X3 (8-pins)

• Pin disposition of connector, connector X3





Dimensions

Safety bypass plug (Excluding A6SE, A6SG, A6NE, A6BE Series)

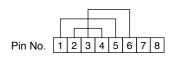
Part No.	DV0PM20094
artivo.	DVOI IVIZOUUT

Components

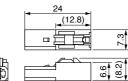
Title	Part No.	Manufacturer	Note
Connector	CIF-PB08AK-GF1R	J.S.T Mfg. Co., Ltd.	For Connector X3

Internal wiring

(Wiring of the following has been applied inside the plug.)



Dimensions (Resin color : black)



<Remarks>

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

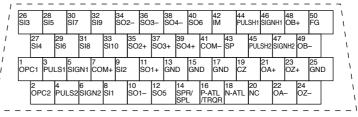
Connector Kit for Interface

Part No. DV0P4350

Components

Title	Part No.	Number	Manufacturer	Note
Connector	10150-3000PE	1	Sumitomo 3M	For Connector X4 (50-
Connector cover	10350-52A0-008	1	(or equivalent)	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.

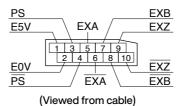
Connector Kit for External Scale (Excluding A6SE, A6SG, A6NE, A6BE Series)

Part No. DV0PM20026

Components

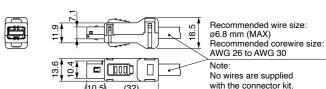
Title	Part No.	Manufacturer	Note
Connector	MUF-PK10K-X	J.S.T Mfg. Co., Ltd.	For Connector X5 (10-pins)

• Pin disposition of connector, connector X5





[Unit: mm]



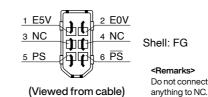
Connector Kit for Encoder

Part No. DV0PM20010

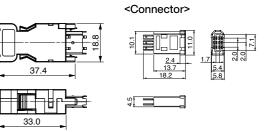
Components

Title	Part No.	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	For Connector X6
Shell kit	3E306-3200-008	(or equivalent)	For Connector Xo

Pin disposition of connector, connector X6



Dimensions



<Remarks>

Connector X1: use with commercially available cable.

- Configuration of connector X1: USB mini-B



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A6N Series

A6 Family

A6N Series

Connector Kit for Motor Connection (Driver side)

Part No. DVOPM20034 (For A-frame to D-frame)

Connector Kit for Motor/Encoder Connection

Components

• Please refer to the Dimensions of driver P.57 for connector XB.

Title	Part No.	Number	Manufacturer	Note
Connector	06JFAT-SAX-GGKK-A	1	LC T Mfa Co Ltd	For Connector XB
Handle lever	J-FAT-OT	2	J.S.T Mfg. Co., Ltd.	* Jumper wire is included.

Part No. DV0PM20046 (For E-frame)

Components

• Please refer to the Dimensions of driver P.59 for connector XB.

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

Connector Kit for Motor/Encoder Connection

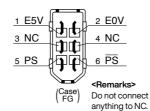
* When IP65 or IP67 are necessary, the customer must give appropriate processing

Part No.	DV0P4290	80 mm sq. or less Applicable model	MHMF	50 W to 1000 W *, 50 W to 1000 W * ire type IP65)	MQMF	100 W to 400 W
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Components

-				
Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M (or equivalent)	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1		
Connector	172161-1	1	Tyco Electronics Japan G.K.	For Encoder cable (9-pins)
Connector pin	170365-1	9		
Connector	172159-1	1	Tyco Electronics Japan G.K.	For Motor cable
Connector pin	170366-1	4		(4-pins)

• Pin disposition of connector, • Pin disposition of connector connector X6



(Viewed from cable)

1 2 3 4 5 6 7 8 9

for encoder cable

PIN No. Application

* Connector pin diagram is viewed from the direction

of the arrow

* Connector pin diagram is viewed from the direction

* MSMF092 1 2, MHMF092 1

l	BAI+	
2	BAT-*	
3	FG(SHIELD)	* When using the motor as
1	PS	an incremental system,
5	PS	BAT+ and BAT- can be left
3	NC	unconnected.
7	E5V	<remarks></remarks>
3	E0V	Do not connect anything
9	NC	to NC.

of the arrow.

Pin disposition of connector

for motor cable

PIN No.	Application
1	U-phase
2	V-phase
3	W-phase
4	Ground
	2 2 9 1 1 9 1

* When you connect the battery for absolute encoder, refer to P.338, "When you make your own cable for 23-bit absolute encoder"

· For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

Connector Kit for Power Supply Input

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

Components

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

• Please refer to the Dimensions of driver P.57 for connector XA.

Power supply

Single phase

100 V

Single phase

100 V Single phase/3-phase

200 V Single phase/3-phase

200 V

Single phase

100 V

Single phase/3-phase

200 V

Single phase

100 V Single phase/3-phase

200 V

Single phase/3-phase

Single phase/3-phase

Rated input

current

1.7 A

2.0 A

1.6 A/0.9 A

2.0 A/1.1 A

3.7 A/2.1 A

7.0 A

6.4 A/3.4 A

7.9 A/4.6 A

13.6 A/7.2 A

Part No. DVOPM20033 (For A-frame to D-frame: Double row type)

Components

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

Driver part No.

MADL * 01 * *

MADL * 11 * *

MADL * 05 * *

MADL * 15 * *

MBDL * 21 * *

MBDL * 25 * *

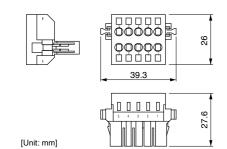
MCDL * 31 * *

MCDL * 35 * *

MDDL * 45 * *

MDDL * 55 * *

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.

When using drivers MDDL * 55 * * in single-phase power supply, do not use DV0PM20033.

Part No. DV0PM20044 (For E-frame)

Components

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

Connector Kit for Regenerative Resistor Connection

Part No. DV0PM20045 (For E-frame)

Components

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

· For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

with/without brake

DV0PM20035

80 mm sq. or less Applicable model

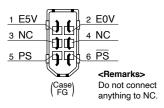
MSMF 50 W to 1000 W * (Connector type IP67)

* MSMF092L1□1

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pine)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)
Encoder connector	JN6FR07SM1	1	Japan Aviation	For Encoder cable
Socket contact	LY10-C1-A1-10000	7	Electronics Ind.	(7-pins)
Motor connector	JN8FT04SJ1	1	Japan Aviation	For Motor cable
Socket contact	ST-TMH-S-C1B-3500	4	Electronics Ind.	(4-pins)

connector X6



(Viewed from cable)

<Remarks>

Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.

Pin disposition of connector Pin disposition of connector for encoder cable

4 PS

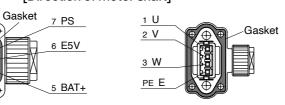
3 E0V

2 BAT-

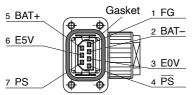
1 FG

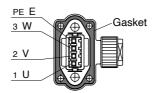
Pin disposition of connector for motor cable

[Direction of motor shaft]



[Opposite direction of motor shaft]





* Pins 2 and 5 are left unused (NC) when used in incremental system.

Components

Part No.

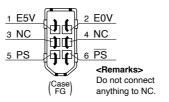
Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 pine)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)
Encoder connector	JN6FR07SM1	1	Japan Aviation	For Encoder cable
Socket contact	LY10-C1-A1-10000	7	Electronics Ind.	(7-pins)
Motor connector	JN11FH06SN2	1	Japan Aviation	For Motor cable
Socket contact	JN11S10K4A1	6	Electronics Ind.	(6-pins)

MHMF 50 W, 100 W

(Connector type IP67)

• Pin disposition of connector • Pin disposition of connector connector X6

DV0PM24581



(Viewed from cable)

<Remarks>

Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.

for encoder cable

4 PS

3 E0V

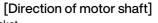
2 BAT-

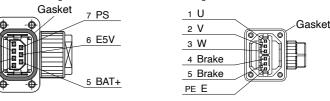
1 FG

80 mm sq. or less

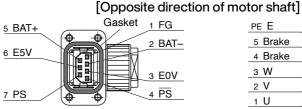
Applicable model

Pin disposition of connector for motor cable

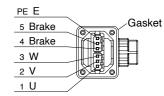




5 BAT+



* Pins 2 and 5 are left unused (NC) when used in incremental system.



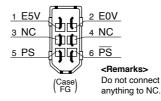
* 4-pin and 5-pin are not used in case of no brake.

rt No.	DV0PM24582	80 mm sq. or less Applicable model	MQMF 100 W to 400 W, MHMF 200 W to 1000 W (Connector type IP67)	with/without brake common use
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Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	F 0
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)
Encoder connector	JN6FR07SM1	1	Japan Aviation	For Encoder cable
Socket contact	LY10-C1-A1-10000	7	Electronics Ind.	(7-pins)
Motor connector	JN11FH06SN1	1	Japan Aviation	For Motor cable
Socket contact	JN11S35H3A1	6	Electronics Ind.	(6-pins)

connector X6



(Viewed from cable)

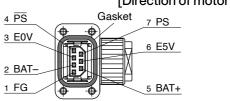
<Remarks>

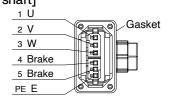
Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.

Pin disposition of connector Pin disposition of connector for encoder cable

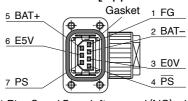
[Direction of motor shaft]

Pin disposition of connector for motor cable

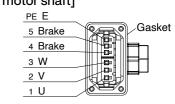




[Opposite direction of motor shaft]



* Pins 2 and 5 are left unused (NC) when used in incremental system.



* 4-pin and 5-pin are not used in case of no brake.

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

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A6N Series

Connector Kit for Motor/Encoder Connection * When IP65 or IP67 are necessary, the customer must give appropriate processing.

* MSMF102 1 0, MHMF102 1 0

* MSMF102L1 \(\Bigcup_, MHMF102L1 \(\Bigcup_

(IP67 motor) Encoder JN2 <Small size connector> Without 100 mm sq. or more Part No. DV0PM24583 MSMF 1.0 kW * to 2.0 kW, MDMF 1.0 kW to 2.0 kWApplicable model brake MHMF 1.0 kW *, 1.5 kW, MGMF 0.85 kW to 1.8 kW * MSMF102 1 0 , MHMF102 1 0

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	(One-touch lock type)
Motor connector	JL10-6A20-4SE-EB	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(One-touch lock type)

		100	(IP67 m	otor) Encoder JN2 <s< th=""><th>Small size</th><th>connector></th><th>\<i>\\\i</i>;+b</th></s<>	Small size	connector>	\ <i>\\\i</i> ;+b
Part No.	DV0PM24585	100 mm sq. or more Applicable model	MSMF	1.0 kW * to 2.0 kW,	MDMF	1.0 kW to 2.0 kW	With
		Applicable Illouei	MHMF	1.0 kW *, 1.5 kW,	MGMF	0.85 kW to 1.8 kW	brake

Components

•				
Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Compactor VC (Coring)
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.	(One-touch lock type)
Motor connector	JL10-6A20-18SE-EB	1	Japan Aviation	For Motor cable
Cable clamp	.II 04-2022CK(14)-B	1	Electronics Ind.	(One-touch lock type)

Part No.	DV0PM24587	100 mm sq. or more Applicable model	MSMF	otor) Encoder JL10 <l 1.0 kW * to 2.0 kW, 1.0 kW *, 1.5 kW,</l 	MDMF	connector> 1.0 kW to 2.0 kW 0.85 kW to 1.8 kW	Without brake
_						* MSMF102L1□□, MHMF	102L1

Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector V6 (6 nine)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Encoder connector	JL10-6A20-29S-EB	1	Japan Aviation	For Encoder cable	
Cable clamp	JL04-2022CK(09)-R	1	Electronics Ind.	(One-touch lock type)	
Motor connector	JL10-6A20-4SE-EB	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(One-touch lock type)	

Part No.	MSMF	DVOPM24589 100 mm Applie	notor) Encoder JL10 <large conne<br="" size="">1.0 kW * to 2.0 kW, MDMF 1.0 kV 1.0 kW *, 1.5 kW, MGMF 0.85</large>	V to 2.0 kW	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	JL10-6A20-29S-EB	1	Japan Aviation	For Encoder cable
Cable clamp	JL04-2022CK(09)-R	1	Electronics Ind.	(One-touch lock type)
Motor connector	JL10-6A20-18SE-EB	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(One-touch lock type)

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

Down No.	DV0PM24584	100 mm sq. or more	(IP67 m	otor) Encoder JN2 <		Withou
Part No.	DV0PIVI24564	Applicable model	MHMF	3.0 kW to 5.0 kW, 2.0 kW to 5.0 kW,	3.0 kW to 5.0 kW 2.4 kW to 4.4 kW	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 (6-pins)
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	(One-touch lock type)
Motor connector	JL10-6A22-22SE-EB	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(One-touch lock type)

Part No.	DV0PM24586	100 mm sq. or more Applicable model	MSMF	otor) Encoder JN2 <s 3.0 kW to 5.0 kW, 2.0 kW to 5.0 kW,</s 	MDMF	onnector> 3.0 kW to 5.0 kW 2.4 kW to 4.4 kW	With brake	
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Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	(One-touch lock type)	
Motor connector	JL10-6A24-11SE-EB	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2428CK(17)-R	1	Electronics Ind.	(One-touch lock type)	

Part No.	DV0PM24588	100 mm sq. or more Applicable model	MSMF	otor) Encoder JL10 < 3.0 kW to 5.0 kW, 2.0 kW to 5.0 kW,	MDMF	connector> 3.0 kW to 5.0 kW 2.4 kW to 4.4 kW	Without brake	1
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Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)		
Encoder connector	JL10-6A20-29S-EB	1	Japan Aviation	For Encoder cable	
Cable clamp	JL04-2022CK(09)-R	1	Electronics Ind.	(One-touch lock type)	
Motor connector	JL10-6A22-22SE-EB	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(One-touch lock type)	

Part No.	DV0PM24590	100 mm sq. or more Applicable model	MSMF	otor) Encoder JL10 < 3.0 kW to 5.0 kW, 2.0 kW to 5.0 kW,	MDMF	connector> 3.0 kW to 5.0 kW 2.4 kW to 4.4 kW	With brake	
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Components

Title		Part No.	Number	Manufacturer	Note	
Connector (Driver si	de) 3E2	06-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E30	06-3200-008	1	(or equivalent)	For Connector A6 (6-pins)	
Encoder connecto	or JL10-	6A20-29S-EB	1	Japan Aviation	For Encoder cable	
Cable clamp	JL04-2	2022CK(09)-R	1	Electronics Ind.	(One-touch lock type)	
Motor connector	JL10-6	6A24-11SE-EB	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2	2428CK(17)-R	1	Electronics Ind.	(One-touch lock type)	

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

(IP67 motor) Encoder JN2 <Small size connector>

* MSMF102 1 0, MHMF102 1 0

* MSMF102L1 \Bigcup_, MHMF102L1 \Bigcup_

Without

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)		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	(One-touch lock type)	
Motor connector	JL04V-6A20-4SE-EB-RK	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(Screwed type)	

Part No.	DV0PM20038	100 mm sq. or more Applicable model	MSMF	otor) Encoder JN2 <s 1.0 kW * to 2.0 kW, 1.0 kW *, 1.5 kW,</s 	MDMF	connector> 1.0 kW to 2.0 kW 0.85 kW to 1.8 kW	With brake
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Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	(One-touch lock type)	
Motor connector	JL04V-6A20-18SE-EB-RK	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(Screwed type)	

Part No.	DV0P4310	100 mm sq. or more Applicable model	MSMF	otor) Encoder JL10 <l 1.0 kW * to 2.0 kW, 1.0 kW *, 1.5 kW,</l 	MDMF	connector> 1.0 kW to 2.0 kW 0.85 kW to 1.8 kW	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)		
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	(Screwed type)	
Motor connector	N/MS3106B20-4S	1	Japan Aviation	For Motor cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	(Screwed type)	

Part No.	DV0P4330	100 mm sq. or more Applicable model	MSMF	otor) Encoder JL10 <l 1.0 kW * to 2.0 kW, 1.0 kW *, 1.5 kW,</l 	MDMF	connector> 1.0 kW to 2.0 kW 0.85 kW to 1.8 kW	With brake
_	_				,	* MSMF102L1 \square \square , MHMF	102L1□□

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.	(Screwed type)
Motor connector	N/MS3106B20-18S	1	Japan Aviation	For Motor cable
Cable clamp	N/MS3057-12A	1	Electronics Ind.	(Screwed type)

<Remarks>

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

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.	(One-touch lock type)
Motor connector	JL04V-6A22-22SE-EB-R	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(Screwed type)

Part No.	DV0PM20039	100	MSMF	otor) Encoder JN2 <5 3.0 kW to 5.0 kW, 2.0 kW to 5.0 kW,	MDMF	connector> 3.0 kW to 5.0 kW 2.4 kW to 4.4 kW	With brake	
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Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	(One-touch lock type)	
Motor connector	JL04V-6A24-11SE-EB-R	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2428CK(17)-R	1	Electronics Ind.	(Screwed type)	

No. DV0P4320	del MSMF	100 mm sq. or more Applicable model	notor) Encoder JL10 < 3.0 kW to 5.0 kW, 2.0 kW to 5.0 kW,	MDMF	connector> 3.0 kW to 5.0 kW 2.4 kW to 4.4 kW	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)		
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	(Screwed type)	
Motor connector	N/MS3106B22-22S	1	Japan Aviation	For Motor cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	(Screwed type)	

		100 mm og or moro	(IP67 m	otor) Encoder JL10 <	Large size	connector>	With
Part N	lo. DV0P4340	Applicable model	MSMF MHMF	3.0 kW to 5.0 kW, 2.0 kW to 5.0 kW,	MDMF MGMF	3.0 kW to 5.0 kW 2.4 kW to 4.4 kW	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.	(Screwed type)
Motor connector	N/MS3106B24-11S	1	Japan Aviation	For Motor cable
Cable clamp	N/MS3057-16A	1	Electronics Ind.	(Screwed type)

<Remarks

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

Connector Kit for Motor/Encoder Connection * When IP65 or IP67 are necessary, the customer must give appropriate processing.

Without brake

Part No.	Part No. DV0PM20107	100 mm sq. or more	(IP67 motor) Encoder JL10 <large connector="" size=""> MDMF 7.5 kW to 15.0 kW</large>
raitivo.		Applicable model	MGMF 5.5 kW, MHMF 7.5 kW

Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector V6 (6 pine)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Encoder connector	JL10-6A20-29S-EB	1	Japan Aviation	For Encoder cable	
Cable clamp	JL04-2022CK(09)-R	1	Electronics Ind.	(One-touch lock type)	
Motor connector	JL04V-6A32-17SE-EB-RK	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-32CK(24)-RK *1	1	Electronics Ind.	(Screwed type)	

^{*1} Casing size: ϕ 22 to ϕ 25. There is no specified cable wire material. Prepare a wire according to the connector used by the customer.

Part No. DV0PM	20108 100 mm sq. or more Applicable model	(IP67 motor) Encoder JL10 < Large size connector> MDMF 7.5 kW to 15.0 kW MGMF 5.5 kW. MHMF 7.5 kW	With brake	
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Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100KV	1 1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Corniector Ao (o-pins)	
Encoder connector	JL10-6A20-29S-EB	1	Japan Aviation	For Encoder cable	
Cable clamp	JL04-2022CK(09)-R	1	Electronics Ind.	(One-touch lock type)	
Motor connector	JL04V-6A32-17SE-EB-RK	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-32CK(24)-RK *1	1	Electronics Ind.	(Screwed type)	
Brake connector	N/MS3106B14S-2S	1	Japan Aviation	For Brake cable	
Cable clamp	N/MS3057-6A	1	Electronics Ind.	(Screwed type)	

^{*1} Casing size: ϕ 22 to ϕ 25. There is no specified cable wire material. Prepare a wire according to the connector used by the customer.

Part No.	DV0PM20111	100 mm sq. or more Applicable model	(IP67 motor) Encoder JL10 < Large size connector> MDMF 7.5 kW to 15.0 kW MGMF 5.5 kW, MHMF 7.5 kW	Without brake	
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Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector VC (C nine)	
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.	(Screwed type)	
Motor connector	JL04V-6A32-17SE-EB-RK	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-32CK(24)-RK *1	1	Electronics Ind.	(Screwed type)	

^{*1}Casing size: ϕ 22 to ϕ 25. There is no specified cable wire material. Prepare a wire according to the connector used by the customer.

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

Part No.	DV0PM20112	100 mm sq. or more Applicable model	(IP67 motor) Encoder JL10 <large connector="" size=""> MDMF 7.5 kW to 15.0 kW MGMF 5.5 kW, MHMF 7.5 kW</large>	With brake
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Components

• •					
Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector V6 (6 pine)	
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.	(Screwed type)	
Motor connector	JL04V-6A32-17SE-EB-RK	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-32CK(24)-RK *1	1	Electronics Ind.	(Screwed type)	
Brake connector	N/MS3106B14S-2S	1	Japan Aviation	For Brake cable	
Cable clamp	N/MS3057-6A	1	Electronics Ind.	(Screwed type)	

^{*1} Casing size: ϕ 22 to ϕ 25. There is no specified cable wire material. Prepare a wire according to the connector used by the customer.

Part No.	DV0PM20056 100 mm sq. or more Applicable mode		Without brake
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Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100KV	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.	(One-touch lock type)
Motor connector	JL04V-6A32-17SE-EB-RK	1	Japan Aviation	For Motor cable
Cable clamp	JL04-32CK(24)-RK *1	1	Electronics Ind.	(Screwed type)

^{*1} Casing size: φ 22 to φ 25. There is no specified cable wire material. Prepare a wire according to the connector used by the customer.

Part No.	DV0PM20057	100 mm sq. or more Applicable model	(IP67 motor) Encoder JN2 <small connector="" size=""> MDMF 7.5 kW to 15.0 kW MGMF 5.5 kW. MHMF 7.5 kW</small>	With brake

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector VC (C nine)
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.	(One-touch lock type)
Motor connector	JL04V-6A32-17SE-EB-RK	1	Japan Aviation	For Motor cable
Cable clamp	JL04-32CK(24)-RK *1	1	Electronics Ind.	(Screwed type)
Brake connector	N/MS3106B14S-2S	1	Japan Aviation	For Brake cable
Cable clamp	N/MS3057-6A	1	Electronics Ind.	(Screwed type)

^{*1} Casing size: ϕ 22 to ϕ 25. There is no specified cable wire material. Prepare a wire according to the connector used by the customer.

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

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A6N Series

A6B Series
Special Order Produc

E Series

Information

A6N Series

Part No.	DV0PM20109	(IP44 motor) Encoder JL10 < Large size connector> MDMF 22.0 kW	Without brake

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector Ao (o-pins)
Encoder connector	JL10-6A20-29S-EB	1	Japan Aviation	For Encoder cable
Cable clamp	JL04-2022CK(09)-R	1	Electronics Ind.	(One-touch lock type)

-					
	Dort No	DV0PM20110	100 mm sq. or more	(IP44 motor) Encoder JL10 < Large size connector>	With
	Part No.	DVOPIVIZOTIO	Applicable model	MDMF 22.0 kW	brake

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector V6 (6 pine)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)
Encoder connector	JL10-6A20-29S-EB	1	Japan Aviation	For Encoder cable
Cable clamp	JL04-2022CK(09)-R	1	Electronics Ind.	(One-touch lock type)
Brake connector	N/MS3106B14S-2S	1	Japan Aviation	For Brake cable
Cable clamp	N/MS3057-6A	1	Electronics Ind.	(Screwed type)

Part No. DV0PM20113 Applicable model MDMF 22.0 kW bra

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector Ab (6-pins)
Encoder connector	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable
Cable clamp	N/MS3057-12A	1	Electronics Ind.	(Screwed type)

<Remarks>

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100KV	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.	(Screwed type)
Brake connector	N/MS3106B14S-2S	1	Japan Aviation	For Brake cable
Cable clamp	N/MS3057-6A	1	Electronics Ind.	(Screwed type)

Part No.	DV0PM20115	100 mm sq. or more	(IP44 motor) Encoder JN2 <small connector="" size=""></small>	Without
		Applicable model	MDMF 22.0 kW	brake

Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector VC (C nine)	
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.	(One-touch lock type)	

					1
Dort No.	DV0PM20116	100 mm sq. or more	(IP44 motor) Encoder JN2 <small connector="" size=""></small>	With	
Part No.	DVUPIVIZUTIO	Applicable model	MDMF 22.0 kW	brake	

Components

Title	Part No. N		Manufacturer	Note	
Connector (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector X6 (6-pins)	
Shell kit	3E306-3200-008	1	(or equivalent)		
Encoder connector	JN2DS10SL1-R	1	Japan Aviation	For Encoder cable	
Connector pin	JN1-22-22S-PKG100	5	Electronics Ind.	(One-touch lock type)	
Brake connector	N/MS3106B14S-2S	1	Japan Aviation	For Brake cable	
Cable clamp	N/MS3057-6A	1	Electronics Ind.	(Screwed type)	

^{*} The motor / encoder connection connector kit for MDMF 22.0 kW does not include the connection parts for motor cable (terminal block). Please prepare a round terminal by yourself. (For details, see P.27)

<Remark

• For the crimping tools required for cable production, please check the manufacturer's website or contact the manufacturer. For manufacturer inquiries, refer to P.347 "Peripheral Device Manufacturers List".

A6N Series

Connector Kit for Motor/Brake Connection

	1		
Part No.	DV0PM20040	80 mm sq. or less Applicable model	MSMF 50 W to 1000 W * (Connector type IP67)

Components

* MSMF092L1 □ 1

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	

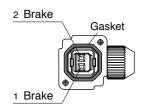
· Pin disposition of connector for brake cable

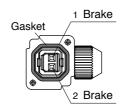
[Direction of motor shaft]

[Opposite direction of motor shaft]

Connector Kit for Motor/Brake Connection

* When IP65 or IP67 are necessary, the customer must give appropriate processing.





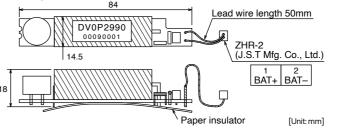
<Remarks>

Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.

Battery for Absolute Encoder

Part No. DV0P2990

Lithium battery: 3.6 V 2000 mAh

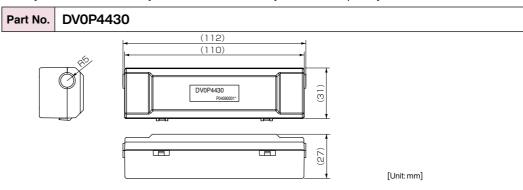


<Caution>

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

Battery Box for Absolute Encoder *

* Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.



When waking a cable for 23-bit absolute encoder by yourself

When you make your own cable for 23-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.

