

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



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Search





AC Servo Motor & Driver

MINAS A6 Family **MINAS E series**

IN Better Solution

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



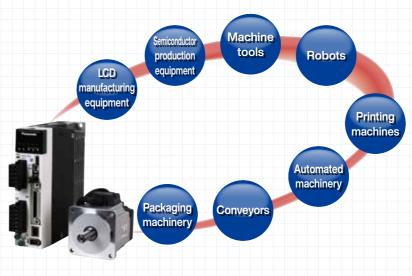
2023.3

MITAS 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

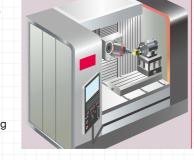
A robot is required to operate stably despite arm posture and position, workload and other conditions changing from moment to moment. The MINAS A6 family assures stable operation by suppressing effects of load to a minimum using "adaptive load control."



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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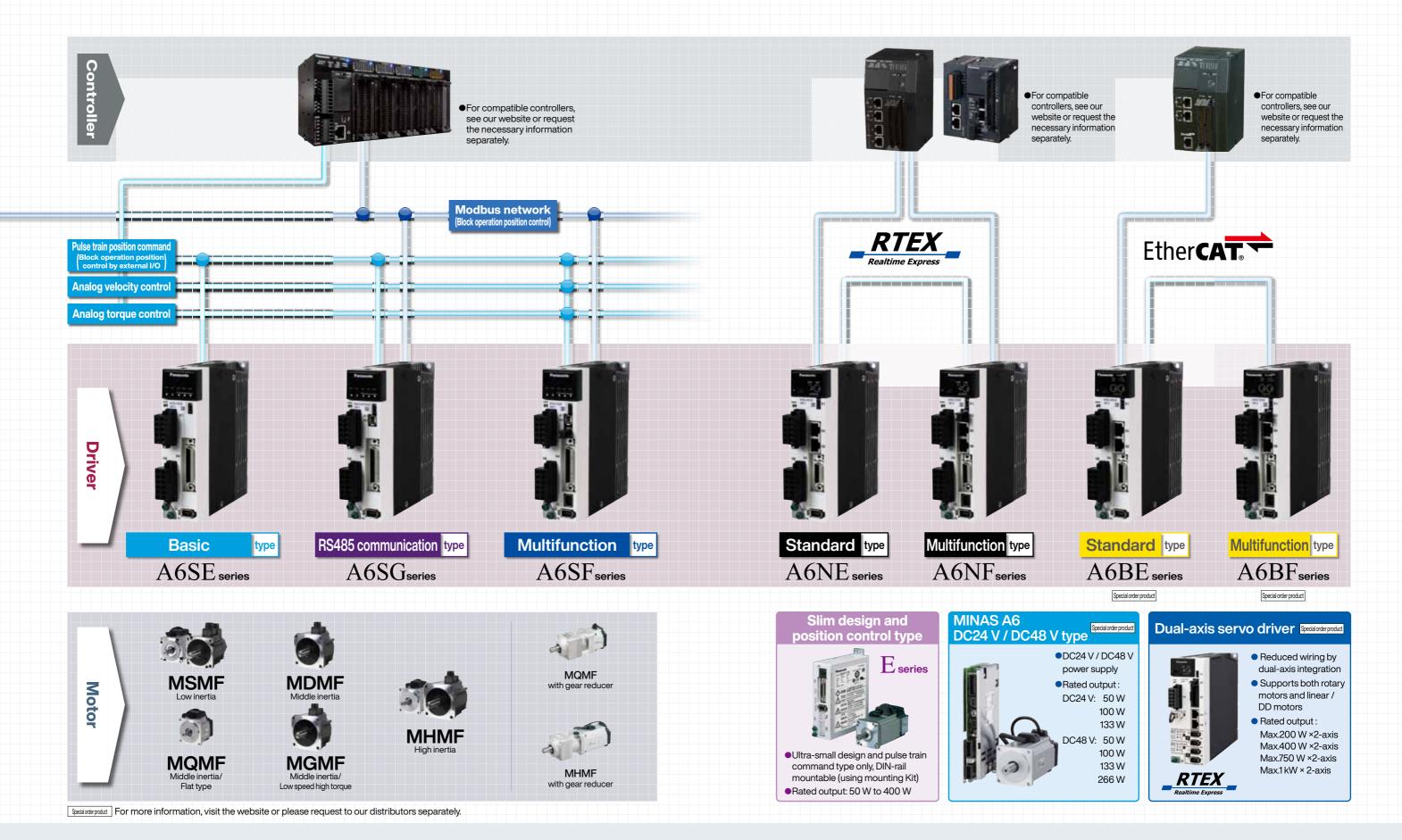
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Servomotors that flexibly and effectively fit into

various system configurations MINAS A6 Family





It is MINAS A6 Family lineup that meets the

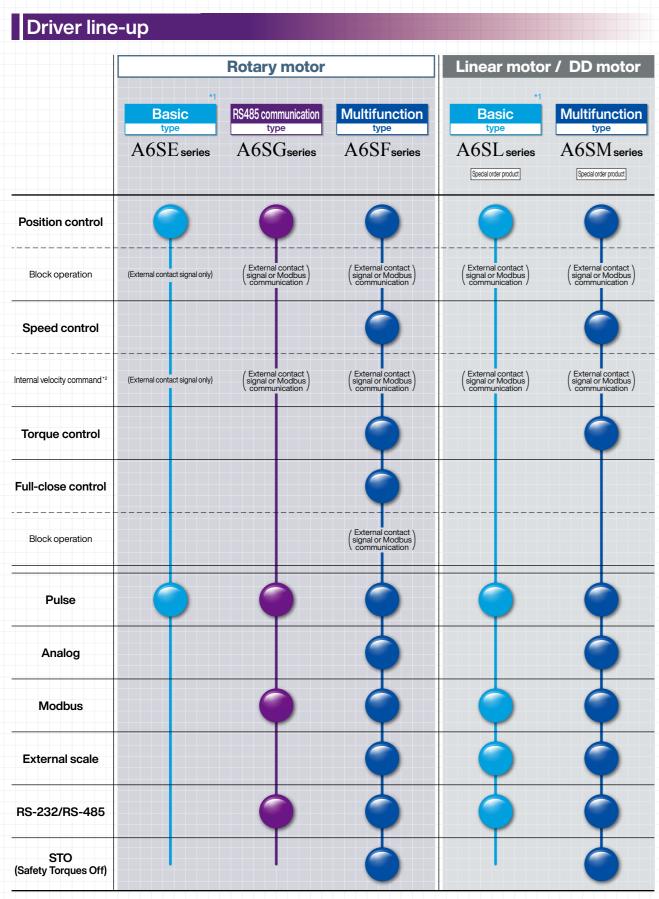
manufacturing industry needs. MINAS A6 Family

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)

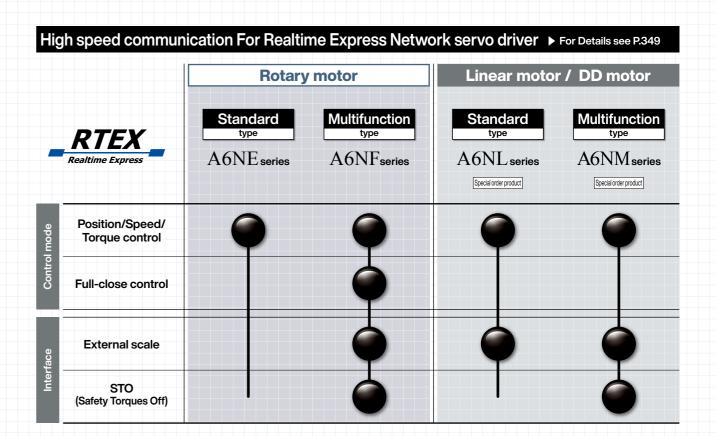
*1 Maximum rotational speed is 3000 r/min.

It is MINAS A6 Family lineup that meets the

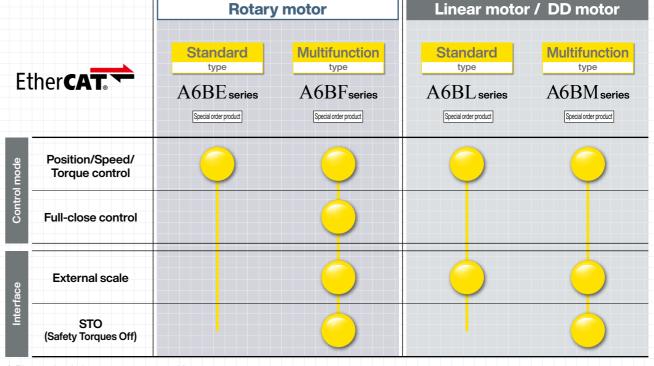
manufacturing industry needs. MINAS A6 Family



^{*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.

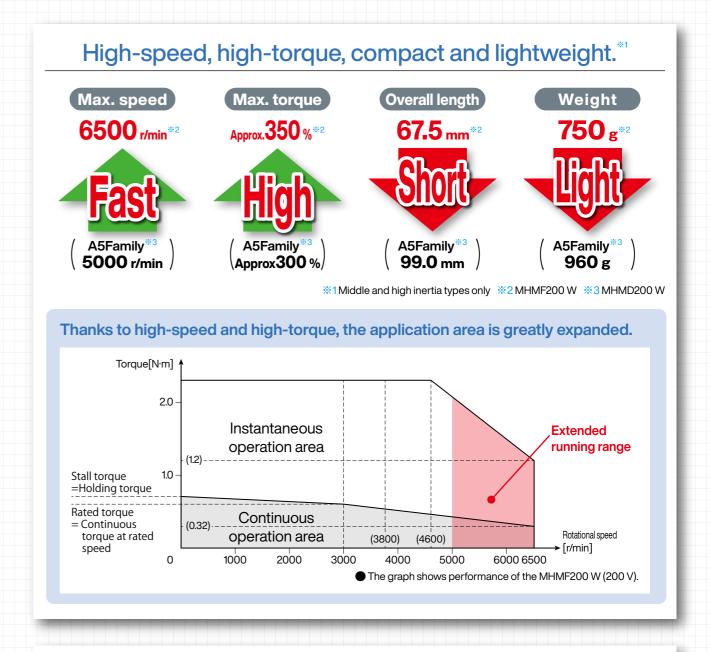
Special order product For more information, please visit our website or request to our distributors separately.

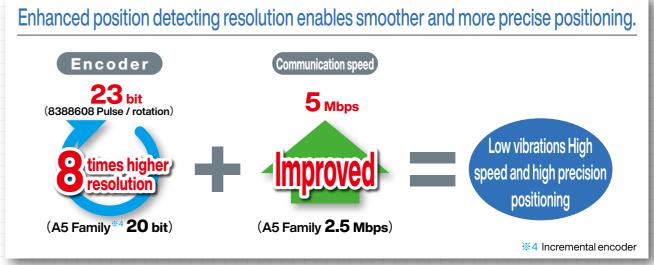
^{*2} When using internal speed command with Modbus, external servo ON is required.

Small, light, powerful and speedy

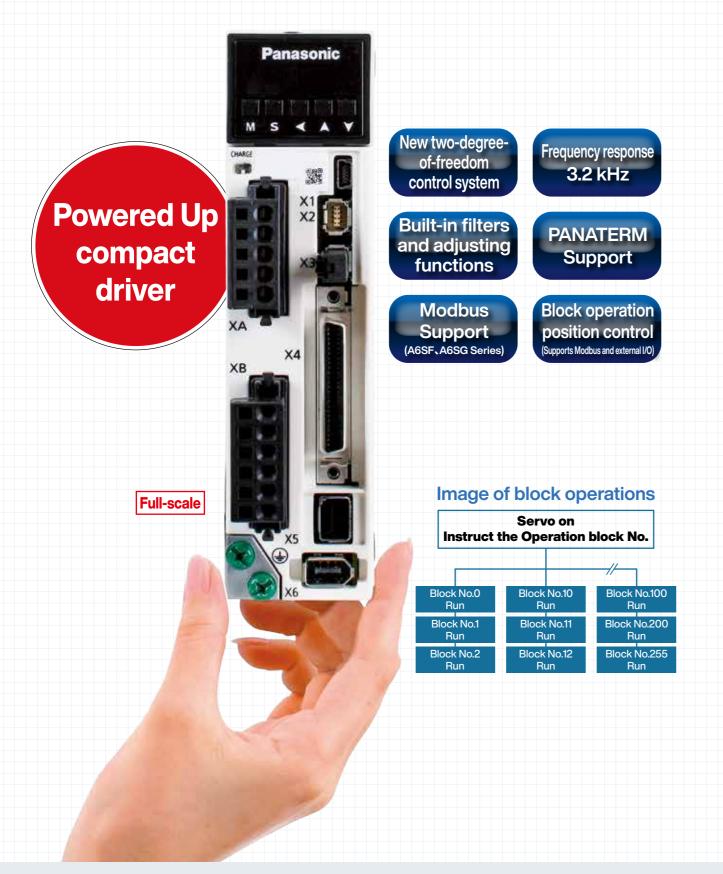








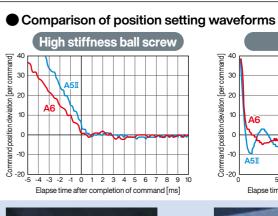
Swifter, smarter and easier to use

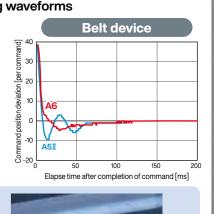




High-speed response, high-precision positioning for quick and accurate movement

Our proprietary algorithm in addition to upgraded CPU and other hardware realized further high-speed response. Furthermore, high-precision positioning is achieved by automatically eliminating micro vibrations and machine oscillation caused by the resonance.





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





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.

Settling time (Measured on low stiffness resonant mechanism) A5II Fami **6** ms 17 ms





%1 Comparison with conventional product A5II Family

Adjustment completed in only 3 processes Measurement Result determination Load **Stiffness** Command response

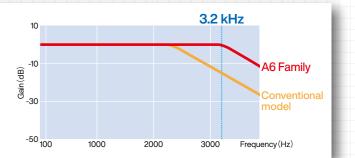
Fit gain adjustment window

 Automatically proposes various settings

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 o	il 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	Tubbol (NDII)	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
- For environmental conditions of applications, refer to P.303.

What is IP? IP- 6 7 An international standard that specifies the degree of Protected against water dustproof and waterproof Dust-tight type: Totally protected against dust penetration. performance. (IP: Ingress Protection)



Lifespan diagnosis / degradation diagnosis

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

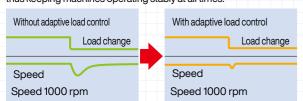
Geared servomotor

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.

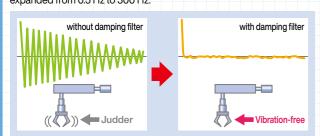


Friction torque compensation

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.

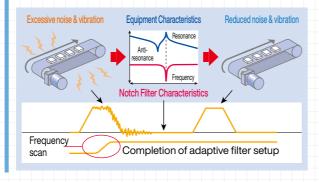


Manual/Auto notch filter

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



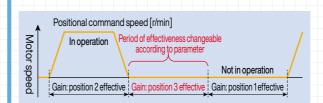
Block operation function

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
- · Applicable scale: AB-phase feedback scale (general purpose product) and serial feedback scale (dedicated to Panasonic format product)

A5 Family A6 Family Input 4 Mpps 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.

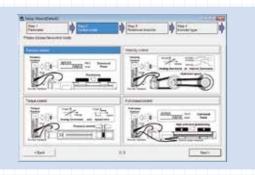
Multifunctional software for quick adjustment support

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

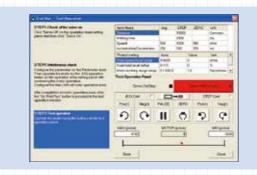


Added New screen for gain adjustment, equipped with stiffness oscillation auto-reduction function



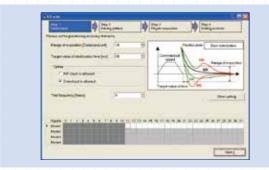
Trial ru

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

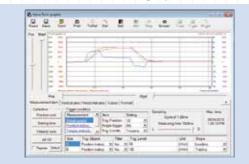


Fit gair

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



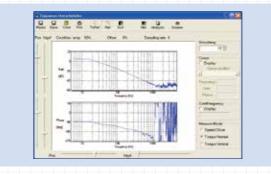


Please download from our web site and use after install to the PC.

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.

Nome	Volue	Unit	Stekes
Power supply on integrated time	2.0	h	1
Drivertemperature	34	degrees	
Number of times of implive resistance	0	Smes	
Number of times ob DB relay changing	0	Smes-	
Fan operation time	0.0	N.	
Fan life time integrated value	0.0	%	
Condenser life time integrated value	0.0	%	
Mokeruses	0		

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), Win (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.

RTEX Realtime Express

Simple network

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





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
 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	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			1
Middle inertia MDMF		ole descript	ion		1		200V	200V	200V	200V	200V	200V
Middle inertia MGMF		cifications	200 V		1	1	850 W		2.4 kV	V 2.9 kW	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	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	200 V	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 ^{*1})	ISO13849-1 EN61508 EN62061 EN61800-5-2	_
UL	Standards	UL61800-5-1 (E164620)	UL1004-1, UL 1004-6 (E327868)
CSA 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 UL: Underwriters Laboratories

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

Safety parameter

	Diagnosis based on EDM	No diagnosis based on EDM
Safety Integrity Level	EN61508 (SIL3)	EN61508 (SIL2)
Salety linegrity 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 = 1.40×10 ⁻⁸ (% SIL2 = 1.40 %)
r lazardous failure probability per flour	<for and="" g="" h="" size=""></for>	<for and="" g="" h="" size=""></for>
	PFH =1.78 × 10 ⁻⁸ (% SIL3 = 17.8 %)	PFH = 1.85×10 ⁻⁸ (% SIL2 = 1.85 %)
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

Low speed High torque

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

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

machines directly

coupled with ball

stiffness and high

repetitive application

· Flat type and suitable

machines with belt

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

Suitable for the

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

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

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

•

Holding brake

Oil seal

•

Motor encoder

wire

•

•

•

•

•

•

•

•

•

7 Classification of type *4

Specification

Basic type

(Pulse train only)

Multi fanction type

(Pulse, analog, full-closed)

RS485 communication type

(Pulse train only)

•

A6N Series

A6B Series

JN

•

•

•

•

F 5 A Z L 1

2 Series Symbol Series name Tvpe MSM Low inertia (50 W to 50 kW) F A6 Family 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)

(2)

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

M S M

MHM High inertia (50 W to 7.5 kW) 3 Motor rated output

① Type

Symbol

MINAS A6 Series

_					
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
80	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

o voltago opocilioationo				
Symbol	Specifications			
1	100 V			
2	200 V			
Z	100 V/ 200 V common (50 W only)			

(4) Voltage enecifications

Symbol Specifications Standard

(5) Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires
L	Absolute	23-bit	8388608	5

Symbol		Sh	aft	Holding 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		•		•	•		•		

U 4 V 2 •

*1 Connector type: IP67, Lead wire type: IP65 *2 22.0 kW: IP44

•

6 I/f specifications

Symbol (specification)

(Analog/Pulse)

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

L N 1 5 S E MAD * * * Special specifications 3 4 5 1 2

V

V 4

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	eries name
L	A6 Family

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

5 Supply voltage specifications

60 A

•

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

"G" do not

Symbol

G

7.5 130 mm sq. or more (*1) Please refer to P.303 for protection class conditions.

80 mm sq. or less

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

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.