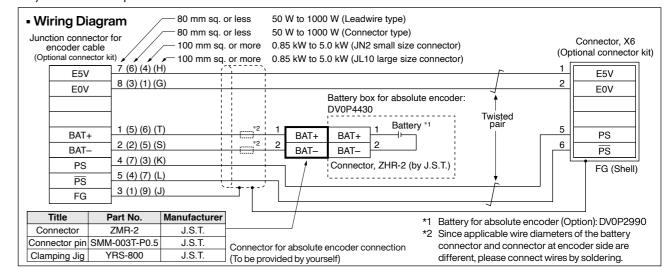
<Caution>

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

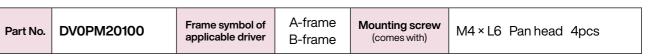
- 1) Indoors, where the products are not subjected to rain or direct sun beam.
- 2) Where the products are not subjected to corrosive atmospheres such as hydrogen sulfide, sulfurous acid, chlorine, ammonia, chloric gas, sulfuric gas, acid, alkaline and salt and so on, and are free from splash of inflammable gas, grinding oil, oil mist, iron powder or chips and etc.
- 3) Well-ventilated and humid and dust-free place.
- 4) Vibration-free place

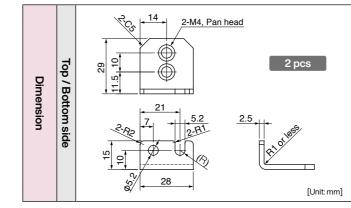


A6 Family

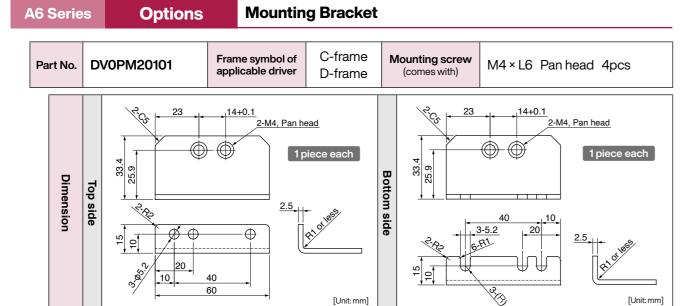
■ Recommended components

Motor		Part No.	Manufacturer	
	50 W to 1000 W	TND14V-271K	NIPPON CHEMI-CON CORPORATION	
MSMF	1.0 kW to 3.0 kW	Z15D151	SEMITEC Corporation	
	4.0 kW, 5.0 kW	NVD07SCD082	KOA Corporation	
MQMF	100W to 400 W	TND44V 074V	NIPPON CHEMI-CON	
	50 W to 1000 W	TND14V-271K	CORPORATION	
NALINAE	1.0 kW, 1.5 kW	NVD07SCD082	KOA Corporation	
MHMF	2.0 kW to 4.0 kW	Z15D151	SEMITEC Corporation	
	5.0 kW, 7.5 kW	NVD07SCD082	KOA Corporation	
	1.0 kW to 3.0 kW	NVD07SCD082	KOA Corporation	
MDMF	4.0 kW	Z15D151	SEMITEC Corporation	
	5.0 kW to 22.0 kW	NVD07SCD082	KOA Corporation	
	0.85 kW to 1.8 kW	NVD07SCD082	KOA Corporation	
MGMF	2.4 kW, 2.9 kW	Z15D151	SEMITEC Corporation	
	4.4 kW, 5.5 kW	NVD07SCD082	KOA Corporation	

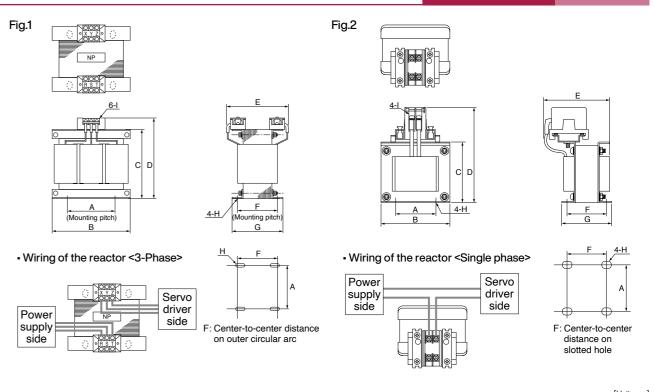




Mounting Bracket



Options Reactor **A6 Series**



												[OIIII. IIIII]
	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
Fig.1	DV0P222	60±1	150±1	(113)	155мах	140	70+3/-0	85±2	4-7φ×12	M4	2	8
Fig. i	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
Fig.2	DV0P227	55±0.7	76.5±1	66.5±1	110мах	90	43.6±2	56±2	4-5φ×10	M3.5	4.02	5
	DV0P228	55±0.7	76.5±1	66.5±1	110мах	95	48.0±2	61±2	4-5φ×10	M3.5	2	8
	DV0PM20047	55±0.7	76.5±1	66.5±1	110мах	105	58.6±2	71±2	4-5φ×10	M4	1.39	11

^{*} For application, refer to P.29 to P.42 and P.205 to P.210 "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.

When installing a product for Japan, refer to the instruction manual available on our website.

[Panasonic Industry Co., Ltd. web site]

industrial.panasonic.com/ac/e/

<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	Weight	Rated power (reference) ^{*1}		Activation
Part No.	part No.	nesistance			Free air	with fan 1 m/s ²	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	140±5 °C B-contact
DV0P4282	RF180B	25	φ1.27 / AWG18 \	0.4	17	50	Open/Close capacity
DV0P4283	RF180B	50	stranded	0.2	17	50	(resistance load)
DV0P4284	RF240	30	\	0.5	40	100	1 A 125 VAC 6000 times 0.5 A 250 VAC 10000 times
DV0P4285	RH450F	20		1.2	52	130	

Manufacturer: Iwaki Musen Kenkyusho

*1 Power with which the driver can be used without activating the built-in thermal protector.

A built-in thermal fuse and a thermal protector are provided for safety.

The circuit should be so designed that the power supply will be turned off as the thermal protector operates.

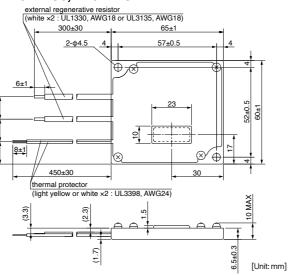
The built-in thermal fuse blows depending on changes in heat dissipation condition, operating temperature limit, power supply voltage or load.

Mount the regenerative resistor on a machine operating under aggressive regenerating condition (high power supply voltage, large load inertia, shorter deceleration time, etc.) and make sure that the surface temperature will not exceed 100 °C.

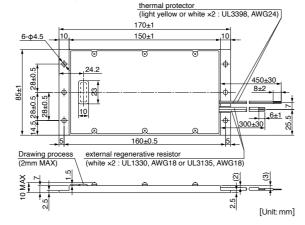
*2 If the wind speed is 1m / s by the fan.

	Powe	r supply		
Frame	Single phase, 100 V	Single phase, 200 V 3-phase, 200 V		
А	DV0P4280	DV0P4281 (100 W or less) DV0P4283 (200 W)		
В	DV0P4283	DV0P4283		
С	DV0P4282	DV0P4283		
D		DV0P4284		
E		DV0P4284 × 2 in parallel or DV0P4285		
F	_	DV0P4285 × 2 in parallel		
G		DV0P4285 × 3 in parallel		
Н		DV0P4285 × 6 in parallel		

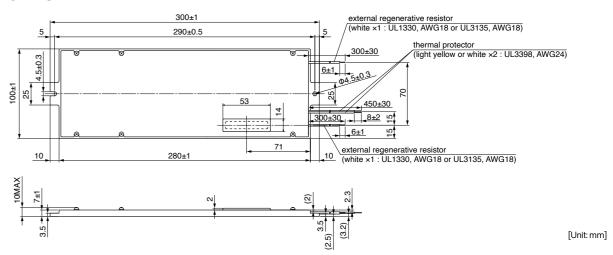
DV0P4280, DV0P4281



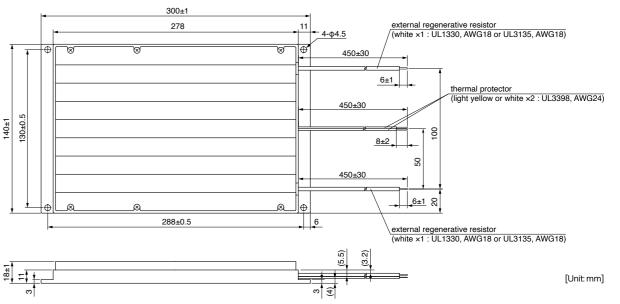
DV0P4282, DV0P4283



DV0P4284



DV0P4285



<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.

Daisy Chain (Excluding A6SE, A6NE, A6BE Series)

Part No. DV0PM24610

Components

Title	Part No.	Manufacturer	Note
Connector	CIF-PCNS08KK-072R	J.S.T Mfg. Co., Ltd.	For Connector X2 (2-pins)
Cable	3-core cable with shield	_	Core diameter AWG24

<Remarks>

• Do not connect anything to NC.

the shell (housing) of the connector.

• The braided wire of the cable is connected to

Pin disposition of connector, connector X2

485+	<u></u>	NC	
485+	_ 🕌 _	NC	
485-	8 6 4 2 7 5 3 1	GND	Shell: FG
485-		NC	

(Viewed from cable)

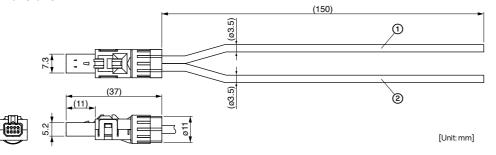
Table for wiring Cable ①

Pin No.	Signal name	Core color
8	485+	Red
7	485-	Yellow
1	GND	White

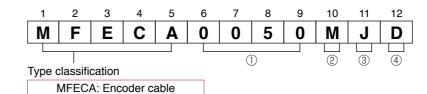
Cable 2

Pin No.	Signal name	Core color
6	485+	Red
5	485-	Yellow
1	GND	White

Dimensions



Encoder Cable For available optional items, please refer to P.309 to P.312.



① Cable length

Cable part No. Designation

0030	3 m	
0050	5 m	
0100	10 m	
0200	20 m	

② Cable type

Е	PVC cable with shield by Oki Electric Cable Co., 0.20 mm ² × 4P(8-wire), 3P(6-wire)	
М	Hitachi Cable, Ltd.	Highly bendable type
Т	Hitachi Cable, Ltd.	Standard bendable type

3 Cable end (Encoder side)

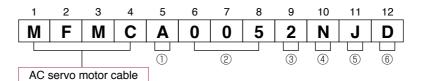
_	,	
Α	Tyco Electronics Japan G.K. connector	
J	Japan Aviation Electronics Industry, Ltd.	connector (Direction of motor shaft)
K	Japan Aviation Electronics Industry, Ltd.	connector (Opposite direction of motor shaft)
Р	Japan Aviation Electronics Industry, Ltd.	plug connector
S	"S" shaped cannonplug	

4 Cable end (Driver side)

D	Connector (Without battery box)
Ε	Connector (With battery box)

T Japan Aviation Electronics Industry, Ltd. plug connector

Motor Cable, Brake Cable For available optional items, please refer to P.309 to P.312.



① Type classification ④ Cable type

O 1) 1 1 1 1 1 1 1 1 1		
Α	Standard	
В	Special	
i	Design order	

2 Cable length

Cable length		
003	3 m	
005	5 m	
010	10 m	
020	20 m	

③ Sectional area of cable core

0	0.75 mm ²
1	1.25 mm ²
2	2.0 mm ²
3	3.5 mm ²
7	0.3 mm ²

ROBO-TOP _® is a	trade mark of	f DYDEN (CORPORATION

Е	ROBO-TOP _® 4-wire by DYDEN CORPORATION
F	ROBO-TOP _® 6-wire by DYDEN CORPORATION
G	ROBO-TOP _® 2-wire by DYDEN CORPORATION
N	4-wire by Hitachi Cable, Ltd. (Highly bendable type)
Р	4-wire by Hitachi Cable, Ltd. (Standard bendable type)
R	2-wire by Hitachi Cable, Ltd. (Highly bendable type)
S	2-wire by Hitachi Cable, Ltd. (Standard bendable type)
U	4-wire for A6 series small motor* (Highly bendable type)
V	6-wire for A6 series small motor* (Highly bendable type)
W	4-wire for A6 series small motor* (Standard bendable type)
Х	6-wire for A6 series small motor* (Standard bendable type)

* 80 mm sq. or less

(5) Cable end at motor side

С	S type cannon plug	
Е	Tyco Electronics Japan G.K. connector	
F	Japan Aviation Electronics Industry, Ltd.	connector (Direction of motor shaft)
G	Japan Aviation Electronics Industry, Ltd.	connector (Opposite direction of motor shaft)
J	Japan Aviation Electronics Industry, Ltd.	connector (Direction of motor shaft)
K	Japan Aviation Electronics Industry, Ltd.	connector (Opposite direction of motor shaft)
U	Japan Aviation Electronics Industry, Ltd.	plug connector

6 Cable end at driver side

D	Rod terminal
Т	Clamp terminal

Options	Lis
----------------	-----

List of Peripheral Devices

Manufacturer	Tel No. / Home Page	Peripheral components
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/	
TDK Corporation	+81-3-5201-7229 http://www.global.tdk.com/	
NISSHIN ELECTRIC Co., LTD.	+81-4-2934-4151 http://www.nisshin-electric.com	Ferrite core
Konno Kogyosho Co., Ltd.	+81-184-53-2307	
Okaya Electric Industries Co. Ltd.	+81-3-4544-7040 http://www.okayaelec.co.jp/english/index.html	Surge absorber Noise filter
SOSHIN ELECTRIC Co., Ltd.	+81-3-5730-4500 http://www.soshin-ele.com/	Noise filter
Japan Aviation Electronics Industry, Ltd.	+81-3-3780-2717 http://www.jae.com/en/index.html	
Japan Molex Inc.	+81-462-65-2313 http://www.molex.co.jp	
J.S.T. Mfg. Co., Ltd.	+81-45-543-1271 http://www.jst-mfg.com/index_e.php	Connector
Sumitomo 3M	+81-3-5716-7290 http:/solutions.3m.com/wps/portal/3M/ja_JP/ WW2/Country/	
Tyco Electronics Japan G.K.	+81-44-844-8052 http://www.te.com/ja/home.html	
DYDEN CORPORATION	+81-3-5805-5880 http://www.dyden.co.jp/english/index.htm	Cable
DR. JOHANNES HEIDENHAIN GmbH	+81-3-3234-7781 http://www.heidenhain.de/de_EN/company/contact/	
Fagor Automation S.Coop.	+34-943-719-200 http://www.fagorautomation.com	
Magnescale Co., Ltd.	+81-463-92-7971 http://www.mgscale.com/mgs/language/english/	Futowasi seels
Mitutoyo Corporation	+81-44-813-8234 http://www.mitutoyo.co.jp/eng/	External scale
Nidec Sankyo Corporation	+81-3-5740-3006 http://www.nidec-sankyo.co.jp/	
Renishaw plc	+44 1453 524524 www.renishaw.com	

^{*} The above list is for reference only. We may change the manufacturer without notice.

MEMO

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.355 .359 359

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..368

Communication 0.0625 ms Ultra-high-speed network driver

Advantages of RTEX.

Model designation.

Driver appearance...

System configration. Table of parts numbers.

Driver common specifications..

Dimensions of driver....

Interface connector Kit

Interface cable ..

Options.

INDEX



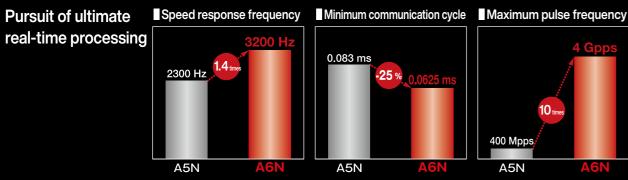
Realtime Express(RTEX)

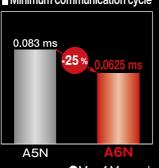
AC servo motor & driver

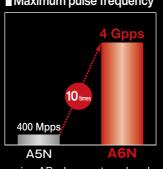
S A6N Series



Pursuit of ultimate real-time processing







Max.4 Mpps,when using AB-phase external scale

Multifunctional capabilities to match various needs

- O Supports all positions, speeds and torque modes (w/built-in positioning function)
- High-precision position latch and comparisonCommunication cycle can be set to any time between 2 ms and 62.5 µs.

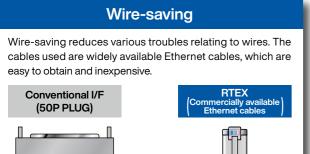
Simple network

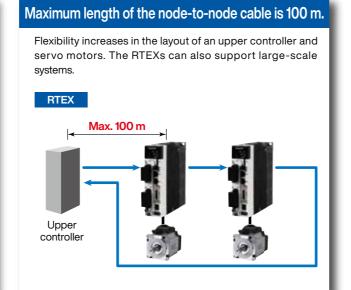
- O Satisfies both high performance and low cost requirements
- O Synchronization established by communication IC
- © Easier development of compatible equipment
- Easy setup with setup support software "PANATERM".

* For options other than for Interface cable and connector kit for interface, see P.29 to P.42. • Realtime Express and RTEX are registered trademarks of Panasonic Holdings Corporation..

MINAS A6N Series Advantages of RTEX

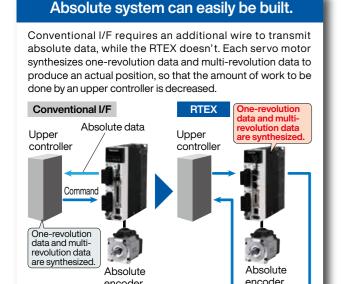
● The "Conventional I/F" used in this document means a pulse train and analog I/F.

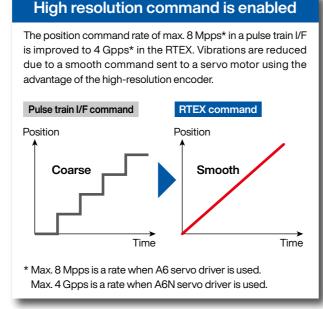




In comparison with conventional I/Fs, the number of axes increases that can be controlled by next upper controllers. Conventional I/F RTEX Up to 32 axes Upper controller * If devices other than servo motors are also connected, up to 32 nodes can be connected as entire slaves

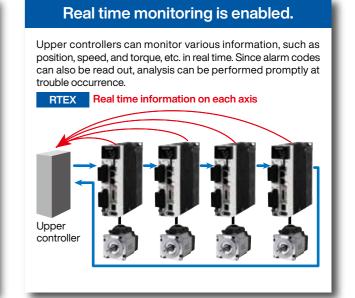
including the servo motors. Actual number of controllable axes depends on the specification of an upper controller.

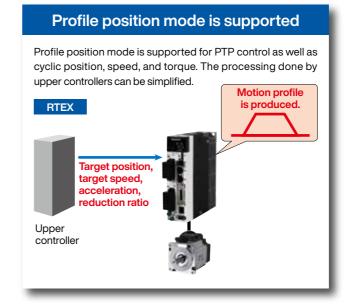


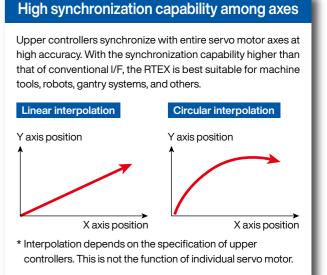


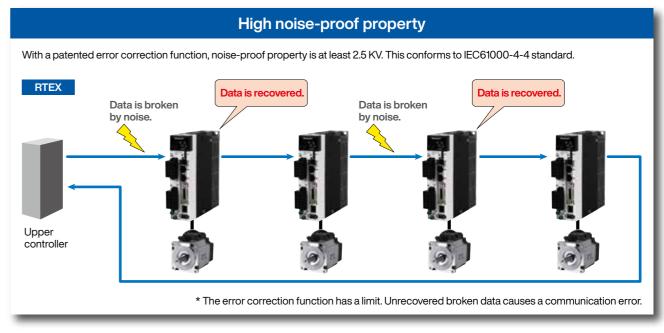
Configurable parameter settings Upper controllers can configure servo parameters. This enables parameters to be configured automatically instead by human at installation. RTEX Automatic parameter configuration Upper controller

* Parameters can be changed even during operation









Servo Motor

Special specifications 6 2 <u>(5)</u> 3

C 1

S 2

U 2

① Type

Symbol		Туре
MSM	Low inertia	(50 W to 5.0 kW)
MQM	Middle inertia	(100 W to 400 W)
MDM	Middle inertia	(1.0 kW to 22.0 kW)
MGM	Middle inertia	(0.85 kW to 5.5 kW)

MHM High inertia (50 W to 7.5 kW)

туре	,			e Seri	es	
mbol		Туре		Symbol	Series name	
SM	Low inertia	(50 W to 5.0 kW)		F	A6 Family	
QM	Middle inertia	(100 W to 400 W)	Ι΄	·	,	

3 Motor rated output

O	or ration output				
Symbol	Rated output	Symbol	Rated output	Symbol	Rated output
5A	50 W	13	1.3 kW	44	4.4 kW
01	100 W	15	1.5 kW	50	5.0 kW
02	200 W	18	1.8 kW	55	5.5 kW
04	400 W	20	2.0 kW	75	7.5 kW
08	750 W	24	2.4 kW	C1	11.0 kW
00	0.85 kW, 1000 W	29	2.9 kW	C5	15.0 kW
09	(130 mm sq.) (80 mm sq.)	30	3.0 kW	D2	22.0 kW
10	1.0 kW	40	4.0 kW		

4 Voltage specifications

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

O 2001	igi i oi doi
Symbol	Specifications
1	Standard

<Note>

When using a rotary encoder as an incremental system (not using multi-turn data), do not connect a battery for absolute encoder.

(5) Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
L	Absolute	23-bit	8388608	7

7 Motor specifications: IP67*2 100 mm sq. to 220 mm sq.

				MSMF	, MHM	F, MDN	/IF, MG	MF		
Symbol		Sh	aft	Holding	g brake	Oil	seal	Encoder terminal		
		Round	Key- way	without	with	with	With protective lip	Connector JN2 (Small size)	Connector JL10 (Large size)*3	
С	5	•		•		•		•		
С	6	•		•		•			•	
С	7	•		•			•	•		
С	8	•		•			•		•	
D	5	•			•	•		•		
D	6	•			•	•			•	
D	7	•			•		•	•		
D	8	•			•		•		•	
G	5		•	•		•		•		
G	6		•	•		•			•	
G	7		•	•			•	•		
G	8		•	•			•		•	
Н	5		•		•	•		•		
Н	6		•		•	•			•	
Н	7		•		•		•	•		
Н	8		•		•		•		•	

6 Design order

7 Motor specifications: 80 mm sq. or less	MHMF 50 W to 1000 V
	MQMF 100 W to 400 V

* For combination of elements of model number, refer to Index P.448.

7 Motor specifications: 80 mm sq. or less MSMF 50 W to 1000 W

Oil seal

Holding brake

		Shaft Holding brake			Oil seal			Motor encoder terminal *1		
Syn	nbol	Round	Key-way, center tap	without	with	without with protective lip		Connector JN	Lead wire	
Α	1	•		•		•			•	
Α	2	•		•		•				•
В	1	•			•	•			•	
В	2	•			•	•				•
С	1	•		•			•		•	
С	2	•		•			•			•
С	3	•		•				•	•	
С	4	•		•				•		•
D	1	•			•		•		•	
D	2	•			•		•			•
D	3	•			•			•	•	
D	4	•			•			•		•
S	1		•	•		•			•	
S	2		•	•		•				•
T	1		•		•	•			•	
T	2		•		•	•				•
U	1		•	•			•		•	
U	2		•	•			•			•
U	3		•	•				•	•	
U	4		•	•				•		•
٧	1		•		•		•		•	
V	2		•		•		•			•
V	3		•		•			•	•	
V	4		•		•			•		•

^{*1} Connector type: IP67, Lead wire type: IP65 *2 22.0 kW: IP44

Servo Driver

M A D L N 1 5 N E *** Special specifications

1 Frame symbol

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

2 Series

Symbol	Series name					
L	A6 Family					
3 Safety Function*4						

Specifications N without the safety function

T with the safety function

4 Max. current rating

Symbol	Current rating	Symbol	Current rating
0	6 A	9	80 A
1	8 A	Α	100 A
2	12 A	В	120 A
3	22 A	С	160 A
4	24 A	Е	240 A
5	40 A	F	360 A
8	60 A		

2 3 4 5 6 7

(5) Supply voltage specifications

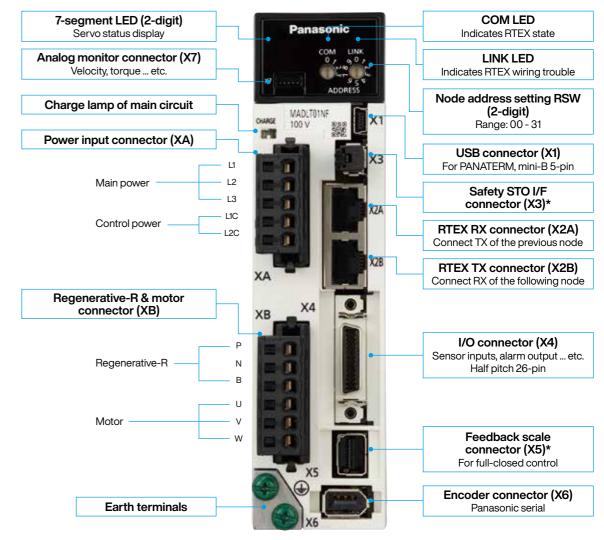
Symbol	Specifications
1	Single phase 100 V
3	3-phase 200 V
5	Single/3-phase 200 V

(6) I/f specifications **(7)** Classification of type *4

Symbol	Specification
Е	Standard for rotary motor
F	Multifunction for rotary motor
L	Standard for linear/ DD motor
_	Special Order Product
М	Multifunction for linear/ DD motor Special Order Product
	E F L

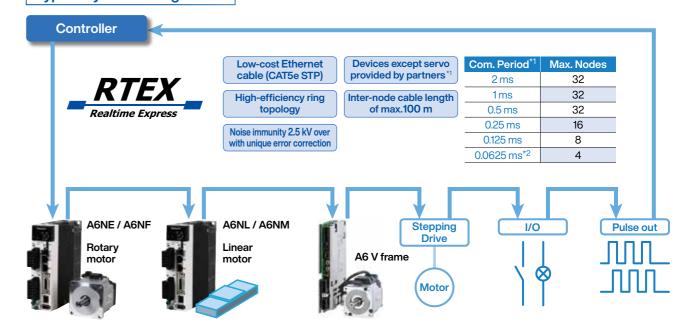
*4 Standard type (with a part number ending in E or L) has no safety function. Multi-function type (with a part number ending in F or M) has a safety function.

Appearance



* The photo is A6NF series. There are no X3 and X5 connectors in the A6NE series.

Typical system configuration



- *1: The communication period and connection of slave devices depend on the controller specification.
- *2: For communication period 0.0625 ms, command update period is 0.125 ms only.

^{*3} Connector on the motor side encoder. (Also applicable to screwed type.)

A6N Series Table of Part Numbers and Options For the motor specifications, refer to the A6 series on p.63 to p.118.

● 80 mm sq. or less 50 W to 1000 W MSMF, MQMF, MHMF Leadwire type IP65

	ss 50 W to 1000 V M	otor		MHMF Leadwire	Driver		Power
Motor	series	Power supply	Output (W)	Part No.	A6N series Part No.	Dimension Frame	capacity (at rated load)
			50	MSMF5AZL1 □ 2	MADL☆01N☆		
		Single phase	100	MSMF011L1 2	MADL☆11N☆	A-frame	Approx. 0.4 kVA
		100 V	200	MSMF021L1 ☐ 2	MBDL☆21N☆	B-frame	Approx. 0.5 kVA
			400	MSMF041L1 ☐ 2	MCDL☆31N☆	C-frame	Approx. 0.9 kVA
MSMF (Leadwire type)			50	MSMF5AZL1 ☐ 2*	MADL☆05N☆		
3000 r/min Low inertia			100	MSMF012L1 ☐ 2*	WADEXOSINA	A-frame	Approx. 0.5 kVA
		Single phase/ 3-phase	200	MSMF022L1 ☐ 2*	MADL☆15N☆		
		200 V	400	MSMF042L1 ☐ 2*	MBDL☆25N☆	B-frame	Approx. 0.9 kVA
			750	MSMF082L1 ☐ 2*	MCDL☆35N☆	C-frame	Approx. 1.8 kVA
			1000	MSMF092L1 ☐ 2*	MDDL☆45N☆	D-frame	Approx. 2.4 kVA
		Single phase 100 V	100	MQMF011L1 □□	MADL☆11N☆	A-frame	Approx. 0.4 kVA
MOME			200	MQMF021L1 🗆	MBDL☆21N☆	B-frame	Approx. 0.5 kVA
MQMF (Leadwire type)			400	MQMF041L1 □□	MCDL☆31N☆	C-frame	Approx. 0.9 kVA
3000 r/min Middle inertia Flat type		Single phase/ 3-phase 200 V	100	MQMF012L1 □□*	MADL☆05N☆	- A-frame	Annew 0 E kV/A
r lat type			200	MQMF022L1 □□*	MADL☆15N☆		Approx. 0.5 kVA
			400	MQMF042L1 □□*	MBDL☆25N☆	B-frame	Approx. 0.9 kVA
			50	MHMF5AZL1 □□	MADL☆01N☆	A-frame	
		Single phase	100	MHMF011L1 🗆 🗆	MADL☆11N☆	A-IIaille	Approx. 0.4 kVA
		100 V	200	MHMF021L1 □□	MBDL☆21N☆	B-frame	Approx. 0.5 kVA
			400	MHMF041L1 □□	MCDL☆31N☆	C-frame	Approx. 0.9 kVA
MHMF (Leadwire type)			50	MHMF5AZL1 □□*	MADL☆05N☆		
3000 r/min High inertia			100	MHMF012L1 □□*	MADLXOSINX	A-frame	Approx. 0.5 kVA
		Single phase/	200	MHMF022L1 □□*	MADL☆15N☆		
		3-phase 200 V	400	MHMF042L1 □□*	MBDL☆25N☆	B-frame	Approx. 0.9 kVA
			750	MHMF082L1 □□*	MCDL☆35N☆	C-frame	Approx. 1.8 kVA
			1000	MHMF092L1 □□*	MDDL☆55N☆	D-frame	Approx. 2.4 kVA

 $\hfill \hfill

● 80 mm sq. or less 50 W to 1000 W MSMF, MQMF, MHMF Connector type IP67

	M	otor			Driver		Power
Motor	series	Power supply	Output (W)	Part No.	A6N series Part No.	Dimension Frame	capacity (at rated load)
			50	MSMF5AZL1 ☐ 1	MADL☆01N☆	A f	. 0.41374
		Single phase	100	MSMF011L1 1	MADL☆11N☆	A-frame	Approx. 0.4 kVA
		100 V	200	MSMF021L1 ☐ 1	MBDL☆21N☆	B-frame	Approx. 0.5 kVA
			400	MSMF041L1 ☐ 1	MCDL☆31N☆	C-frame	Approx. 0.9 kVA
MSMF (Connector type)			50	MSMF5AZL1 ☐ 1	MADIOENI		
3000 r/min Low inertia			100	MSMF012L1 ☐ 1	MADL☆05N☆	A-frame	Approx. 0.5 kVA
		Single phase/	200	MSMF022L1 ☐ 1	MADL☆15N☆		
		3-phase 200 V	400	MSMF042L1 ☐ 1	MBDL☆25N☆	B-frame	Approx. 0.9 kVA
			750	MSMF082L1 ☐ 1	MCDL☆35N☆	C-frame	Approx. 1.8 kVA
			1000	MSMF092L1 ☐ 1	MDDL☆45N☆	D-frame	Approx. 2.4 kVA
			100	MQMF011L1 🗆	MADL☆11N☆	A-frame	Approx. 0.4 kVA
моме		Single phase 100 V	200	MQMF021L1 🗆	MBDL☆21N☆	B-frame	Approx. 0.5 kVA
MQMF (Connector type) 3000 r/min			400	MQMF041L1 □□	MCDL☆31N☆	C-frame	Approx. 0.9 kVA
Middle inertia		Single phase/ 3-phase 200 V	100	MQMF012L1 □□	MADL☆05N☆	- A-frame	Annew 0.5 k)//
Flat type			200	MQMF022L1 □□	MADL☆15N☆		Approx. 0.5 kVA
		200 V	400	MQMF042L1 □□	MBDL☆25N☆	B-frame	Approx. 0.9 kVA
			50	MHMF5AZL1 □□	MADL☆01N☆	A f	
		Single phase	100	MHMF011L1 🗆	MADL☆11N☆	A-frame	Approx. 0.4 kVA
		100 V	200	MHMF021L1 🗆	MBDL☆21N☆	B-frame	Approx. 0.5 kVA
			400	MHMF041L1 🗆	MCDL☆31N☆	C-frame	Approx. 0.9 kVA
MHMF (Connector type)	7		50	MHMF5AZL1 □□	MADI ~~05NI~		
3000 r/min High inertia			100	MHMF012L1 🗆	MADL☆05N☆	A-frame	Approx. 0.5 kVA
		Single phase/ 3-phase 200 V	200	MHMF022L1 🗆	MADL☆15N☆		
			400	MHMF042L1 🔲	MBDL☆25N☆	B-frame	Approx. 0.9 kVA
			750	MHMF082L1	MCDL☆35N☆	C-frame	Approx. 1.8 kV/
			1000	MHMF092L1 □□	MDDL☆55N☆	D-frame	Approx. 2.4 kVA

● 100 mm sq. or more 0.85 kW to 5.0 kW MSMF, MDMF, MGMF, MHMF Encoder connector (Large size JL10)*1 type IP67

	Moto	Driver	Power			
Motor series	Power supply	Output (W)	Part No.	A6N series Part No.	Dimension Frame	capacity (at rated load)
	Single phase/	1000	MSMF102L1 □□*	MDDI -A-FENI-A	D-frame	A 0.0 Id/A
MSMF	3-phase 200 V	1500	MSMF152L1 □□*	MDDL☆55N☆	D-frame	Approx. 2.9 kVA
(Large size JL10 type)		2000	MSMF202L1 □□*	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
3000 r/min Low inertia	3-phase	3000	MSMF302L1 □□*	MFDL☆A3N☆		Approx. 5.2 kVA
IP67	200 V	4000	MSMF402L1 □□*	MEDI ADONA	F-frame	A 7.0 IAVA
07		5000	MSMF502L1 □□*	MFDL☆B3N☆		Approx. 7.8 kVA
	Single phase/	1000	MDMF102L1 □□*	MDDL☆45N☆	D frame	Approx. 2.4 kVA
MDMF	3-phase 200 V	1500	MDMF152L1 □□*	MDDL☆55N☆	D-frame	Approx. 2.9 kVA
(Large size JL10 type) 2000 r/min	3-phase 200 V	2000	MDMF202L1 □□*	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
Middle inertia		3000	MDMF302L1 □□*	MFDL☆A3N☆		Approx. 5.2 kVA
IP67		4000	MDMF402L1 □□*	MFDL☆B3N☆	F-frame	A 7.0 IA/A
07		5000	MDMF502L1 □□*	MIFDLXB3NX		Approx. 7.8 kVA
MGMF	Single phase/ 3-phase 200 V	850	MGMF092L1 □□*	MDDL☆45N☆	D-frame	Approx. 2.4 kVA
(Large size JL10 type)		1300	MGMF132L1 □□*	MDDL☆55N☆		Approx. 2.9 kVA
Low speed/		1800	MGMF182L1 □□*	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
[High torque type] 1500 r/min	3-phase	2400	MGMF242L1 □□*	MEDL☆93N☆	E-IIaille	Approx. 4.5 kVA
Middle inertia	200 V	2900	MGMF292L1 □□*	MEDI ADONA	Г fva	A 7.0 Id//A
IP67		4400	MGMF442L1 □□*	MFDL☆B3N☆	F-frame	Approx. 7.8 kVA
	Single phase/	1000	MHMF102L1 □□*	MDDL☆45N☆	D frame	Approx. 2.4 kVA
MHMF	3-phase 200 V	1500	MHMF152L1 □□*	MDDL☆55N☆	D-frame	Approx. 2.9 kVA
(Large size JL10 type)		2000	MHMF202L1 □□*	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
2000 r/min High inertia	3-phase	3000	MHMF302L1 □□*	MFDL☆A3N☆		Approx. 5.2 kVA
IP67	200 V	4000	MHMF402L1 □□*	MEDI -A-DONI-A-	F-frame	Approx 7.0 LV/A
11 07		5000	MHMF502L1 □□*	MFDL☆B3N☆		Approx. 7.8 kVA

● 100 mm sq. or more 0.85 kW to 5.0 kW MSMF, MDMF, MGMF, MHMF Encoder connector (Small size JN2)*2 type IP67

Elicoder confiecto		, ,,	· · · · ·			_
	Moto			Driver		Power
Motor series	Power supply	Output (W)	Part No.	A6N series Part No.	Dimension Frame	capacity (at rated load)
	Single phase/	1000	MSMF102L1 □□	MDDL☆55N☆	D-frame	Approx. 2.9 kVA
MSMF	3-phase 200 V	1500	MSMF152L1 □□	WIDDL N 3314 N	D-IIailie	Approx. 2.9 KVA
(Small size JN2 type) 3000 r/min		2000	MSMF202L1 □□	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
Low inertia	3-phase	3000	MSMF302L1 □□	MFDL☆A3N☆		Approx. 5.2 kVA
IP67	200 V	4000	MSMF402L1 □□	MFDL☆B3N☆	F-frame	Approx. 7.8 kVA
0.		5000	MSMF502L1 □□	MILDEMONIA		Approx. 7.0 KVA
	Single phase/	1000	MDMF102L1 □□	MDDL☆45N☆	D-frame	Approx. 2.4 kVA
MDMF	3-phase 200 V	1500	MDMF152L1 □□	MDDL☆55N☆	D-Irame	Approx. 2.9 kVA
(Small size JN2 type) 2000 r/min		2000	MDMF202L1 🔲	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
Middle inertia	3-phase	3000	MDMF302L1 □□	MFDL☆A3N☆		Approx. 5.2 kVA
IP67	200 V	4000	MDMF402L1 □□	MFDL☆B3N☆	F-frame	Approx. 7.8 kVA
07		5000	MDMF502L1 □□	MIFDLYDSINY		Approx. 7.8 KVA
MGMF	Single phase/	850	MGMF092L1 □□	MDDL☆45N☆	D-frame	Approx. 2.4 kVA
(Small size JN2 type)	3-phase 200 V	1300	MGMF132L1 □□	MDDL☆55N☆	D-Itallie	Approx. 2.9 kVA
Low speed/		1800	MGMF182L1 □□	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
High torque type 1500 r/min	3-phase	2400	MGMF242L1 □□	MEDL☆93N☆	E-Irame	Approx. 4.5 kVA
Middle inertia	200 V	2900	MGMF292L1 □□	MEDI A-DONIA	F-frame	A 7.0 k\/A
IP67		4400	MGMF442L1 □□	MFDL☆B3N☆	r-irame	Approx. 7.8 kVA
	Single phase/	1000	MHMF102L1 □□	MDDL☆45N☆	D frome	Approx. 2.4 kVA
MHMF	3-phase 200 V	1500	MHMF152L1 □□	MDDL☆55N☆	D-frame	Approx. 2.9 kVA
(Small size JN2 type)		2000	MHMF202L1 □□	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
2000 r/min High inertia	3-phase	3000	MHMF302L1 □□	MFDL☆A3N☆		Approx. 5.2 kVA
IP67	200 V	4000	MHMF402L1 □□	MFDL☆B3N☆	F-frame	Approx. 7.8 kVA
		5000	MHMF502L1 □□	INILDEM DOIN		Applox. 7.0 KVA

 $\square \npreceq$: For more information, refer to "Model Designation" on P.353.

● 176 mm sq. or more 5.5 kW or more MDMF, MGMF, MHMF Encoder connector (Large size JL10)^{*1} type IP67

	Driver	Driver				
Motor series	Power supply	Output (W)	Part No.	A6N series Part No.	Dimension Frame	capacity (at rated load)
MDMF		7500	MDMF752L1 ☐ 6*	MGDLTC3NF	G-frame	Approx. 11 kVA
(Large size JL10 type)	3-phase	11000	MDMFC12L1 ☐ 6	MHDLTE3NF		Approx. 15 kVA
1500 r/min Middle inertia	200 V	15000	MDMFC52L1 ☐ 6	MHDLTE3NF	H-frame	Approx. 20 kVA
IP67 ⁻³		22000 *3	MDMFD22L1 ☐ 6	MHDLTF3NF		Approx. 28 kVA
MGMF (Large size JL10 type) Low speed/ High torque type] 1500 r/min Middle inertia IP67	3-phase 200 V	5500	MGMF552L1 ☐ 6 *	MGDLTC3NF	G-frame	Approx. 8.5 kVA
MHMF (Large size JL10 type) 1500 r/min High inertia IP67	3-phase 200 V	7500	MHMF752L1 ☐ 6 *	MGDLTC3NF	G-frame	Approx. 11 kVA

 $\square \stackrel{\wedge}{\sim} *$ For more information, refer to "Model Designation" on P.353.

● 176 mm sq. or more 5.5 kW or more MDMF, MGMF, MHMF Encoder connector (Small size JN2)*2 type IP67

Motor				Driver		Power
Motor series	Power supply	Output (W)	Part No.	A6N series Part No.	Dimension Frame	capacity (at rated load)
MDMF (Small size JN2 type) 1500 r/min Middle inertia IP67 ^{*3}	3-phase 200 V	7500	MDMF752L1 ☐ 5	MGDLTC3NF	G-frame	Approx. 11 kVA
		11000	MDMFC12L1 ☐ 5	MHDLTE3NF	H-frame	Approx. 15 kVA
		15000	MDMFC52L1 ☐ 5	MHDLTE3NF		Approx. 20 kVA
		22000 *3	MDMFD22L1 ☐ 5	MHDLTF3NF		Approx. 28 kVA
MGMF (Small size JN2 type) Low speed/ High torque type 1500 r/min Middle inertia IP67	3-phase 200 V	5500	MGMF552L1 □ 5	MGDLTC3NF	G-frame	Approx. 8.5 kVA
MHMF (Small size JN2 type) 1500 r/min High inertia IP67	3-phase 200 V	7500	MHMF752L1 ☐ 5	MGDLTC3NF	G-frame	Approx. 11 kVA

 $\square \updownarrow$: For more information, refer to "Model Designation" on P.353.

*1: Encoder connector (Large size JL10)



*2: Encoder connector (Small size JN2)



*3: 22.0 kW motor is IP44.

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	100 V	Maii	n circuit	Single phase 100 V ⁺¹⁰ % to 120 V ⁺¹⁰ % 50 Hz / 60 Hz				
	100 V	Control circuit		Single phase 100 V $^{+10~\%}_{-15~\%}$ to 120 V $^{+10~\%}_{-15~\%}$ 50 Hz / 60 Hz				
Input		Main	A-frame to D-frame	Single/3-phase 200 V +10 % to 240 V +10 % 50 Hz / 60 Hz				
Input power	000.14		E-frame to H-frame	3-phase 200 V ⁺¹⁰ % to 240 V ⁺¹⁰ % 50 Hz / 60 Hz				
	200 V	Control	A-frame to D-frame	Single phase 200 V ^{+10 %} _{-15 %} to 240 V ^{+10 %} _{-15 %} 50 Hz / 60 Hz				
			E-frame to H-frame	Single phase 200 V $^{+10}_{-15}$ % to 240 V $^{+10}_{-15}$ % 50 Hz / 60 Hz				
		temp	perature	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)				
En	vironment	hu	midity	Both operating and storage : 20 %RH to 85 %RH (free from condensation*1)				
		Al	titude	Lower than 1000 m				
		Vik	oration	5.88 m/s ² or less, 10 Hz to 60 Hz				
Co	ntrol metho	od		IGBT PWM Sinusoidal wave drive				
En	coder feedl	oack		23-bit (8388608 resolution) absolute encoder, 7-wire serial * When using it as an incremental system (not using multi-turn data), do not connect the battery for absolute encoder. Parameter Pr. 0.15 must be set to "1" (factory settings).				
Basic Specifications	External scale feedback			A/B phase, homing signal differential input. Serial communication is also supported. Manufacturers that support serial communication scale: Fagor Automation S.Coop., HEIDENHAIN, Magnescale Co., Ltd., Mitutoyo Corporation Nidec Sankyo Corporation, Renishaw plc				
Inte		gnal Input Output		Each 8 input can be assigned by the parameter.				
Interface	Control si			Each 3 output can be assigned by the parameter.				
connector	Analog signal		Output	2 outputs for analog monitors 1 and 2				
ector	Pulse sigi	nal	Output	Line driver output for encoder pulses (A/B phase signal) or external scale pulses.				
0-		Realtime Express (RTEX)		Communication for transmission of a real-time operation command, the parameter setting, or the status monitoring.				
Co	mmunication	USB		USB interface to connect to computers (setup support software PANATERM) for parameter setting or status monitoring.				
Sa	fety termina	al		Terminal to support safety function.				
Fro	ont panel			(1) 7 segment LED (double digits) (2) Network status LED(LINK,COM)(3) Rotary switch for node address setting(4) Analog monitor output(Analog monitors 1 and 2)				
Re	generation			Size A, B, G and H: Without built-in regenerative resistor (use external resistor) Size C to F: Built-in regenerative resistor (External regenerative resistor is also available)				
Dy	namic brak	e		A to G frame: built-in H frame: External resistor only				
Co	Control mode			(1) Semi-closed control Position control: Profile position control (PP), Cyclic position control (CP) Velocity control: Cyclic velocity control (CV) Torque control: Cyclic torque control (CT) (2) Full-closed control Position control: Profile position control (PP), Cyclic position control (CP) • The two modes, [1] and [2] above are switched by parameters. • Switch PP/CP/CV/CT mode according to the RTEX communication command.				

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

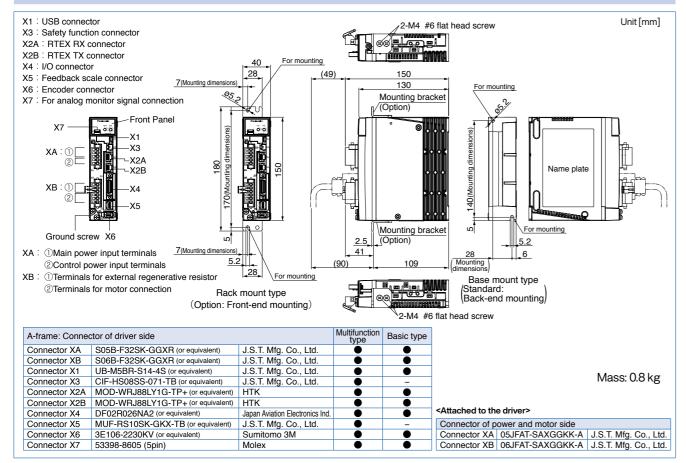
	-	Control input		Positive direction drive inhibit input, Negative direction drive inhibit, Latch signal,			
				Near home position, etc			
		Control output		Positioning completion etc.			
		Position	Input mode	Command type by RTEX command			
		command input	Smoothing filter	Either a primary delay filter or a FIR type filter can be selected against command input.			
	ק	Damping control		Available (Up to 3 frequency settings,out of 4 settings in total,can be used simultaneously.)			
	Position control	Model type damp	ing filter	Available (2 filter available used simultaneously)			
	ğ	Feed forward fun	ction	Available (speed/torque)			
	8	Load variation su	ppression control	Available			
	ă	Gain 3 switching	function	Available			
	<u>o</u>	Quadrant glitch in	hibit function	Available			
		Two-degree-of-free	edom control mode	Available			
		Motor operatable		Available			
		External scale position	on information monitor	Available			
				Friction torque compensation, Torque limit switching function, Torque saturation protection			
		Other available fu	ınctions	function, Single-turn absolute function, Continuous rotating absolute encoder function			
		Control input		Positive direction drive inhibit input, Negative direction drive inhibit, Latch signal, etc			
		Control output		At speed etc.			
		Position	land the same of a	Organization by DTFV arranged			
		command input	Input mode	Command type by RTEX command			
	Sp	Soft start/slowdov	un function	0 s to 10 s / 1000 r/min Acceleration and deceleration can be set separately.			
	ee	Soit start/slowdov	wii iuricuori	S-curve acceleration/deceleration is also available.			
	Ö	Feed forward fund	ction	Available (torque)			
	Speed contro	Load variation sup	pression control	Available			
	<u>o</u>	Two-degree-of-free	dom control mode	Available (standard type)			
		External scale po	sition information	Available			
		monitor					
		Other available fu	ınctions	Friction torque compensation, Torque limit switching function, Torque saturation protection			
				function, Single-turn absolute function, Continuous rotating absolute encoder function			
	_	Control input		Positive direction drive inhibit input, Negative direction drive inhibit, Latch signal, etc			
	or or	Control output		At speed etc.			
	aut	Position command input	Input mode	Command type by RTEX command			
Function	Torque control	Speed limit functi	on	Speed limit value can be set by parameter. (Switched by RTEX command.)			
豆	et c	External scale position information monitor		Available			
임	_	Other available functions		Single-turn absolute function Continuous rotating absolute encoder function			
				Positive direction drive inhibit input . Negative direction drive inhibit, Latch signal, Near			
		Control input		home position , etc			
		Control output		Positioning completion etc.			
		Position	Input mode	Command type by RTEX command			
		command input	Smoothing filter	Either a primary delay filter or a FIR type filter can be selected against command input.			
				1/40 times to 125200 times			
	חַ	Setting range of external scale division/multiplication.		Although the ratio of the encoder pulse (numerator) and external scale pulse (denominator)			
	Ŧ			can be set anywhere between the range of 1 to 2 ²³ for the numerator and 1 to 2 ²³ for the			
	Ö			denominator, Please use within the range indicated above.			
	Full-closed control	Damping control		Available(Up to 3 frequency settings,out of 4 settings in total,can be used simultaneously.)			
	8	Feed forward fund		Available (speed/torque)			
	<u></u>	Load variation su		Available			
	<u>o</u>	Gain 3 switching		Available			
		•	uppression function	Available			
		Quadrant glitch in		Available			
			edom control mode	Available (standard type)			
		Motor operatable		Available			
			on information monitor	Available			
		Other available fu	ınctions	Friction torque compensation, Torque limit switching function, Torque saturation protection function			
				Applicable scaling ratio: 1/1000 to 8000			
		Electronic gear ra	atio setting	Although any value of 1 to 2 ³⁰ (numerator) and any value of 1 to 2 ³⁰ (denominator) can be used, resulting value should be within the range shown above.			
				Identifies the load inertia real-time and automatically sets up the gain that meets the			
		Auto tuning		stiffness setting when the motor is running with upper and internal operation commands.			
	ဂ္ဂ	Notch filter		Available (5 filters available)			
	ğ	Gain switching fu	nction	Available			
	Common	2-step torque filte		Available			
		10.0		Available			
	ם	Position comparis	son output function i	Available			
				Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current,			
	_	Position comparis		Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current, encoder error, excess position deviation, EEPROM error etc.			
	_		n ack function	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current,			

		100 V	Main circuit		Single phase $\begin{array}{ccc} 100 \text{ V} & +10 \% \\ -15 \% \end{array}$ to $\begin{array}{ccc} 120 \text{ V} & +10 \% \\ -15 \% \end{array}$ 50 Hz / 60 Hz				
		100 V	Control circuit		Single phase $\begin{array}{ccc} 100 \text{ V} & +10 \% \\ -15 \% & \end{array}$ to $\begin{array}{ccc} 120 \text{ V} & +10 \% \\ -15 \% & \end{array}$ 50 Hz / 60 Hz				
	Input power		Main	A-frame to D-frame	Single/3-phase 200 V $^{+10}_{-15}$ % to 240 V $^{+10}_{-15}$ % 50 Hz / 60 Hz				
	ower	200 V	circuit	E-frame, F-frame	3-phase 200 V $^{+10}_{-15}$ % to 240 V $^{+10}_{-15}$ % 50 Hz / 60 Hz				
		200 V	Control	A-frame to D-frame	Single phase 200 V $^{+10}_{-15}$ % to 240 V $^{+10}_{-15}$ % 50 Hz / 60 Hz				
			circuit	E-frame, F-frame	Single phase $\begin{array}{ccc} 200 \text{ V} & +10 \% \\ -15 \% \end{array}$ to 240 V $\begin{array}{ccc} +10 \% \\ -15 \% \end{array}$ 50 Hz / 60 Hz				
			temp	perature	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)				
	En	vironment	hu	midity	Both operating and storage : 20 %RH to 85 %RH (free from condensation*1)				
			Al	titude	Lower than 1000 m				
			Vit	oration	5.88 m/s² or less, 10 Hz to 60 Hz				
	Со	ntrol metho	od		IGBT PWM Sinusoidal wave drive				
Basic Sp	Encoder feedback				23-bit (8388608 resolution) absolute encoder, 7-wire serial * When using it as an incremental system (not using multi-turn data), do not connect the battery for absolute encoder. Parameter Pr. 0.15 must be set to "1" (factory settings).				
Specifications	Inter	Control signal		Input	Each 8 input can be assigned by the parameter.				
ations	face	Control Si	griai	Output	Each 3 output can be assigned by the parameter.				
0,	Interface connector	Analog signal		Output	2 outputs for analog monitors 1 and 2				
	ector	Pulse signal		Output	Line driver output for encoder pulses (A/B phase signal).				
				ne Express RTEX)	Communication for transmission of a real-time operation command, the parameter setting, or the status monitoring.				
	Cor	nmunication	USB		USB interface to connect to computers (setup support software PANATERM) for parameter setting or status monitoring.				
	Front panel				(1) 7 segment LED (double digits) (2) Network status LED(LINK,COM)(3) Rotary switch for node address setting(4) Analog monitor output(Analog monitors 1 and 2)				
	Re	generation			Size A and B: Without built-in regenerative resistor (use external resistor) Size C to F: Built-in regenerative resistor (External regenerative resistor is also available)				
	Dyı	namic brak	e		A to F frame: built-in				
	Control mode				(1) Semi-closed control Position control: Profile position control (PP), Cyclic position control (CP) Velocity control: Cyclic velocity control (CV) Torque control: Cyclic torque control (CT) • Switch PP/CP/CV/CT mode according to the RTEX communication command.				

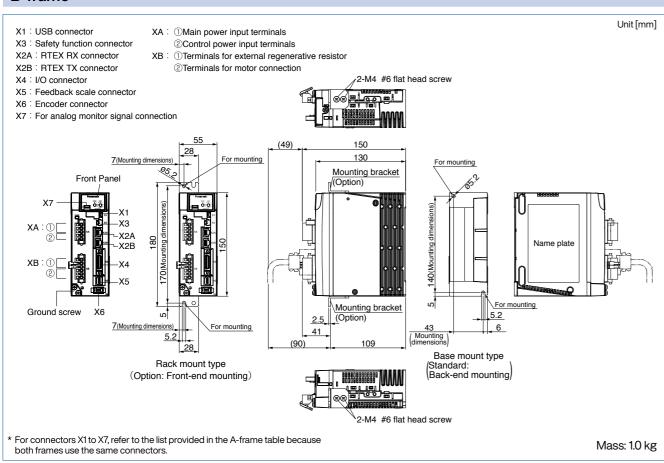
^{*1} Air containing water vapor will become saturated with water vapor as the temperature falls, causing dew.

	Control input		Positive direction drive inhibit input, Negative direction drive inhibit, Latch signal, Near home position, etc		
	Control output		Positioning completion etc.		
		Input mode	Command type by RTEX command		
	Position command input	Smoothing filter	Either a primary delay filter or a FIR type filter can be selected against command input.		
Position control	Damping control		Available(Up to 3 frequency settings,out of 4 settings in total,can be used simultaneously.)		
i i	Model type dam	oing filter	Available(2 filter available used simultaneously)		
8	Feed forward fur	nction	Available (speed/torque)		
Ĭ	Load variation su	ppression control	Available		
0	Gain 3 switching	function	Available		
	Quadrant glitch i	nhibit function	Available		
	Two-degree-of-free	edom control mode	Available		
	Motor operatable	e setup function	Available		
	Other available f	unctions	Friction torque compensation, Torque limit switching function, Torque saturation protection function, Single-turn absolute function, Continuous rotating absolute encoder function		
	Control input		Positive direction drive inhibit input, Negative direction drive inhibit, Latch signal, etc		
	Control output		At speed etc.		
	Position command input	Input mode	Command type by RTEX command		
Speed	Soft start/slowdown function		0 s to 10 s / 1000 r/min Acceleration and deceleration can be set separately. S-curve acceleration/deceleration is also available.		
8	Feed forward fur	nction	Available (torque)		
d control	Load variation su	ppression control	Available		
, _	Two-degree-of-free	edom control mode	Available (standard type)		
	Other available functions		Friction torque compensation, Torque limit switching function, Torque saturation protection function, Single-turn absolute function, Continuous rotating absolute encoder function		
	Control input		Positive direction drive inhibit input, Negative direction drive inhibit, Latch signal, etc		
텋	Control output		At speed etc.		
Torque contro	Position command input	Input mode	Command type by RTEX command		
1tro	Speed limit funct	tion	Speed limit value can be set by parameter. (Switched by RTEX command.)		
-	Other available f	unctions	Single-turn absolute function Continuous rotating absolute encoder function		
	Electronic gear r	atio setting	Applicable scaling ratio: 1/1000 to 8000 Although any value of 1 to 2 ³⁰ (numerator) and any value of 1 to 2 ³⁰ (denominator) can be used,resulting value should be within the range shown above.		
	Auto tuning		Identifies the load inertia real-time and automatically sets up the gain that meets the stiffness setting when the motor is running with upper and internal operation commands.		
င္ပ	Notch filter		Available (5 filters available)		
Common	Gain switching for	unction	Available		
on	2-step torque filt	er	Available		
	Position comparis	on output function	Available		
	Protective function	on	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current, encoder error, excess position deviation, EEPROM error etc.		
	Alarm data trace l	oack function	Tracing back of alarm data is available		
	Deterioration dia	gnosis function	Available		

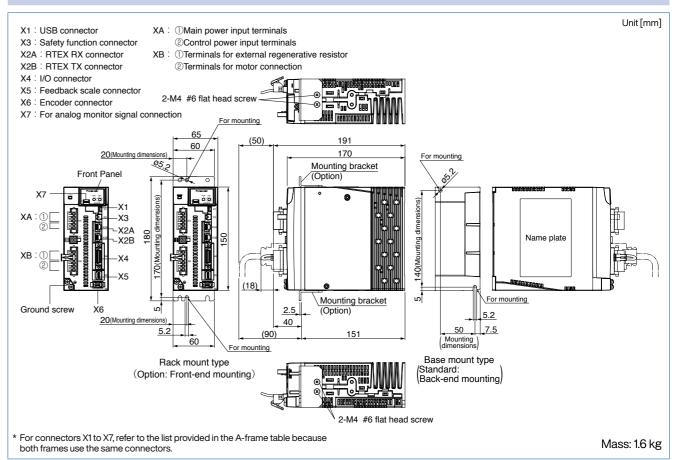
A-frame



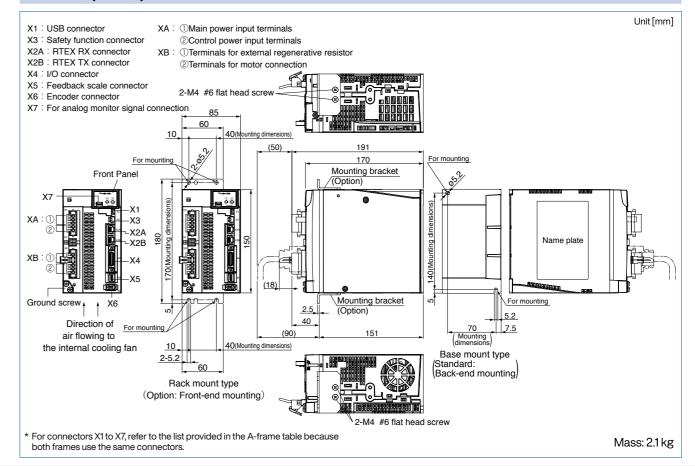
B-frame



C-frame



D-frame (200 V)



2-5.2

⊕ ⊕

_ 50

XA: ①Main power input terminals

XB: Terminals for motor connection

Terminals for external

regenerative resistor

②Control power input terminals

G-frame (200 V) (A6NE series are not available.)