MHMF 50 W to 1000 W 7 Motor specifications: 80 mm sq. or less MQMF 100 W to 400 W Motor encoder <Note> Holding brake When using a rotary encoder as an incremen-With Round Key-way, Connector Lead tal system (not using multi-turn data), do not without with JN wire lip connect a battery for absolute encoder. • • A 2 В 1 • • B 2 • • С 7 Motor specifications: IP67*2 100 mm sq. to 220 mm sq. С MSMF, MHMF, MDMF, MGMF

A 1

(7)

Shaft

6)

Symbol

A 2

B 2

C 2

D 2

S 1

S 2

T 2

U 2

U

1

•

•

•

•

Α

В 1

С

D

<u>⑤</u>

• С D D 2 D 4 S 2 • T 2 U 2 •

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

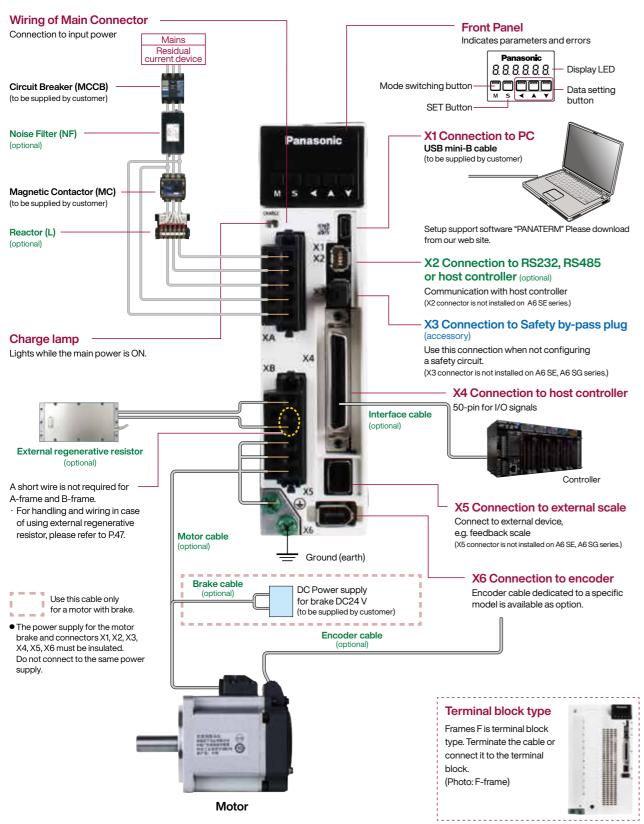
4 Max. current rating

ol	Frame	Symbol	Current rating	Symbol	Current rating
	E-Frame	0	6 A	9	80 A
	F-Frame	1	8A	Α	100 A
)	G-Frame	2	12 A	В	120 A
-	H-Frame	3	22 A	С	160 A
′	11-11aille	4	24 A	Е	240 A
		5	40 A	F	360 A

3 Safety Function*4

Single phase 100 v	
3-phase 200 V	*4 Position control type "E" and general communication type "
Single/3-phase 200 V	have a safety function.
	•

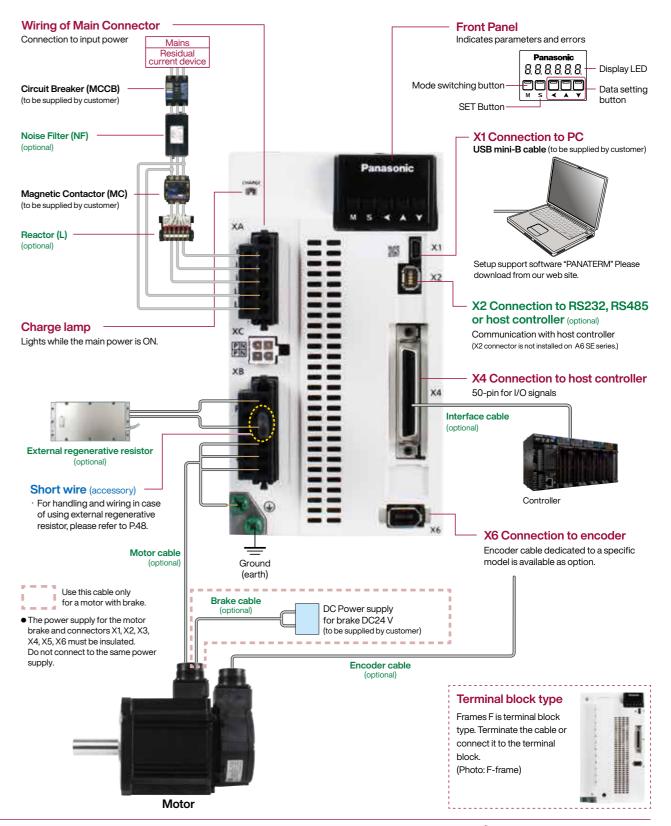
<A6SF Series (Driver: A-frame Motor: 200 W)>



<Caution>

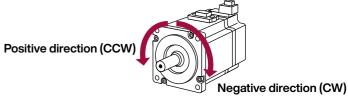
Apply adequate tightening torque to the product mounting screw by taking into consideration strength of the screw and the characteristics of material to which the product is installed. Overtightening can damage the screw and/or material; undertightening can result in loosening.

<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.



Use this cable only

• The power supply for the motor brake and

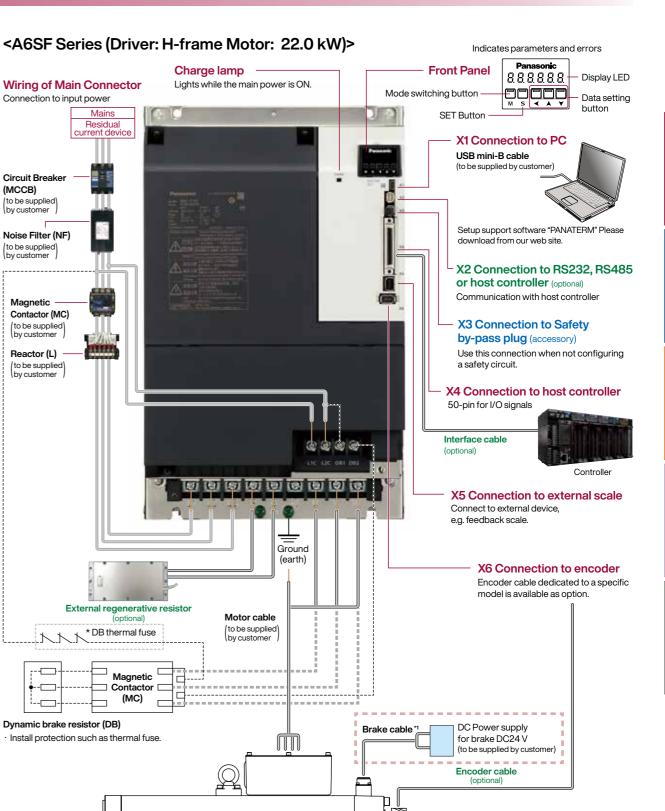
connectors X1, X2, X3, X4, X5, X6 must be

Do not connect to the same power supply.

*1 Brake cable (to be supplied by customer)

Connector kit (optional)

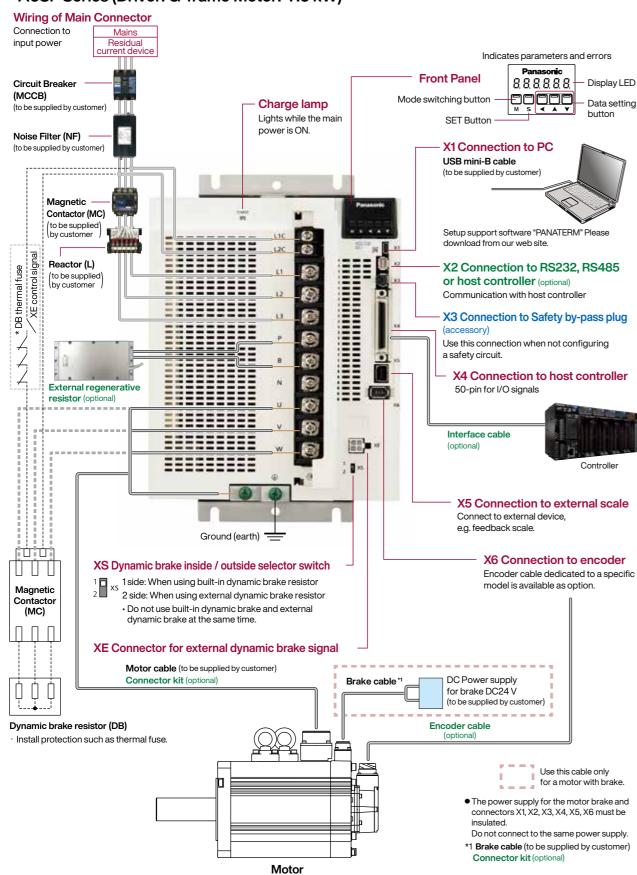
for a motor with brake.



<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 ar withstand voltage of brake cable											
	MSMF MHMF	Single	0.05																							
1 1	MSMF MQMF MHMF	phase, 100	0.1	approx. 0.4		DV0P4170	DV0P4190																			
MADL	MSMF MHMF	Single/	0.05																							
	MSMF MQMF MHMF	3-phase 200	0.1, 0.2	approx. 0.5	10	DV0P4170 DV0PM20042	DV0P4190 DV0P1450								0.28 mm ² to 0.75 mm ² /											
MBDL	MSMF MQMF	Single phase, 100	0.2			DV0P4170	DV0P4190		20 A (3P+1a)						AWG22 to AWG18											
WIDDE	MHMF	Single/ 3-phase 200	0.4	approx. 0.9		DV0P4170 DV0PM20042	DV0P4190 DV0P1450			0.75 mm ² / AWG18 600 VAC				0.75 mm ² / AWG18 600 VAC	100 VAC or more											
MCDL	MSMF MQMF MHMF	Single phase, 100	0.4	approx. 0.9	15	DV0PM20042	DV0P4190			or more to 2.0 mm ² /	C) Og		Cor	or more to 2.0 mm²/												
	MSMF MHMF	Single/ 3-phase 200	0.75	approx. 1.8			DV0P4190 DV0P1450			AWG14 600 VAC	4 C nection		nection	AWG14 600 VAC												
	MGMF		0.85	approx. 2.0						or more			to exc	or more												
	MSMF MDMF		1.0 (80 mm sq.)	approx.								dusive co		Connection to exclusive connector												
MDDL	MHMF	Single/ 3-phase	1.0 (80 mm sq.)	2.4	20	DV0P4220	V0P4220 DV0P4190 DV0P1450						30 A		onnec		onnec									
	MSMF 200	200	1.0					DV0P1460	(3P+1a)	(SFTIA)	ο̈́τ		ο̈́τ													
	MGMF		1.3	approx. 2.6																						
	MSMF MDMF MHMF		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	3-phase 2.0 approx. 30 DV0PM20043 DV	e 2.0 approx 3.8	DV0P1450	600 VAC or more to 3.5 mm²/ 60 A AWG12 (3P+1a) 600 VAC	or more to 3.5 mm²/			to A\ 3.5 mm²/ 10	0.75 mm²/ AWG18 100 VAC or more																
	MGMF		2.4	approx. 4.5					(or via)	or more																
	MGMF		2.9	approx. 5.0																						
	MSMF MDMF MHMF		3.0	approx. 5.2			DV0P1450			3.5 mm²/ AWG12 600 VAC	VG12		11 mm or smaller	3.5 mm²/ AWG12 600 VAC or more												
MFDL	MSMF MDMF MHMF	3-phase 200	4.0	approx. 6.5		DV0P3410																				
	MGMF		4.4	approx. 7.0					100 A (3P+1a)	ormore																
	MSMF MDMF MHMF		5.0	approx. 7.8																						M5
	MGMF		5.5	approx. 8.5						8.0 mm ² /	block M5		7 mm or smaller	14 mm²/												
MGDL	MDMF	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	AWG6 600 VAC or more												
			11.0	approx.				RJ8095 (Recommended)		22 mm²/			IVIO	22 mm²/ AWG4	0.75 mm²/ AWG18											
			15.0	approx.	125			(components) T400-61D		AWG4 600 VAC or more	16 mm or smaller		10 mm or smaller	600 VAC or more *6	100 VAC or more											
MHDL	MDMF	3-phase 200	22.0	approx. 28	175	HF3100C-SZA (Recommended components	DV0P1450	DV0P1450	DV0P1450	DV0P1450	DV0P1450	DV0P1450	DV0P1450	DV0P1450	DV0P1450	DV0P1450		*5	150 A (3P+1a)	38 mm²/ AWG2 600 VAC or more	Terminal block M6		φ4.3 Terminal block M4	22.8 mm or smaller 28.5 mm or smaller		

- *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.

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	Terminal cover fastening 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		2.0 to 2.4	IVIS	0.19 (0 0.21	
MHDL	L1C, L2C, DB1, DB2		0.7 to 1.0	M5	2.0 to 2.5	
IVITUL	L1, L2, L3, P, B, N, U, V, W		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.

			Motor				Driver					(Optional parts 🕨	refer to P.306			
N	lotor series	Power supply	Output (W)	Part No. Note)1	Rating/ Spec. Dimensions (page)	A6SF series Multi fanction type (Pulse, analog, full-closed)	A6SG series RS485 communication A6SE series Basic (Pulse signal input) Note)2, Note)4	Frame	Power capacity at rated load (kVA)	Use in the absolute system (with battery box) Note)5	able Note)3 Absolute 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 ☐ 2	63, 119	MADLT01SF	MADLN01S♦		A								
		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		
	NACNAE		400	MSMF041L1 ☐ 2	69, 123	MCDLT31SF	MCDLN31S♦	C-frame	Approx.						DV0P4282	DV0P228	DV0PM20042
Low	MSMF (Leadwire)		50	MSMF5AZL1 □ 2	64, 119	MADLT05SF	MADLN05S♦			MFECA	MFECA	ME	MCA	MFMCB	D1/2D/22/		
inertia	3000 r/min		100	MSMF012L1 □ 2	66, 120	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5	0 * * 0EAE (For fixed)	0 * * 0EAD (For fixed)	0**		0 * * 0GET Note)6	DV0P4281	DV0P227 DV0P220	DV0P4170
Ø	IP65	Single phase/	200	MSMF022L1 ☐ 2	68, 121	MADLT15SF	MADLN15S♦							Notejo		D V 01 220	DV0PM20042
		3-phase 200 V	400	MSMF042L1 ☐ 2	70, 123	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9						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. 2.4						DV0P4284	DV0P228 DV0P222	DV0P4220
			100	MQMF011L1 2 MQMF011L1 4	79, 135	MADLT11SF	MADLN11S♦	A-frame ★	Approx.						DV0P4280	DV0P227	
<u>≅</u>		Single phase	200	MQMF021L1 \square 2	81, 139	MBDLT21SF	MBDLN21S♦	B-frame	Approx.						DV0P4283		DV0P4170
Middle ir	MQMF	100 V	400	MQMF021L1 \(\text{ 4} \) MQMF041L1 \(\text{ 2} \)	83, 143	MCDLT31SF	MCDLN31S♦	★ C-frame	Approx.						DV0P4282	DV0P228	DV0PM20042
inertia	(Leadwire) type			MQMF041L1 4 MQMF012L1 2				O-liane	0.9	MFECA 0 * * 0EAE	MFECA 0 * * 0EAD	MF 0 * *	MCA 0EED	MFMCB 0 * * 0GET			D V 01 1V1200-12
Flat t	3000 r/min IP65	Single phase/	100	MQMF012L1 ☐ 4 MQMF022L1 ☐ 2	80, 135	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5	(For fixed)	(For fixed)			Note)6	DV0P4281	DV0P227 DV0P220	DV0P4170
type		3-phase 200 V	200	MQMF022L1 4	82, 139	MADLT15SF	MADLN15S♦	*							DV0P4283	DV0P228	DV0PM20042
		200 V	400	MQMF042L1 ☐ 2 MQMF042L1 ☐ 4	84, 143	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9							DV0P220	
			50	MHMF5AZL1 ☐ 2 MHMF5AZL1 ☐ 4	85, 147	MADLT01SF	MADLN01S♦	A-frame	Approx.						DV0P4280	DV0P227	
		Single phase	100	MHMF011L1	87, 151	MADLT11SF	MADLN11S♦	*	0.4						2 701 1200	210.227	DV0P4170
		100 V	200	MHMF021L1 2 MHMF021L1 4	89, 155	MBDLT21SF	MBDLN21S♦	B-frame ★	Approx. 0.5						DV0P4283	DV0P228	
_	MHMF		400	MHMF041L1 2 MHMF041L1 4	91, 159	MCDLT31SF	MCDLN31S♦	C-frame	Approx. 0.9						DV0P4282		DV0PM20042
High inertia	(Leadwire) type		50	MHMF5AZL1 ☐ 2 MHMF5AZL1 ☐ 4	86, 147	MADLT05SF	MADLN05S♦	_		MFECA	MFECA 0 * * 0EAD		MCA	MFMCB	DV0P4281	DV0P227	
nertia	3000 r/min		100	MHMF012L1 2 MHMF012L1 4	88, 151	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5	0 * * 0EAE (For fixed)	(For fixed)	0**	0EED	0 * * 0GET Note)6		DV0P227	DV0P4170
	IP65	Single phase/	200	MHMF022L1	90, 155	MADLT15SF	MADLN15S♦	_									DV0PM20042
		3-phase 200 V	400	MHMF042L1 2 MHMF042L1 4	92, 159	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx.						DV0P4283	DV0P228	
			750	MHMF082L1 2 MHMF082L1 4	93, 163	MCDLT35SF	MCDLN35S♦	C-frame	Approx. 1.8							DV0P220	DV0PM20042
			1000	MHMF092L1 \square 2 MHMF092L1 \square 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 buy the battery part number "DV0P2990" separately.

Note)6 Brake cable and motor cables are required for the motors with brake.

Connector type IP67

			Motor				Driver						(Optional parts >	refer to P.306			
						A6SF series	A6SG series		Power	Ence	oder Ca	able Note)3	Motor Cal	ole Note)3				
					Rating/	Multi fanction type	RS485 communication		capacity	2	23-bit A	Absolute			Dunley	F		
ľ	Motor series	Power supply	Output (W)	Part No. Note)1	Spec. Dimensions (page)	(Pulse, analog, full-closed	A6SE series Basic (Pulse signal input) Note)2, Note)5	Frame	(at (rated) load) (kVA)	Use in tabsolute s (with batter Note)	ystem ry box)	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									DV0P4170
		100 V	200	MSMF021L1 □ 1	67, 122	MBDLT21SF	MBDLN21S♦	B-frame ★	Approx. 0.5	MFEC 0 * * 0N /For moval	ИJE	MFECA 0 * * 0MJD /For movable,\	0 * * /For m	MCA ONJD ovable, \ tion of	MFMCB 0 * * 0PJT /For movable,	DV0P4283	DV0P228	
			400	MSMF041L1 □ 1	69, 123	MCDLT31SF	MCDLN31S♦	C-frame	Approx.	direction motor sh	of) aft	direction of motor shaft	\ moto	r shaft /	direction of motor shaft	DV0P4282	5 7 07 220	DV0PM20042
Low in	MSMF (Connector) type		50	MSMF5AZL1 ☐ 1	64, 119	MADLT05SF	MADLN05S♦			0 * * 0N For moval opposite diri of motor s	/KE ble, ection	0 * * 0MKD For movable, opposite direction of motor shaft	/ For m	ONKD ovable, direction or shaft	0 * * 0PKT For movable, opposite direction of motor shaft	DV0P4281		
inertia	3000 r/min IP67		100	MSMF012L1 ☐ 1	66, 121	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5	MFEC 0 * * 01 For fixed	TJE d, \	MFECA 0 * * 0TJD / For fixed, /	0 * * / For	MCA 0RJD fixed, \	MFMCB 0 * * 0SJT For fixed, direction of	2101 1201	DV0P227 DV0P220	DV0P4170
		Single phase/	200	MSMF022L1 ☐ 1	68, 122	MADLT15SF	MADLN15S♦			direction motor sh	aft/	(direction of motor shaft) MFECA	direc moto	tion of r shaft/	MFMCB 0 * * 0SKT			DV0PM20042
		3-phase 200 V	400	MSMF042L1 ☐ 1	70, 123	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9	0 * * 0T For fixed opposite dire of motor s	d, ection	0 * * 0TKD For fixed, opposite direction of motor shaft	For opposite of mot	ORKD fixed, direction or shaft	For fixed, opposite direction of motor shaft Note)7	DV0P4283	DV0P228	
			750	MSMF082L1 ☐ 1	71, 125	MCDLT35SF	MCDLN35S◇	C-frame	Approx.				No	te)4	, indie, i		DV0P220	DV0PM20042
			1000	MSMF092L1 ☐ 1	72, 126	MDDLT45SF	MDDLN45S◇	D-frame	Approx. 2.4							DV0P4284	DV0P228 DV0P222	DV0P4220
			100	MQMF011L1 ☐ 1 MQMF011L1 ☐ 3	79, 137	MADLT11SF	MADLN11S♦	A-frame ★	Approx. 0.4	MFEC 0 * * 0N		MFECA 0 * * 0MJD	MFMCA 0**0UFD	MFMCA 0**0VFD		DV0P4280	DV0P227	DV0D4470
<u>≤</u>		Single phase 100 V	200	MQMF021L1 ☐ 1 MQMF021L1 ☐ 3	81, 141	MBDLT21SF	MBDLN21S♦	B-frame ★	Approx. 0.5	For moval direction motor sh	ble, of aft	(For movable, direction of motor shaft	(For movable, direction of motor shaft	(For movable, direction of motor shaft		DV0P4283		DV0P4170
liddle inertia	MQMF (Connector)	100 ¥	400	MQMF041L1	83, 145	MCDLT31SF	MCDLN31S♦	C-frame	Approx.	MFEC 0 * * 0N For moval opposite dire of motor's	/KE ble, ection	MFECA 0 * * 0MKD For movable, opposite direction of mater shaft	MFMCA 0 * * 0UGD For movable, opposite direction of motor shaft	MFMCA 0 * * 0VGD For movable, opposite direction of motor shaft		DV0P4282	DV0P228	DV0PM20042
rtia Flat type	3000 r/min		100	MQMF012L1 ☐ 1 MQMF012L1 ☐ 3	80, 137	MADLT05SF	MADLN05S♦		Approx.	MFEC 0 * * 01 / For fixed	CA TJE	MFECA 0 * * 0TJD / For fixed, \	MFMCA 0 * * 0WFD / For fixed, \	MFMCA 0**0XFD / For fixed, \	_	DV0P4281	DV0P227	
type		Single phase/ 3-phase	200	MQMF022L1 ☐ 1 MQMF022L1 ☐ 3	82, 141	MADLT15SF	MADLN15S♦	A-frame ★	0.5	direction motor sh MFEC	of laft/	direction of motor shaft/	direction of motor shaft/	direction of motor shaft/ MFMCA 0 * * 0XGD			DV0P220	DV0P4170 DV0PM20042
		200 V	400	MQMF042L1 ☐ 1 MQMF042L1 ☐ 3	84, 145	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx.	0 * *07 For fixee opposite direction of motor s	d, ection	0 * * 0TKD For fixed, opposite direction of motor shaft	0 * * 0WGD 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