: 5556PBTL

Mass: 8.2 kg

For connectors X1 to X7, refer to the list provided in the A-frame table because both frames use the same

E-frame (200 V) X1: USB connector

X3: Safety function connector X2A: RTEX RX connector X2B : RTEX TX connector

XC: X4: I/O connector

X5 : Feedback scale connector

X6 : Encoder connector

X7: For analog monitor

XA: ① -X3 -X2A -X2B XC [XB [⊕ ⊚ •

Direction of

Ground screw †

air flowing to the internal cooling fan E-frame: Connector of driver side Connector XA S05B-JTSLSK-GSANXR (or equivalent) J.S.T. Mfg. Co., Ltd. Connector XB S03B-JTSLSK-GSANXR (or equivalent) J.S.T. Mfg. Co., Ltd. Connector XC | S04B-JTSLSS-GSANXR (or equivalent) | J.S.T. Mfg. Co., Ltd.

<Attached to the driver> E-frame: Connector of power and motor side Connector XA 05JFAT-SAXGSA-L (or equivalent) J.S.T. Mfg. Co., Ltd. Connector XB 03JFAT-SAXGSA-L (or equivalent) J.S.T. Mfg. Co., Ltd. Connector XC 04JFAT-SAXGSA-L (or equivalent) J.S.T. Mfg. Co., Ltd.

* For connectors X1 to X7, refer to the list provided in the A-frame table because both frames use the same connectors.

Mounting bracket/

196.5

Mounting bracket

(If re-positioned from front end)

Mounting bracket

* All dimensions shown in this catalog are for the A6NF series, but outer dimensions are

2-M4 #6 flat head screw

Mounting bracket

2-M4 #6 flat head screw

(If re-positioned from front end)

Unit [mm]

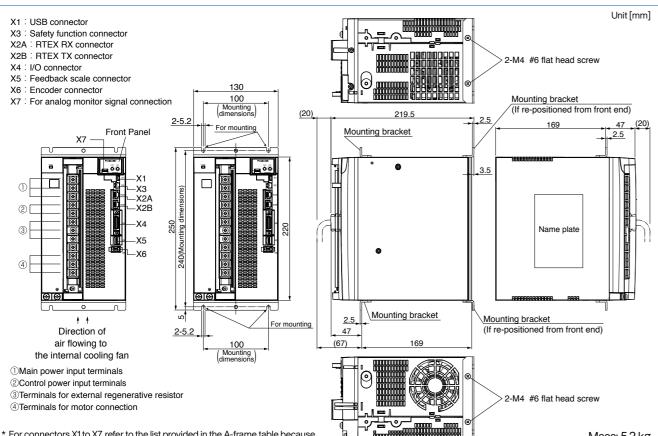
(70)

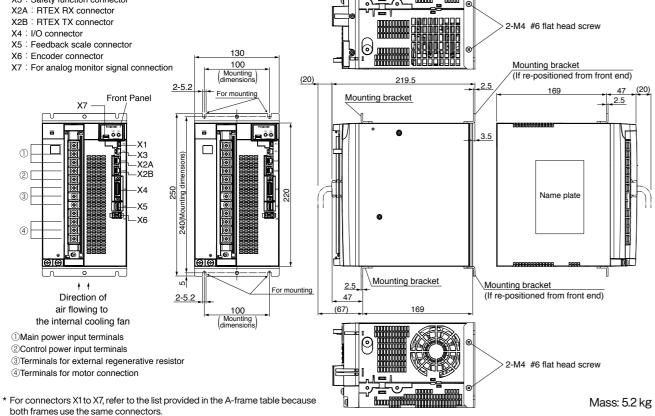
(18)

Mass: 2.7 kg

the same as the A6NE series.

F-frame (200 V)





Refer to P.29 to P.42 for other options than the interface cable and interface connector kit.

Cable for Interface

Part No. DV0P0800

Interface Cable / Connector Kit

Cable length 2 m, core wire AWG 26 is connected.

Dimensions Shell kit: 10326-52AO-008 Sumitomo 3M or equivalent 2000 50 Plug: 10126-3000PE

Sumitomo 3M or equivalent

Table for wiring

Pin No.	Signal name	color	Pin No.	Signal name	color	Pin No.	Signal name	color
1*	BRK-OFF+	Orange (Red1)	10*	HOME	Pink (Black1)	19	OB-/OCMP2-	Pink (Red2)
2*	BRK-OFF-	Orange (Black1)	11*	EXT2	Orange (Red2)	20	OB+/OCMP2+	Pink (Black2)
3*	ALM+	Gray (Red1)	12*	EXT3	Orange (Black2)	21	OCMP3+	Orange (Red3)
4*	ALM-	Gray (Black1)	13*	SI-MON4	Gray (Red2)	22	OCMP3-	Gray (Red3)
5*	SI-MON5	White (Red1)	14	BTP-I	Gray (Black2)	23	_	Gray (Black3)
6	I-COM	White (Black1)	15	BTN-I	White (Red2)	24	-	White (Red3)
7*	POT	Yellow (Red1)	16	GND	White (Black2)	25*	EX-OUT1+	White (Black3)
8*	NOT	Yellow (Black1)	17	OA+/OCMP1+	Yellow (Red2)	26*	EX-OUT1-	Orange (Black3)
9*	SI-MON1	Pink (Red1)	18	OA-/OCMP1-	Yellow (Black2)			

The signals allocated to the pin No. with "*" in the table are factory default.

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

<Caution>

The shield of this cable is not connected to the terminal of the connector.

The shielded wire of the cable is connected to the connector shell of the cable, and is connected to the FG via the connector shell on the Driver side. When connecting the shielded wire of the cable to GND, use the connector kit DV0P0770 for the interface. At that time, please note that if you connect the shield and the connector shell on the cable side and process it, FG and GND will be connected.

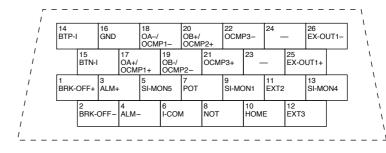
Connector Kit for Interface

Part No. DV0P0770

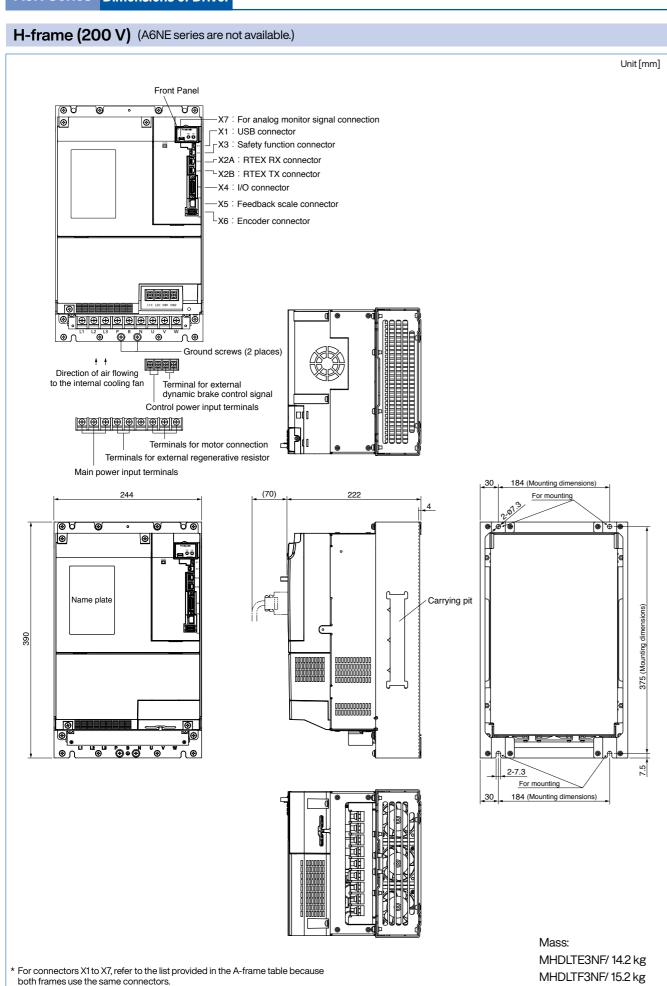
Components

Title	Part No.	Number	Manufacturer	Note
Connector	10126-3000PE	1	Sumitomo 3M	For CN X4
Connector cover	10326-52A0-008	1	(or equivalent)	(26-pins)

• Pin disposition: Connector X4 (26 pins) (viewed from the soldering side)



- 1. Check the stamped pin-No. on the connector body while making a wiring.
- 2. For the symbols representing the signal names or the functions of the signals in the figure above, refer to the operation manual.



Servo driver with EtherCAT open network



MINAS A6B Series Special Order Product





Response frequency 3200 Hz & communication rate 100 Mbps enable fast and highly accurate operation.

Configurable even for motors with a maximum rotating speed 6500 r/min.*

* MHMF and MQMF types with a maximum wattage 400 W

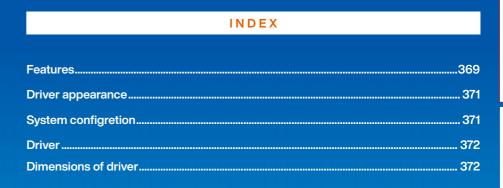


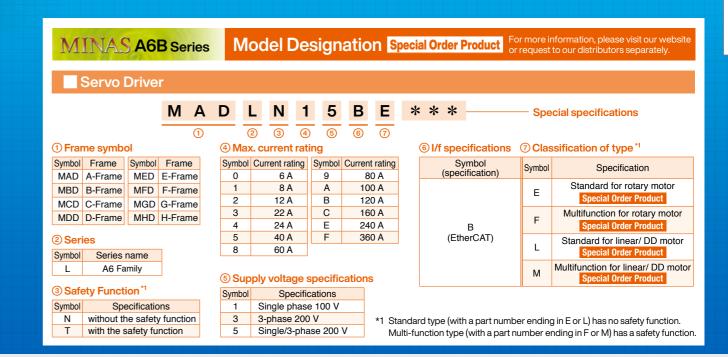
New algorithm "Two-degree-of-freedom control method" is used to improve machining accuracy and productivity.



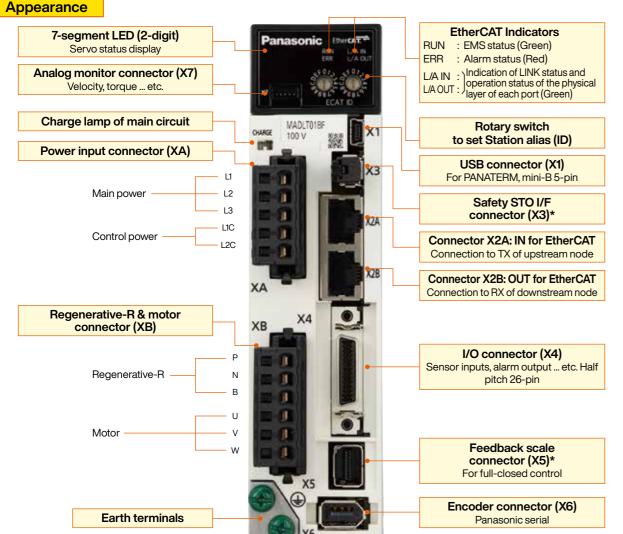
Easy and speedy set-up with set-up support software "PANATERM"

- Fully-featured EtherCAT application (7 control modes, 32 origin-return modes, 2 synchronous modes, and an asynchronous mode.) O Capable of system upgrade with various slaves. Capable of establishing PC-based systems without needing dedicated hardware. Planed to pass official EtherCAT Conformance Test. A6BF with safety I/F 2 corresponding to international standard, and A6BL/A6BM supporting linear motors *2: IEC61800-5-2 STO, IEC61508 SIL3.
 - The EtherCAT is a registered trademark of patented technology licensed from Beckhoff Automation GmbH in Germany.

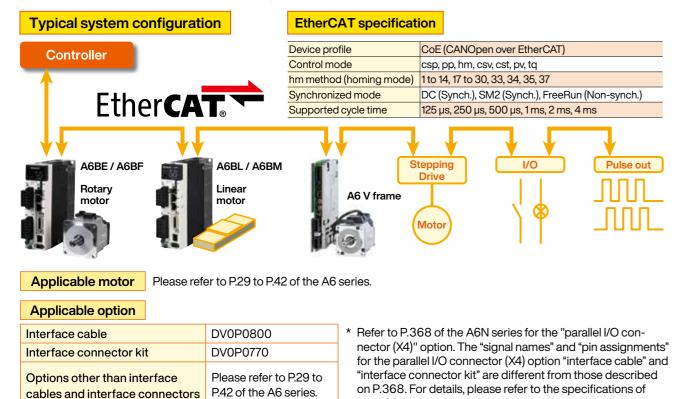




pograneo



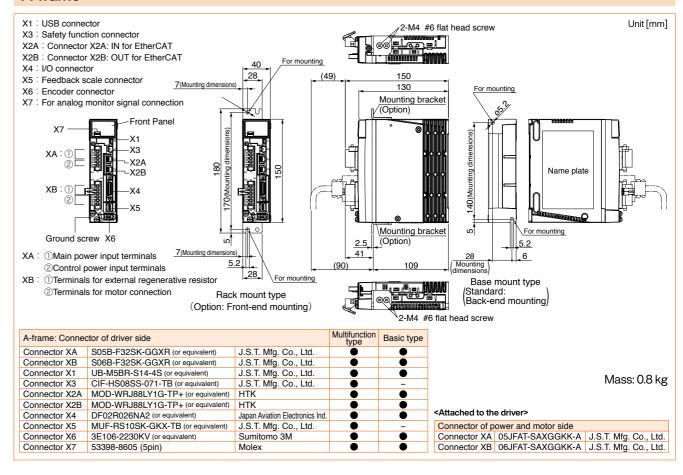
* The photo is A6BF series. There are no X3 and X5 connectors in the A6BE series.



the A6B series.

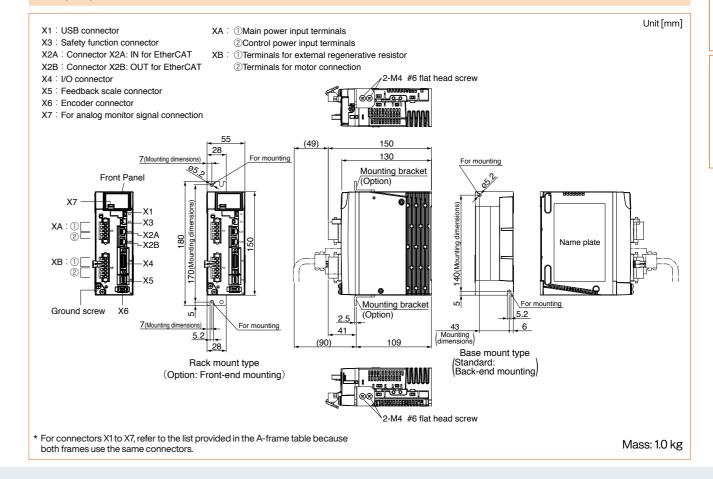
A-frame

the same as the A6BE series.



* All dimensions shown in this catalog are for the A6BF series, but outer dimensions are

B-frame



C-frame

X1: USB connector

X4: I/O connector

Ground screw

X6 : Encoder connector

X3 : Safety function connector

X5: Feedback scale connector

X2A : Connector X2A: IN for EtherCAT

X2B : Connector X2B: OUT for EtherCAT

X7: For analog monitor signal connection

Front Panel

20(Mounting dimensions)

20(Mounting dimensions

5.2

* For connectors X1 to X7, refer to the list provided in the A-frame table because

Rack mount type

(Option: Front-end mounting)

2-M4 #6 flat head screw -

60 /

XA: ①Main power input terminals

For mounting

©Control power input terminals

2)Terminals for motor connection

XB: ①Terminals for external regenerative resistor

40

For mounting

XA: ①Main power input terminals

(2)Control power input terminals

②Terminals for motor connection

191

170

Mounting bracket

\ Mounting bracket

2-M4 #6 flat head screw

(Option)

A6 Series

Mounting bracket

X6 : Encoder connector X7: For analog monitor (If re-positioned from front end) Mounting bracket

-X3 XA: (1) -X2A -X2B XC [ХВ

⊕⊜ Ground screw 2-5.2 Direction of 50

air flowing to the internal cooling fan E-frame: Connector of driver side Connector XA S05B-JTSLSK-GSANXR (or equivalent) J.S.T. Mfg. Co., Ltd. Connector XB S03B-JTSLSK-GSANXR (or equivalent) J.S.T. Mfg. Co., Ltd.

Connector XC S04B-JTSLSS-GSANXR (or equivalent) J.S.T. Mfg. Co., Ltd.

E-frame (200 V)

X3 : Safety function connector

X5 : Feedback scale connector

X2A : Connector X2A: IN for EtherCAT

X2B: Connector X2B: OUT for EtherCAT

X1: USB connector

X4: I/O connector

Unit [mm]

Mass: 1.6 kg

Unit [mm]

Mass: 2.1 kg

Name plate

For mounting

5.2

50 7.5

Base mount type

Standard:

/Standard: Back-end mounting <Attached to the driver> E-frame: Connector of power and motor side

* For connectors X1 to X7, refer to the list provided in the A-frame table because

Connector XB 03JFAT-SAXGSA-L (or equivalent) Connector XC 04JFAT-SAXGSA-L (or equivalent) J.S.T. Mfg. Co., Ltd.

Connector XA 05JFAT-SAXGSA-L (or equivalent)

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

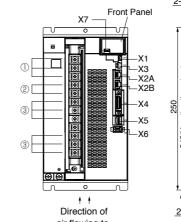
Mounting bracket

(If re-positioned from front end)

Mounting bracket/

X1: USB connector

X5 : Feedback scale connector



the internal cooling fan

4 Terminals for motor connection

both frames use the same connectors.

(18)

2-M4 #6 flat head screw

Mounting bracket

Mounting bracket

(If re-positioned from front end)

(If re-positioned from front end)

Unit [mm]

47 (20)

2.5

2-M4 #6 flat head screw Mass: 2.7 kg

both frames use the same connectors.

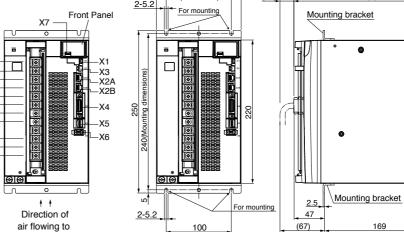
F-frame (200 V)

X3 : Safety function connector X2A : Connector X2A: IN for EtherCAT X2B : Connector X2B: OUT for EtherCAT

X4: I/O connector

X6 : Encoder connector

X7: For analog monitor signal connection



100

(1) Main power input terminals (2) Control power input terminals

3 Terminals for external regenerative resistor

For connectors X1 to X7, refer to the list provided in the A-frame table because

2-M4 #6 flat head screw Mass: 5.2 kg

D-frame (200 V)

X1: USB connector X3: Safety function connector

both frames use the same connectors.

X2A : Connector X2A: IN for EtherCAT XB: ①Terminals for external regenerative resistor X2B : Connector X2B: OUT for EtherCAT

X4: I/O connector

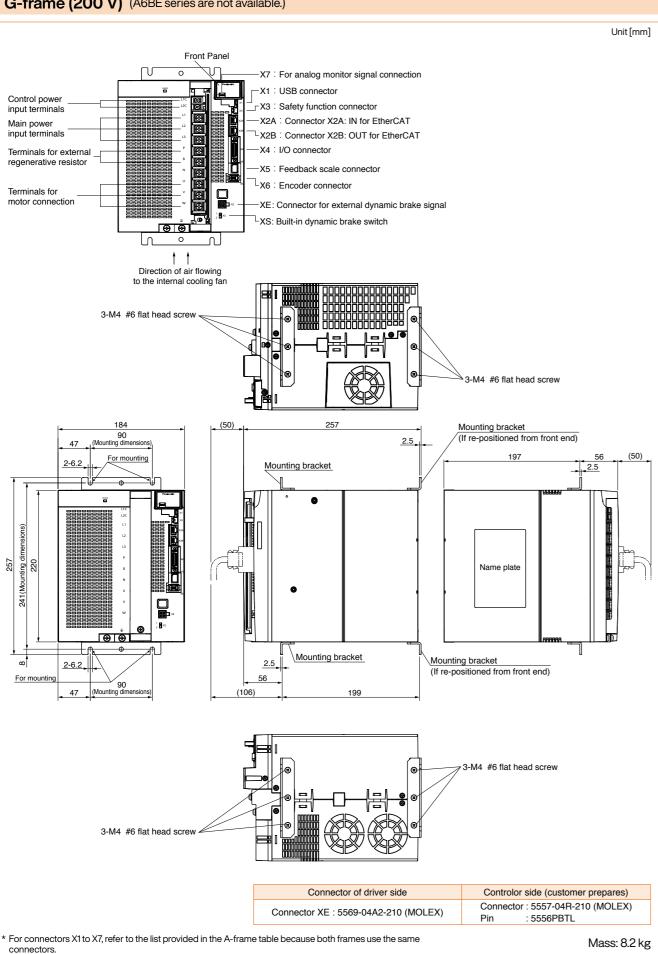
X5 : Feedback scale connector X6: Encoder connector

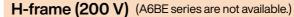
2-M4 #6 flat head scre X7 : For analog monitor signal connection 60 40(Mounting dimensions) (50) 170 For mounting Mounting bracket Front Panel (Option) -X2A X2B XB: Mounting bracket For mounting Ground screw 2.5 40 Direction of For mounting , 7.5 air flowing to the internal cooling fan Base mount type 2-5.2

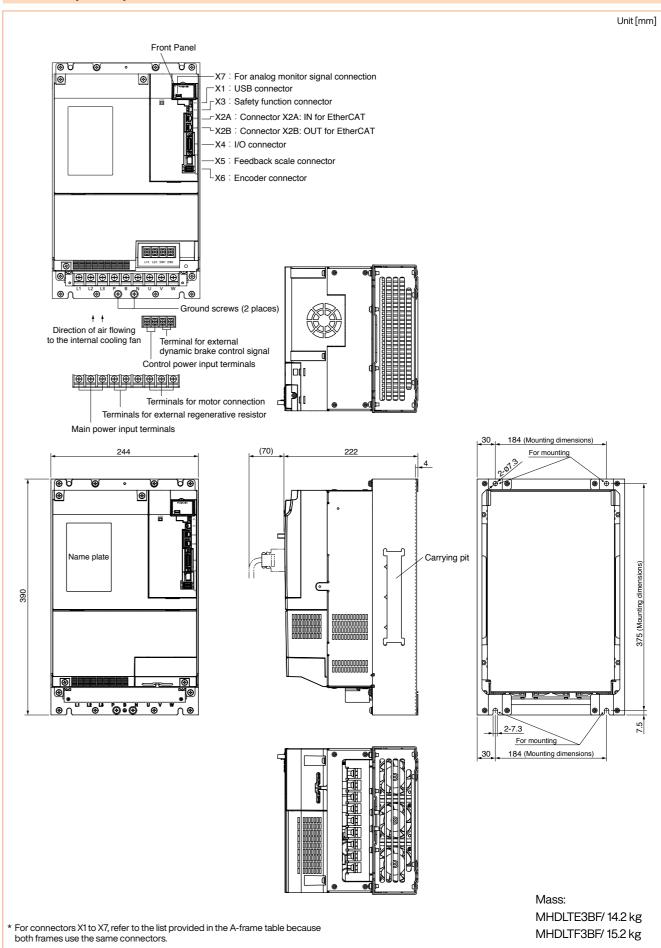
Rack mount type (Option: Front-end mounting)

2-M4 #6 flat head screw * For connectors X1 to X7, refer to the list provided in the A-frame table because both frames use the same connectors.

G-frame (200 V) (A6BE series are not available.)







Compact Servo Only for Position Control.

Ultra compact position control type

MINAS E Series



Best Fit to Small Drives

- Further evolution in down-sizing, by 47 % in size. (Note)
- Exclusively designed for position control.

(Note) Compared to MUDS043A1

Easy to Handle, Easy to Use

- DIN-rail mounting unit (option) improves handling/installation.
- User-friendly Console makes the setup easy.
- High functionality Real-Time Auto-Gain Tuning enables adjustment-free operation.



High-Speed Positioning with Resonance Suppression Filters

- Built-In notch filter suppresses resonance of the machine.
- Built-in adaptive filter detect resonance frequency and suppress vibration.

Smoother operation for Low Stiffness Machine

Damping control function suppresses vibration during acceleration/deceleration

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List of Peripheral Devices.

1. Easy to Handle, Easy to Use

High-functionality Real-Time Auto-Gain Tuning (Note 1)

- Offers real automatic gain tuning for low and high stiffness machines with a combination of an adaptive filter.
- Supports the vertical axis application where the load torque is different in rotational direction.

DIN-rail mounting unit (option)

- DIN-rail mounting unit allows parallel mounting with small control devices such as PLC.
- Easy to mount and easy to dismount.

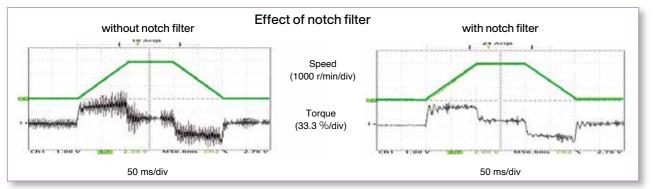
2. Further Reduction of Vibration

Adaptive filter (Note1)

- Makes the notch filter frequency automatically follow the machine resonance frequency in real-time auto-gain tuning.
- Suppression of "Judder" noise of the machine, which is caused by variation of the machines or resonance frequency due to aging, can be expected.

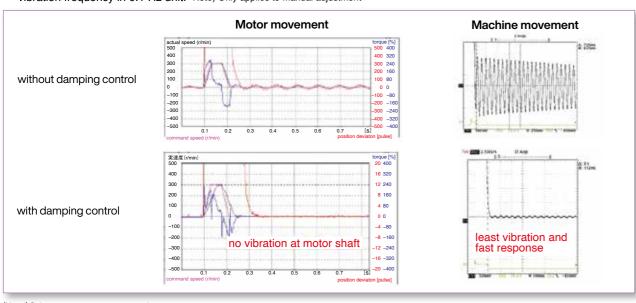
Notch filter (Note1)

- 1-channel notch filter is equipped in the driver independent from adaptive filter.
- Each of 2 filters can set up frequency and notch width, and frequency in 1Hz unit. Suppression of "Judder" noise of the machine which has multiple resonance points can be expected.



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

1. 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.403, 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.398 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

Note) Refer to P.398 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

Note) Refer to P.398 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 EU Low Voltage	
		UL508C CSA22.2 No.14	Directives/UK Low Voltage Regulation	
	EN55011	Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	Conforms to references by EU EMC	
	EN61000-6-2	Immunity for Industrial Environments		
Motor	EC61000-4-2	Electrostatic Discharge Immunity Test		
and driver	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test		
	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test		
	IEC61000-4-5	Lightening Surge Immunity Test		
	IEC61000-4-6	High Frequency Conduction Immunity Test		
	IEC61000-4-11	Instantaneous Outage Immunity Test		

EN: Europaischen Normen

EMC: Electromagnetic Compatibility

III · I Inderwriters Laboratories CSA: Canadian Standards Association

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

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

	Motor series	Rated output (kW)	Rated rotational speed (Max. speed) (r/min)	Rotary of 2500 P/r incremental	17bit absolute/	Brake Holding	Gear High precision	UL/ CSA	Enclosure	Features	Applications
	MUMA		(i/iiiii)								
Ultra low inertia		0.05 to 0.4 0.05 0.1 0.2 0.4	3000 (5000)	0	_	0	0	0	IP65 Except shaft throughhole and connector	Small capacity Ultra low inertia	SMT machines Inserters High repetitive positioning application

MINAS Eseries Model Designation

Servo Motor



Symbol Series 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)

Design order Symbol Specifications

1 Standard

Symbol

S

Т

Key-way,

center tap

* Motor with oil seal is manufactured by order.