		Motor				Driver					c	ptional parts	refer to P.306			
					A6SF series	A6SG series		Power	Encoder (Cable Note)3	Motor Cat	ole Note)3				
				Rating/	Multi fanction type / Pulse, analog, \	RS485 communication		capacity	23-bit	Absolute			Brake	External	Dt	Naiss Files
Motor 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 system (with battery box) Note)5	Use in the Incremental system (without battery box)	without Brake	with Brake	Cable Note)3	Regenerative Resistor	Reactor Single phase 3-phase	Noise Filter (Single phase) 3-phase
		50	MHMF5AZL1 ☐ 1 MHMF5AZL1 ☐ 3	85, 149	MADLT01SF	MADLN01S♦	- A-frame	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♦	★ *	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		DV01 4200	D VOI 221	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		MINIMIFUZILI [] 3				*	0.0			MFMCA 0 * * 0UGD For movable, opposite direction of motor shaft	MFMCA 0 * * 0VGD For movable, opposite direction of motor shaft			DV0P228	
		400	MHMF041L1 ☐ 1 MHMF041L1 ☐ 3	91, 161	MCDLT31SF	MCDLN31S♦	C-frame	Approx.	MFECA 0 * * 0MJE (For movable, direction of motor shaft)	MFECA 0 * * 0MJD For movable, direction of motor shaft	MFMCA 0 * * 0WFD For fixed, direction of motor shaft)	MFMCA 0 * * 0XFD For fixed, direction of motor shaft)		DV0P4282		DV0PM20042
MHMF Connector type	·)		IVINIVIFU41L1 [] 3						MFECA 0 * * 0MKE For movable, opposite direction of motor shaft	MFECA 0 * * 0MKD For movable, opposite direction of motor shaft	MFMCA 0 * * 0WGD For fixed, opposite direction of motor shaft	MFMCA 0 * * 0XGD For fixed, opposite direction of motor shaft	_			
3000 r/mir	1	50	MHMF5AZL1 ☐ 1 MHMF5AZL1 ☐ 3	86, 149	MADLT05SF	MADLN05S♦			MFECA 0 * * 0TJE For fixed, direction of motor shaft)	MFECA 0 * * 0 TJD For fixed, direction of motor shaft)	MFMCA 0 * * 7UFD Movable/fixed common-use, direction of motor shaft	MFMCA 0 * * 7VFD Movable/fixed common-use, direction of motor shaft		DV0P4281		
		100	MHMF012L1 ☐ 1 MHMF012L1 ☐ 3	88, 153	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5	MFECA 0 * * 0TKE For fixed, opposite direction of motor shaft	MFECA 0 * * 0TKD For fixed, opposite direction of motor shaft	MFMCA 0 * * 7UGD Movable/fixed common-use, opposite direction of motor shaft	MFMCA 0 * * 7VGD Movable/fixed common-use, opposite direction of motor shaft		DV0F4201	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.			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

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	ional parts > ref	fer to P.306		
		_	_		Rating/	A6SF series Multi fanction type / Pulse, analog, \	A6SG series RS485 communication		Power capacity	Encoder Cab JL10 (Lar One-touch N/MS scre	rge size) lock type wed type	Motor Cabl JL One-touch JL04 scre	10 lock type	_		
M	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
		0: 1		14014540014 - 0						Fixed	cable	Movabl	e cable			
		Single phase/	1000	MSMF102L1 \square 6 MSMF102L1 \square 8	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♦	D-liame	Approx. 2.9	MEEOA	MEEOA			DV01 4204	DV0PM20047 / DV0P222	D VOI 4220
Low	Large size		2000	MSMF202L1 ☐ 6 MSMF202L1 ☐ 8	75, 129	MEDLT83SF	MEDLN83S♦	E-frame	Approx.	MFECA 0 * * 0EPE	MFECA 0**0EPD	MFMCD 0 * * 2ECD	MFMCA 0 * *2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
inertia	JL10 type 3000 r/min	3-phase	3000	MSMF302L1 6 MSMF302L1 8	76, 131	MFDLTA3SF	MFDLNA3S♦		Approx.	MFECA	MFECA	MFMCA	MFMCA	.1010/0	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.			MEMOD	MEMOA		DV0P228 / DV0P222	
		phase/ 3-phase	1500	MDMF102L1 ☐ 8 MDMF152L1 ☐ 6	103, 181	MDDLT55SF	MDDLN55S	D-frame	2.4 Approx.			MFMCD 0**2EUD	MFMCA 0 * * 2FUD	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
	MDMF	200 V		MDMF152L1 ☐ 8 MDMF202L1 ☐ 6				_	2.9 Approx.	MFECA	MFECA	MFMCD 0**2ECD	MFMCA 0 * * 2FCD	DV0P4285		D) (0D) (000 (0
	Large size JL10 type		2000	MDMF202L1 ☐ 8 MDMF302L1 ☐ 6	104, 183	MEDLT83SF	MEDLN83S♦	E-frame	3.8 Approx.	0 * * 0EPE	0 * * 0EPD	0 % % 2LOD	0 % % ZI OD	Note)6	DV0P223	DV0PM20043
	2000 r/min IP67	3-phase 200 V	3000	MDMF302L1 ☐ 8	105, 184	MFDLTA3SF	MFDLNA3S♦	-	5.2	MFECA 0 * * 0ESE	MFECA 0 * * 0ESD	MFMCA 0 * * 3EUT	MFMCA 0 * * 3FUT	DV0P4285	DV0P224	
		200 V	4000	MDMF402L1	106, 185	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.			MFMCA	MFMCA	×2 in parallel	DV0P225	DV0P3410
Middle			5000	MDMF502L1	107, 187	MFDLTB3SF	MFDLNB3S♦		Approx. 7.8			0 * * 3ECT	0 * * 3FCT			
dle in		Single phase/	850	MGMF092L1 ☐ 6 MGMF092L1 ☐ 8	112, 193	MDDLT45SF	MDDLN45S♦	D-frame	Approx. 2.0			MFMCD 0**2EUD	MFMCA 0 * * 2FUD	DV0P4284	DV0P228 / DV0P221	DV0P4220
inertia	момп	3-phase 200 V	1300	MGMF132L1 \square 6 MGMF132L1 \square 8	113, 195	MDDLT55SF	MDDLN55S♦	D-liame	Approx. 2.6			MFMCD	MFMCA	D V 01 4204	DV0PM20047 / DV0P222	D VOI 4220
	MGMF Large size		1800	MGMF182L1 ☐ 6 MGMF182L1 ☐ 8	114, 196	MEDLT83SF	MEDLN83S♦		Approx. 3.4	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. 5.0			MFMCA 0**3EUT	MFMCA 0**3FUT	D) (0D 4005	-	
	•.		4400	MGMF442L1 ☐ 6 MGMF442L1 ☐ 8	117, 200	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx. 7.0			MFMCA 0 * * 3ECT	MFMCA 0**3FCT	DV0P4285 ×2 in parallel	DV0P225	DV0P3410
		Single	1000	MHMF102L1	95, 171	MDDLT45SF	MDDLN45S♦		Approx.			MFMCD 0**2EUD	MFMCA 0 * * 2FUD		DV0P228 / DV0P222	
		phase/ 3-phase 200 V	1500	MHMF152L1 6 MHMF152L1 8	96, 172	MDDLT55SF	MDDLN55S♦	D-frame	Approx. 2.9			MFMCD 0 * * 2ECD	MFMCA 0 * * 2FCD	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
High inertia	MHMF Large size JL10 type	200 V	2000	MHMF202L1 ☐ 6 MHMF202L1 ☐ 8	97, 173	MEDLT83SF	MEDLN83S◇	E-frame	Approx.	MFECA 0 * * 0EPE MFECA	MFECA 0**0EPD ———— MFECA	MFMCE 0**2EUD MFMCE 0**2ECD	MFMCE 0**2FUD MFMCE 0**2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
tia	2000 r/min IP67	3-phase 200 V	3000	MHMF302L1	98, 175	MFDLTA3SF	MFDLNA3S		Approx. 5.2	0 * * 0ESE	0 * * 0ESD	MFMCA	MFMCA		DV0P224	
			4000	MHMF402L1 6 MHMF402L1 8	99, 176	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.			0 * * 3EUT	0 * * 3FUT	DV0P4285		DV0P3410
			5000	MHMF502L1 6 MHMF502L1 8	100, 177	MFDLTB3SF	MFDLNB3S	-	Approx. 7.8			MFMCA 0 * *3ECT	MFMCA 0 * *3FCT	×2 in 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.

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

A6N Series

A6B Series
Special Order Product

			Motor				Driver						ional parts > ref	er to P.306		1
					Rating/	A6SF series Multi fanction type / Pulse, analog, \	A6SG series RS485 communication		Power	JN2 (S	cable Note)3 mall size) th lock type)	Motor Cabl JL One-touch JL04 scre	10 lock type			
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)	23-bit Use in the absolute system (with battery box) Note)7	Absolute Use in the Incremental system (without battery box)	without Brake	with Brake	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
		Cinalo		MSMF102L1 □ 5					Annroy	Fixe	d cable	Movable	e cable			
		Single phase/	1000	MSMF102L1 7	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 5 MSMF152L1 \square 7	74, 129	MDDLT55SF	MDDLN55S♦	Dirano	Approx. 2.9			MFMCD	MFMCA	5 701 1201	DV0PM20047 / DV0P222	2 7 01 1220
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 5 MSMF302L1 7	76, 131	MFDLTA3SF	MFDLNA3S♦		Approx. 5.2	0**0ETE	0 * * 0ETD	MFMCA	MFMCA	11010/0	DV0P224	
m	IP67	200 V	4000	MSMF402L1 ☐ 5 MSMF402L1 ☐ 7	77, 133	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.			0 * * 3EUT	0 * * 3FUT	DV0P4285		DV0P3410
			5000	MSMF502L1	78, 134	MFDLTB3SF	MFDLNB3S♦	_	Approx.			MFMCA 0**3ECT	MFMCA 0 * *3FCT	×2 in parallel	DV0P225	
		Single phase/	1000	MDMF102L1	102, 181	MDDLT45SF	MDDLN45S♦		Approx.			MFMCD	MFMCA		DV0P228 / DV0P222	
		3-phase 200 V	1500	MDMF152L1	103, 182	MDDLT55SF	MDDLN55S♦	D-frame	Approx.			0 * * 2EUD	0 * * 2FUD	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
	MDMF Small size	200 V	2000	MDMF202L1 5 MDMF202L1 7	104, 183	MEDLT83SF	MEDLN83S♦	E-frame	Approx.	MFECA	MFECA	MFMCD 0**2ECD	MFMCA 0 * * 2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
	JN2 type 2000 r/min	0	3000	MDMF302L1 ☐ 5	105, 185	MFDLTA3SF	MFDLNA3S♦		Approx.	0**0ETE	0 * * 0ETD	MFMCA	MFMCA	Note)0	DV0P224	
	IP67	3-phase 200 V	4000	MDMF302L1 ☐ 7 MDMF402L1 ☐ 5	106, 186	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.			0 * * 3EUT	0 * * 3FUT	DV0P4285		DV0P3410
7			5000	MDMF402L1 ☐ 7 MDMF502L1 ☐ 5	107, 187	MFDLTB3SF	MFDLNB3S♦	Approx			MFMCA 0 * * 3ECT	MFMCA 0 * * 3FCT	×2 in parallel	DV0P225		
Middle		Single	850	MDMF502L1 ☐ 7 MGMF092L1 ☐ 5	112, 194	MDDLT45SF	MDDLN45S♦		Approx.			MEMOD	MEMOA		DV0P228 / DV0P221	
inertia		phase/ 3-phase		MGMF092L1 ☐ 7 MGMF132L1 ☐ 5				D-frame	2.0 Approx.			MFMCD 0**2EUD	MFMCA 0 * * 2FUD	DV0P4284		DV0P4220
tia	MGMF	200 V	1300	MGMF132L1 ☐ 7 MGMF182L1 ☐ 5	113, 195	MDDLT55SF	MDDLN55S		2.6 Approx.			MFMCD 0**2ECD	MFMCA 0 * * 2FCD		DV0PM20047 / DV0P222	
	Small size JN2 type		1800	MGMF182L1 7	114, 197	MEDLT83SF	MEDLN83S♦	-	3.4			MFMCE	MFMCD	DV0D4005	DV0P223	
	/Low speed/\ High torque		2400	MGMF242 L1 ☐ 5	115, 198	MEDLT93SF	MEDLN93S♦	E-frame	Approx.	MFECA 0**0ETE	MFECA 0 * * 0ETD	0 * * 3EUT	0 * * 3FUT	DV0P4285 Note)6		DV0PM20043
	\ type	3-phase 200 V		MGMF242 L1 ☐ 7	, , , ,		,		4.5			MFMCE 0 * *3ECT	MFMCD 0 * * 3FCT		DV0P224	
	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 ☐ 5 MGMF442L1 ☐ 7	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 0**2EUD	MFMCA 0**2FUD		DV0P228 / DV0P222	
		phase/ 3-phase	1500	MHMF152L1 ☐ 5	96, 173	MDDLT55SF	MDDLN55S♦	D-frame	Approx.			MFMCD	MFMCA	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
	MHMF	200 V	1200	MHMF152L1 ☐ 7	25,	22.000			2.9			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	3-phase							3.0	0**0ETE	0 * * 0ETD	MFMCE 0 * * 2ECD	MFMCE 0 * * 2FCD	Note)6		
Ø	IP67	200 V	3000	MHMF302L1 ☐ 5 MHMF302L1 ☐ 7	98, 175	MFDLTA3SF	MFDLNA3S♦		Approx. 5.2			MFMCA 0**3EUT	MFMCA 0 * * 3FUT		DV0P224	
			4000	MHMF402L1 ☐ 5 MHMF402L1 ☐ 7	99, 177	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx. 6.5			MFMCA	MFMCA	DV0P4285 ×2 in parallel	DV0P225	DV0P3410
			5000	MHMF502L1 ☐ 5 MHMF502L1 ☐ 7	100, 178	MFDLTB3SF	MFDLNB3S♦		Approx. 7.8			0 * * 3ECT	0 * * 3FCT		D VUF 223	

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.

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.

A6 Series

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					Op	otional parts > ref	er to P.306		
					Rating/	A6SF series Multi fanction type	A6SG series RS485 communication		Power capacity	JL10 (One-to	er Cable Note)2,3 0 (Large size) touch lock type 6 screwed type		r Cable ote)6	External		
1	Motor series	Power supply	Output (W)	Part No. Note)1	Spec. Dimensions (page)	(Pulse, analog, full-closed	A6SE series Basic (Pulse signal input)	Frame	(at (rated) (load) (kVA)	Use in the absolute system (with battery box Note)4	tem Incremental system (without battery bo	without Brake	with Brake	Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
	<u> </u>									Fix	ixed cable					
			7500	MDMF752L1 ☐ 6	108 188	MGDLTC3SF	_	G-frame	Approx.					DV0P4285 x3 in parallel		HF3080C-SZA (Recommended) components P.413
	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			
Middle	IP67 IP44 (22000 W)	200 V	15000	MDMFC52L1 ☐ 6	110 191	MHDLTE3SF	_	H-frame	Approx. 20	MFECA 0**0ESE	MFECA 0**0ESD			DV0P4285 x6 in parallel	Note)5	HF3100C-SZA (Recommended) components P.413
Middle inertia			22000	MDMFD22L1 ☐ 6	111 192	MHDLTF3SF	_		Approx. 28			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	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	Note)6	Note)6	x3 in parallel	— Note)5	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

Noto)1	- Poprocente t	ha matar appoiificat	tiona (rofor to "NAc	del designation" P22.)
MOIEH	- Represents t	ne moior specifical	nons reier to ivid	oerdesignanon ezzu

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

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	G	M5	DV0PM20108	One-touch lock type	For	Connector	(to be supplied) by customer	Connector Screwed type	/to be supplied
MHMF 7.5 kW	ď	IVIS	DV0PM20111	Large size connector	Connector X6	Screwed type	M5 Round terminal	not included	by customer
			DV0PM20112	Screwed type				Connector Screwed type	
			DV0PM20107	Large size connector				not included	
MDMF 11.0 kW	Н	M6	DV0PM20108	One-touch lock type	For	Connector	(to be supplied by customer)	Connector Screwed type	/to be supplied
MDMF 15.0 kW	''	IVIO	DV0PM20111	Large size connector	Connector X6	Screwed type	M6 Round terminal	not included	by customer
			DV0PM20112	Screwed type				Connector Screwed type	
			DV0PM20109	Large size connector				not included	
MDMF 22.0 kW	Н	M6	DV0PM20110	One-touch lock type 13 Large size connector	For	Terminal block (to be supplied) by customer	(to be supplied by customer)	Connector Screwed type	/to be supplied
IVIDIVIF ZZ.U KVV	П	IVIO	DV0PM20113		Connector X6	M8	M6 Round terminal	not included	by customer
			DV0PM20114			Round terminal		Connector Screwed type	

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 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						Opt	tional parts > refe	er to P.306		
					Rating/	A6SF series Multi fanction type	A6SG series RS485		Power capacity	JN2 (JN2 (Small (One-touch lo	l size)	Motor Not				
	Motor series	Power supply	Output (W)	Part No. Note)1	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	olute system th battery box) (w	Use in the Incremental system vithout battery box)	without Brake	with Brake	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
			7500	MDMF752L1 ☐ 5	108 189	MGDLTC3SF	_	G-frame	Approx.						DV0P4285 x3 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	Note)5	Note)5		_	
Middle	IP67	200 V	15000	MDMFC52L1 ☐ 5	110 191	MHDLTE3SF	_	H-frame	Approx. 20	0**0ETE)* *0ETE	0 * * 0ETD			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	x3 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

riotofi ricpresents the motor specifications, freier to infoder designation 1.22	Note)1	: Represents the motor specifications. (refer to "Model designation" P.22
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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

	Prame Connection terminal		Option No.	Encoder Cable		Motor Cable		Brake Cable	
Motor			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	G	M5	DV0PM20056	Small size connector	For Connector X6	Connector Screwed type	(to be supplied) by customer) M5 Round terminal	not included	(to be supplied) by customer
	u	CIVI	DV0PM20057	Screwed type				Connector Screwed type	
MDMF 11.0 kW MDMF 15.0 kW		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
	Н		DV0PM20057					Connector Screwed type	
MDMF 22.0 kW	Н	M6	DV0PM20115	Small size connector Screwed type	For Connector X6	Terminal block (to be supplied by customer) M8 Round terminal	(to be supplied by customer) M6 Round terminal	not included	(to be supplied) by customer
	п		DV0PM20116					Connector Screwed type	

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.