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

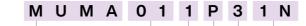
See P.389 for motor specifications

Holding brake

without with

•

Motor with gear reducer



Motor rated output Symbol Series Symbol Rated output 01 100 W Ultra low inertia MUMA (100 W to 400 W) 02 200 W 04 400 W

Voltage specifications						
Symbol	Specifications					
1	100 V					
2	200 V					

Rotary encoder specifications

	mooder opcomed			
Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

Gear reduction ratio, gear type

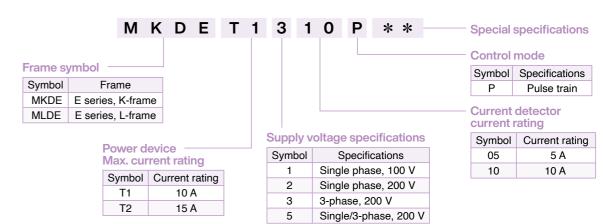
	Gear	Moto	r outpu	_	
Symbol	reduction ratio	100	200	400	Gear type
1N	1/5	•	•	•	Faulsials
2N	1/9	•	•	•	For high accuracy
4N	1/25	•	•	•	accuracy

Motor structure

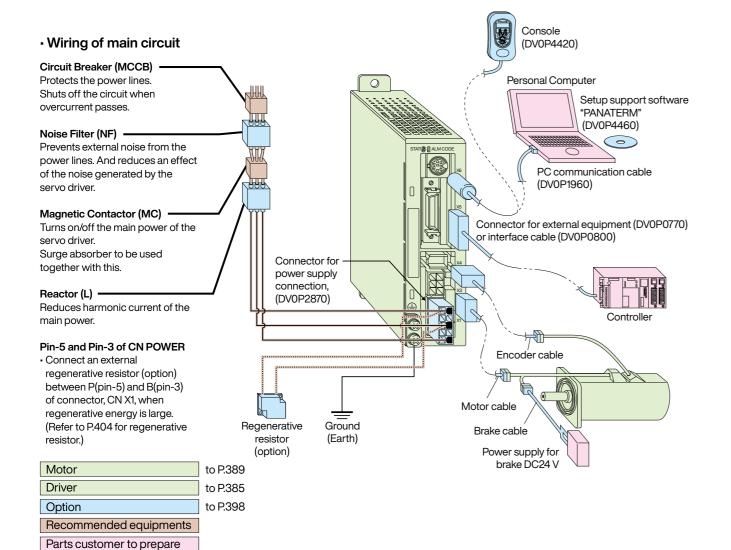
Cumbal	Shaft Holding		g brake	
Symbol	Key-way without		with	
3	•	•		
4	•		•	

See P.394 for motor with gear reducer specifications

Servo Driver



See P.385 for driver specifications



List of recommended peripheral devices

_	Мо	tor	Power			Magnetic		
Power supply	Series	Output	(at rated) output	Circuit Breaker (Rated current)	Noise Filter	Contactor (Contact Composition)	Wire diameter (L1, L2, L3, U, V and W)	
Single		50 W	0.3 kVA	5 A		10.4		
phase,		100 W	0.4 kVA	J JA		10 A (3P+1a)		
100 V		200 W	0.5 kVA	10 A		(OI + I a)	_	
		50 W	0.3 kVA					
Single		100 W	0.5 KVA	5 A 15 A	5 A		15 A	2. 2. 2
phase, 200 V	MUMA	200 W	0.5 kVA				0.75 mm ² to 0.85 mm ² AWG18	
200 1		400 W	0.9 kVA	10 A	AVVC		AVVCIO	
		50 W	0.014/4			10 A (3P+1a)		
3-phase	3-phase	100 W	0.3 kVA	5 A				
200 V		200 W	0.5 kVA	1				
		400 W	0.9 kVA	10 A				

- * Select the single and 3-phase common specifications corresponding to the power supplies.
- To conform to EU Directives/UK Regulation, 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 416.

<Remarks>

 Use a copper conductor cables with temperature rating of 60 °C or higher for main power connector and ground terminal wiring.

Use a cable for ground with diameter of 2.0 mm² (AWG14) or larger.

Fastening torque list

Groun	d terminal screw	Connector to host controller[X5]		
Nominal size	Fastening torque (N•m)(Note 3)	Nominal size	Fastening torque (N•m)(Note 3)	
M4	0.7~0.8	M2.6	0.2±0.05	

(Note 3) < Caution>

 Applying fastening torque larger than the maximum value may result in damage to the product.

<Remarks>

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

	2500P/r, Incremental						Option											
Power supply	Output (W)	Motor Note) 1	Rating/Spec. (page)	Driver	Dimensions (Frame (symbol)	Encoder Cable Note) 2	Motor Cable	Bra	Brake Cable Note) 2	External Regenerative Resistor	Reactor	Noise Filter						
Single	50	MUMA5AZP1 □	389	MKDET1105P	388 (K)						DV0P227							
phase	100	MUMA011P1 🗌	389	MKDET1110P	388 (K)					DV0P2890	DVUFZZI							
100 V	200	MUMA021P1 🗌	389	MLDET2110P	388 (L)						DV0P228							
	50	MUMA5AZP1 □	391	MKDET1505P	388 (K)													
Single	100	MUMA012P1	391	MKDET1505P	388 (K)													
phase 200 V	200	MUMA022P1	391	MLDET2210P	388 (L)	NATEO A O de de OT A NA	MEEO A O de de OE A M	MEEO A O shak OE A M	MEECAO* *OEAM	MEEC	MEEC	MEECAO	MFECA0 * * 0EAM	MEMOAO				DVOD4460
	400	MUMA042P1	391	MLDET2510P	388 (L)	WIFECAU* * UEAW	WIFWCAU* *UAED	MFMC	ICB0 * * 0GET			DV0P4160						
	50	MUMA5AZP1 □	391	MKDET1505P	388 (K)					DV0P2891	DV0P220							
	100	MUMA012P1	391	MKDET1505P	388 (K)													
3-phase 200 V	200	MUMA022P1	391	MKDET1310P	388 (K)													
200 V	400	MUMA042P1 □	391	MLDET2510P MLDET2310P	388 (L)													

Note) 1 Motor model number suffix: \square

MINAS E Series

- 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.399.

■ Table of Part Numbers and Options

Carrying page

	Option	าร	•	Part No.	Carrying page	
Console				DV0P4420	403	
Setup Support			Japanese	D) (0D 4 400	200	
Software, PANATERM			English	DV0P4460	398	
RS232 Commu (for Connection				DV0P1960	403	
Interface Cable)			DV0P0800	403	
Connector Kit f	or Inte	rfa	ace	DV0P0770	402	
Connector Kit f	or Mot	or	and Encoder	DV0P3670	401	
Connector Kit f	or Driv	eı	Power Supply	DV0P2870	401	
Encoder Cable			MFECA0 * * 0EAM		400	
Motor Cable			MFMCA0 * *	400		
Brake Cable			MFMCB0 * *	400		
Cable Set (3 m	(Note 4)		DV0P37300	400		
Cable Set (5 m	(Note 4)		DV0P39200	400		
DIN Rail Moun	t Unit		DV0P3811	404		
External	100 \	/	50 Ω 10 W	DV0P2890	40.4	
Regenerative Resistor	200 \	/	100 Ω 10 W	DV0P2891	404	
			100 V	DV0P227		
Reactor			100 V	DV0P228	405	
				DV0P220		
Noise Filter				DV0P4160	416	
			gle phase O V, 200 V	DV0P4190	416	
3-р			hase 200 V	DV0P1450		
Ferrite core				DV0P1460	416	
(Note 1) Cable set (3	m) cont	oir	20			

(Note 4) Cable set (3 m) contains,

1) Interface cable: DV0P0800

2) Encoder cable (3 m): MFECA0030EAM

3) Motor cable (3 m): MFMCA0030AEB

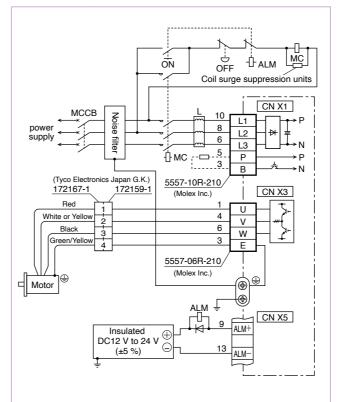
4) Connector kit for driver power supply connection: DV0P2870

Cable set (5 m) contains,

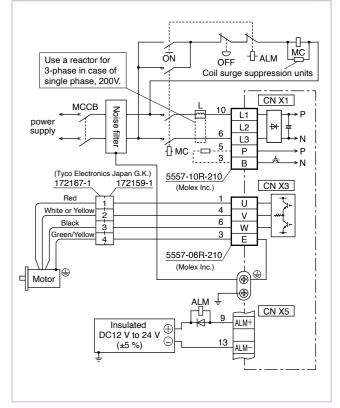
- 1) Interface cable: DV0P0800
- 2) Encoder cable (5 m): MFECA0050EAM
- 3) Motor cable (5 m): MFMCA0050AEB
- 4) Connector kit for driver power supply connection: DV0P2870

Standard Wiring Example of Main Circuit

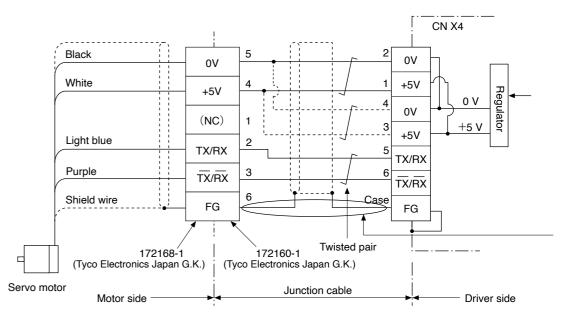
3-Phase, 200 V



Single Phase, 100 V / 200 V



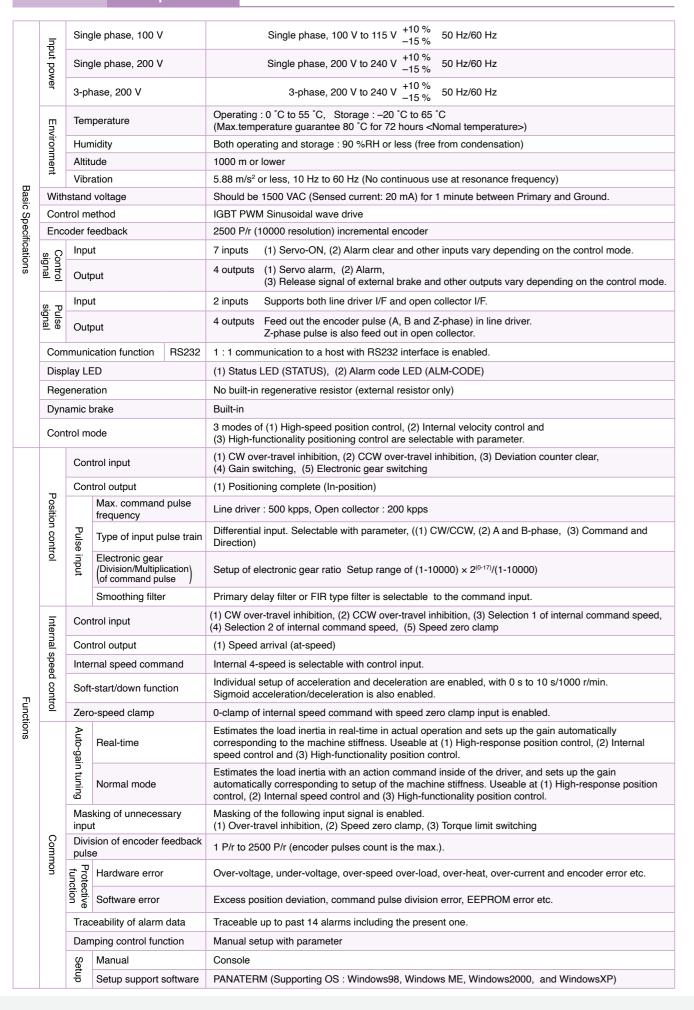
Encoder Wiring Diagram



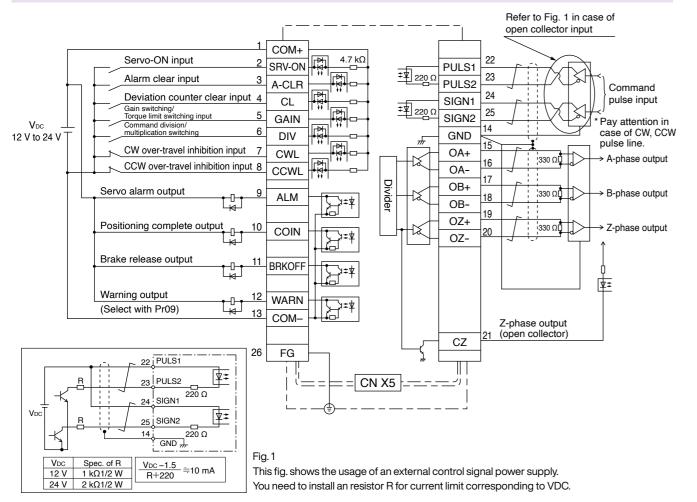
When you make your own junction cable for encoder (Refer to P.401, P.402 "Options" for connector.)

- 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
- 3) Use the twisted pair wire for the corresponding signal and power supply.
- 4) Shieldina

Connect the shield of the driver to the case of CN X4. Connect the shield of the motor to Pin-6.

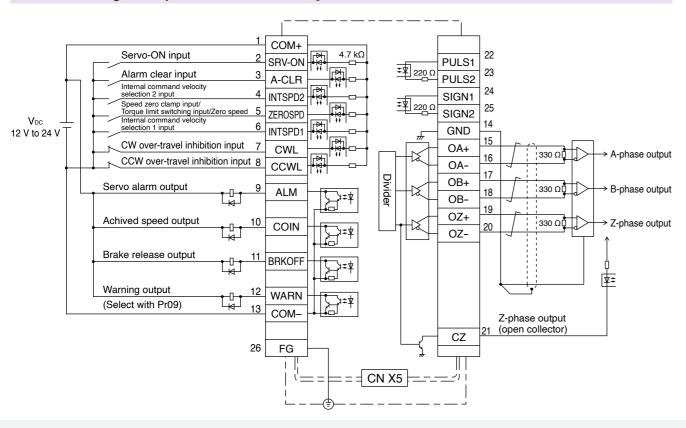


CN X 5 Wiring Example at Position Control Mode

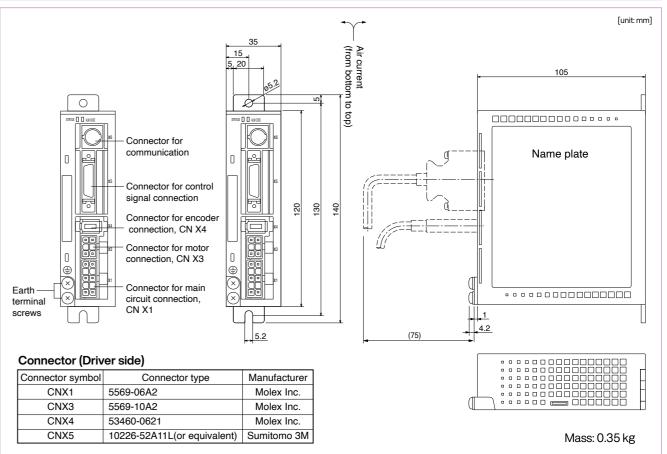


Control Circuit Standard Wiring Example

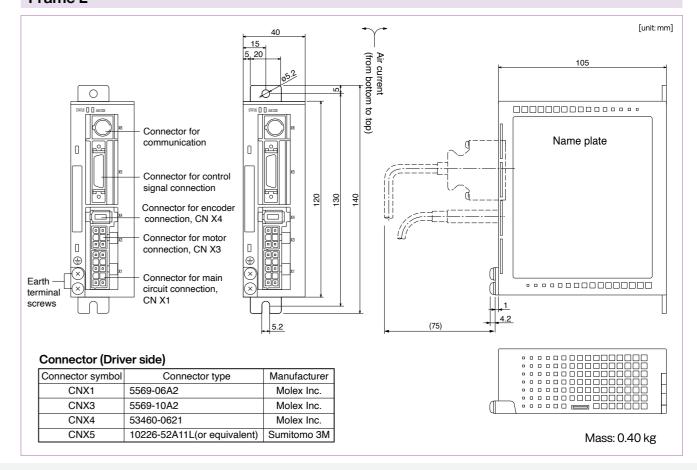
CN X 5 Wiring Example at Internal Velocity Control Mode







Frame L



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7	Ξ.	۰

			AC100 V					
Motor model		MUMA	5AZP1□	011P1□	021P1□			
Appliaghte drive	_	Model No.	MKDET1105P	MKDET1110P	MLDET2110P			
Applicable driver	ſ	Frame symbol	Frai	me K	Frame L			
Power supply ca	apacity (I	kVA)	0.3	0.4	0.5			
Rated output (W	/)		50	100	200			
Rated torque (N	·m)		0.16	0.32	0.64			
Momentary Max	. peak to	orque (N·m)	0.48	0.95	1.91			
Rated current (A	Arms)		1.0	1.6	2.5			
Max. current (Ac	o-p)		4.3	6.9	11.7			
Regenerative bra	ake	Without option	No limit Note)2					
frequency (times/min)	Note)1	DV0P2890	No limit Note)2					
Rated rotational	speed (r/min)	3000					
Max. rotational s	speed (r/	min)	5000					
Moment of inertia	ia	Without brake	0.021	0.032	0.10			
of rotor (×10 ⁻⁴ kg·m²)		With brake	0.026 0.036		0.13			
Recommended rof the load and the			30 times or less					
			2500 P/r					
Rotary encoder	specific	ations	Incremental					
Б								
		n per single turn	10000 IP65 (except rotating portion of output shaft and lead wire end)					
Protective enclo	sure rat	ing						
A	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>					
A	Ambient	humidity	85	%RH or lower (free from condens	ing)			
Environment	Installatio	on location	Indoors (no direct sunlight)	, free from corrosive gas, inflamm	nable gas, oil mist and dust			
A	Altitude		1000 m or lower					
\	Vibration	resistance	49 m/s² or less					
Mass (kg), () rep	oresents h	nolding brake type	0.4 (0.6)	0.5 (0.7)	0.96 (1.36)			

Brake specifications (This brake will be released when it is energized. Do not use this for braking the motor in motion.)							
Static friction torque (N m)	0.29	1.27					
Engaging time (ms)	25	50					
Releasing time (ms) Note)4	20 (30)	15 (100)					
Exciting current (DC) (A)	0.26	0.36					
Releasing voltage	DC 1 V or more						
Exciting voltage	DV 24 V ±10 %						

Permissible	load		
.	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
oporation	Thrust load B-direction (N)	58	98

For motor dimensions, refer to P.393, and for the driver, refer to P.388.

Model Designation

200 W

e.g.) **M U** M

Symbol Series Ultra low inertia MUMA (50 W to 200 W) Motor rated output Voltage specifications Symbol Specifications Symbol Rated output 5A 50 W 100 V 100/200 V 01 100 W Z

Design order 1: Standard

Motor structure

0101 011	otor of dotare												
	Shaft	Holding	brake	Oil s	eal								
Symbol	Key-way, center tap	without with		without	with								
S	•	•		•									
T	•		•	•									

Rotary encoder specifications

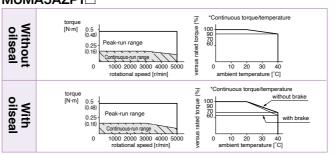
Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

Torque Characteristics [at AC100 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]

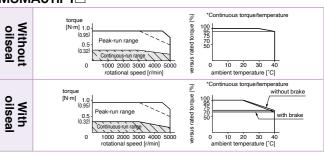
(50 W only)

MUMA5AZP1□

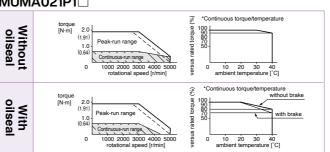
02

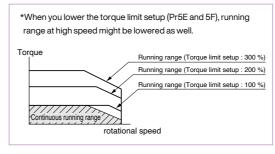


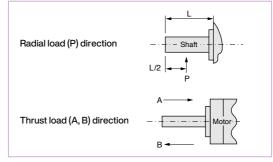
MUMA011P1



MUMA021P1□







- 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
 - 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

Motor model

Applicable driver

Power supply capacity (kVA)

MUMA

Model No.

Frame symbol

5AZP1

0.3

MKDET1505P

Frame K

AC200 V

022P1

MKDET1310P

MKDET2210P

Frame K

Frame L

0.5

042P1

MLDET2310P

MLDET2510P

Frame L

0.9

012P1

0.3

toi oti	ioi structure												
	Shaft	Holding	brake	Oil s	eal								
mbol	Key-way, center tap	without	with	without	with								
S	•	•		•									
T	•		•	•									

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□

Model Designation

M U

Series

Ultra low inertia

(50 W to 400 W)

50 W

100 W

200 W

400 W

Symbol

MUMA

5A

01

02

04

Motor rated output

Symbol Rated output

M

Voltage specifications

Specifications

200 V

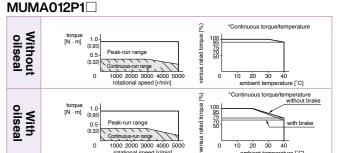
100/200 V

(50 W only)

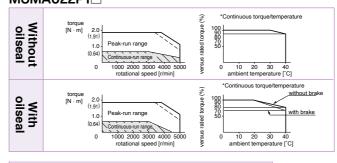
Symbol

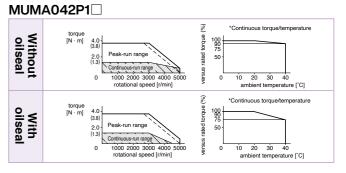
2

Z

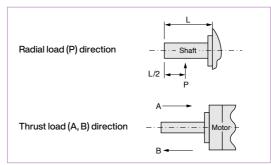


MUMA022P1





*When you lower the torque limit setup (Pr5E and 5F), running range at high speed might be lowered as well. Running range (Torque limit setup : 300 %) Running range (Torque limit setup : 200 %) Running range (Torque limit setup: 100 %)



- Note) 1. Regenerative brake frequency represents the frequency of the motor's stops from the rated speed with deceleration without load.
 - If the load is connected, frequency will be defined as 1/(m+1), where m = (load moment of inertia) / (rotor moment of inertia).
 - When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
 - Power supply voltage is AC240 V (at 200 V of the main voltage). If the supply voltage fluctuates, frequency is in inverse proportion to the square of (Running supply voltage/240) relative to the value in the table.
 - · When regeneration occurs continuosly such cases as running speed frequently changes or vertical feeding, consult us or a dealer.
 - 2. If the effective torque is within the rated torque, there is no limit in regenerative
 - 3. Consult us or a dealer if the load moment of inertia exceeds the specified value.
 - 4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D151 by SEMITEC Corporation or equivalent).
 - () represents the actually measured value using a diode (200 V, 1 A or equivalent)

Panasonic Industry Co., Ltd. | 392

Rated output (W)		50	100	200 400				
Rated torque ((N·m)		0.16	0.32	0.64	1.3			
Momentary Ma	ax. peak to	orque (N · m)	0.48	0.95	1.91	3.8			
Rated current	(Arms)		1.0	1.0	1.6	2.5			
Max. current (Ao-p)		4.3	4.3	7.5	11.7			
Regenerative brake frequency (times/min) Without option		Without option		No limit	Note)2				
irequency (iii	Note)1	DV0P2891		No limit	Note)2				
Rated rotation	al speed (r/min)		30	00				
Max. rotationa	l speed (r	/min)		50	000				
Moment of ine	rtia	Without brake	0.021	0.032	0.10	0.17			
of rotor (×10 ⁻⁴ kg·m ²)		With brake	0.026	0.036	0.13	0.20			
Recommende of the load an		of inertia ratio r Note)3		30 times	s or less				
				250	0 P/r				
Rotary encode	er specifica	ations		Incre	mental				
Resolution per single turn		ion per single turn		10	000				
Protective enc			IP65 (except rotating portion of output shaft and lead wire end)						
Ambient temperature		nt temperature	0 °C to 40 °C (free from freezing), Storage : -20 °C to 65 °C (Max.temperature guarantee 80 °C for 72 hours <nomal humidity="">)</nomal>						
	Ambier	nt humidity	85 %RH or lower (free from condensing)						
Environment	Installa	tion location	Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust						
	Altitude	9	1000 m or lower						
	Vibratio	on resistance		49 m/s²	or less				
Mass (kg), () r	epresents	holding brake type	0.4 (0.6)	0.5 (0.7)	0.96 (1.36)	1.5 (1.9)			
Brake specif	ications	(This brake will b	e released when it is	energized. Do not use t	his for braking the moto	or in motion.)			
Static friction t	orque (N	· m)	0.	29	1.	27			
Engaging time	(ms)		25			60			
Releasing time	e (ms)	Note)4	20	(30)	15 (100)				
Exciting currer	nt (DC) (A)	0.	26	0.	36			
Releasing volt	age		DC 1 V or more						
Exciting voltage	je		DV 24 V ±10 %						
Permissible lo	ad								
Radial load P-direction (N)		ad P-direction (N)	1-	47	392				
During		ad A-direction (N)		38		47			
assembly		ad B-direction (N)		17		96			
		ad P-direction (N)		68		45			
During		ad A-direction (N)		58	9	8			
operation		ad B-direction (N)		58		18			
Tillust load B-direction (N)									

For motor dimensions, refer to P.393, and for the driver, refer to P.388.

Note) Driver for $50\,\mathrm{W}$ and $100\,\mathrm{W}$ has a common power supply of single phase and 3-phase $200\,\mathrm{V}$.

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.

[Unit: mm] Encoder Motor connector connector LE Brake connector (Key way dimensions) □LC * Dimensions are subject to change without notice. Contact us or a dealer for the latest information

MUMA 50 W to 400 W

						[Unit: mm]					
				MUMA series (Ultra low inertia)							
Motor outpu	ut		50 W	100 W	200 W	400 W					
Motor mode	el	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	156.5					
	LR		24	24	30	30					
	S		8	8	11	14					
LA		48	48	70	70						
	LB		22	22	50	50					
	LC		42	42	60	60					
	LE		2	2	3	3					
	LF		7	7 7		7					
	LH		34	34	43	43					
	LZ		3.4	3.4	4.5	4.5					
	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 (ka)		Without brake	0.40	0.50	0.96	1.5					
Mass (kg)		With brake	0.60	0.70	1.36	1.9					
Connector/Plug specifications			refer to Options, P.401, P.402.								

<Cautions>

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

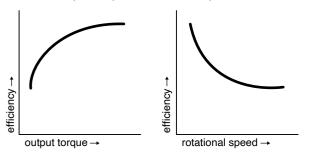
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

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



Symbol Low inertia MUMA (100 to 400 W) Motor rated output Symbol Rated output Voltage specifications 01 100 W Symbol Specifications 200 W 02 100 V 04 400 W 200 V

Rotary en	coder specifications			
Symbol	Format	Pulse counts	Pulse counts	Wire
Р	Incremental	2500 P/r	10000	5

Motor types with gear reducer Symbol Reduction Type of 100 200 400 reducer For High 2N 1/9 4N 1/25

Motor structure Holding brake

Specifications of Motor with Gear Reducer

	Motor series	MUMA		
	Backlash	3 minutes or smaller (initial value) at output shaft of the reducer		
	Composition of gear	Planetary gear		
	Gear efficiency	65 % to 85 %		
	Rotational direction at output shaft (of reducer)	Same direction as the motor output shaft		
Gear	Composition of gear	Planetary gear		
reducer	Mounting method	Flange mounting		
	Permissible moment of inertia of the load	40 4		
	(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		
	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		

Table of Motor Specifications/ The Combination of the Driver and the Motor

Motors with Gear Reducer

Table of Motor with Gear Reducer Specifications

	Motor					М	JMA with g	ear reduc	er				
Model	Output	utput Reduction	eduction Output		d Max.		Peak max.	Moment of inertia (motor + reducer/converted to motor shaft				Permissible radial load	Permissible
		ratio		speed	speed	torque	torque	w/o brake	w/ brake	w/o brake	w/ brake	raulai luau	thrust load
	(W)		(W)	(r/min)	(r/min)	(N·m)	(N·m)	J(×10	⁻⁴ kg·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.397.

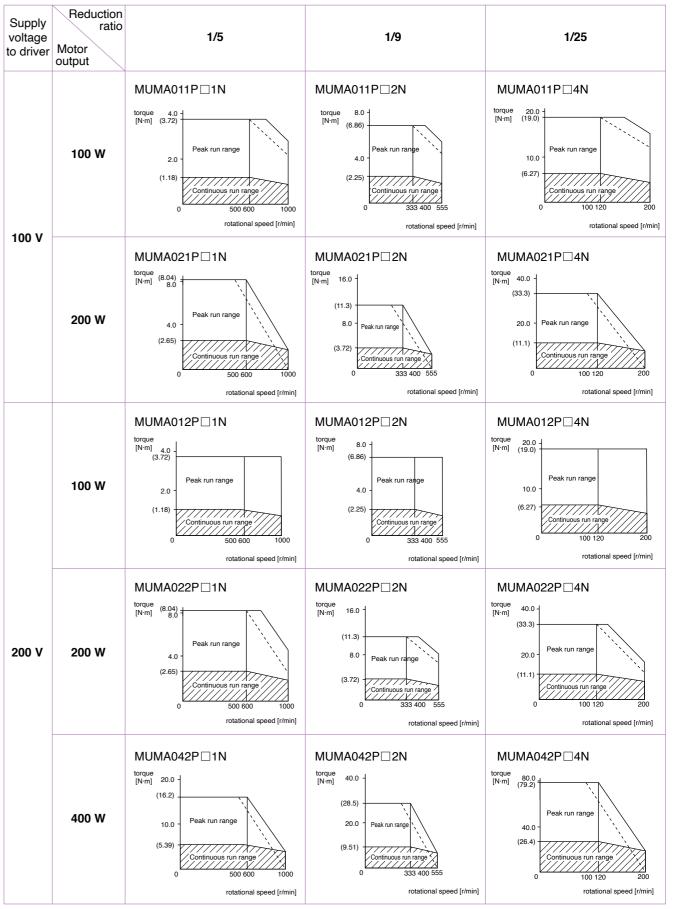
The Combination of the Driver and the Motor with Gear Reducer

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	
Encoder	output with gear reducer Part No. of driver with gear re		with gear reducer	Part No. of driver	Part No. of driver		
	100 W	100 W MUMA011P□□N MKDET1110P MUMA012P□□N		MKDET1505P	MKDET1505P		
2500 P/r	200 W	MUMA021P□□N	MLDET2110P	MUMA022P□□N	MKDET1310P	MLDET2210P	
Incremental	400 W			MUMAO 40D DO	MLDET2510P	MLDET2510P	
	400 00	_	_	MUMA042P□□N	MLDET2310P	MILDE 12510F	

For dimensions of driver, refer to P.388.

For High Precision (MUMA Series 100 W to 400 W)

Torque Characteristics



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

Setup Support Software "PANATERM" for MINAS series AC Servo Motor & Driver

MUMA series with Gear Reducer

[Unit: mm]

6×6×22

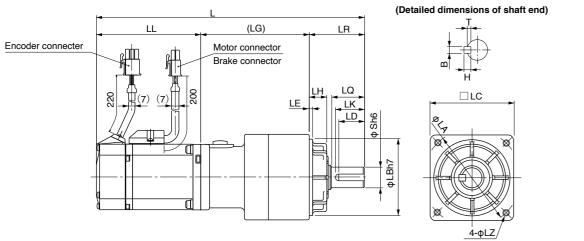
8×7×30

(Depth: 20)

(Depth: 20)

89.5

35 104 3.5



2500 P/r Encoder

 $MUMA02 \square P \square 4N$

MUMA042P□1N

MUMA042P□2N

MUMA042P□4N

1/25

1/5

1/9

1/25

400 W

279

263

296

263

296

288.5

321.5

																[(Jnit: mn					
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						60 12			10									
WOWAUTERIN		173	223.5	124		32 20	52 50	50	60		12 10	40 M5		18 67.5 4x	67.5		4×4×16	2.5				
MUMA01□P□2N	MI IMA O I DO ON LOO W	1/9	192	92.5	32	20	52	50	00	12	10	(Depth: 12)	10	67.5		4x4x10	2.5					
WOWAUTEEZIN	100 W	179	223.5	124																		
MUMA01□P□4N	1/25 234.5 92.5 266 124 50	50 30	78 70	70	70 90	90 19	9 17	M6	26 92	02	3	6×6×22	3.5									
		1/23	266	124	30	30	76	70	90	19	17	(Depth: 20)	20	92	3	UXUXZZ	5.5					
MUMA02 P 1N		1/5	200.5	96	32	2 20	52	50	60	12	10	M5	18	72.5		4×4×16	2.5					
MUMAUZ_P_TN	173	233.5	129	32	20	52	50	00	12	10	(Depth: 12)	10	12.5		4x4x10	2.5						
MUMA02□P□2N 200 W	1/9	235.5	96										89.5									
	200 W	1/9	268.5	129										09.5								
MI IMAO2 PEAN		1/25	246	96										100								

40 98 90 115 24 18

Upper column: without brake Lower column · with brake

129

123.5

156.5

123.5

156.5

123.5

156.5

50

61

Setup Support Software

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, A6 Family.

Hardware configuration

[Personal computer] • CPU : Pentium 100MHz or more • Memory : 16 MB or more (32 MB recommended)

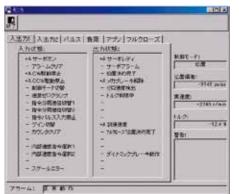
• Hard disk capacity (vacancy of 25 MB or more recommended) • OS: Windows® 98, Windows® Me, Windows® 2000, Windows® XP (US version)

• Communication speed of serial communication port: 2400 bps or more (The software may not operate normally using USB-to-Serial adapter.) [Display] • Resolution: 640*480 (VGA) or more (desirably 1024*768) • Number of colors: 256 colors or more

[CD-ROM drive] • CD-ROM drive operable on the above-mentioned personal computer

13 展1建度株式246分 14 #156/22/16/09/8 15 ##2/--{*24/2-F* 15・フィードフィウードフィルの報告 で成えーラックイ・化算を、ます、単位まれらしてす。 大き「記念する」とでは食を乗りり、一切性が多く、また観念を発力をつなります。 たた、また、過ぎい・金剛・エヤング、ご用をしてみ。

Parameter



Monitor

Graphic waveform display

C

Type classification

Encoder Cable For available optional items, please refer to P.400.

5

0

Cable length

MFECA: Encoder cable

0

8 9 10 11 12

Ε

Α

Cable end

(Encoder side)

0030

0050

0100

0200

3 m

5 m

10 m

20 m

Cable end (Driver side)

5 6 7

0

M Connector (MUMA)

E PVC cable with shield by Oki Electric Cable Co., 0.20 mm² x 3P

A Tyco Electronics Japan G.K. connector

Cable Set (3 m)

Cable

Part No. DV0P37300

- 1) Interface cable: DV0P0800
- 2) Encoder cable (3 m): MFECA0030EAM
- 3) Motor cable (3 m): MFMCA0030AEB
- 4) Connector kit for driver power supply connection : DV0P2870

Cable Set (5 m)

Part No. DV0P39200

- 1) Interface cable: DV0P0800
- 2) Encoder cable (5 m): MFECA0050EAM
- 3) Motor cable (5 m): MFMCA0050AEB
- 4) Connector kit for driver power supply connection : DV0P2870

Encoder Cable

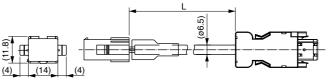
Part No. MFECA0 * * 0EAM

Part No. MFMCA0 * * 0AEB

[Unit: mm]

[Unit: mm]

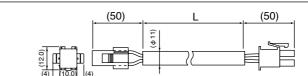
[Unit: mm]



Title	Part No.	Manufacturer	L (m)	Part No.
Connector (Driver side)	Driver side) 3E206-0100KV Sumitomo 3M		3	MFECA0030EAM
Shell kit 3E306-3200-008 or equivale		or equivalent	5	MFECA0050EAM
Connector	172160-1		10	MFECA0100EAM
Connector Pin	170365-1	Tyco Electronics	20	MFECA0200EAM
Cable	0.20 mm ² × 3P	Oki Electric Cable Co., Ltd.		

Motor Cable (ROBO-TOP_® 105 °C 600 V.DP)

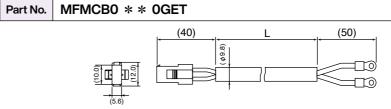
ROBO-TOP® is a trade mark of DYDEN CORPORATION



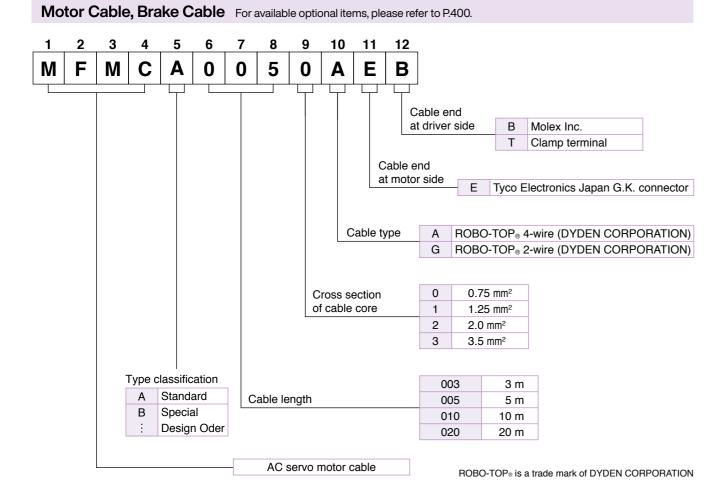
Title	Part No.	Manufacturer	L (m)	Part No.
Connector	172159-1	Tugo Floatronico		MFMCA0030AEB
Connector Pin	170362-1, 170366-1	Tyco Electronics	5	MFMCA0050AEB
Connector	5557-06R-210 Molex Inc		10	MFMCA0100AEB
Connector Pin	5556T	IVIOLEX ITIC	20	MFMCA0200AEB
Cable	ROBO-TOP 600 V 0 75 mm ²	Daiden Co. Ltd		

Brake Cable (ROBO-TOP_® 105 °C 600V . DP)

ROBO-TOP_® is a trade mark of DYDEN CORPORATION



Title	Part No.	Manufacturer		Part No.
Connector	172157-1	Type Fleetrenies	3	MFMCB0030GET
Connector Pin	170362-1, 170366-1	Tyco Electronics	5	MFMCB0050GET
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	10	MFMCB0100GET
Cable	ROBO-TOP 600 V 0.75 mm ²	Daiden Co.,Ltd.	20	MFMCB0200GET



Connector Kit for Power Supply Connection

Part No. DV0P2870

Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector (10 pins)	5557-10R-210	1	Malay Inc	For connector, CN X1
Connector pin	5556PBTL	6PBTL 6 Molex Inc.		(10 pins)

Pin configuration of connector CN X1

2	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	3				/
1	10	9	8	7	6	1
- 1	L1	(NC)	L2	(NC)	L3	H
- 1	5	4	3	2	1	H
i	Р	(NC)	В	(NC)	E	H,



Connector Kit

Recommended manual crimping tool (to be prepared by customer)

Part No.	Cable material
57026-5000	UL1007
57027-5000	UL1015

<Cautions>

- 1. The above pin disposition is shown when viewed from the terminal inserting direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Refer to P.386 for wiring and connection.
- 3. Do not connect anything to pins marked "NC".

Connector Kit for Motor/Encoder Connection

Part No. DV0P3670 (Incremental 2500 pulse, 5-wire)

This option is required when you make your own encoder cable and motor cable. (Brake cable is required for brake.)

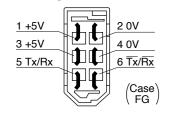
Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	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	Tues Flastranies	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	Molex Inc.	(6 pins)

<Remarks>

We may use parts equivalent to the above for shell and connector cover.

Pin configuration of connector CN X4 plug



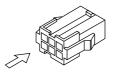
Recommended manual crimping tool (to be prepared by customer)

•	•	•		
Title	Part No.	Manufacturer	Cable material	
For encoder cable junction	755330-1	Type Floatronics		
For motor power cable junction	755331-1	Tyco Electronics	_	
For Connector CN X3	57026-5000	Molex Inc.	UL1007	
For Connector CN A3	57027-5000	Molex Inc.	UL1015	

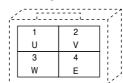
- 1. The above pin configuration is shown when viewed from the pin-soldering direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Connect the shield of the wire to the case (FG) without fail.
- 3. For wiring and connection, refer to P.386.

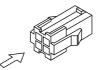
Pin configuration of encoder cable junction

]
1	2	3
NC	TX/RX	TX/RX
4	5	6
+5V	0V	FG



Pin configuration of motor power cable junction





Pin configuration of mating connector to CN X3 connector

	1	
5	4	
(NC)	V	1
2	1	
(NC)	U	- 1
	(NC)	(NC) V



<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.386 for wiring and connection.

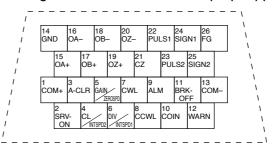
Connector Kit for Interface

Part No.	DV0P0770
i di tito.	D 4 01 07 7 0

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.387 for symbols and functions of the above signals.

Interface Cable

Part No. DV0P0800 Cable of 2 m is connected.

Interface Cable/ Communication Cable/ Console

Shell kit: 10326-52A0-008
by Sumitomo 3M or equivalent

2000

Plug: 10126-3000PE

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)			

by Sumitomo 3M or equivalent

<Notes>

e. g. of Pin No. designation: Pin No. 1 ... Wire color is orange, and one red dot. Pin No. 12 ... Wire color is orange, and two black dot.

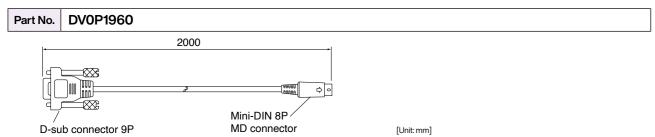
<Caution>

Cable pin No. 26 is not connected to the connector shell (housing) or shielded wire (net wire).

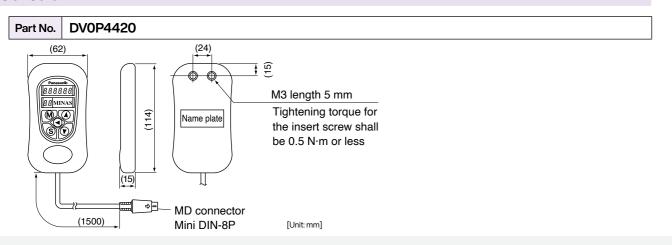
Pin No. 26 of the Driver is connected to the shell (housing) of the connector.

The shielded wire (net wire) of the cable is connected to the shell (housing) of the connector of the cable, and by connecting the connector of the optional cable to the Driver, pin No. 26 of the cable and the shielded wire (net wire) of the cable gets connected via the Driver.

Communication Cable (For Connection with PC)



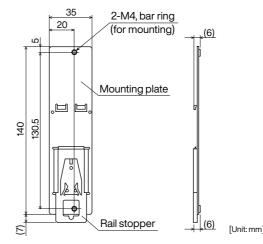
Console



DIN Rail Mounting Unit

Part No. DV0P3811

Dimensions

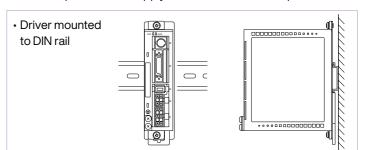


<Notes>

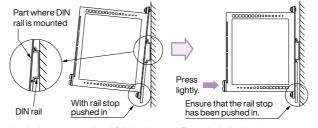
2 mounting screws (M4 X L8, Pan head) are attached. Rail stopper can be extended to max. 10 mm.

<Cautions>

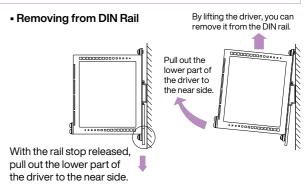
Please read carefully operation manual before using this product. In addition, please do not apply excessive stress to the product.



How to Install



Hook the upper side of DIN rail Press lightly the lower part mounting part on the DIN rail. Press lightly the lower part of the main body of driver.

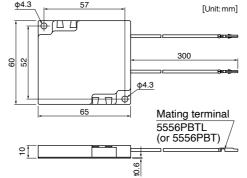


External Regenerative Resistor

		Specifications			
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



<Caution of when using external regeneration resistor>

Since it becomes high temperature, external regeneration resistor must be installed according to the contents shown below.

- Attach to incombustibles, such as metal.
- Install in the place which cannot touch directly by covering with incombustibles etc.
- $\boldsymbol{\cdot}$ Do not install near the combustibles.

Although the thermal cutoff is built in external regeneration resistor, the skin temperature of regeneration resistor may become high exceeding the operating temperature of thermal cutoff by the time the thermal cutoff operates in driver failure.

The thermal cutoff is for preventing ignition of the regeneration resistor in driver failure, and is not for controlling the skin temperature of resistor.

<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.

403 | Panasonic Industry Co., Ltd.

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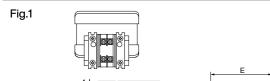
ries Product

Series

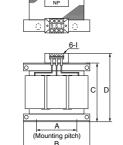
Informatio

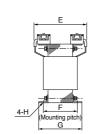
Reactor

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	DV0P220	2

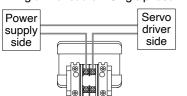


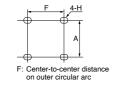


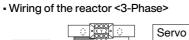




Wiring of the reactor <Single phase>





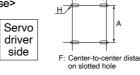


Reactor/ Surge Absorber for Motor Brake

Fig.2

Power

supply side



	Part No.	Α	В	С	D	E(Max)	F	G	н	I	Inductance (mH)	Rated current (A)
Fig. 4	DV0P227	55±0.7	76.5±1	66.5±1	110 Max	90	43.6±2	56±2	4-5φ×10	M4	4.02	5
Fig.1	DV0P228	55±0.7	76.5±1	66.5±1	110 Max	95	48.0±2	61±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

Harmonic restraint measures are not common to all countries. Therefore, prepare the measures that meet the requirements of the destination country.

When installing a product for Japan, refer to the instruction manual available on our website.

[Panasonic Industry Co., Ltd. web site]

industrial.panasonic.com/ac/e/

<Remarks>

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

■ Recommended devices

Surge Absorber for Motor Brake

Motor	Surge absorber for motor brake				
Motor	Part No. (Manufacturer's)	Manufacturer			
MUMA 50 W to 400 W	Z15D151	SEMITEC Corporation			

List of Peripheral Devices

Manufacturer	Tel No. / Home Page	Peripheral devices
Iwaki Musen Kenkyusho Co., Ltd.	+81-44-833-4311 http://www.iwakimusen.co.jp/	Regenerative resistor
SEMITEC Corporation	+81-3-3621-2703 http://www.semitec.co.jp/english2/	Surge absorber for motor brake
TDK Corporation	+81-3-5201-7229 http://www.global.tdk.com/	Ferrite core
Okaya Electric Industries Co. Ltd.	+81-3-4544-7040 http://www.okayaelec.co.jp/english/index.html	Surge absorber Noise filter
Sumitomo 3M	+81-3-5716-7290 http:/solutions.3m.com/wps/portal/3M/ja_JP/ WW2/Country/	
Tyco Electronics Japan G.K.	+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.

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A6 Series

A6N Series

MEMO

Information

A6

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EU Directives/ UK Regulation

The EU Directives/ UK Regulation 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 EU Directives for EU Low Voltage Directives/UK Low Voltage Regulation Equipment so that the machine or equipment comprising our AC servos can meet EU Directives.

EU EMC Directives/UK EMC Regulation

MINAS Servo System conforms to relevant standard under EU EMC Directives/UK EMC Regulation 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 EU EMC Directives/UK EMC Regulation, 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).

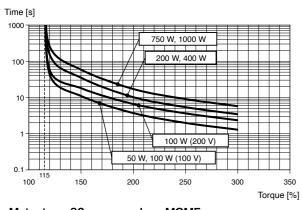
- (1) Use the driver in an environment of Pollution Degree 2 or 1 prescribed in IEC60664-1. (e.g. Install in the control box with IP54 enclosure.)
- (2) Make sure to install a circuit breaker or fuse which are UL recognized (Listed (9) marked) between the power supply and the noise filter.
 - For rated current of circuit breaker and fuse, refer to P.27 "Driver and List of Applicable Peripheral Devices". Use a copper cable with temperature rating of 75 °C or higher.
- (3) Over-load protection level

Over-load protective function will be activated when the effective current exceeds 115 % or more than the rated current based on the time characteristics (see the graph). Confirm that the effective current of the driver does not exceed the rated current.

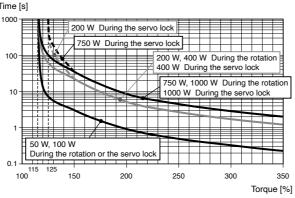
Set up the peak permissible current with Pr0.13 (Setup of 1st torque limit) and Pr5.22 (Setup 2nd torque limit).

Overload protection time characteristics

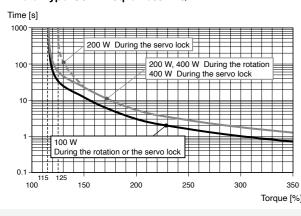
• Motor type: 80 mm sq. or less MSMF

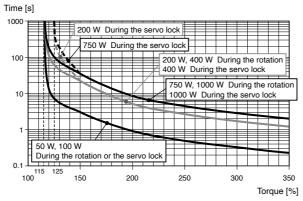


• Motor type: 80 mm sq. or less MHMF

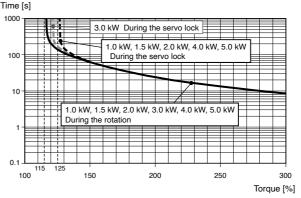


Motor type: 80 mm sq. or less MQMF

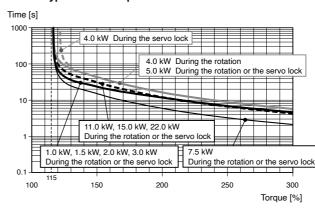




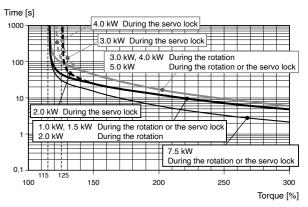
Motor type: 100 mm sq. or more MSMF



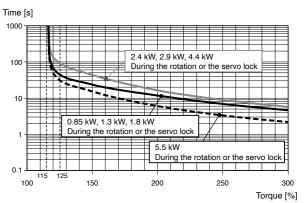
Motor type: 100 mm sq. or more MDMF



Motor type: 100 mm sq. or more MHMF



• Motor type: 100 mm sq. or more MGMF



Conformed Standards

		Driver	Motor	
	EU EMC Directives/ UK EMC Regulation	EN55011 EN61000-6-2 EN61000-6-4 EN61800-3	_	
EU/UK Standards	EU Low Voltage Directives/ UK Low Voltage Regulation	EN61800-5-1	EN60034-1 EN60034-5	
	Machinery (Functional safety ⁺¹)	ISO13849-1(PL e, Cat.3) EN61508(SIL3) EN62061(SILCL 3) EN61800-5-2(SIL3, STO)	_	
UL Standards		UL61800-5-1 (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	_	
EC : Internation	C: International Electrotechnical Commission Pursuant to the directive 2004/108/EC, article 9(2)			

FΝ : Furopaischen Normen EMC : Electromagnetic Compatibility : Underwriters Laboratories CSA: Canadian Standards Association

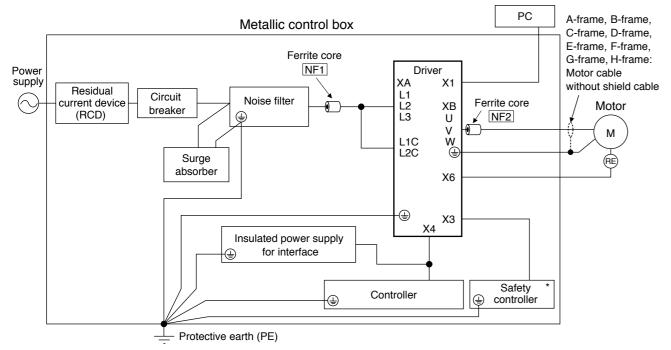
- When export this product, follow statutory provisions of the destination country.
- *1 A6SE, A6SG, A6NE, A6BE series doesn't correspond to the functional safety standard.
- *2 Information related to the Korea Radio Law This servo driver is a Class A commercial broadcasting radio wave generator not 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)

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 NF2, refer to the Table "Ferrite core" (P.414).

<Caution>

Use options correctly after reading Operating Instructions of the options to better understand the precautions.

Take care not to apply excessive stress to each optional part.

Power Supply

100 V type (A-frame to C-frame)	Single phase, 100 V $^{+10}_{-15}\%$ to 120 V $^{+10}_{-15}\%$	50 Hz/60 Hz
200 V type (A-frame to D-frame)	Single/3-phase, 200 V $^{+10~\%}_{-15~\%}$ to 240 V $^{+10~\%}_{-15~\%}$	50 Hz/60 Hz
200 V type (E-frame to H-frame)	3-phase, 200 V ⁺¹⁰ % to 240 V ⁺¹⁰ % ₋₁₅ %	50 Hz/60 Hz

- (1) This product is designed to be used in over-voltage category (installation category) III of EN 61800-5-1:2007.
- (2) Use an insulated power supply of DC12 V to 24 V which has CE marking or complies with EN60950.

Circuit Breaker

Install a circuit breaker which complies with IEC Standards and UL recognized (Listed and marked) between power supply and noise filter.

The short-circuit protection circuit on the product is not for protection of branch circuit.

The branch circuit should be protected in accordance with NEC and the applicable local regulations in your area.

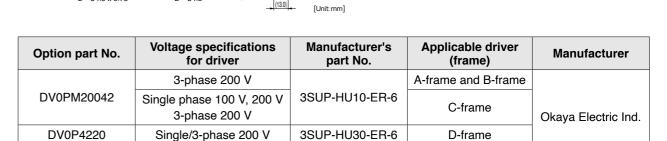
Noise Filter

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

Options

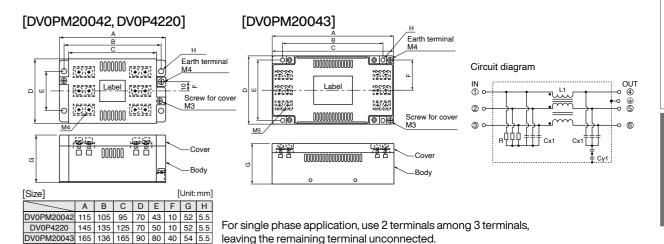
DV0PM20043

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.
7.0 88.0 75.0	Terminal cover (transparent) 53.1±1.0	Circuit diagram	OUT	

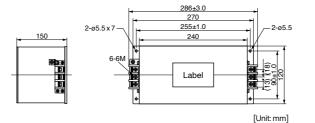


3SUP-HU50-ER-6

E-frame



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.	



3-phase 200 V

- 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.

<Remarks>

^{*} A6SE, A6SG, A6NE, A6BE is not provided with X3 terminal.

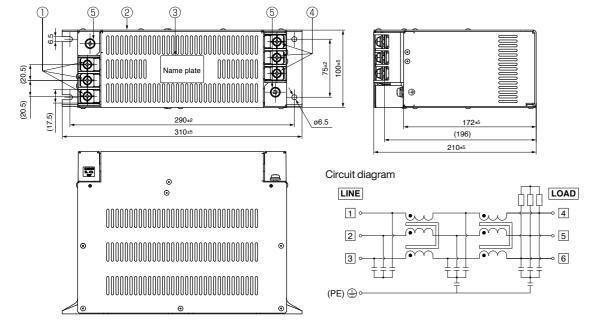
A6N Series

Noise Filter

Recommended components

Conformance to

Part No.	Voltage specifications for driver	Rated current (A)	Applicable driver (frame)	Manufacturer
HF3080C-SZA	2 nhana 200 V	80	G	COCUIN ELECTRIC CO LER
HF3100C-SZA	3-phase 200 V	100	Н	SOSHIN ELECTRIC CO.,LTD.



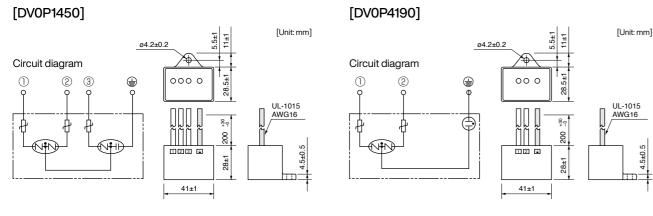
<Remarks>

- 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 you install one noise filter at the power supply for multi-axes application, contact the manufacturer of the noise filter.

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	Okova Floatria Ind	
DV0P4190	Single phase 100 V, 200 V	R·A·V-781BWZ-4	Okaya Electric Ind.	



<Remarks>

Remove this surge absorber when you perform dielectric test on the machine, or surge absorber might be damaged.

Ferrite core

■Install ferrite core to power cable and motor cable

Symbol*1	Cable Name	Applicable driver (frame)	Option part No.	Manufacturer's part No.	Manufacturer	Required number
		A, B, E	DV0P1460	ZCAT3035-1330	TDK Corp.	1
NF1	Power cable	0.11	DV0F1460	ZCA13035-1330	TDK Colp.	3
		G, H	_	RJ8095	Konno Kogyosho Co.Ltd	1
	Motor cable	A, B, C, D, E			1	
NEO		F	DV0P1460	ZCAT3035-1330	TDK Corp.	2
NF2						3
		G, H	_	T400-61D	MICROMETALS	1

- *1 For symbols, refer to the Block Diagram "Installation Environment" (P.411).
- The number of turns is all 1.
- NF1 is not required for C frame, D frame, F frame.