			·						
		100.1/	Maii	n circuit	Single phase 100 V $^{+10}_{-15}$ % to 120 V $^{+10}_{-15}$ % 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 %} _{-15 %} to 240 V ^{+10 %} _{-15 %} 50 Hz / 60 Hz				
	Input power	200 V	circuit	E-frame to H-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 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)				
	Εn	vironment	hu	midity	Both operating and storage : 20 %RH to 85 %RH (free from condensation*1)				
			Al	titude	Lower than 1000 m				
			Vibration		5.88 m/s² or less, 10 Hz to 60 Hz				
	Col	ntrol metho			IGBT PWM Sinusoidal wave drive				
_	Control method 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).				
Basic Spe	Ext	ernal scale	e feedba	ck	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				
Specifications		Control o	anal	Input	General purpose 10 inputs The function of general-purpose input is selected by parameters.				
snc	=	Control si	griai	Output	General purpose 6 outputs The function of general-purpose output is selected by parameters.				
	nterf			Input	3 inputs (16-bit A/D : 1 input, 12-bit A/D : 2 inputs)				
	ace	Analog si	gnal	Output	2 outputs (Analog monitor: 2 output)				
	Interface connector	Pulse sigi	nal	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.				
		ruise sigi	ılaı	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.				
		mmunicatio ction	on	RS232	1:1 communication				
	IUII	Clion		RS485	1: n communication (max 31) (Supports Modbus)				
	Safety fund		n		A dedicated connector is provided for Functional Safety.				
	Front panel			(1) 5 keys (2) LED (6-digit)					
	Regeneration				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.)				
	Dyr	namic brak	e		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	ontrol 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	ontrol 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 input			 (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 o			(1) In-position output (2) Position command ON/OFF output		
		Max. command pu	ılse frequency	500 kpps (Optocoupler interface), 8 Mpps (When using line receiver input multiplied by 4		
Position control	D 1	Input pulse sign	al format	Differential input. Selectable by parameter. ([1]Positive/Negative pulse [2]A/B quadrature [3]Pulse/Direction)		
	Pulse input	Electronic gear (Division/Multipl 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 permotor revolution), but the combination has to be within the range shown above.		
Τ̈́		Smoothing filter		Primary delay filter or FIR type filter is adaptable to the command input		
_	Analog	Torque limit con	nmand input	Individual torque limit for both positive and negative direction is enabled.		
	input	Torque feed for	ward input	Analog voltage can be used as torque feed forward input.		
	Two-degr	ee-of-freedom co	ntrol	Available		
		tion control		Available		
	Load vari	ation suppression	n control	Available		
	Block ope			Modbus (RS 232, RS 485) or interface is selectable		
	Control in			(1) Internal command velocity selection input (2) Speed zero clamp input (3) Velocity command sign input (4) Control mode switch input		
	Control o	utput		(1) Speed coincidence output (2) Velocity command ON/OFF output		
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)		
ed	input	Torque limit con	nmand input	Individual torque limit for both positive and negative direction is enabled.		
		Torque feed forward input		Analog voltage can be used as torque feed forward input.		
control	Internal v	elocity command		Switching the internal 8 speed is enabled by command input.		
으	Soft-start/down function			Individual setup of acceleration and deceleration is enabled,		
	Soit-Start/down function			with 0 s to 10 s/1000 r/min. Sigmoid acceleration/deceleration is also enabled.		
	Speed zero clamp			Internal velocity command can be clamped to 0 with speed zero clamp input.		
	Two-degree-of-freedom control			Available		
ಠ	Control input			Speed zero clamp input, torque command sign input, control mode switch input.		
ą	Control output			(1) Speed coincidence output (2) Speed in-limit output		
Torque contro	Analog input Torque command input		nd input	Torque command input with analog voltage is possible. Scale setting and command polarity vary depending on parameters. (3 V/rated torque Default)		
<u>o</u>	Speed limit 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 o	utput		(1) In-position output (2) Position command ON/OFF output		
	00111101	Max. command pu	ılse frequency	500 kpps (Optocoupler interface), 8 Mpps (When using line receiver input multiplied by 4		
		Input pulse sign	' '	Differential input. Selectable by parameter. ([1]Positive/Negative pulse [2]A/B quadrature [3]Pulse/Direction)		
Full-closed control	Pulse input	Electronic gear (Division/Multipl 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 encode resolution) and denominator (which corresponds to command pulse resolution pe		
Š		•	,	motor revolution), but the combination has to be within the range shown above.		
Sec		Smoothing filter		Primary delay filter or FIR type filter is adaptable to the command input		
2	Analog	Torque limit con		Individual torque limit for both positive and negative direction is enabled.		
Ĭ	input	Torque feed for	ward input	Analog voltage can be used as torque feed forward input.		
<u>o</u>		nge of external s nultiplication	cale	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.		
		ee-of-freedom co	ontrol	Available		
		tion control		Available		
		ation suppression	n control	Available		
	Block ope	eration		Modbus (RS 232, RS 485) or interface is selectable		
0	Auto tunir	ng		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.		
ì	Division o	f encoder feedba	ack pulse	Set up of any value is enabled (encoder pulses count is the max.).		
Common	Protective	e function	lard error	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current and encoder error etc.		
1			Soft error	Excess position deviation, command pulse division error, EEPROM error etc.		
		a trace back		Tracing back of alarm data is available		

ļ	A6 Series		Driver	Specifica	tions A6SG series (RS485 commu A6SE series (Basic type)	nication type)	Position control only type	
		100 V	Mair	n circuit	Single phase 100 V +10 % to	120 V +10 % 50	Hz / 60 Hz	
		100 V	Contr	ol circuit	Single phase 100 V +10 % to	120 V ⁺¹⁰ % 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		circuit	E-frame to F-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 % to	240 V +10 % 50	Hz / 60 Hz	
			circuit	E-frame to F-frame	Single phase 200 V +10 % to	240 V +10 % 50	Hz / 60 Hz	
			temp	perature	Ambient temperature: 0 °C to 55 °C (free from Storage temperature: -20 °C to 65 °C (Max.temperature guarantee: 80 °C for 72 ho		densation*1)	
	Env	vironment	humidity		Both operating and storage: 20 %RH to 85 %RH (free from condensation*1)			
			Altitude		Lower than 1000 m			
			Vibration		5.88 m/s ² or less, 10 Hz to 60 Hz			
	Co	Control method			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).			
				Input	General purpose 10 inputs The function of general-purpose input is sele	cted by parameters	S.	
	Interface	Control si	gnal		General purpose 6 outputs The function of general-purpose input is selected by parameters.			
	се со		Input		None			
	connector	Analog sig	gnal	Output	2 outputs (Analog monitor: 2 output)			
	악	Dula a alau	1	Input	2 inputs (Photo-coupler input, Line receiver in	nput)		
		Pulse sign	nai	Output	4 outputs (Line driver: 3 output, open collect	or: 1 output)		
				USB	USB interface to connect to computers for pa	arameter setting or	status monitoring.	
		mmunication	on	RS232	1:1 communication	* RS485, RS232	connector is not installed	
				RS485	1: n communication (max 31)	on A6 SE series		
	Fro	nt panel			(1) 5 keys (2) LED (6-digit)			
	Re	generation			A-frame, B,-frame: no built-in regenerative re C-frame to F-frame: Built-in regenerative res			
	Dyı	namic brak	е		A-frame to F-frame: Built-in			
	Co	Control mode			(1) Position control (2) Internal velocity command (3) Position/Internal velocity command			

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

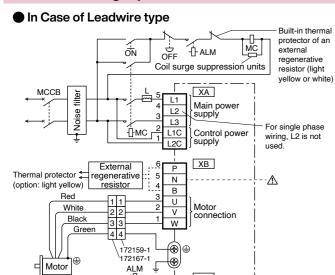
Co	ontrol input		(1) servo-ON input (2) Alarm clear input (3) Gain switch input (4) Positive direction drive inhibit input (5) Negative direction drive inhibit input (6) Forced alarm input (7) Inertia ratio switch input	
Co	ontrol output		(1) Servo-alarm output (2) Servo-ready output (3) External brake 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	
		Max. command pulse frequency	500 kpps (Optocoupler interface) 8 Mpps (Line receiver interface)	
PC	Pulse	Input pulse signal format	Differential input. Selectable by parameter. ([1]Positive/Negative pulse [2]A/B quadrature [3]Pulse/Direction)	
Position control	input	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	on control	Available	
п	Two-degree-of-freedom control		Available	
T ion	Load variat	ion suppression	Available	
	Block oper	ation	Modbus (RS 232, RS 485) or interface is selectable. (A6SE : interface only.)	
	Control inp	ut	(1) Internal command velocity selection input (2) Speed zero clamp input (3) Velocity command sign input (4) Control mode switch input	
<u>o</u>	Control out	put	(1) Speed coincidence output (2) Velocity command ON/OFF output	
Speed	Internal vel	ocity command	Switching the internal 8 speed is enabled by command input.	
control	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	d clamp	Internal velocity command can be clamped to 0 with speed zero clamp input.	
	Two-degre	e-of-freedom control	Available	
	Auto tuning	I	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.).	
mon	Protective function	Hard error	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current and encoder error etc.	
	Turicuon	Soft error	Excess position deviation, command pulse division error, EEPROM error etc.	
	Alarm data	trace back	Tracing back of alarm data is available	

protector of an

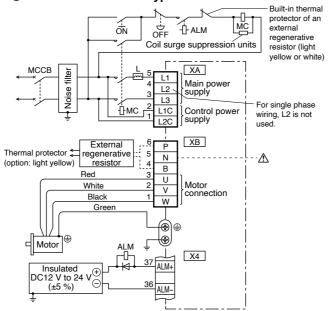
regenerative

- ⚠ Do not use

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.

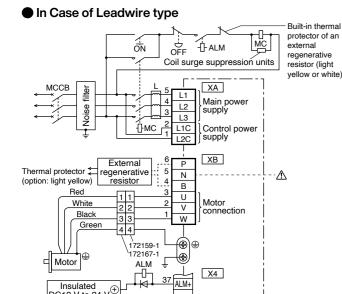
DC12 V to 24 V

(±5 %)

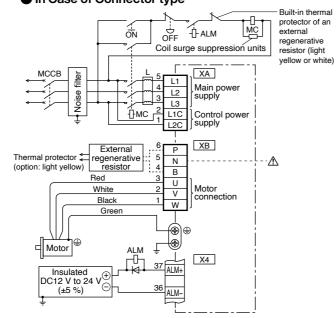
* Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply.

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

X4



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.

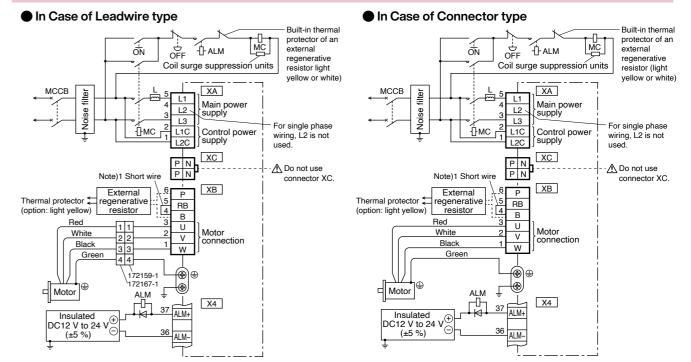
DC12 V to 24 V

(±5 %)

Frame No.	Chartuira	Built-in	Connection of the connector XB		
	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.	

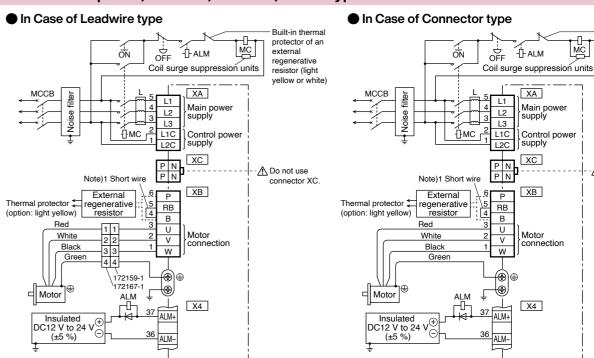
^{*} Refer to P.307 Specifications of Motor connector.

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

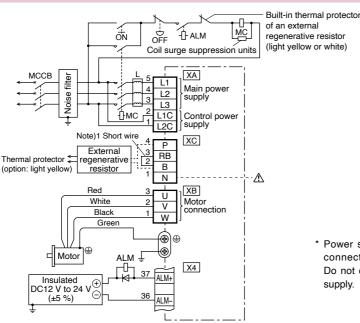


- The pin number of X4 is based on the factory setting parameters.
- * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply.

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



regenerative resistor (light yellow or white)

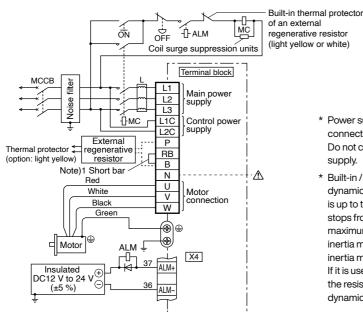
> * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power supply.

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

Note)1

Frame	Short wire	Built-in	Connection of the connector XC			
No.	(Accessory)	regenerative	In case of using	In case of not using		
140.	(/10000001y)	resistor	an external regenerative resistor	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



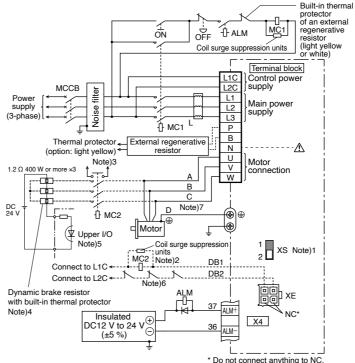
- - * Power supply for motor brake and connector X4 requires insulation. Do not connect to the same power * Built-in / {external} The standard of the
 - dynamic brake resistance's capability is up to three consecutive emergency stops from the rated speed at the maximum allowable inertia (load inertia 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.

Total T					
Short har	Built-in	Connection of terminal block			
	regenerative	In case of using	In case of not using		
(Accessory)	resistor	an external regenerative resistor	an external regenerative resistor		
with	with	 Remove the short bar accessory from between RB-B. Connect an external regenerative resistor between P-B. 	Shorted between RB-B with an attached short bar		
	Short bar (Accessory) with	(Accessory) regenerative resistor	Short bar (Accessory) regenerative resistor with regenerative resistor In case of using an external regenerative resistor • Remove the short bar accessory from 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

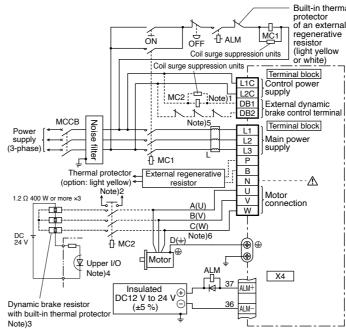
Note 7) This is the terminal symbol of the connector.

- * 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	Built-in regenerative resistor	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	Short bar	Built-in regenerative resistor	Connection of terminal block		
No.	(Accessory)		In case of using an external regenerative resistor	In case of not using an external regenerative resistor	
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.

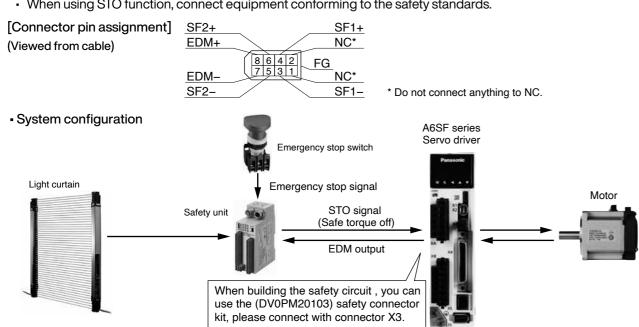
Outline Description of Safe Torque Off (STO)

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.

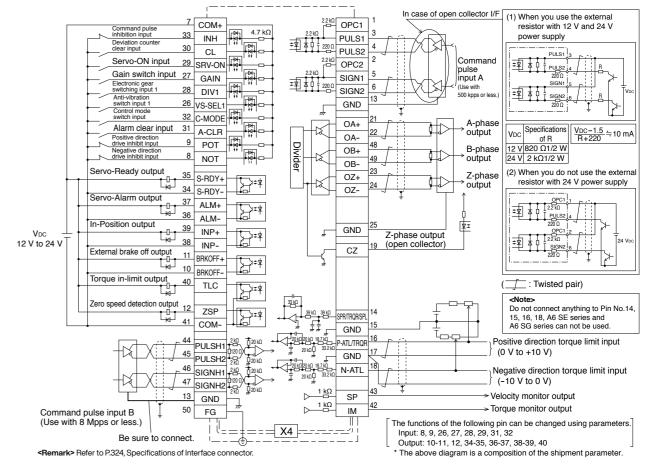
Safety Precautions

- 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.



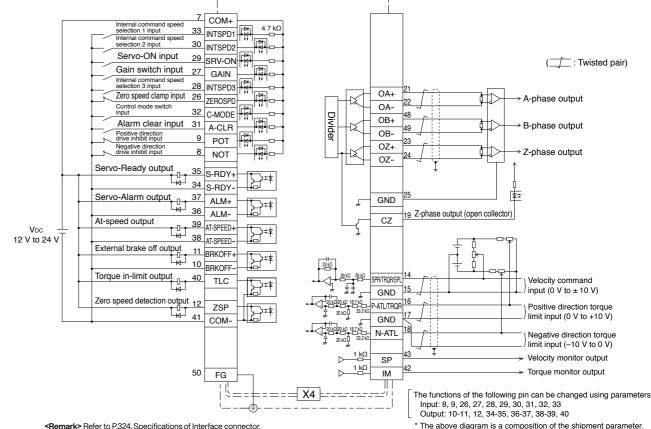
Wiring Example of Position Control Mode

Wiring to the Connector, X4



Wiring Example of Velocity Control Mode

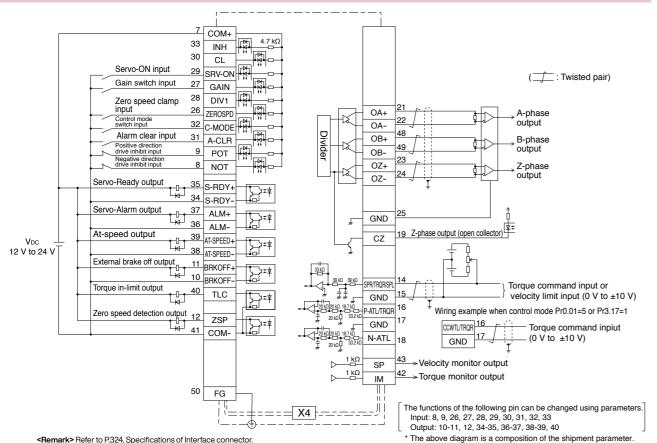
* Internal velocity command is available only for A6SE and A6SG series



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

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

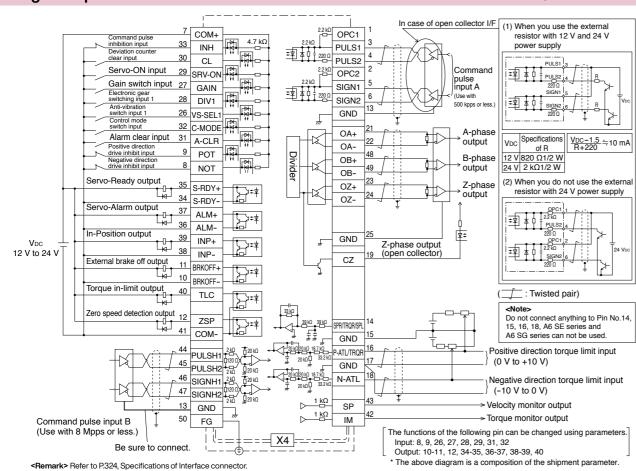
Wiring to the Connector, X4



Wiring Example of Full-closed Control Mode

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

* Excluding A6SE, A6SG Series

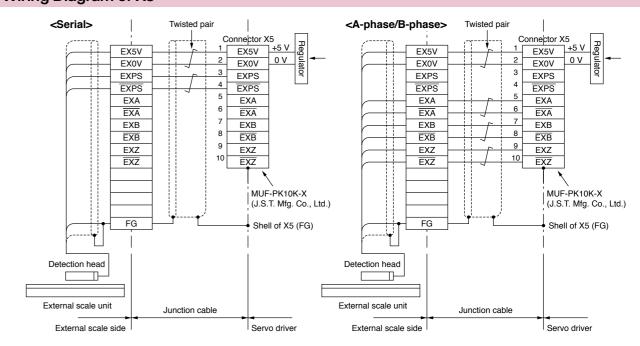


Applicable External Scale

Scale Type	Partner	Series	Resolution*1 [µm]	Max. rate*1 [m/s]	
Parallel Type (A/B/Z phase)	General	_		Maximum speed 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	
		LC 195P/LC 495P	0.001/0.01	3	
	HEIDENHAIN	ECA 4490P	27 bits to 29 bits	7000 r/min~550 r/min (Depends on drum size)	
Serial communication		RCN 2x90P/RCN 5x90P	26 bits/28 bits	1500 r/min	
(Absolute)		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	
	DCF Flootropile	MC 15P MP/MC 15P MK	0.05/0.1	10	
	RSF Electronik	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.