<Remarks>

To connect the ferrite core to the connector XB connection cable, adjust the sheath length at the tip of the cable, as required.

<Caution>

Fix the ferrite core in order to prevent excessive stress to the cables.

Fig.1: DV0P1460 (Option) 4 pieces

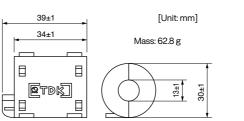
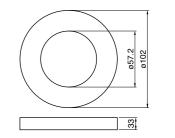
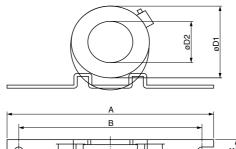


Fig.3: T400-61D (Recommended components) 1 pieces



[Unit: mm]

Fig.2: RJ8095 (Recommended components) 1 pieces



Manufacturer's	Current	100 kHz				Size	[Unit: r	nm]		
part No.	value	(μH)	Α	В	С	D1	D2	Core thickness	Е	F
RJ8095	95 A	7.9±3	200	180	34	130	107	35	R3.5	7

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 devices, refer to P.27 "Driver and List of Applicable Peripheral Devices".

Compliance to EU/ UK Regulation and EMC Directives

EU Directives/ UK Regulation

The EU Directives/ UK Regulation 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 EU Directives for EU Low Voltage Directives/ UK Low Voltage Regulation Equipment so that the machine incorporating our servos has an easy access to the conformity to relevant EU Directives for the machine.

EU EMC Directives/UK EMC Regulation

MINAS Servo System conform to relevant standard under EU EMC Directives/UK EMC Regulation 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 EU EMC Directives/UK EMC Regulation, especially for noise emission and noise terminal voltage, it is necessary to examine the machine incorporating our servos.

Conformed Standards

Subject		Conformed Standard	
Motor	IEC60034-1	IEC60034-5 UL1004 CSA22.2 No.100	Conforms to EU Low
		UL61800-5-1 CSA22.2 No.14	Voltage Directives/UK Low Voltage Regulation
	EN55011	Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment	
	EN61000-6-2	Immunity for Industrial Environments	
Motor	IEC61000-4-2	Electrostatic Discharge Immunity Test	Conforms to references
and	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	
driver	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test	by EU EMC Directives/ UK EMC Regulation
	IEC61000-4-5	Lightening Surge Immunity Test	
	IEC61000-4-6	High Frequency Conduction Immunity Test	
	IEC61000-4-11	Instantaneous Outage Immunity Test	

- EC: 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)

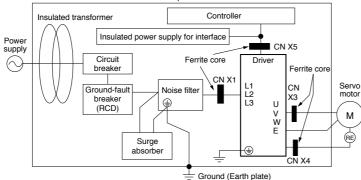
Composition of Peripheral Components

<Pre><Pre>cautions in using options>

Use options correctly after reading operation manuals of the options to better understand the precautions. Take care not to apply excessive stress to each optional part.

Installation Environment

Use Minas driver in environment of Pollution Degree 1 or 2 prescribed in IEC-60664-1 (e.g. Install the driver in control panel with IP54 protection structure.)



Power Supply

100 V system	Single phase, 100 V $^{+10}_{-15}\%$ to 115 V $^{+10}_{-15}\%$	50 Hz/60 Hz
200 V system	Single phase, 200 V $^{+10~\%}_{-15~\%}$ to 240 V $^{+10~\%}_{-15~\%}$	50 Hz/60 Hz
200 V system	3-phase, 200 V ⁺¹⁰ / ₋₁₅ % to 240 V ⁺¹⁰ / ₋₁₅ %	50 Hz/60 Hz

- (1) Use the power supply under an environment of Overvoltage Category II specified in IEC60664-1.
- (2) For a interface power supply, use the insulated one with 12 VDC to 24 VDC which conforms to CE Marking or EN Standards (EN60950).

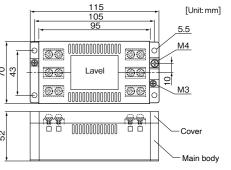
Circuit Breaker

Connect a circuit breaker which conforms to IEC standards and is UL recognized (UL Listed, (4) marked), between the power supply and the noise filter.

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	Okava Electric Industries Co.



Surge Absorber

Install a surge absorber at primary side of the noise filter.

Composition of Peripheral Components

Conformity to UL Standards

Option part No.	Driver voltage spec	Part No.	Manufacturer	Option part No.	Driver voltage spec	Part No.	Manufacturer
DV0P1450	3-phase, 200 V	R·A·V-781BXZ-4	Okaya Electric	DV0P4190	Single phase, 100 V, 200 V	R·A·V-781BWZ-4	Okaya Electric
Circuit diagr		28±1 1±11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	UL-1015 AWG16 (Unit: mm)	Circuit diagr	04.2±	0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	UL-1015 AWG16 VL-1015
		41±1				41±1	1

<Remarks>

Remove this surge absorber when you perform dielectric test on the machine, or surge absorber might be damaged.

Ferrite core

Install ferrite core to all cables (Power line, motor cable, encoder cable, interface cable)

<Caution>

- Please fix a ferrite core to avoid excessive stress to the cable.
- When using multiple axes, noise generated from each driver might influence driver and peripheral equipment and result to malfunction.
 Please insert a ferrite core between driver and motor wires (U, V, W but grounding).

(Please refer to P.415 "Composition of Peripheral Components".)

otion part No.	Part No.	Qty.	Manufacturer
DV0P1460	ZCAT3035-1330	4	TDK Corp.
39±1			[Unit: mm]
34±1	м	ass : 62.	8 g
ETDK			30±1

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 ((\perp)). Two ground terminals are provided.

Ground-Fault Breaker

Install a ground fault curcuit braker (RCD) to the primary side of the power supply.

Please use B-type (DC sensitive) ground fault circuit breakers defined in IEC60947-2, JISC8201-2-2.

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

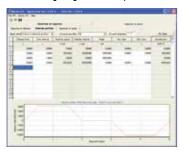
machine. To simulate the target machine as practical as possible, use maximum number of parameters available.



2. Enter operation pattern

Input the planned operation pattern that will contain [speed and rotation standard] or [absolute position

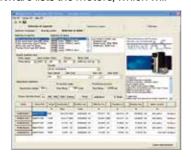
standard] with optional settings such as S-acceleration/de celeration.



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 driver, and details of reason for

determination are displayed and may be printed out.



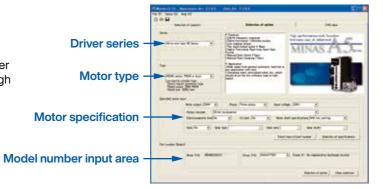
Option Selection Software for AC Servo Motor

We have prepared PC software to enable fast, easy, and correct option selection, a complicated job without the software.

Two procedures for option selection

1. Selection according to driver series and motor type

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



2. Entry of model number

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

Result of selection

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

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



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

https://industrial.panasonic.com/ww/products/motors-compressors/fa-motors/ac-servo-motors/minas-a5-panaterm

Table 5: Prefix Sl unit ----(Multiples of 10) Table1: Basic unit Table 2: Auxiliary unit Derived unit Table 4: Unit combined Table 3: Derived unit with Other derived unit with SI unit proper name

Table1: Basic unit

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

Organization of the System of Units

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	1N = 1 kg·m/s ²
Pressure, Stress	pascal	Pa	1 Pa = 1 N/m ²
Energy, Work, Amount of heat	joule	J	1J=1N·m
Amount of work, Work efficiency, Power, Electric power	watt	W	1W=1J/s
Electric charge, Amount of electricity	coulomb	С	1C=1A·s
Electric potential, Potential difference, Voltage, Electromotive force	volt	V	1V=1J/C
Electrostatic capacity, Capacitance	farad	F	1F=1C/V
Electric resistance	ohm	Ω	1Ω=1V/A
Electric conductance	siemens	S	1S=1Ω ⁻¹
Magnetic flux	weber	Wb	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	۰
Plane angle	minute	,
	second	ıı ıı
Volume	liter	I, L
Weight	ton	t

Table 5: Prefix

Multiples powered	Prefix	
to unit	Name	Symbol
10 ¹⁸	exa	Е
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	а

Quantity	Symbol of conventional unit	Symbol of SI unit and compatible unit	Conversion value
Length	μ (micron)	μm	1μ=1μm (micrometer)
Acceleration	Gal	m/s ²	1 Gal = 10 ⁻² m/s ²
	G	m/s ²	1G = 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	1rpm = 1 min ⁻¹
Weight	kgf	-	100000000000000000000000000000000000000
Mass	_	kg	Same value
Weight flow rate	kgf/s	-	0
Mass flow rate	_	kg/s	Same value
Specific weight	kgf/m ³	-	0
Density	_	kg/m ³	Same value
Specific volume	m ³ /kgf	m ³ /kg	Same value
Load	kgf	N	1kgf = 9.80665 N
Force	kgf	N	1kgf = 9.80665 N
	dyn	N	1 dyn = 10 ⁻⁵ N
Moment of force	kgf·m	N•m	1kgf·m = 9.806 N·m
Pressure	kgf/cm ²	Pa, bar ⁽¹⁾ or kgf/cm ²	1kgf/cm ² = 9.80665 x 10 ⁴ Pa
riessure	Ng//CITI	ra, bar orkgrom	= 0.980665 bar
	at (Engineering atmospheric pressure)	Pa	1 at = 9.80665 x 10 ⁴ Pa
		Pa Pa	1 atm = 1.01325 x 10 ⁵ Pa
	atm (Atmospheric pressure)		1mH ₂ O = 9.80665 x 10 ³ Pa
	mH ₂ O, mAq	Pa (2)	
	mmHg 	Pa or mmHg ⁽²⁾	1 mmHg = 133.322 Pa
	Torr	Pa	11 (1 2 00005 1065
Stress	kgf/mm ²	Pa or N/m ²	1 kgf/mm ² = 9.80665 x 10 ⁶ Pa
			=9.80665 x 10 ⁶ N/m ²
	kgf/cm ²	Pa or N/m ²	$1 \text{kgf/cm}^2 = 9.80665 \times 10^4 \text{ Pa}$
	_	_	= 9.80665 x 10 ⁴ N/m ²
Elastic modulus	kgf/m²	Pa or N/m ²	1kgf/m ² = 9.80665 Pa = 9.80665 N/m ²
			1 kgf/cm ² = 9.80665 x 10 ⁴ N/m ²
Energy, Work	kgf∙m	J (joule)	1kgf⋅m = 9.80665 J
	erg	J	1 erg = 10 ⁻⁷ J
Work efficiency, Power	kgf·m/s	W (watt)	1kgf·m/s = 9.80665 W
	PS	W	1PS = 0.7355 kW
Viscosity	PP	Pa⋅s	1P=0.1Pa·s
Kinetic viscosity	St	mm²/s	10 ⁻² St = 1 mm ² /s
Thermodynamic temperature	К	K (kelvin)	1K=1K
Temperature interval	deg	K (3)	1deg=1K
Amount of heat	cal	J	1 cal = 4.18605 J
Heat capacity	cal/°C	J/K ⁽³⁾	1 cal/°C = 4.18605 J/K
Specific heat, Specific heat capacity	cal/ (kgf·°C)	cal/ (kgf·K) ⁽³⁾	1 cal/ (kgf·°C) = 4.18605 J/ (kg·K)
Entropy	cal/K	J/K	1 cal/K = 4.18605 J/K
Specific entropy	cal/ (kgf·K)	J/(kg·K)	1 cal/ (kgf·K) = 4.18605 J/ (kg·K)
Internal energy (Enthalpy)	cal	J	1 cal = 4.18605 J
Specific internal energy (Specific enthalpy)	cal/kgf	J/kg	1 cal/kgf = 4.18605 J/kg
Heat flux	cal/h	W	1 kcal/h = 1.16279 W
Heat flux density	cal/ (h·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	Cai/ (ITHI · C)	A/m	1 Oe = 10 ³ / (4π) A/m
Magnetic flux	Mx	Wb (weber)	1Mx = 10 ⁻⁸ Wb
		• •	1 Gs = 10 ⁻⁴ T
Magnetic flux density	Gs,G	T (tesla)	IGS IU I

Major Compatible Unit

Note

(1) Applicable to liquid pressure. Also applicable to atmospheric pressure of meteorological data, when "bar" is used in international standard.

(2) Applicable to scale or indication of blood pressure manometers.

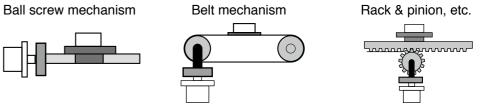
(3) "°C" can be substituted for "K".

Flow of Motor Selection

1. Definition of mechanism to be driven by motor.

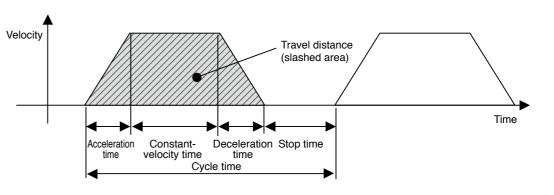
Define details of individual mechanical components (ball screw length, lead and pulley diameters, etc.)

<Typical mechanism>



2. Definition of operating pattern.

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



Note) Selection of motor capacity significantly varies depending on the operating pattern.

The motor capacity can be reduced if the acceleration/deceleration time and stop time are set as long as possible.

3. Calculation of load inertia and inertia ratio.

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

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

4. Calculation of motor velocity

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

5. Calculation of torque

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

6. Calculation of motor

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

Description on the Items Related to Motor Selection

1. Torque

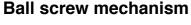
(1) Peak torque

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

(2) Traveling torque, Stop holding torque

Indicates the torque that the motor requires for a long time. The reference value is 80% or less of the rated motor torque. If the torque is a negative value, a regenerative discharge resistor may be required.

Traveling torque calculation formula for each mechanism



Traveling torque

 $\mathsf{Tf} = \frac{\mathsf{P}}{2\pi\,\eta}\;(\mu\mathsf{g}\mathsf{W}\!+\!\mathsf{F})$

W: Weight [kg]

 η : Mechanical efficiency

P:Lead[m]

 μ : Coefficient of friction

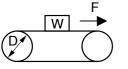
F: External force [N]

g: Acceleration of gravity 9.8[m/s²]

Belt mechanism

Traveling torque

Tf=
$$\frac{D}{2\pi \eta} (\mu gW + F)$$



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/s²]

(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·m]

ta: Acceleration time [s]

tc: Cycle time [s]

Tf: 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 \increased.

General inertia calculation method

Shape	J calculation formula	Shape	J calculation formula
Disk	$J = \frac{1}{8} WD^{2} [kg \cdot m^{2}]$ $W : Weight [kg]$ $D : Outer diameter [m]$	Hollow cylinder	$J = \frac{1}{8} W(D^2 + d^2) [kg \cdot m^2]$ $W : Weight [kg]$ $D : Outer diameter [m]$ $d : Inner diameter [m]$
Prism	$J = \frac{1}{12} W (a^2 + b^2) [kg \cdot m^2]$ $W : Weight [kg]$ $a, b, c : Side length [m]$	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	$J = \frac{1}{4} WD^{2} [kg \cdot m^{2}]$ $W : \text{Workpiece weight on conveyor } [kg]$ $D : \text{Drum diameter } [m]$ * 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 p [kg/m³] x Volume V[m³]

Density of each material

Iron $\rho = 7.9 \times 10^3 \, [kg/m^3]$

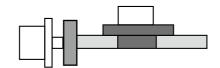
Aluminum ρ =2.8 x 10³ [kg/m³]

Brass ρ =8.5 x 10³ [kg/m³]

To Drive Ball Screw Mechanism

1. Example of motor selection for driving ball screw mechanism

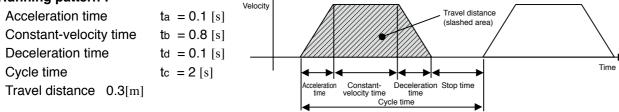
Workpiece weight WA = 10 [kg]Ball screw length BL = 0.5 [m]Ball screw diameter BD = 0.02 [m]Ball screw lead BP = 0.02 [m]Ball screw efficiency $B\eta = 0.9$



Travel distance 0.3[m]

Coupling inertia $Jc = 10 \times 10^{-6} [kg \cdot m^2]$ (Use manufacturer-specified catalog value, or calculation value.)

2. Running pattern:



3. Ball screw weight
$$BW = \rho \times \pi \times \left(\frac{BD}{2}\right)^2 \times BL = 7.9 \times 10^3 \times \pi \times \left(\frac{0.02}{2}\right)^2 \times 0.5$$

5. Provisional motor selection

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

6. Calculation of inertia ratio

JL / JM =
$$1.73 \times 10^{-4}$$
 / 0.14×10^{-4} Therefore, the inertia ratio is "12.3" (less than "30") (In case of MSMF 100 W motor: JM = 0.048×10^{-4} Therefore, the inertia ratio is "36.0".)

7. Calculation of maximum velocity (Vmax)

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

$$\frac{1}{2} \times 0.1 \times \text{Vmax} + 0.8 \times \text{Vmax} + \frac{1}{2} \times 0.1 \times \text{Vmax} = 0.3$$

$$0.9 \times \text{Vmax} = 0.3$$

$$\text{Vmax} = 0.3 / 0.9 = 0.334 \text{ [m/s]}$$

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 MSMF 200 W motor)

9. Calculation of torque

Traveling torque
$$T_f = \frac{BP}{2\pi B \, \eta} \ (\mu gWA + F) = \frac{0.02}{2\pi \ x \ 0.9} \ (0.1 \times 9.8 \times 10 + 0)$$

$$= 0.035 \ [\text{N·m}]$$
 Acceleration torque
$$T_a = \frac{(\text{JL} + \text{JM}) \times 2\pi \text{N}[\text{r/s}]}{\text{Acceleration time [s]}} + \text{Traveling torque}$$

$$= \frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} + 0.035$$

$$= 0.196 + 0.035 = 0.231 \ [\text{N·m}]$$

Deceleration torque $Td = \frac{(JL + JM) \times 2\pi N[r/s]}{Deceleration time [s]}$ - Traveling torque $=\frac{(1.73\times10^{-4}+0.14\times10^{-4})\times2\pi\times16.7}{0.1}-0.035$ $= 0.196 - 0.035 = 0.161 [N \cdot m]$

10. Verification of maximum torque

Acceleration torque = $Ta = 0.231 [N \cdot m] < 1.91 [N \cdot m]$ (Maximum torque of MSMF 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 MSMF 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)

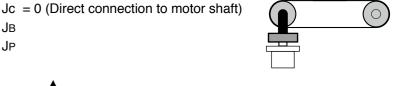
> Pulley diameter PD = 0.05[m]

Pulley weight WP= 0.5[kg] (Use manufacturer-specified catalog value, or calculation value.)

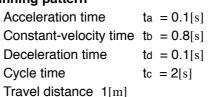
Mechanical efficiency $B_{\eta} = 0.8$

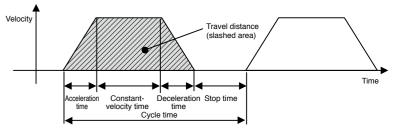
Coupling inertia

Belt mechanism inertia JB Pulley inertia



2. Running pattern





3. Load inertia JL = JC + JB + JP

= JC +
$$\frac{1}{4}$$
WA × PD² + $\frac{1}{8}$ WP × PD² × 2
= 0 + $\frac{1}{4}$ × 2 × 0.05² + $\frac{1}{8}$ × 0.5 × 0.05² × 2
= 0.00156 = 15.6 × 10⁻⁴ [kg·m²]

4. Provisional motor selection

In case of MSMF 750 W motor : $J_M = 0.96 \times 10^{-4} [kg \cdot m^2]$

5. Calculation of inertia ratio

JL / JM = 15.6×10^{-4} / 0.96×10^{-4} Therefore, the inertia ratio is "16.3" (less than "20")

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 MSMF 750 W motor)

8. Calculation of torque

Traveling torque
$$T_f = \frac{PD}{2\,\eta} (\mu gWA + F) = \frac{0.05}{2\,\times\,0.8} \ (0.1\,\times\,9.8\,\times\,3 + 0)$$

$$= 0.061 [\,N\cdot m\,]$$
Acceleration torque
$$T_a = \frac{(JL + JM)\,\times\,2\pi N [\,r/s\,]}{Acceleration\,time[\,s\,]} + \text{Traveling torque}$$

$$= \frac{(15.6\,\times\,10^{-4} + 0.96\,\times\,10^{-4})\,\times\,2\pi\,\times\,7.08}{0.1} + 0.061$$

$$= 0.736 + 0.061 = 0.797 [\,N\cdot m\,]$$
Deceleration torque
$$T_d = \frac{(JL + JM)\,\times\,2\pi N [\,r/s\,]}{Deceleration\,time[\,s\,]} - \text{Traveling torque}$$

$$= \frac{(15.6\,\times\,10^{-4} + 0.96\,\times\,10^{-4})\,\times\,2\pi\,\times\,7.08}{0.1} - 0.061$$

$$= 0.736 - 0.061 = 0.675 [\,N\cdot m\,]$$

9. Verification of maximum torque

Acceleration torque $Ta = 0.797[N \cdot m] < 7.1[N \cdot m]$ (Maximum torque of MSMF 750 W motor)

10. Verification of effective torque

Trms =
$$\sqrt{\frac{Ta^2 \times ta + Tf^2 \times tb + Td^2 \times td}{tc}}$$

= $\sqrt{\frac{0.797^2 \times 0.1 + 0.061^2 \times 0.8 + 0.675^2 \times 0.1}{2}}$
= 0.237 [N·m] < 2.4 [N·m] (Rated torque of MSMF 750 W motor)

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

Request Sheet for Motor Selection

Request for motor selection I: Ball screw drive

1. Driven mechanism and running data

1)	Travel distance of the work load	ℓ₁: mm	
•)	per one cycle	√1· IIIII	
2)	Cycle time	to:	Running pattern
	(Fill in items 3) and 4) if required.)		Λοιστίτ Λοιστ Λοιστ Λοιστίτ Λοιστίτ Λοιστ Λοιστίτ Λοιστίτ Λοιστίτ Λοιστίτ Λοιστίτ Λοιστίτ Λοιστίτ
3)	Acceleration time	ta: s	$\left. \right] \qquad \stackrel{\mathfrak{D}}{\triangleright} \left[\left. \right] \qquad \left[\left. \right] \qquad \right] $
4)	Deceleration time	td: s	ta to time
5)	Stopping time	ts:	
6)	Max. velocity	V: mm/s	F
7)	External force	F: N	W _A
8)	Positioning accuracy of the work load	± mm	
9)	Total weight of the work load and the table	W _A : kg	
10)	Power supply voltage	V	
11)	Diameter of the ball screw	mm	
12)	Total length of the ball	mm	
13)	Lead of the ball screw	mm	Traveling direction

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

(horizontal, vertical etc.)

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

1. Driven mechanism and running data

1)	Travel distance of the work load per one cycle
2)	Cycle time

ℓ_1 :	mm	

15) Diameter of the pulley

s 16) Weight of the pulley

	Moto	r side	Ball sc	rew side
Diameter of the pulley	D₁:	mm	D ₂ :	mm

(Fill in items 3) and 4) if required.)

3) Acceleration time	ta:	S
4) Deceleration time	td:	s

(or item 17) and 18)) 17) Width of the pulley

18) Material of the pulley

L1:	mm

kg W₂:

kg

5) Stopping time

ts:	\$

19) Weight of the belt

W _M :	kg

6) Max. velocity

7) External force

V:	mm/s
F:	N

mm

mm

8) Positioning accuracy of the work load

Total weight of the work load and the table	W _A :	kg

10) Power supply voltage

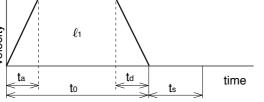
1) Diameter of the ball screw	mm

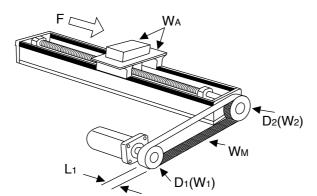
12) Total length of the ball screw

13) Lead of the ball screw	mm

14) Traveling direction (horizontal, vertical etc.)







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

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

Request Sheet for Motor Selection

Request for motor selection III: Belt drive

mm/s

Ν

mm

kg

٧

kg

mm

kg

1. Driven mechanism and running data

Travel distance of the work load per one cycle	ℓ_1 :	n
2) Cycle time	to:	_

(Fill in items 3) and 4) if required.)

Acceleration time	ta:	
Deceleration time	td:	;

V:

F:

D₁:

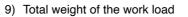
5) Stopping time

3)

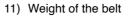
6)	Max	velocity	

7) External	force
1) ⊏xiemai	lorce

8)	Positioning	accuracy	of	th
0)	work load			



Power supply voltage
--



2)	Diameter	of	the	driving	pulley	
----	----------	----	-----	---------	--------	--

Total weight of the pulley	13)	Total	weiaht	of the	pulley
--	-----	-------	--------	--------	--------

Running	patterr
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colty		<i>l</i> 1			
5	/ ≪*>	to	td 💉	t s	time

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Lı		
		▼ D
	W	1

(or item 14) and 15))

5)	Material	of the	pulley
----	----------	--------	--------

16)	Traveling direction
10)	(harizontal vartical

,	 J	

15)	Material	of the	e pulle

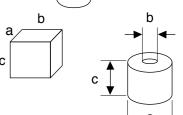
6)	Traveling direction	
O)	(horizontal, vertical etc.)	

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:

427 | Panasonic Industry Co., Ltd. Panasonic Industry Co., Ltd. | 428

mm



Company	name :		
Departme	ent/Section:		
Name :			
Address :			
Tel :			
Fax :			
E-mail ad	dress:		

Request Sheet for Motor Selection

Request for motor selection IV: Timing pulley + Belt drive

1. Driven mechanism and running data

1)	Travel distance of the work	0.
')	load per one cycle	€ 1.

load per one cycle	ℓ ₁ .
2) Cycle time	to:

₹ 1·	""""
l	_

mm/s

16) Diameter of the pulle	еу
---------------------------	----

		IVIOLO	i Side	D.	١
16)	Diameter of the pulley	D ₃ :	mm	D ₄ :	
17)	Weight of the nulley	W _s .	kσ	w.·	

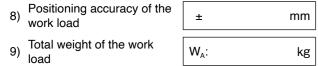
(Fill in items 3) and 4) if required.) (or item 18) and 19))

V:

3) Acceleration time	ta:	s
4) Deceleration time	td:	s

5) Stopping time	ts:	s

7) External force	F:	N



10) Power supply voltage	V

11) Weight of motor side belt	W _M :		kg	
Motors	eide	Relt side		

	IVIOL	JI SILLE	De	it Side
12) Diameter of the pulley	D ₁ :	mm	D ₂ :	mm
13) Weight of the pulley	W ₁ :	kg	W ₂ :	kg

or	item	14)	and	15))	
٠.		٠.,	aria	.0,,	

6) Max. velocity

14) Width of the belt	L1:	mm
15) Material of the pulley		

18) Width of the pulley

19) Material of the pulley

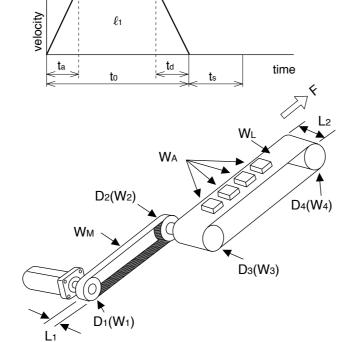
20) Weight of the belt

	L2:	n	nm
[w·		ka

Traveling direction (horizontal, vertical etc.)