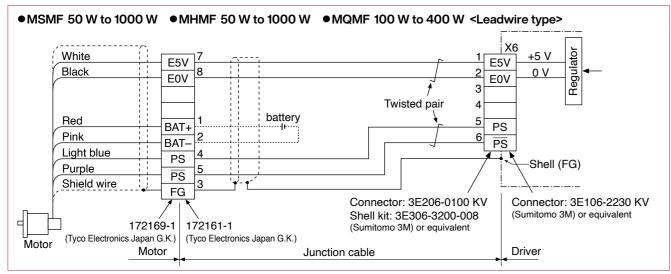
Wiring Diagram of X5

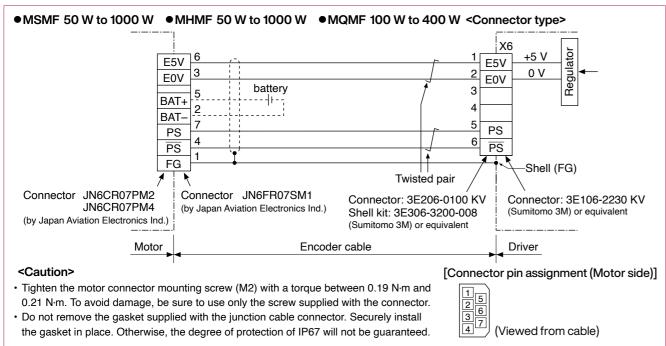


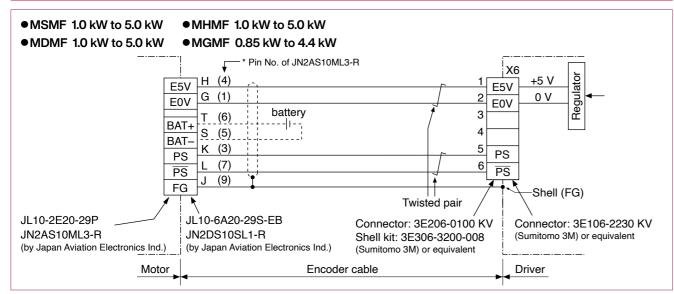
^{*} For more information about the external scale product, please contact the manufacturer.

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

* When use a multi-turn data.



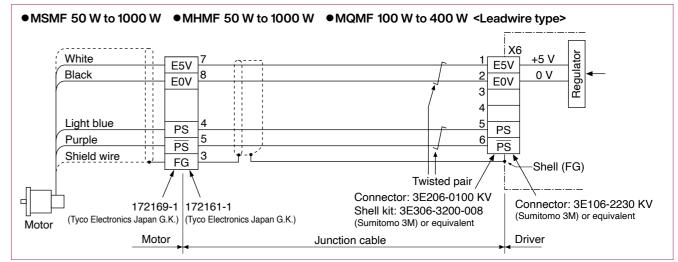


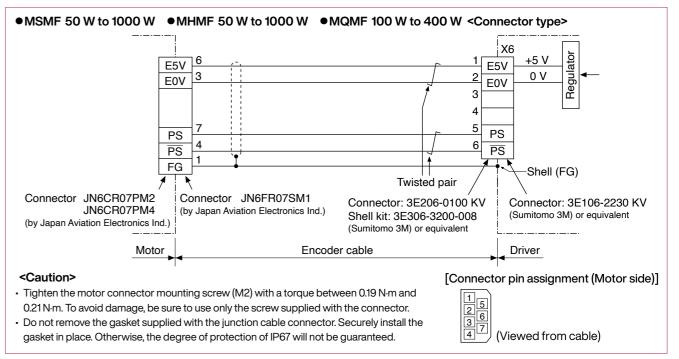


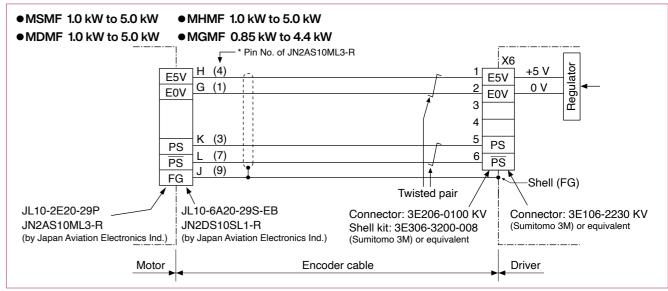
[Connector pin assignment] Refer to P.307, P.308 "Specifications of Motor connector".

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

* When do not use a multi-turn data.



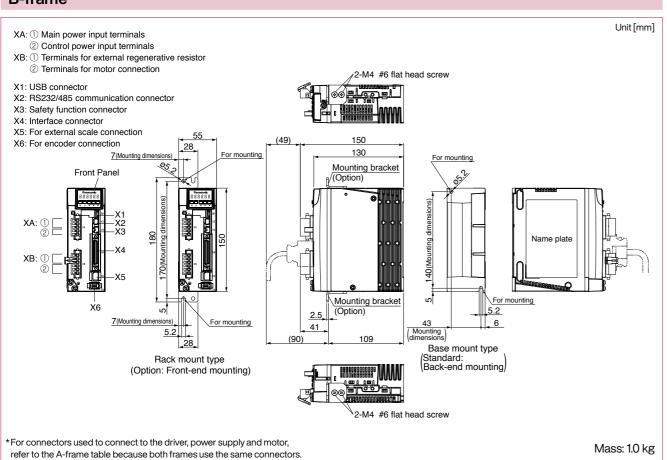




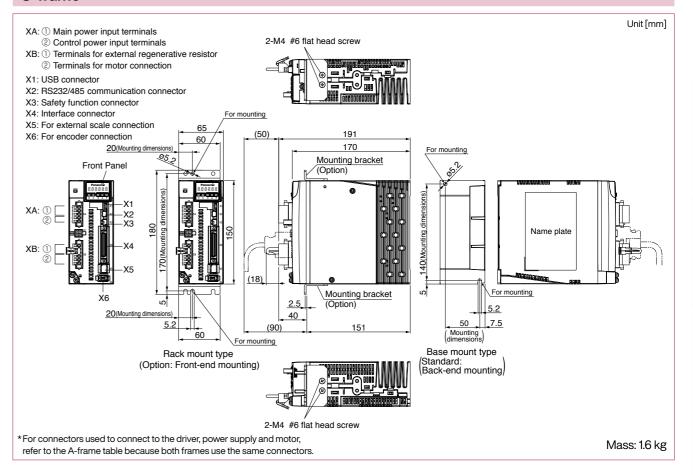
[Connector pin assignment] Refer to P.307, P.308 "Specifications of Motor connector".

* 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.

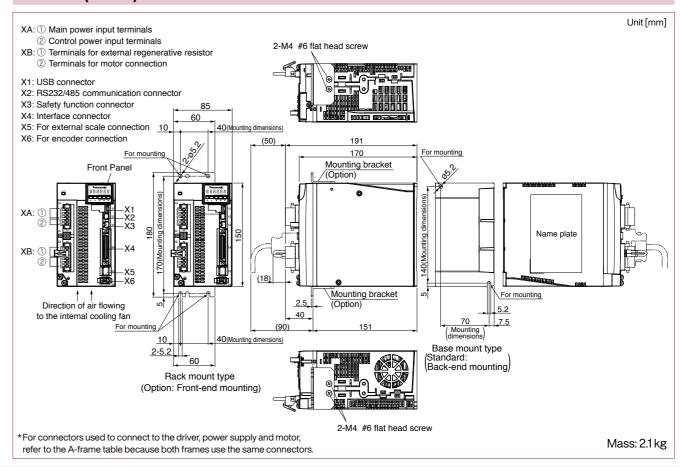
B-frame



C-frame

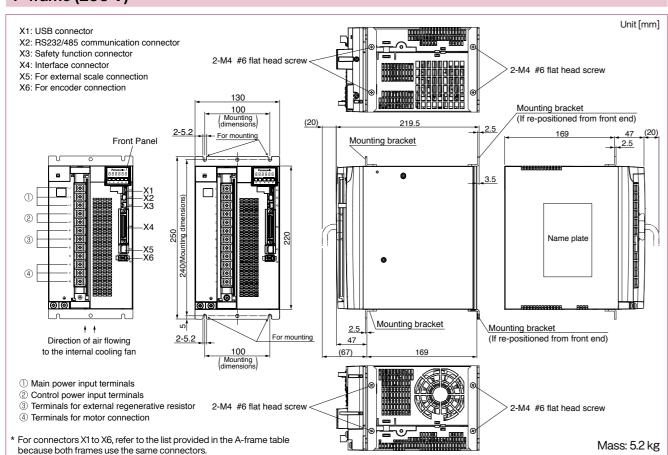


D-frame (200 V)

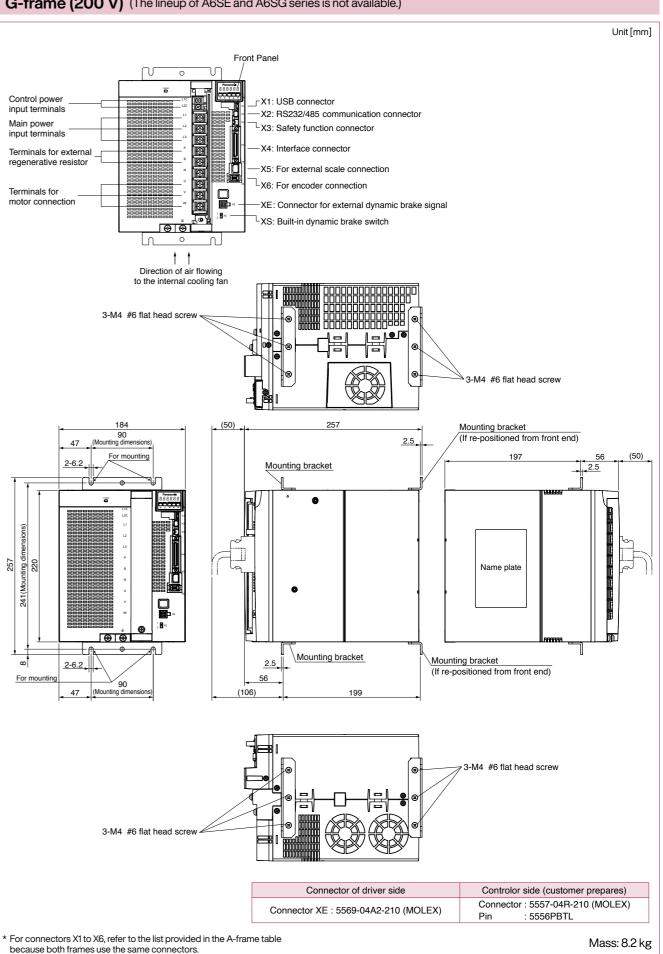


* All dimensions shown in this catalog are for A6SF series. But external dimensions are also same for A6SE and A6SG series. For external appearance, please refer to P.23 and P.24.

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

Direction of air flowing

to the internal cooling fan

Main power input terminals

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

Front Panel

-X1: USB connector

Ground screws (2 places)

Terminal for external

Control power input terminals

Terminals for motor connection

Terminals for external regenerative resistor

dynamic brake control signal

-X3: Safety function connector

X6: For encoder connection

X5: For external scale connection

X4: Interface connector

X2: RS232/485 communication connector

222

Carrying pit

MSMF

MQMF

MHMF

MDMF

MGMF

MSMF

MQMF

MHME

MDMF

MGMF

Dimensions

(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 22.0 kW)....

(0.85 kW to 5.5 kW)...

Motors with Gear

Motor Specification

Reducer

Description

Permissible Load at Output Shaft.....

Built-in Holding Brake

page.....

Special Order Product P.203

Environmental Conditions...... P.303

Notes on [Motor specification]

50 W to 5.0 kW ...

100 W to 400 W...

50 W to 7.5 kW

1.0 kW to 22.0 kW

0.85 kW to 5.5 kW

..P.63

..P.85

.. P.102

...P.112

.. P.127

.. P.293

..P.304

..P.305

Motor Contents

Features

ō

mm sq.

or more

100 mm sq.

Unit [mm]

184 (Mounting dimensions)

For mounting

184 (Mounting dimensions)

Mass:

MHDLTE3SF/14.2 kg

MHDLTF3SF/15.2 kg

- 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

Features/Lineup



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



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

Enclosure : IP67

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

Enclosure : IP67

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because both frames use the same connectors.

For connectors X1 to X6, refer to the list provided in the A-frame table

Specifications

				4.0400 V
		AC100 V		
Motor model*	ı	MSMF5AZL1□□		
		Multi	function type	MADLT01SF
Applicable	Model No.	RS48	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 st	all torqu	ıe	(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	DV0P4280	No limit Note)2
Rated rotation	al spee	d	(r/min)	3000
Max. rotationa	al speed	l	(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 encode	er speci	ficatio	ns*3	23-bit Absolute
Resolution			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.

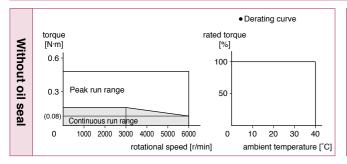
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

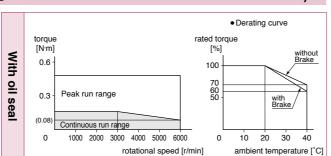
• Permissible load (For details, refer to P.304)

	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 \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					
100 1	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

					AC200 V	
Motor model	*1				MSMF5AZL1	
		Multi	function type		MADLT05SF	
Applicable	Model No	RS48	5 communication typ	e *2	MADLN05SG	
driver	110.	Basic	c type *2		MADLN05SE	
	Fram	e sym	bol		A-frame	
Power supply	/ capacit	y	(kV	(A)	0.5	
Rated output			(\	N)	50	
Rated torque	!		r·N)	m)	0.16	
Continuous s	tall torqu	ie	(N·r	m)	0.16	
Momentary N	/lax. pea	k torqı	e (N·m) 0.48		0.48	
Rated curren	t		(A(rms	s))	1.1	
Max. current			(A(o-r	o))	4.7	
Regenerative	brake		Without option		No limit Note)2	
frequency (tin	nes/min)	Note)1	DV0P4281		No limit Note)2	
Rated rotatio	nal spee	d	(r/mi	in)	3000	
Max. rotation	al speed		(r/mi	in)	6000	
Moment of in	ertia		Without brake		0.026	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake		0.029	
Recommended moment of ineratio of the load and the rotor				e)3	30 times or less	
Rotary encod	ler speci	ficatio	ns ^{*3}		23-bit Absolute	
	Re	solutio	on per single turn		8388608	

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

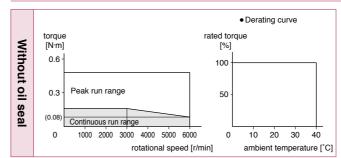
• Brake specifications (For details, refer to P.305) This brake will be released when it is energized. Do not use this for braking the motor in motion.

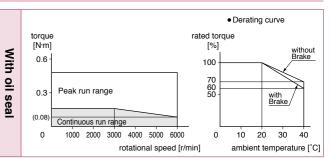
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

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

	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88.0
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 specifications		without brake		with brake				
	, and the speciments	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		_		
C	Connector type (IP67)	P.119		_	P.120		_		

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

				AC100 V
Motor model *	1	MSMF011L1		
		Multi	function type	MADLT11SF
Applicable	Model No	RS48	communication type *2	MADLN11SG
driver		Basio	type *2	MADLN11SE
	Frame	sym	bol	A-frame
Power supply	capacity		(kVA)	0.4
Rated output			(W)	100
Rated torque			(N·m)	0.32
Continuous st	all torque)	(N·m)	0.32
Momentary M	ax. peak	torqı	ie (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) N	ote)1	DV0P4280	No limit Note)2
Rated rotation	nal speed		(r/min)	3000
Max. rotationa	al 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 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.

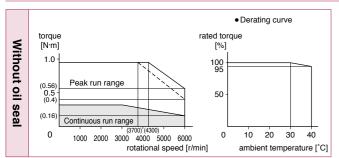
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

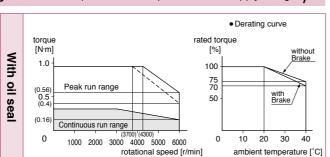
• Permissible load (For details, refer to P.304)

	,	,
	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.

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	_			
	Connector type (IP67)			_	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	
		Multi	function type		MADLT05SF	
Applicable	Model No	RS48	5 communication typ	oe *2	MADLN05SG	
driver	140.	Basic	type *2		MADLN05SE	
	Fram	e sym	bol		A-frame	
Power supply	capacit	у	(k\	/A)	0.5	
Rated output			(W)	100	
Rated torque			(N·	m)	0.32	
Continuous s	tall torqu	ie	(N-	m)	0.32	
Momentary N	1ax. peal	k torqu	ıe (N·	m)	0.95	
Rated curren	t		(A(rm	s))	1.1	
Max. current			(A(o-	p))	4.7	
Regenerative	brake		Without option		No limit Note)2	
frequency (tin	nes/min)	Note)1	DV0P4281		No limit Note)2	
Rated rotatio	nal spee	d	(r/m	in)	3000	
Max. rotation	al speed		(r/m	in)	6000	
Moment of in	ertia		Without brake		0.048	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake		0.051		
Recommended moment of in 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 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.

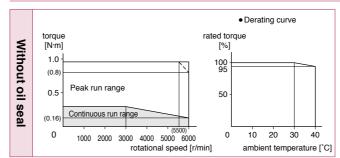
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

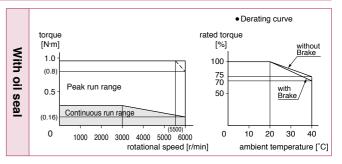
• Permissible load (For details, refer to P.304)

	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.

A6B Series

Specifications

				AC100 V
Motor model	1	MSMF021L1		
		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	е	(N·m)	0.64
Momentary M	lax. peal	k torqu	ue (N⋅m)	1.91
Rated curren	t		(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 in	ertia		Without brake	0.14
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	0.17	
Recommended moment of inertial ratio of the load and the rotor				30 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.

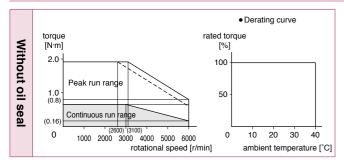
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

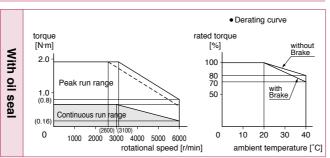
• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During 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.121		_	P.122		_		
	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□□	
		Multi	function type		MADLT15SF	
Applicable	Model No.	RS48	5 communication t	ype *2	MADLN15SG	
driver		Basic	type *2		MADLN15SE	
	Fram	e sym	bol		A-frame	
Power supply	capacit	y	(I	κVA)	0.5	
Rated output				(W)	200	
Rated torque			1)	N·m)	0.64	
Continuous sta	all torqu	ie	1)	N·m)	0.64	
Momentary Ma	Momentary Max. peak torque (N·m)			1.91		
Rated current			(A(rı	ms))	1.5	
Max. current			(A(d	o-p))	6.5	
Regenerative	brake		Without option	n	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	l speed		(r/	min)	6000	
Moment of ine	rtia		Without brake		0.14	
of rotor (×10 ⁻⁴ kg·m ²) With br			With brake		0.17	
Recommended moment of inertia ratio of the load and the rotor Note)3			Note)3	30 times or less		
Rotary encode	er speci	ficatio	ns*3		23-bit Absolute	
	Re	solutio	on per single tur	'n	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.

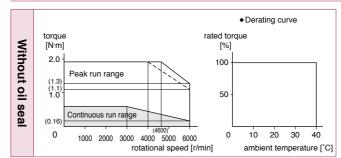
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

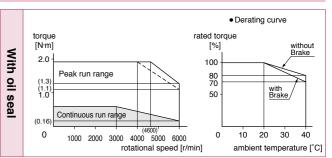
• Permissible load (For details, refer to P.304)

During assembly 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

Motor specifications	Round shaft/ Key way, center tap shaft							
	ifications		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 ty	pe (IP65)	P.121		_	P.122		_	
Connector ty	ype (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.

Specifications

		AC100 V				
Motor model	1	MSMF041L1				
		Multifunction type		MCDLT31SF		
Applicable	Model No	RS485 communication type *2		MCDLN31SG		
driver	110.	Basic	type *2	MCDLN31SE		
	Fram	e sym	bol	C-frame		
Power supply	capacit	у	(kVA)	0.9		
Rated output			(W)	400		
Rated torque		1.27				
Continuous s	tall torqu	1.27				
Momentary M	lax. pea	3.82				
Rated current (A(r			(A(rms))	4.6		
Max. current (A(o-p))				19.5		
' logoriorativo brako			Without option	No limit Note)2		
			DV0P4282	No limit Note)2		
Rated rotation	nal spee	d	(r/min)	3000		
Max. rotational speed			(r/min)	6000		
Moment of in	ertia		Without brake	0.27		
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	0.30		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 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.

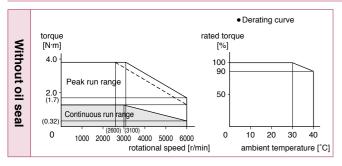
Static friction torque (N·m)	1.27 or more		
Engaging time (ms)	50 or less		
Releasing time (ms) Note)4	15 or less		
Exciting current (DC) (A)	0.36		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±1.2		

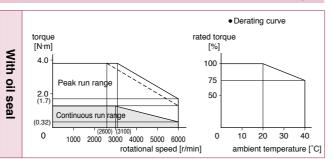
• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During 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.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 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.1	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*1		MSMF042L1□□				
		Multi	function type	MBDLT25SF		
Applicable	Model No	RS48	5 communication type *2	MBDLN25SG		
driver	140.	Basic	type *2	MBDLN25SE		
	Frame	e sym	bol	B-frame		
Power supply	capacit	y	(kVA)	0.9		
Rated output			(W)	400		
Rated torque		1.27				
Continuous st	all torqu	1.27				
Momentary Ma	ax. peal	3.82				
Rated current (A(rms))				2.4		
Max. current (A(o-p))				10.2		
Regenerative brake			Without option	No limit Note)2		
frequency (times/min) Note)		Note)1	DV0P4283	No limit Note)2		
Rated rotation	al spee	d	(r/min)	3000		
Max. rotationa	l speed		(r/min)	6000		
Moment of inertia			Without brake	0.27		
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	0.30		
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less			
Rotary encoder specifications *3			ns ^{*3}	23-bit Absolute		
	Re	solutio	on 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.

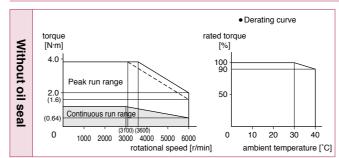
Static friction torque (N·m)	1.27 or more		
Engaging time (ms)	50 or less		
Releasing time (ms) Note)4	15 or less		
Exciting current (DC) (A)	0.36		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±1.2		

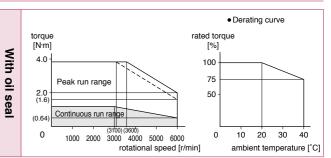
• Permissible load (For details, refer to P.304)

During assembly	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)	98.0

- 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

	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.123		_	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.

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A6N Series

A6N Series

A6B Series

Specifications

		AC200 V			
Motor model*	ı	MSMF082L1□□			
			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 st	all torqu	2.39			
Momentary M	ax. pea	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	al speed		(r/min)	6000	
Moment of ine	ertia		Without brake	0.96	
of rotor (×10 ⁻⁴ kg·m ²) Wit			With brake	1.06	
Recommended moment of inertia ratio of the load and the rotor Note)3				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.

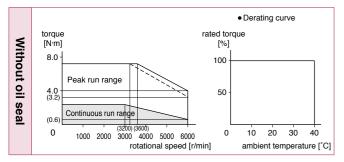
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

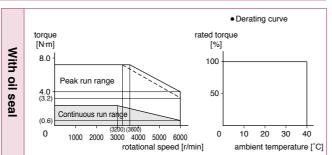
• Permissible load (For details, refer to P.304)

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.1	24	_	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 *2	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 stall torque (N·m)				3.18		
Momentary M	ax. pea	k torqı	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	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.

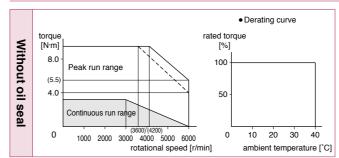
Static friction torque (N·m)	3.80 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

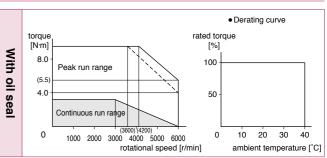
• Permissible load (For details, refer to P.304)

During assembly 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.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*		MSMF102L1			
		Multi	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)	2.4	
Rated output			(W)	1000	
Rated torque			(N·m)	3.18	
Continuous st	all torqu	3.82			
Momentary M	ax. pea	k torqı	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 (tim	es/min)	Note)1	DV0P4284	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	2.15	
of rotor (×10 ⁻⁴ kg·m ²)			With brake	2.47	
Recommender ratio of the loa		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.

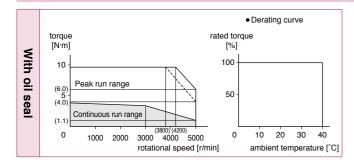
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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.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.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*	I	MSMF152L1□□		
		Multi	function type	MDDLT55SF
Applicable	Model No.	RS48	5 communication type *	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)	4.77
Continuous st	all torqu	5.72		
Momentary M	ax. pea	k torqı	ue (N·m)	14.3
Rated current			(A(rms))	8.2
Max. current			(A(o-p))	35
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4284	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	3.10
of rotor (×10 ⁻⁴	kg·m²)		With brake	3.45
Recommender ratio of the load		15 times or less		
Rotary encod	er speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on per single turn	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.

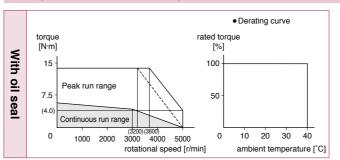
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

During assembly 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

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	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)	6.37
Continuous s	tall torqu	е	(N·m)	7.64
Momentary M	lax. peal	c torqu	ue (N·m)	19.1
Rated current			(A(rms))	11.3
Max. current			(A(o-p))	48
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)	3000
Max. rotation	al speed		(r/min)	5000
Moment of inc	ertia		Without brake	4.06
of rotor (×10	¹ kg·m²)		With brake	4.41
Recommended moment of ratio of the load and the rote				15 times or less
Rotary encod	er speci	icatio	ns ^{*3}	23-bit Absolute
	Res	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.

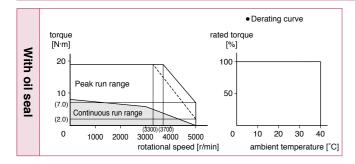
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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

		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.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□□			
			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		9.55			
Continuous s	tall torqu	11.0			
Momentary M	lax. pea	k torqu	ue (N·m)	28.6	
Rated curren	t		(A(rms))	18.1	
Max. current			(A(o-p))	77	
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. rotation	al speed		(r/min)	5000	
Moment of in	ertia		Without brake	7.04	
of rotor (×10	⁴ kg·m²)		With brake	7.38	
Recommenderatio of the lo				15 times or less	
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute	
	Re	solutio	n 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.

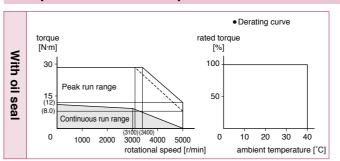
Static friction torque (N·m)	12.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

During assembly 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.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.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.

A6N Series

A6B Series

E Series

Specifications

				AC200 V
Motor model *1	lotor model *1			MSMF402L1□□
			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	torque (N·m)			12.7
Continuous st	all torqu	ie	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	al 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
Recommende ratio of the loa		15 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.

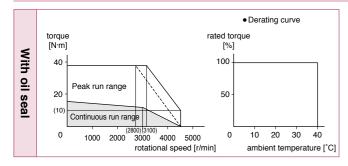
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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.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.132		_	P.1	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*1		MSMF502L1		
		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)	7.8
Rated output			(W)	5000
Rated torque			(N·m)	15.9
Continuous st	all torqu	ie	(N·m)	19.1
Momentary M	ax. peal	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 (time	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	al spee	d	(r/min)	3000
Max. rotationa	l speed		(r/min)	4500
Moment of ine	rtia		Without brake	19.0
of rotor (×10 ⁻⁴ kg·m ²)			With brake	20.2
Recommende ratio of the loa		15 times or less		
Rotary encode	er speci	ficatio	ns ^{⁺3}	23-bit Absolute
Resolution 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.

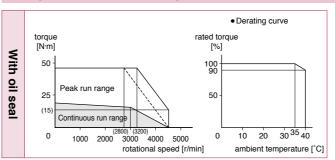
Static friction torque (N·m)	22.0 or more		
Engaging time (ms)	110 or less		
Releasing time (ms) Note)4	50 or less		
Exciting current (DC) (A)	0.90		
Releasing voltage (DC) (V)	2 or more		
Exciting voltage (DC) (V)	24±2.4		

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

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.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. specimeanene	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		_	P.134		
Encoder connector Small size (JN2) type	_			_	P.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*	ı	MQMF011L1		
			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 st	all torqu	ie	(N·m)	0.33
Momentary M	Momentary Max. peak torque			1.11
Rated current			(A(rms))	1.6
Max. current			(A(o-p))	7.9
Regenerative	Regenerative brake requency (times/min) Note)1		Without option	No limit Note)2
frequency (time			DV0P4280	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	0.15
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.18
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
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.

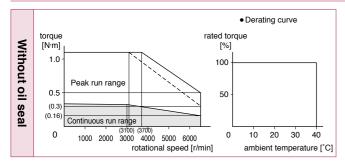
Static friction torque (N·m)	0.39 or more		
Engaging time (ms)	15 or less		
Releasing time (ms) Note)4	20 or less		
Exciting current (DC) (A)	0.30		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±2.4		

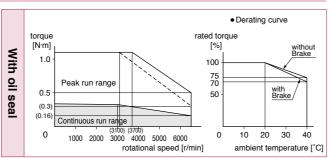
• Permissible load (For details, refer to P.304)

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.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.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	,*2	MADLN05SG		
driver	140.	Basic	type *2		MADLN05SE		
	Fram	e sym	bol		A-frame		
Power supply	capacit	у	(kVA	A)	0.5		
Rated output			(V	V)	100		
Rated torque			(N·n	1)	0.32		
Continuous stall torque (N·m)				1)	0.33		
Momentary Max. peak torque (N				1)	1.11		
Rated current			(A(rms	ms)) 1.1			
Max. current			(A(o-p	(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/mir	า)	3000		
Max. rotationa	al speed		(r/mir	1)	6500		
Moment of ine	ertia		Without brake		0.15		
of rotor (×10 ⁻⁴	kg·m²)		With brake		0.18		
Recommended moment of inertial ratio of the load and the rotor)3	20 times or less		
Rotary encod	er speci	ficatio	ns ^{*3}		23-bit Absolute		
	Re	solutio	n per single turn		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.

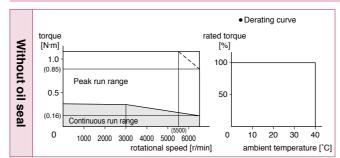
Static friction torque (N·m)	0.39 or more		
Engaging time (ms)	15 or less		
Releasing time (ms) Note)4	20 or less		
Exciting current (DC) (A)	0.30		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±2.4		

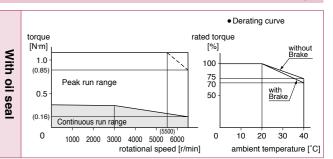
• Permissible load (For details, refer to P.304)

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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A6B Series

				A0400 V
				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 stall torque (N·m)				0.76
Momentary Max. peak torque (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 (times/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	0.50
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.59
Recommended moment of inertial ratio of the load and the rotor				20 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.

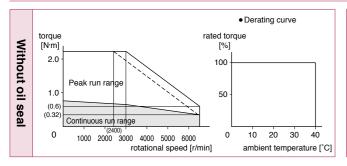
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

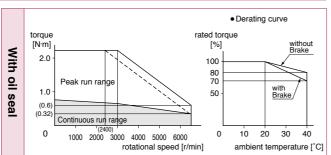
• Permissible load (For details, refer to P.304)

	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.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.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	INO.	Basic	c type *2	MADLN15SE	
	Fram	e sym	bol	A-frame	
Power supply	capacit	у	(kVA)	0.5	
Rated output			(W)	200	
Rated torque		0.64			
Continuous stall torque (N·m)				0.76	
Momentary Ma	ax. pea	k torqu	ue (N·m)	2.23	
Rated current		(A(rms))	1.4		
Max. current (A		(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	l speed		(r/min)	6500	
Moment of ine	rtia		Without brake	0.50	
of rotor ($\times 10^{-4}$	kg·m²)		With brake	0.59	
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	

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.

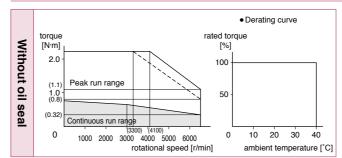
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

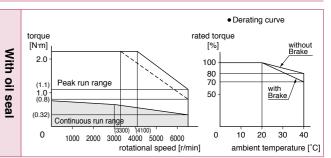
• Permissible load (For details, refer to P.304)

During assembly 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

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 N	Лах. 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 (tin	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·m ²)			With brake	1.06	
Recommended moment of inertia ratio of the load and the rotor Note)				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.

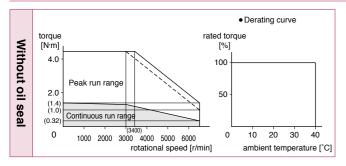
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

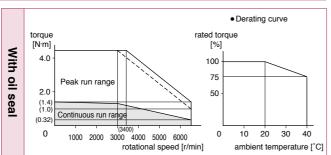
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)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 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. <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
			Multifunction type		MBDLT25SF
Applicable	Model No.	RS48	5 communication typ	oe *²	MBDLN25SG
driver		Basic	type *2		MBDLN25SE
	Fram	e sym	bol		B-frame
Power supply	capacit	y	(k\	/A)	0.9
Rated output			(W)	400
Rated torque			(N	·m)	1.27
Continuous s	tall torqu	ie	(N:	·m)	1.40
Momentary M	lax. peal	k torqu	ue (N	(N·m) 4.46	
Rated current	i		(A(rm	(A(rms)) 2.1	
Max. current			(A(o-	(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/m	nin)	3000
Max. rotation	al speed		(r/m	nin)	6500
Moment of inc	ertia		Without brake		0.98
of rotor (×10	¹ kg·m²)		With brake		1.06
Recommended moment of inertia ratio of the load and the rotor				ite)3	20 times or less
Rotary encod	er speci	ficatio	ns*3		23-bit Absolute
	Re	solutio	n 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.

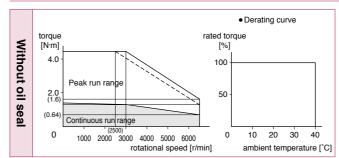
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

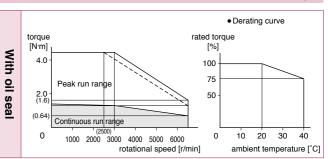
• Permissible load (For details, refer to P.304)

During assembly	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

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.

		AC100 V		
Motor model *1		MHMF5AZL1		
		Multi	function type	MADLT01SF
Applicable	Model No	RS48	5 communication type *2	MADLN01SG
driver	140.	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 st	all torqu	ie	(N·m)	0.18
Momentary M	ax. pea	k torqu	ue (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	DV0P4280	No limit Note)2
Rated rotation	al spee	d	(r/min)	3000
Max. rotationa	ıl 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 in ratio of the load and the roto				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.

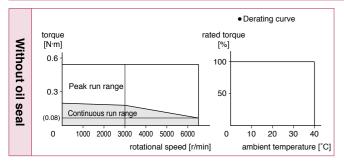
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

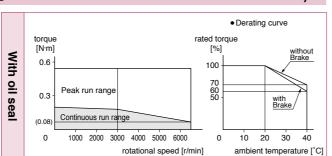
• Permissible load (For details, refer to P.304)

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

	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. <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			
			function type		MADLT05SF
Applicable	Model No	RS48	5 communication ty	/pe ^{*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)	50
Rated torque			(N	l·m)	0.16
Continuous s	tall torqu	ie	(N	l·m)	0.18
Momentary N	lax. peal	k torqı	ue (N	l·m)	0.56
Rated curren	t		(A(rn	(A(rms)) 1.1	
Max. current			(A(o	(A(o-p)) 5.5	
Regenerative	brake		Without option		No limit Note)2
frequency (tim	nes/min)	Note)1	DV0P4281		No limit Note)2
Rated rotatio	nal spee	d	(r/r	nin)	3000
Max. rotation	al speed		(r/r	nin)	6500
Moment of in	ertia		Without brake		0.038
of rotor (×10	4 kg·m²)		With brake		0.042
Recommender ratio of the lo			ote)3	30 times or less	
Rotary encod	ler speci	ficatio	ns*3		23-bit Absolute
	Re	solutio	on per single turi	n	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.

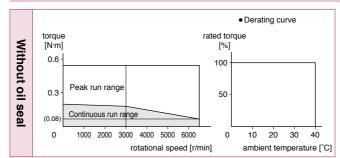
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

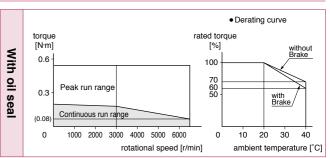
• Permissible load (For details, refer to P.304)

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)	49
	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.
- 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.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.

		AC100 V			
Motor model	1	MHMF011L1			
			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	ie	(N·m)	0.33	
Momentary M	1ax. pea	k torqı	ue (N·m)	1.11	
Rated current (A(rm			(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 rotation	nal spee	d	(r/min)	3000	
Max. rotation	al speed		(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.

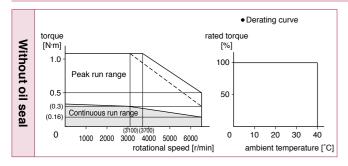
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

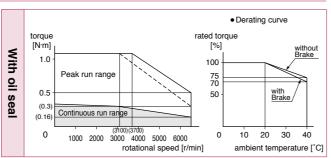
• Permissible load (For details, refer to P.304)

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

- For details of Note)1 to Note)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 *	MADLN05SG
driver	110.	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	е	(N·m)	0.33
Momentary M	ax. peal	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 (time	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
Recommenderatio of the loa				30 times or less
Rotary encode	er speci	ficatio	ns ^{∗3}	23-bit Absolute
	Re	solutio	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.

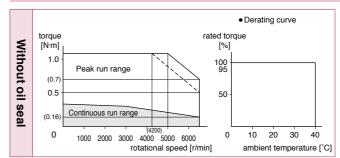
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

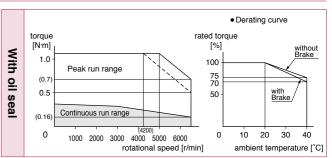
• Permissible load (For details, refer to P.304)

During assembly	Radial load P-direction (N)	147
	Thrust load A-direction (N)	88
	Thrust load B-direction (N)	117.6
During	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.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.

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A6N Series

				AC100 V	
Motor model*1		MHMF021L1			
		Multi	function type	MBDLT21SF	
Applicable	Model No	RS48	5 communication type *2	MBDLN21SG	
driver	110.	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 st	all torqu	ie	(N·m)	0.76	
Momentary M	ax. pea	k 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)	Note)1	DV0P4283	No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	6500	
Moment of ine	rtia		Without brake	0.29	
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.31	
Recommended moment of inertia ratio of the load and the rotor				30 times or less	
Rotary encode	er speci	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)

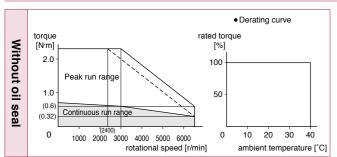
	Radial load P-direction (N)	392
During assembly	Thrust load A-direction (N)	147
assembly	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

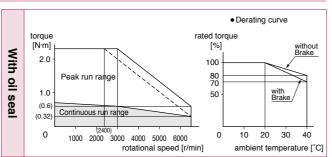
- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

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

	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.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 driver	Model No	RS48	5 communication type *2	MADLN15SG
	140.	Basic	type *2	MADLN15SE
	Fram	e sym	bol	A-frame
Power supply	capacit	у	(kVA)	0.5
Rated output			(W)	200
Rated torque		0.64		
Continuous s	tall torqu	0.76		
Momentary M	lax. pea	k torqu	ue (N·m)	2.23
Rated current	t		(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. rotation	al speed		(r/min)	6500
Moment of in	ertia		Without brake	0.29
of rotor (×10	4 kg·m²)		With brake	0.31
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	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)

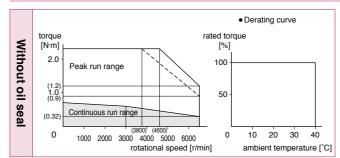
During assembly	Radial load P-direction (N)	392
	Thrust load A-direction (N)	147
	Thrust load B-direction (N)	196
During operation	Radial load P-direction (N)	245
	Thrust load A, B-direction (N)	98

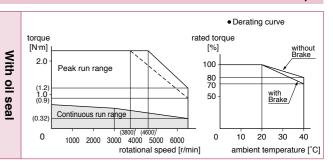
- For details of Note)1 to Note)4, refer to P.303.
- Dimensions of Driver, refer to P.57.
- *1 \square in the motor part number represents the motor specifications.
- *2 Basic type and RS485 communication type are "Position control type".