Running pattern



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

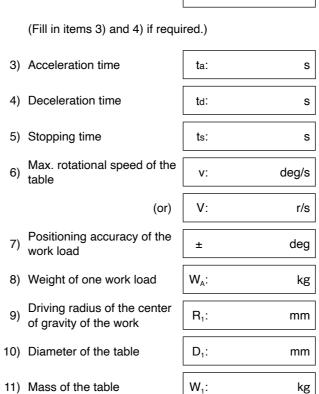
Company name :
Department/Section :
Name :
Address:
Tel:
Fax:
E-mail address:

1. Driven mechanism and r

Diameter of the table

13) Power supply voltage

Travel distance of the work load per one cycle	d ₁ :	deg
2) Cycle time	to:	S



T₁:

running d	ata					
ruilling u	ala		Pris	sm		Cylinder
d ₁ :	deg	14) Dimensions of the work load	a:	mm	a:	mm
to:	s		b:	mm	b:	mm
i.)			c:	mm	c:	mm
ta:	S	15) Number of work loads				pcs
td:	s	Running pattern				
ts:	s	Atjo d ₁				
v:	deg/s	velocity d1	\	\		

D ₁		,
	b	b
c		

2. Other data	(Fill the details on	specific mechanism	and its confi	gurations in the	e following blank.
Z. Ollici uala	ti ili tile detalla oli		i and its com	uulallolis III liik	5 IUIIUWIIIU DIA

mm

429	Panasonic Industry Co., Ltd.	
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1. Driven mechanism and running data

Travel distance of the work load per one cycle	d ₁ :	(

2) Cycle time	to:	s

(Fill in	items 3)	and 4)	if rec	uired.)
----------	----------	--------	--------	---------

3) Acceleration time	ta:	s
4) Deceleration time	td:	s

C \	Max. rotational speed of the table	
6)	table	V

5) Stopping time

6)	table	v:	deg/s
	(or)	V:	r/s

work load	±

8)	Weight of one work load	W _A :	
	Database and the state of the seconds of		

9)	Briving radias of the sortion	
9)	of gravity of the work	
	of gravity of the work	

10)	Diameter of the table	D ₁ :	mn

11)	Mage	of the	tahle	

15) Number of work loads

14) work load

VV ₁ :	кg

13)	Power supply voltage	

		(Prism)		(Cylinder)
f the	a:	mm	a:	mm
			_	
	b:	mm	b:	mm
	c:	mm	c:	mm
				·

	Moto	or side	Turntable sid	
16) Diameter of the pulley	D ₂ :	mm	D ₃ :	mı
17) Weight of the pulley	W ₂ :	kg	W ₃ :	k

	or iter	m 18)	and	19))	
--	---------	-------	-----	------	--

18)	Width	of	the	pulley

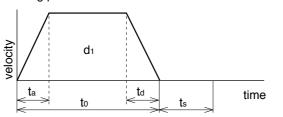
9)	Material of the pulley	
- /		

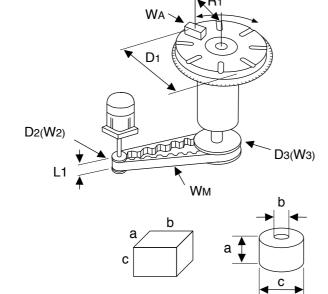
20	Weight	of the	helt
20	, vvcigiii	OI LIIC	DOIL

W _M :	kg

mm

Running pattern





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

mm

mm

٧

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

Request Sheet for Motor Selection

Request for motor selection VII: Roller feed drive

1. Driven mechanism and running data

1)	Travel distance of the work load per one cycle	ℓ₁: mm	Running pattern	
2)	Cycle time	to: s	/	
	(Fill in items 3) and 4) if required.)		A loop land	
3)	Acceleration time	ta: s	ta to to	time
4)	Deceleration time	td: s	K	 "
5)	Stopping time	ts: s		
6)	Max. velocity	v: mm/s		F
7)	External pulling force	F: N		Lı
8)	Positioning accuracy of the work load	± mm		D ₁ (W ₁)
9)	Number of rollers	pcs		
10)	Power supply voltage	V	(or item 13) and 14))	
11)	Diameter of the roller	D ₁ : mm	13) Width of the roller	L ₁ : mm
12)	Mass of the roller	W₁: kg	14) Material of the roller	

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

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

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A6B Series
Special Order Product

s

Ν

kg

mm

1. Driven mechanism and running data

1)	Travel distance of the work load
1)	per one cycle

mm

2) Cycle time

to:

(Fill in items 3) and 4) if required.)

3) Acceleration time

4) Deceleration time

ta: td:

ts:

F:

 W_A :

D₃:

5) Stopping time 6) Max. velocity

work load

V: mm/s

7) External force Positioning accuracy of the

mm

10) Power supply voltage

9) Total weight of the work load

٧

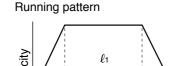
11) Diameter of the pinion

 W_3 : kg

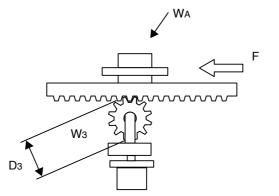
Traveling direction

12) Mass of the pinion

(horizontal, vertical, etc.)



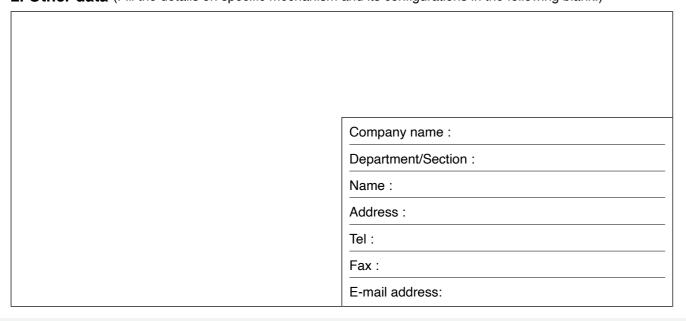
ta



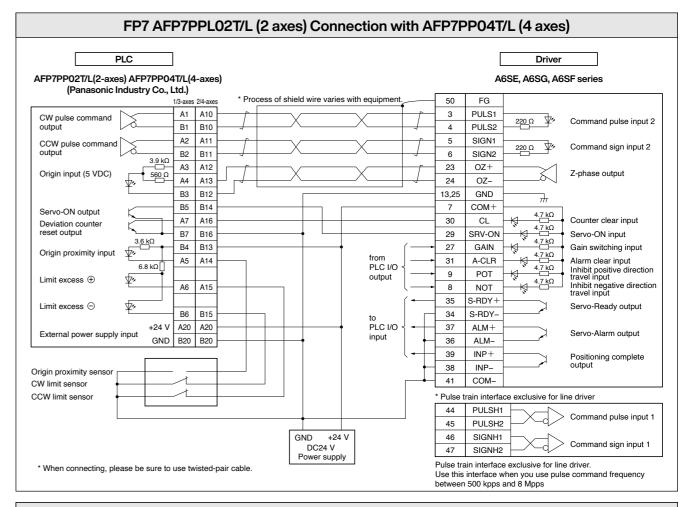
td

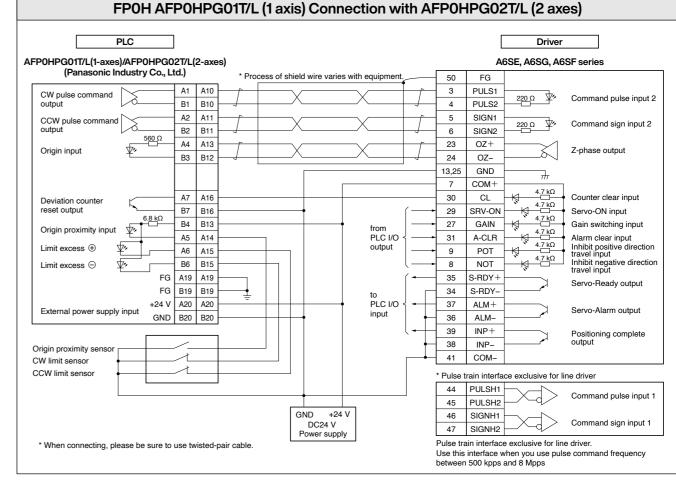
time

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



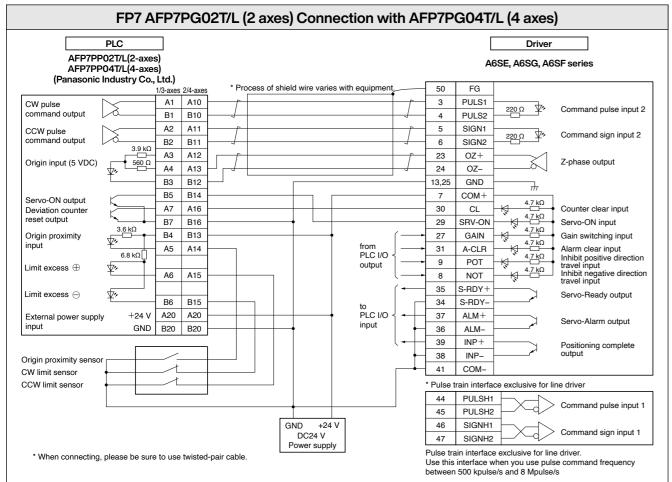
Connection Between Driver and Controller

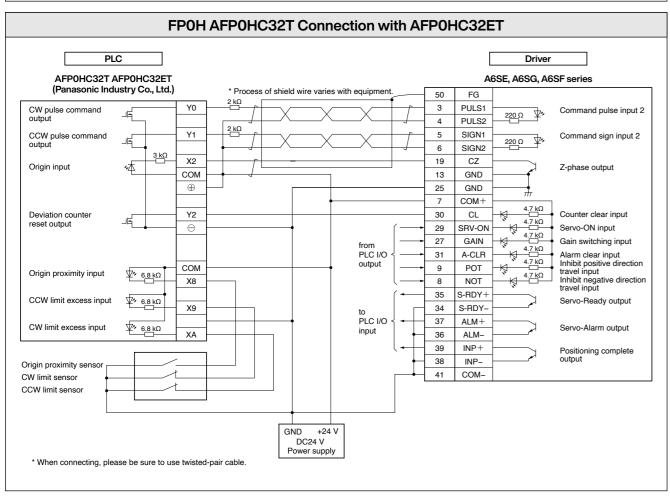


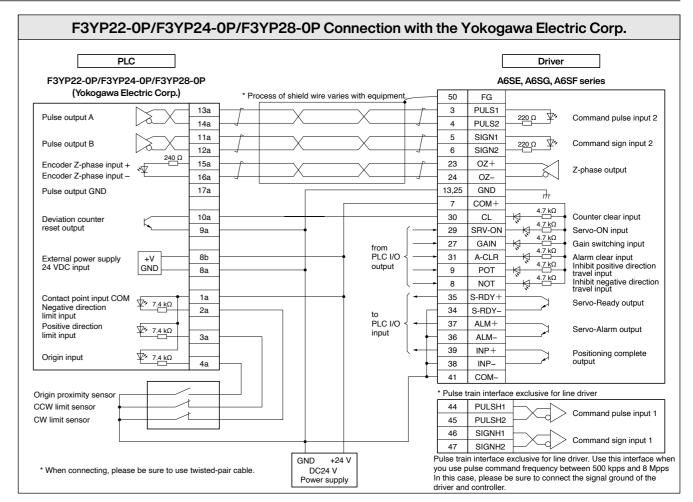


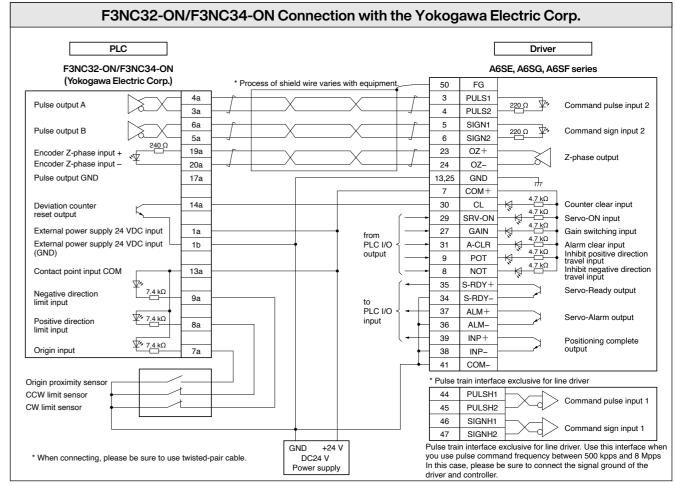
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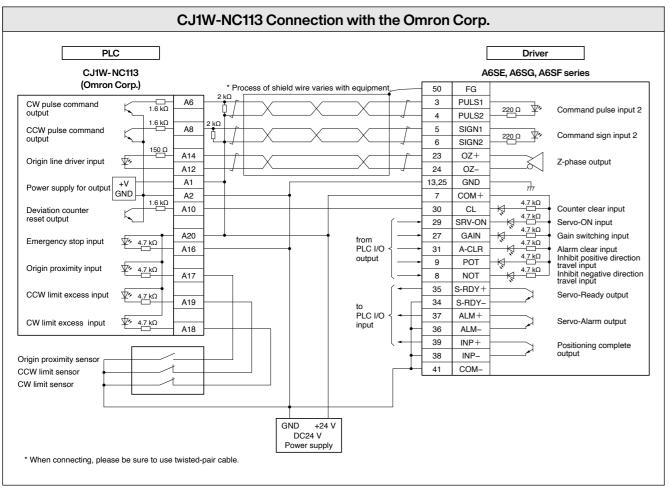
A6 Series

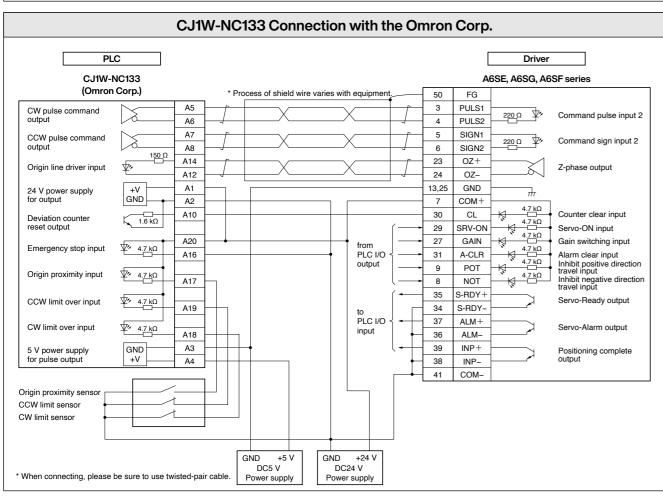


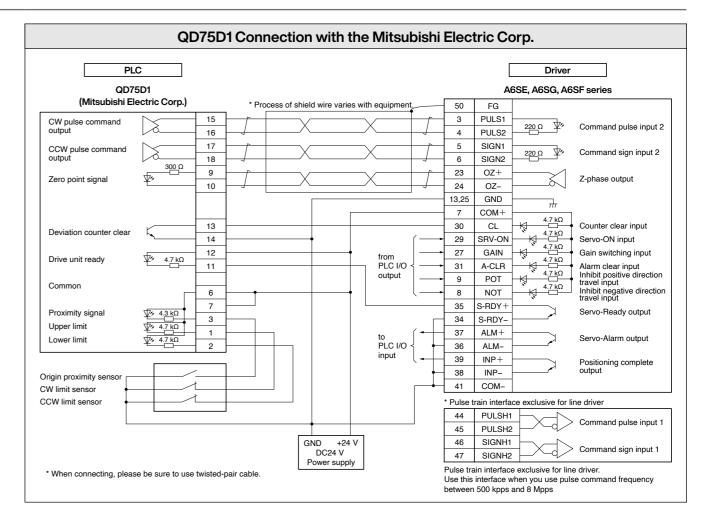


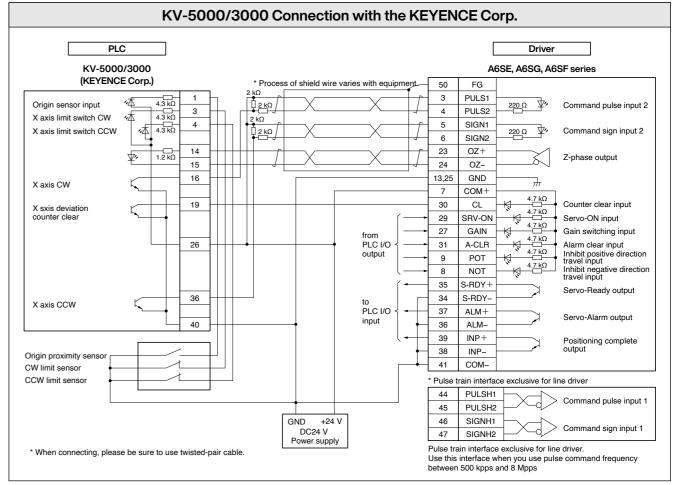












50-pin → 50-pin

Conversion cable

DV0P4130

DV0P4131 DV0P4132

For easier replacement of old driver (MINAS X/XX/V series) with A6 series, use the interface conversion connector. **⟨36-pin → 50-pin⟩** $\langle 50\text{-pin} \rightarrow 50\text{-pin} \rangle$ Old Old model model Driver Driver Host Host controller controller 36-pin 36-pin 50-pin 50-pin Current Current model model Driver Driver Host Host controller controller 50-pin 50-pin 50-pin 50-pin 50-pin 36-pin

When selecting the cable, refer to the table below because the part number of the cable is specific to the control mode of the old model.

Old model Control mode		Conversion cable part No.	Conversion wiring table	
X series	Position/velocity control	DV0P4120	P.440	
XX series (36-pin)	Torque control	DV0P4121	P.440	
	Position control	DV0P4130	P.441	
V series (50-pin)	Velocity control	DV0P4131	P.441	
	Torque control	DV0P4132	P.442	

^{*} For external dimensions, refer to P.322.

36-pin → 50-pin

Conversion cable

DV0P4120

DV0P4121

Conversion Wiring Table

	DV0P4120			DV0P4121		
Pin No. on Old Model	Pin No. on Current Model	Signal Name	Symbol	Pin No. on Current Model	Signal Name	Symbol
1	23	Z-phase output	OZ+	23	Z-phase output	OZ+
2	24	Z-phase output	OZ-	24	Z-phase output	OZ-
3	13	Signal ground	GND	13	Signal ground	GND
4	19	Z-phase output	CZ	19	Z-phase output	CZ
5	4	Command pulse input 2	PULS2	4	Command pulse input 2	PULS2
6	3	Command pulse input 2	PULS1	3	Command pulse input 2	PULS1
7	6	Command pulse sign input 2	SIGN2	6	Command pulse sign input 2	SIGN2
8	5	Command pulse sign input 2	SIGN1	5	Command pulse sign input 2	SIGN1
9	33	Command pulse inhibition input	INH	33	Command pulse inhibition input	INH
10	26	Speed zero clamp input	ZEROSPD	26	Speed zero clamp input	ZEROSPD
11	7	Power supply for control signal (+)	COM+	7	Power supply for control signal (+)	COM+
12	29	Servo-ON input	SRV-ON	29	Servo-ON input	SRV-ON
13	30	Deviation counter clear input	CL	30	Deviation counter clear input	CL
14	14	Speed command input	SPR	NC		
15	15	Signal ground	GND	15	Signal ground	GND
16	43	Speed monitor output	SP	43	Speed monitor output	SP
17	25	Signal ground	GND	25	Signal ground	GND
18	50	Frame ground	FG	50	Frame ground	FG
19	21	A-phase output	OA+	21	A-phase output	OA+
20	22	A-phase output	OA-	22	A-phase output	OA-
21	48	B-phase output	OB+	48	B-phase output	OB+
22	49	B-phase output	OB-	49	B-phase output	OB-
23	NC			NC		
24	NC			NC		
25	39	Positioning complete output Speed arrival output	COIN+ AT-SPEED+	39	Positioning complete output Speed arrival output	COIN+ AT-SPEED+
26	37	Servo-Alarm output	ALM+	37	Servo-Alarm output	ALM+
27	35	Servo-Ready output	S-RDY+	35	Servo-Ready output	S-RDY+
	34	Positioning complete output (–) Speed arrival output (–)	COIN- AT-SPEED-	34	Positioning complete output (–) Speed arrival output (–)	COIN- AT-SPEED-
28	36	Servo-Alarm output (-)	ALM-	36	Servo-Alarm output (–)	ALM-
	38	Servo-Ready output (-)	S-RDY-	38	Servo-Ready output (-)	S-RDY-
	41	Power supply for control signal (-)	COM-	41	Power supply for control signal (-)	COM-
29	8	CW over-travel inhibit input CWL 8 CW over-travel inhibit input		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.

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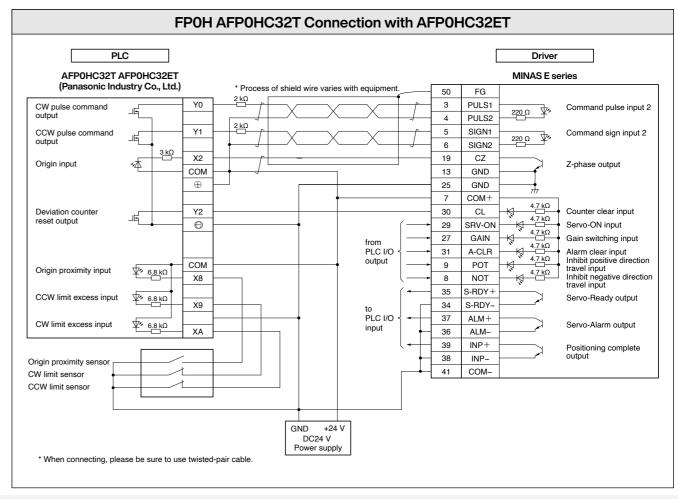
		DV0P4130			DV0P4131		
Pin No. Pin No. on Old Model Current Model		Signal Name	Symbol	Pin No. on Current Model	Signal Name	Symbol	
1	8	CW over-travel inhibit input	CWL	8	CW over-travel inhibit input	CWL	
2	9	CCW over-travel inhibit input	CCWL	9	CCW over-travel inhibit input	CCWL	
3	3	Command pulse input 2	PULS1	NC			
4	4	Command pulse input 2	PULS2	NC			
5	5	Command pulse sign input 2	SIGN1	NC			
6	6	Command pulse sign input 2	SIGN2	NC			
7	7	Power supply for control signal (+)	COM+	7	Power supply for control signal (+)	COM+	
8	NC			NC			
9	NC			NC			
10	NC			NC			
11	11	External brake release signal	BRK-OFF+	11	External brake release signal	BRK-OFF+	
12	12	Zero-speed detection output signal	ZSP	12	Zero-speed detection output signal	ZSP	
13	13	Torque in-limit signal output	TLC	13	Torque in-limit signal output	TLC	
14	NC	-		14	Speed command input	SPR	
15	15	Signal ground	GND	15	Signal ground	GND	
16	16	CCW direction torque limit input	CCWTL	16	CCW direction torque limit input	CCWTL	
17	17	Signal ground	GND	17	Signal ground	GND	
18	18	CW direction torque limit input	CWTL	18	CW direction torque limit input	CWTL	
19	19	Z-phase output	CZ	19	Z-phase output	CZ	
20	NC	Z-priase output	UZ	NC NC	Z-priase output	102	
21	21	A-phase output	OA+	21	A-phase output	OA+	
22	22	A-phase output	OA-	22	A-phase output	OA-	
23			OZ+	_		OZ+	
	23	Z-phase output		23	Z-phase output		
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	-		
48	48	B-phase output	OB+	48	B-phase output	OB+	
49	49	B-phase output	OB-	49	B-phase output	OB-	
	50	Frame ground	FG	50	Frame ground	FG	

* "N	IC" is	no	connect.
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		DV0P4132	
Pin No.	Pin	DV0F4132	
on Old Model	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 -		0014
7	7	Power supply for control signal (+)	COM+
8	NC NC		
9	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		.20
15	15	Signal ground	GND
16	16	Torque command input	TRQR
17	17	Signal ground	GND
18	18	CW direction torque limit input	CWTL
19	19	Z-phase output	CZ
20	NC		
21	21	A-phase output	OA+
22	22	A-phase output	OA-
23	23	Z-phase output	OZ+
24	24	Z-phase output	OZ-
25	50	Frame ground	FG
26	26	Speed zero clamp input	ZEROSPD
27	27	Gain switching input	GAIN
28	NC		
29	29	Servo-ON input	SRV-ON
30	NC		
31	31	Alarm clear input	A-CLR
32	32	Control mode switching input	C-MODE
33	NC		
34	NC		
35	35	Servo-Ready output	S-RDY+
36	NC		
37	37	Servo-Alarm output	ALM+
38	NC		
39	39	Speed arrival output	AT-SPEED+
40	40	Torque in-limit signal output	TLC
	10	External brake release signal (–)	BRK-OFF-
44	34	Speed arrival output (-)	AT-SPEED-
41	36 38	Servo-Alarm output (-)	ALM- S-RDY-
	41	Servo-Ready output (–)	COM-
42	42	Power supply for control signal (–)	IM
43	43	Torque monitor output Speed monitor output	SP
44	25	Signal ground	GND
45	25	Signal ground	GND
46	25	Signal ground	GND
47	NC	3	
48	48	B-phase output	OB+
49	49	B-phase output	OB-
50	50	Frame ground	FG
* "NC" is			

^{* &}quot;NC" is no connect.

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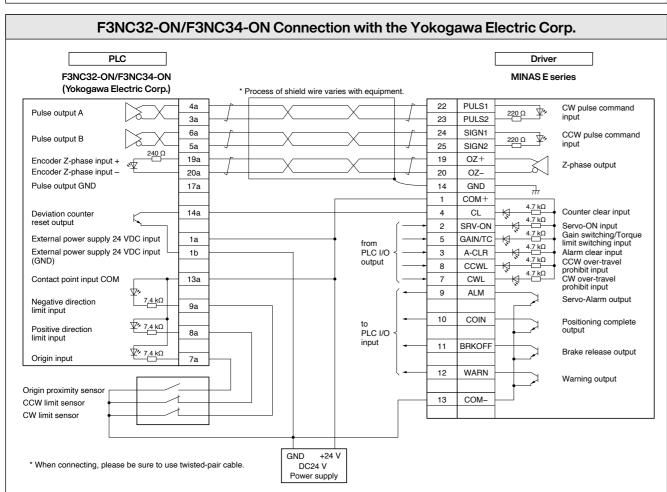
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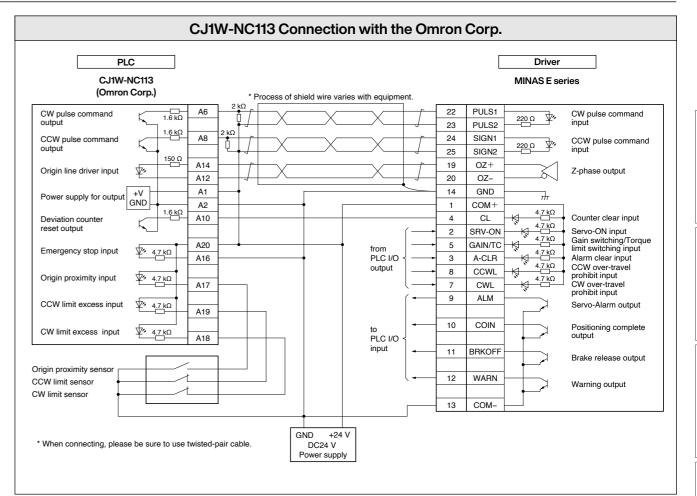
A6 Series

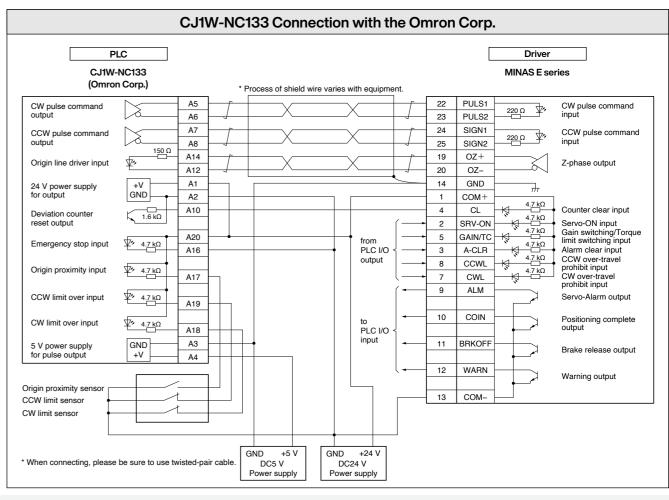
A6N Series

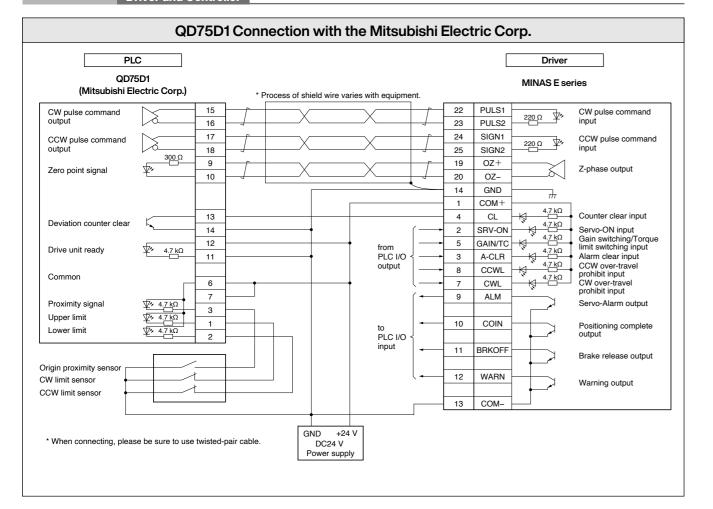
A6B Series
Special Order Product

E Series









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Sales Office

[Panasonic Industry Co., Ltd. Sales Office of Motors]

(November 01, 2022)

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maia	(Mumbai Office) [Sales office]	Widifibal	1	400059, India	_
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