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.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.

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A6B Series

A6N Series

A6N Series

A6B Series

Specifications

		AC100 V			
Motor model	*1	MHMF041L1			
		Multi	function type	MCDLT31SF	
Applicable	Model No	RS48	5 communication type *2	MCDLN31SG	
driver	140.	Basic	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 s	tall torqu	е	(N·m)	1.40	
Momentary N	1ax. peal	torqu	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 (tin	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	0.56	
of rotor (×10	4 kg·m²)		With brake	0.58	
Recommended moment of inert ratio of the load and the rotor				30 times or less	
Rotary encod	ler 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.

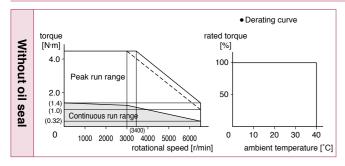
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

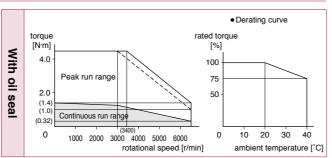
• Permissible load (For details, refer to P.304)

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.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		
		Multi	function type	MBDLT25SF
Applicable	Model No	RS48	5 communication type *2	MBDLN25SG
driver	140.	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	k torqı	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 (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	0.56
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.58
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 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.

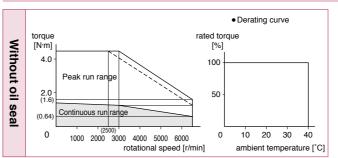
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

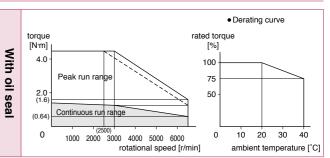
• Permissible load (For details, refer to P.304)

During assembly 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

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.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

Specifications

		AC200 V		
Motor model*	1	MHMF082L1		
		Multi	function type	MCDLT35SF
Applicable	Model No.	RS48	5 communication type *2	MCDLN35SG
driver		Basic	type *2	MCDLN35SE
	Frame	sym	bol	C-frame
Power supply	capacity	/	(kVA)	1.8
Rated output			(W)	750
Rated torque			(N·m)	2.39
Continuous stall torque (N·m)				2.86
Momentary M	ax. peak	torqu	ue (N·m)	8.36
Rated current (A(rms)			(A(rms))	3.8
Max. current (A(o-p))			18.8	
Regenerative brake V			Without option	No limit Note)2
frequency (times/min) Note)1		Note)1	DV0P4283	No limit Note)2
Rated rotation	nal speed	d	(r/min)	3000
Max. rotationa	al speed		(r/min)	6000
Moment of ine	ertia		Without brake	1.56
of rotor (×10 ⁻⁴	kg·m²)		With brake	1.66
Recommended moment of inertia ratio of the load and the rotor				20 times or less
Rotary encod	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.

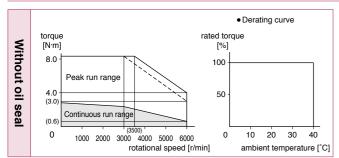
Static friction torque (N·m)	3.8 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

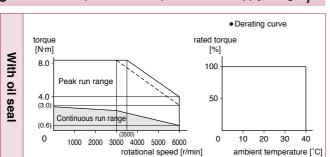
• Permissible load (For details, refer to P.304)

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

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	MHMF092L1□□				
		Multi	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 N	1ax. peal	k torqu	ıe	(N·m) 11.1		
Rated curren	t		(A)	(rms))	5.7	
Max. current			(A	(o-p))	28.2	
Regenerative	brake		Without option		No limit Note)2	
frequency (tin	nes/min)	Note)1	DV0P4284		No limit Note)2	
Rated rotatio	nal spee	d	(1	r/min)	3000	
Max. rotation	al speed		(r/min)	6000	
Moment of in	ertia		Without brak	ke	2.03	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake		2.13	
Recommend ratio of the lo			Note)3	15 times or less		
Rotary encod	ler speci	ficatio	ns ^{*3}		23-bit Absolute	
	Re	solutio	n per single to	urn	8388608	

200 V MHMF 1000 W [High 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.

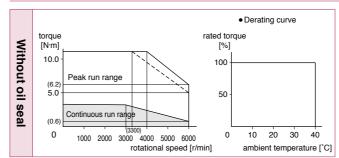
Static friction torque (N·m)	3.8 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

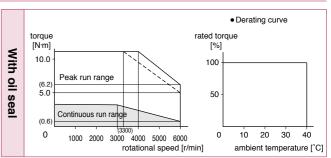
• Permissible load (For details, refer to P.304)

During assembly 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.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.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		

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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	MHMF102L1		
		Multi	function type	MDDLT45SF
Applicable	Model No	RS48	communication type *2	MDDLN45SG
driver	110.	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 st	all torqu	е	(N·m)	5.25
Momentary M	ax. peak	torqu	ıe (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) 1	Note)1	DV0P4284	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	22.9
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
Resolution per single tur			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.)

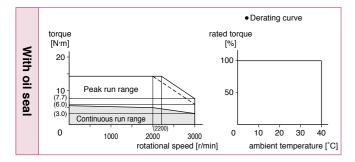
Static friction torque (N·m)	13.7 or more		
Engaging time (ms)	100 or less		
Releasing time (ms) Note)4	50 or less		
Exciting current (DC) (A)	0.79		
Releasing voltage (DC) (V)	2 or more		
Exciting voltage (DC) (V)	24±2.4		

• 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 \(\subseteq \) 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

	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.171		_	P.171		
Encoder connector Small size (JN2) type	_	P.171		_	P.1	172	

<Cautions> Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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			
			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 stall torque (N·n					7.52
Momentary M	lax. pea	k torqı	re ((N·m) 21.5	
Rated current	t		(A(r	ms))	8.0
Max. current			(A(o-p))	34
Regenerative	brake		Without option	n	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4284		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	Э	33.4
of rotor (×10	4 kg·m²)		With brake		34.6
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	n per single tu	rn	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.)

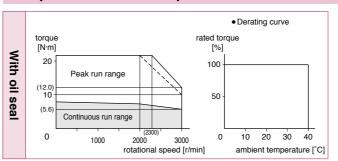
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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 \(\subseteq \) 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

	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		

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

Dimensions are subject to change without notice. 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		
		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 st	all torqu	ie	(N·m)	11.5
Momentary M	ах. реа	k torqu	ue (N·m)	28.6
Rated current	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	nal 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 i				5 times or less
Rotary encode	er speci	ficatio	cations '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.

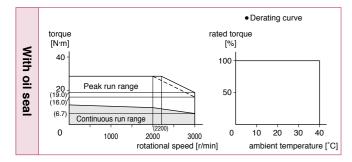
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
doodinbiy	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

	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.173		_	P.174			
	Encoder connector Small size (JN2) type	_	P.174		_	P.1	74		

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	MFDLNA3SG
driver		Basic	type *2	MFDLNA3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA	A) 5.2
Rated output			(V)	/) 3000
Rated torque			(N·m	n) 14.3
Continuous st	tall torqu	ie	(N·m	n) 17.2
Momentary M	lax. peal	k torqı	ue (N·m	1) 43.0
Rated current	İ		(A(rms)) 17.0
Max. current			(A(o-p)) 72
Regenerative brake Without			Without option	No limit Note)2
frequency (times/min) Note)1		DV0P4285×2	No limit Note)2	
Rated rotation	nal spee	d	(r/mir	n) 2000
Max. rotationa	al speed		(r/mir	3000
Moment of ine	ertia		Without brake	85.3
of rotor (×10 ⁻⁴ kg·m²) With brake				90.7
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
	Re	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.

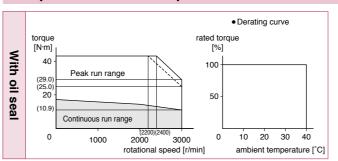
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

During assembly 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.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.

• 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.

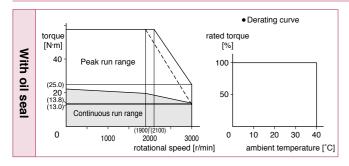
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

- For details of Note)1 to Note)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.176		_	P.1	76	
	Encoder connector Small size (JN2) type	_	P.177		_	P.1	77	

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		MHMF502L1□□		
		Multifunction 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)	23.9
Continuous st	all torqu	ie	(N·m)	26.3
Momentary M	ax. pea	k torqı	ue (N·m)	71.6
Rated current	Rated current (A(rms))			23.3
Max. current	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	146
of rotor (×10 ⁻⁴ kg·m²) With brake			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	solutio	on 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.

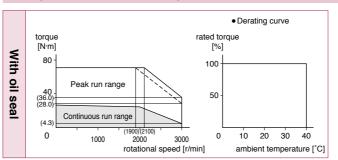
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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			
	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 co Large size (JI		_	P.177		_	P.1	178	
Encoder co Small size (J		_	P.178		_	P.1	178	

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

Motor model*

Applicable driver

Rated output

Rated torque

Rated current

Max. current

Regenerative brake frequency (times/min) Note)1

Rated rotational speed

Max. rotational speed

of rotor ($\times 10^{-4}$ kg·m²)

Recommended moment of inertia

ratio of the load and the rotor

Rotary encoder specifications *3

Moment of inertia

Power supply capacity

Continuous stall torque

Momentary Max. peak torque

Multifunction type RS485 communication type *2

(kVA)

(W)

(N·m)

(N·m)

(N·m)

(A(rms))

(A(o-p))

(r/min)

(r/min)

Without option

DV0P4285×3

Without brake

With brake

Resolution per single turn

Basic type *2

Frame symbol

<Cautions>

Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. 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 • Brake specifications (For details, refer to P.305) AC200 V This brake will be released when it is energized.

MHMF752L1

MGDLTC3SF

G-frame

11

7500

47.8

47.8 125

40.2

154

No limit Note)2

No limit Note)2

1500

3000

272

279

5 times or less

23-bit Absolute

8388608

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

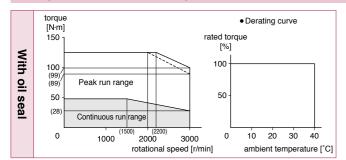
• Permissible load (For details, refer to P.304)

Do not use this for braking the motor in motion.

	Radial load P-direction (N)	2058
During assembly	Thrust load A-direction (N)	980
document	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.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.179	_	_	P.179	_		
Encoder connector Small size (JN2) type	_	P.179	_	_	P.180	_		

Specifications

				AC200 V
Motor model	1	MDMF102L1		
		Multi	function type	MDDLT45SF
Applicable	Model No	RS48	5 communication type *	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 M	1ax. pea	k torqı	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 rotation	nal spee	d	(r/min)	2000
Max. rotation	al speed		(r/min)	3000
Moment of in	ertia		Without brake	6.18
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	7.40
Recommenderatio of the lo		10 times or less		
Rotary encod	ler speci	ficatio	ns*3	23-bit Absolute
	Re	solutio	on 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.

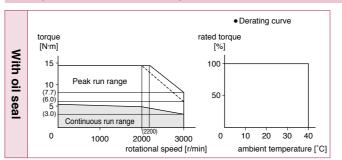
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

During assembly 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.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.

					AC200 V
Motor model	1	MDMF152L1			
		Multi	function type		MDDLT55SF
Applicable	Model No.	RS48	5 communication	type *2	MDDLN55SG
driver	INO.	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 M	lax. pea	k torqı	ie	(N·m)	21.5
Rated current	t		(A(rms))	8.0
Max. current			(A	(o-p))	34
Regenerative	brake		Without option	on	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4284		No limit Note)2
Rated rotation	nal spee	d	(1	r/min)	2000
Max. rotation	al speed		(1	r/min)	3000
Moment of inc	ertia		Without brak	е	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	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.

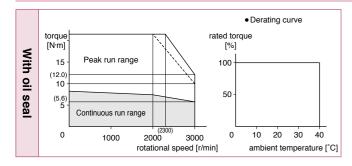
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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.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.181		_	P.1	182	
	Encoder connector Small size (JN2) type	_	P.182		_	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□□		
		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)	9.55
Continuous st	all torqu	ie	(N·m)	10.0
Momentary Ma	ax. pea	k torqu	ıe (N⋅m)	28.6
Rated current			(A(rms))	9.9
Max. current			(A(o-p))	42
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	l speed		(r/min)	3000
Moment of ine	rtia		Without brake	12.1
of rotor (x10 ⁻⁴ kg·m ²)			With brake	13.3
Recommende ratio of the loa		10 times or less		
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute
	Re	solutio	n 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.

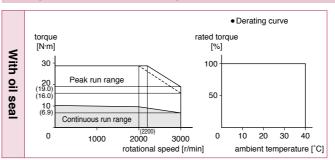
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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.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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A6B Series E Series

A6N Series

				AC200 V
Motor model *1				MDMF302L1
		Multi	function type	MFDLTA3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNA3SG
driver		Basio	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 torque)	(N·m)	15.0
Momentary M	ax. peak	torqı	ue (N·m)	43.0
Rated current (A			(A(rms))	16.4
Max. current (A(o-p)			(A(o-p))	70
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min) N	ote)1	DV0P4285×2	No limit Note)2
Rated rotation	nal speed		(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 encode	er specifi	catio	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.

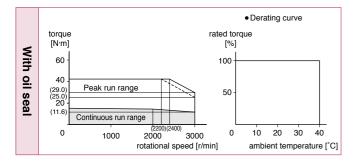
Static friction torque (N·m)	22.0 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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

	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.184		_	P.1	184	
	Encoder connector Small size (JN2) type	_	P.185		_	P.1	185	

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		MDMF402L1		
Applicable driver		Multi	function type	MFDLTB3SF
	Model No	RS48	5 communication type *2	MFDLNB3SG
	INO.	Basic	type *2	MFDLNB3SE
	Frame	e sym	bol	F-frame
Power supply	capacity	у	(kVA)	6.5
Rated output			(W)	4000
Rated torque			(N·m)	19.1
Continuous st	all torqu	е	(N·m)	22.0
Momentary M	ax. peal	k torqu	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
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
Recommende ratio of the loa		10 times or less		
Rotary encode	er speci	ficatio	ns ^{∗3}	23-bit Absolute
	Res	solutio	n 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.

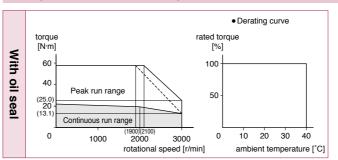
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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			
	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.

A6N Series

A6B Series

E Series

Specifications

		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	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	58.2
of rotor (×10 ⁻⁴	kg·m²)		With brake	63.0
Recommende ratio of the loa		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.

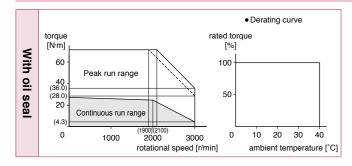
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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							
N	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.187		_	P.187			
	Encoder connector Small size (JN2) type	_			_	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*1		MDMF752L1		
		Multi	function type	MGDLTC3SF
Applicable	Model No	RS48	5 communication type *2	_
driver	140.	Basic	type *2	_
	Frame	e sym	bol	G-frame
Power supply	capacity	у	(kVA)	11
Rated output			(W)	7500
Rated torque			(N·m)	47.8
Continuous st	all torqu	е	(N·m)	47.8
Momentary M	ax. peal	k torqu	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 (time	es/min)	Note)1	DV0P4285×3	No limit Note)2
Rated rotation	al spee	d	(r/min)	1500
Max. rotationa	l speed		(r/min)	3000
Moment of ine	rtia		Without brake	122
of rotor (×10 ⁻⁴	kg·m²)		With brake	127
Recommende ratio of the loa		10 times or less		
Rotary encode	er speci	ficatio	ns*3	23-bit Absolute
	Res	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.

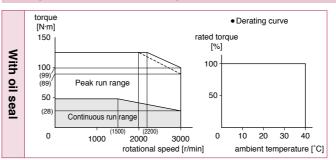
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

During assembly	Radial load P-direction (N)	2058
	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

	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.

				4.0000.1/
		AC200 V		
Motor model*1		MDMFC12L1		
		Multi	unction type	MHDLTE3SF
Applicable	Model No.	RS48	communication type *2	_
driver	140.	Basic	type *2	_
	Fram	e sym	ool	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	ie (N·m)	175
Rated current			(A(rms))	57.1
Max. current			(A(o-p))	209
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	205
of rotor (×10 ⁻⁴ kg·m ²)			With brake	214
Recommended moment of inertia ratio of the load and the rotor				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.

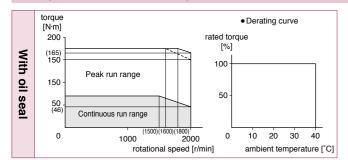
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	,	,
During assembly	Radial load P-direction (N)	4508
	Thrust load A-direction (N)	1470
	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

	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.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□□		
			function type	MHDLTE3SF
Applicable	Model No	RS48	5 communication type *2	_
driver	140.	Basic	type *2	_
	Fram	e sym	bol	H-frame
Power supply	capacit	у	(kVA)	20
Rated output			(W)	15000
Rated torque			(N·m)	95.5
Continuous s	tall torqu	ie	(N·m)	95.5
Momentary M	lax. pea	k torqı	ue (N·m)	224
Rated curren	t		(A(rms))	65.8
Max. current			(A(o-p))	225
Regenerative	brake		Without option	No limit Note)2
frequency (tim	es/min)	Note)1	DV0P4285×6	No limit Note)2
Rated rotation	nal spee	d	(r/min)	1500
Max. rotation	al speed		(r/min)	2000
Moment of in	ertia		Without brake	280
of rotor (×10	4 kg·m²)		With brake	289
Recommenderatio of the lo		10 times or less		
Rotary encod	er speci	ficatio	ns ^{*3}	23-bit Absolute
Resolution pe			on 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.

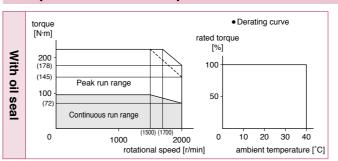
•	•
Static friction torque (N·m)	100 or more
Engaging time (ms)	300 or less
Releasing time (ms) Note)4	140 or less
Exciting current (DC) (A)	1.08
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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	
Encoder connector Large size (JL10) type	_	P.191	_	_	P.191	_	
Encoder connector Small 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.

• 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)

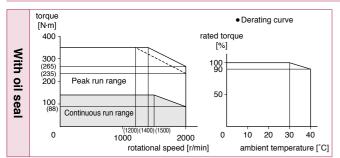
	condition to did (if the distribution) is the second	,
	Radial load P-direction (N)	4508
During assembly	Thrust load A-direction (N)	1470
	Thrust load B-direction (N)	2646
During operation	Radial load P-direction (N)	2254
	Thrust load A, B-direction (N)	686

- 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	_	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□□		
		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)	2.0
Rated output			(W)	850
Rated torque			(N·m)	5.41
Continuous st	all torqu	ie	(N·m)	5.41
Momentary M	ax. pea	k torqı	ue (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	al spee	d	(r/min)	1500
Max. rotationa	ıl speed		(r/min)	3000
Moment of ine	ertia		Without brake	6.18
of rotor (×10 ⁻⁴ kg·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	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.

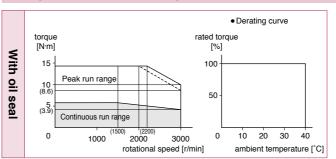
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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. >)



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.1	194	
Encoder connector Small size (JN2) type	_	P.194		_	P.1	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.

		AC200 V		
Motor model *1		MGMF132L1□□		
			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)	2.6
Rated output			(W)	1300
Rated torque			(N·m)	8.28
Continuous sta	all torqu	ie	(N·m)	8.28
Momentary Ma	ax. pea	k torqı	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			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.

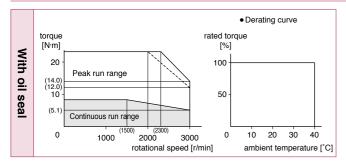
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

- For details of Note)1 to Note)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			
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.195		_	P.1	195	
Encoder connector Small size (JN2) type	_	P.195		_	P.1	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
	Fram	e sym	bol	E-frame
Power supply	capacit	y	(kVA)	3.4
Rated output			(W)	1800
Rated torque			(N·m)	11.5
Continuous sta	all torqu	ie	(N·m)	11.5
Momentary Ma	ax. pea	k torqu	ue (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	l speed		(r/min)	3000
Moment of ine	rtia		Without brake	12.1
of rotor ($\times 10^{-4}$	kg·m²)		With brake	13.3
Recommended moment of inertia ratio of the load and the rotor				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.

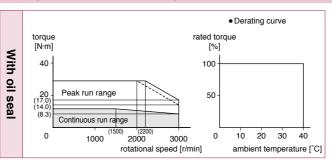
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
accombiy	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.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.196		_	P.1	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.

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E Series

A6N Series

A6N Series

A6B Series

E Series

Specifications

				AC200 V
Motor model*	I	MGMF242L1□□		
		Multifunction type		MEDLT93SF
Applicable	Model No.	RS48	5 communication type *2	MEDLN93SG
driver	140.	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 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 (tim	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 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.

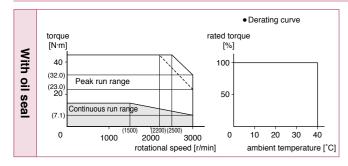
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	·	•
	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
document	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

	Key way shaft/ Round shaft							
Motor spe	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 of Large size		_	P.197 P.198		_	P.198		
Encoder of Small size		_			_	P.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□□
			function type	MFDLTB3SF
Applicable	Model No	RS48	5 communication type *2	MFDLNB3SG
driver	140.	Basic	c type *2	MFDLNB3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	у	(kVA)	5.0
Rated output			(W)	2900
Rated torque			(N·m)	18.5
Continuous s	tall torqu	ie	(N·m)	18.5
Momentary M	lax. pea	k torqu	ue (N·m)	45.2
Rated current	t		(A(rms))	19.3
Max. current			(A(o-p))	67
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	46.9
of rotor (×10	⁴ kg·m²)		With brake	52.3
Recommenderatio of the loa				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.

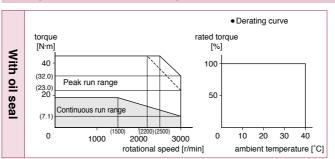
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
accombiy	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

	Key way shaft/ Round shaft							
Motor specifications	without brake			with brake				
, , , , , , , ,	without oil seal	without oil seal 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.

		AC200 V			
Motor model*1		MGMF442L1□□			
			unction type	MFDLTB3SF	
Applicable	Model No	RS48	communication type *2	MFDLNB3SG	
driver		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 st	all torqu	ie	(N·m)	28.0	
Momentary M	ax. pea	k torqu	ıe (N·m)	70.0	
Rated current			(A(rms))	27.2	
Max. current			(A(o-p))	96	
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	58.2	
of rotor (×10 ⁻⁴	kg·m²)	With brake	63.0		
Recommende ratio of the loa		10 times or less			
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute	
	Re	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.

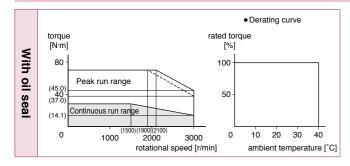
Static friction torque (N·m)	44.1 or more		
Engaging time (ms)	150 or less		
Releasing time (ms) Note)4	30 or less		
Exciting current (DC) (A)	1.29		
Releasing voltage (DC) (V)	2 or more		
Exciting voltage (DC) (V)	24±2.4		

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

	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
assembly	Thrust load B-direction (N)	980
During	Radial load P-direction (N)	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.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.2	200	_	P.200				
	Encoder connector Small size (JN2) type	_	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□□		
Applicable		Multi	function type	MGDLTC3SF
	Model No.	RS485 communication type *2		
driver	140.	Basic	type *2	_
	Fram	e sym	bol	G-frame
Power supply	capacit	y	(kVA)	8.5
Rated output (W)				5500
Rated torque			(N·m)	35.0
Continuous sta	all torqu	ie	(N·m)	35.0
Momentary Ma	ax. peal	k torqu	ue (N·m)	102
Rated current			(A(rms))	39.8
Max. current			(A(o-p))	164
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×3	No limit Note)2
Rated rotation	al spee	d	(r/min)	1500
Max. rotationa	l speed		(r/min)	3000
Moment of ine	rtia		Without brake	83.0
of rotor ($\times 10^{-4}$	kg·m²)		With brake	88.0
Recommende ratio of the loa	<u> </u>	10 times or less		
Rotary encode	er speci	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.

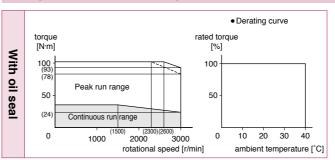
Static friction torque (N·m)	63.0 or more		
Engaging time (ms)	200 or less		
Releasing time (ms) Note)4	80 or less		
Exciting current (DC) (A)	1.29		
Releasing voltage (DC) (V)	2 or more		
Exciting voltage (DC) (V)	24±2.4		

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

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.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	_			

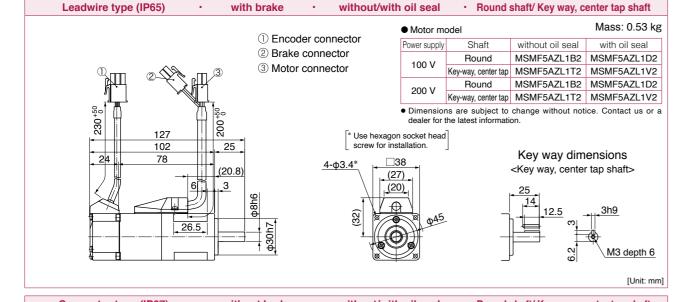
Reduce the moment of inertia ratio if high speed response operation is required. Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

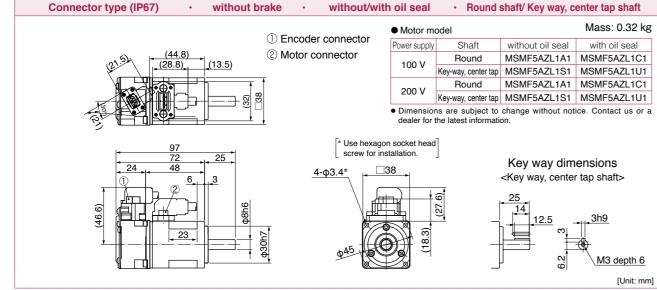
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A6N Series

MSMF 50 W

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]

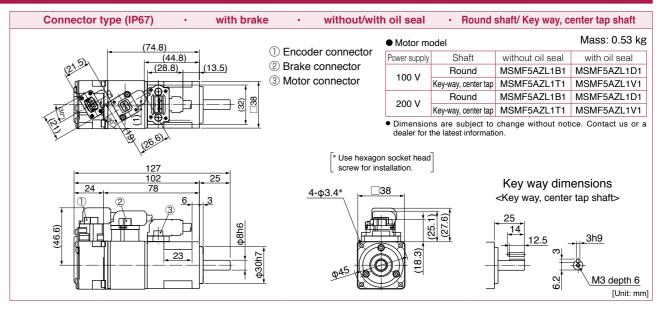




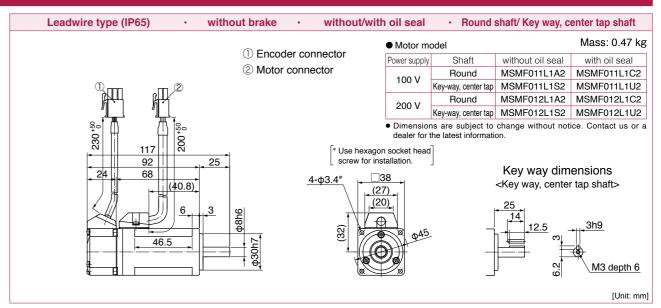
* For motors specifications, refer to P.63, P.64.

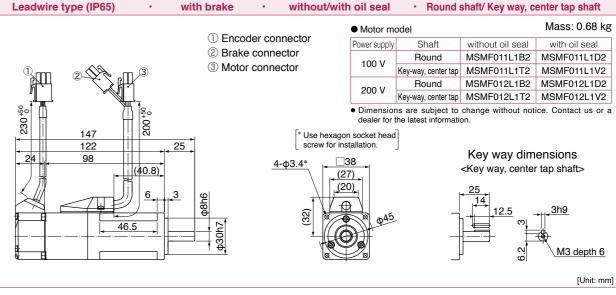
MSMF 50 W

MSMF 50 W to 100 W





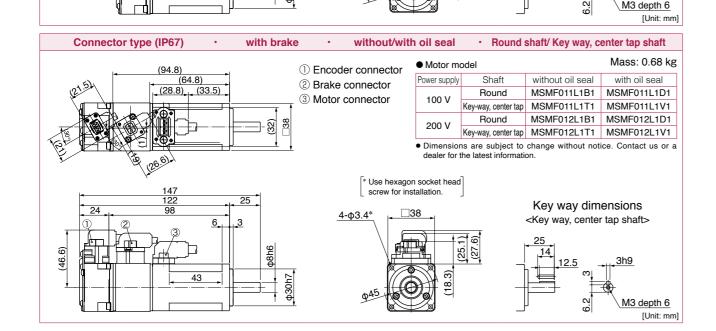




^{*} For motors specifications, refer to P.63 to P.66.

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>

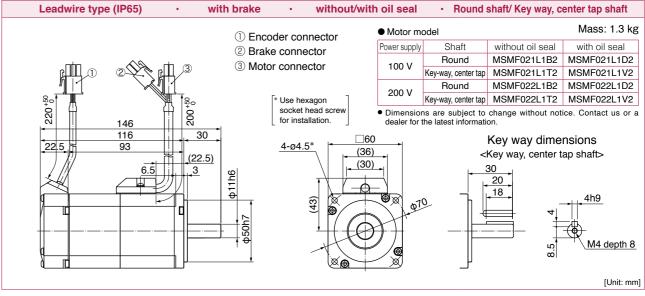
MSMF 100 W to 200 W

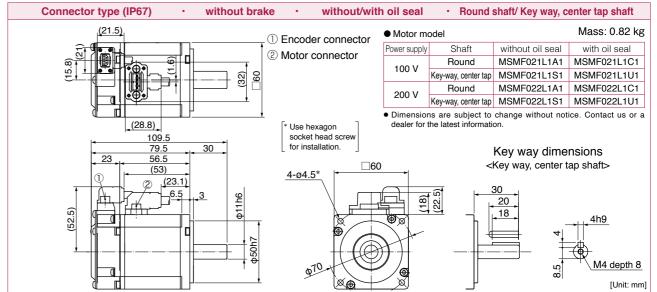


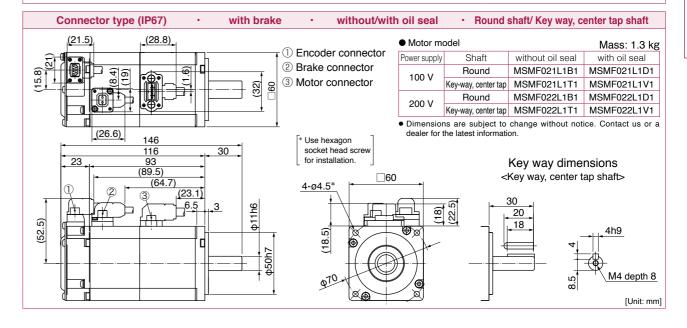
MSMF 200 W Leadwire type (IP65) without brake without/with oil seal · Round shaft/ Key way, center tap shaft Mass: 0.82 kg Motor model ① Encoder connector Shaft without oil seal with oil seal Power supply 2 Motor connector MSMF021L1A2 MSMF021L1C2 Round 100 V MSMF021L1S2 MSMF021L1U2 Key-way, center tap 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



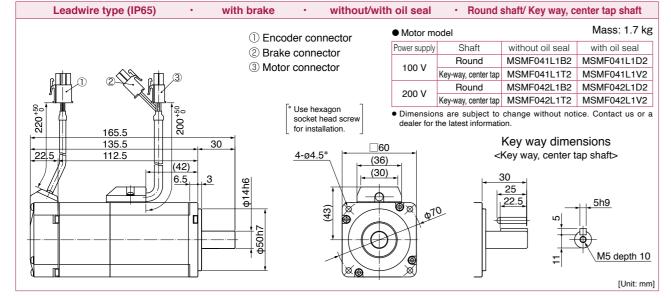


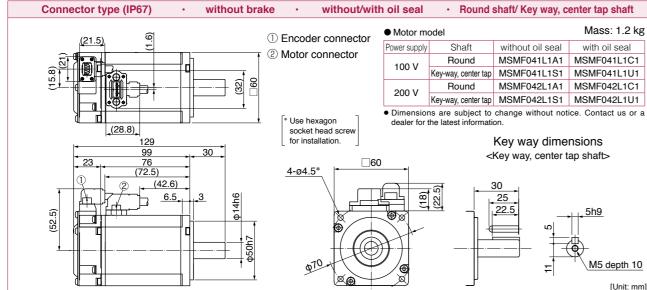


* For motors specifications, refer to P.67, P.68.

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]

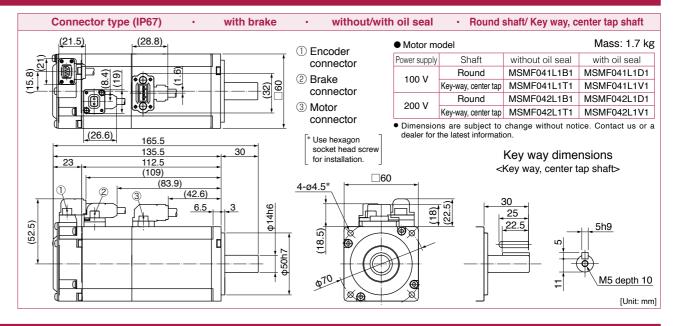




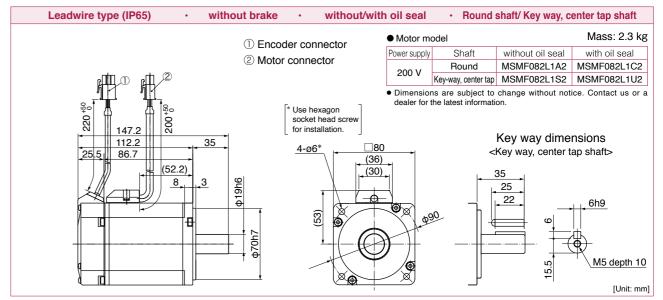
^{*} For motors specifications, refer to P.69, P.70.

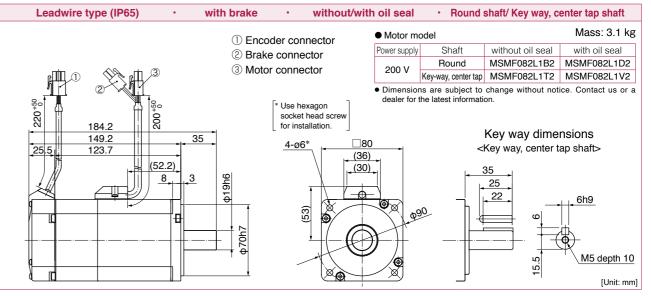
MSMF 400 W

MSMF 400 W to 750 W



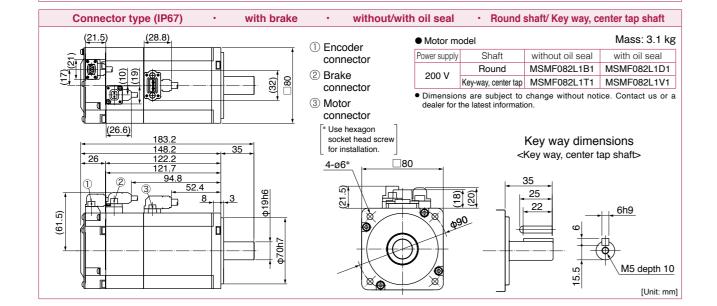
MSMF 750 W





^{*} 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

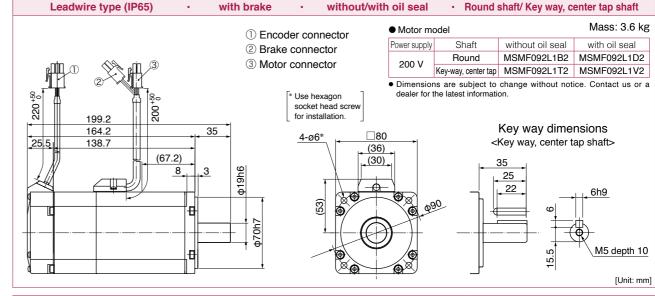


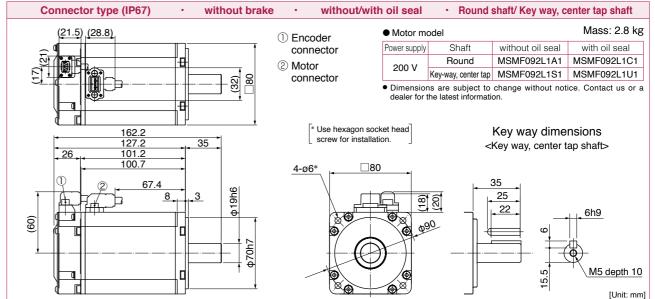
Leadwire type (IP65) without brake · without/with oil seal · Round shaft/ Key way, center tap shaft Mass: 2.8 kg Motor model ① Encoder connector Shaft without oil seal with oil seal 2 Motor connector MSMF092L1A2 MSMF092L1C2 Round Key-way, center tap MSMF092L1S2 MSMF092L1U2 Dimensions are subject to change without notice. Contact us or a * Use hexagon socket head screw for installation. Key way dimensions 127.2 35 25.5 101.7 <Key way, center tap shaft> (36)(67.2)(30) 22 M5 depth 10

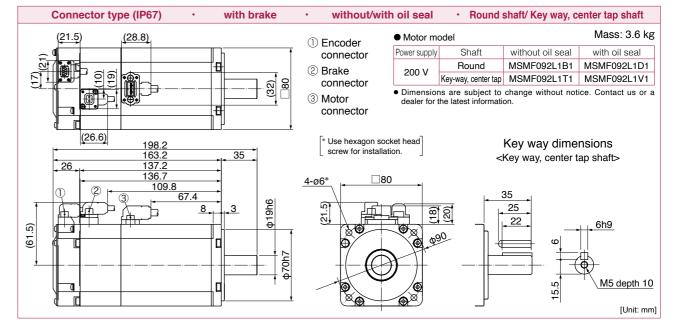
MSMF 1000 W

MSMF 1000 W

MSMF 1000 W







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

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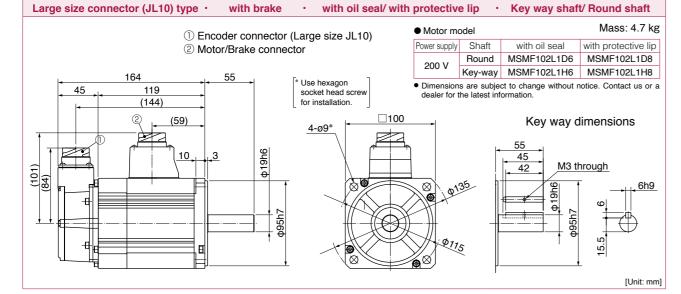
[Unit: mm]

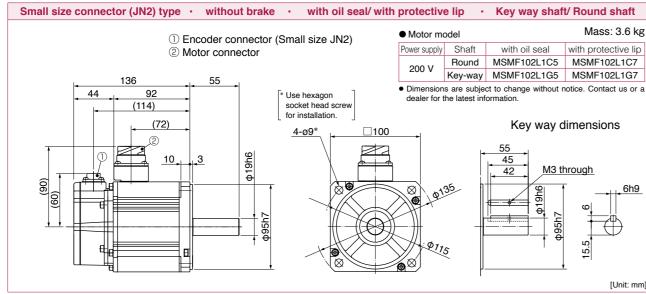
[Unit: mm]

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

MSMF 1.0 kW

Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Mass: 3.6 kg Motor model ① Encoder connector (Large size JL10) Shaft with oil seal with protective lip Power supply ② Motor connector Round MSMF102L1C6 MSMF102L1C8 Key-way MSMF102L1G6 MSMF102L1G8 Dimensions are subject to change without notice. Contact us or a 45 * Use hexagon dealer for the latest information socket head screw (117)for installation. Key way dimensions (72)4-ø9* M3 through [Unit: mm]

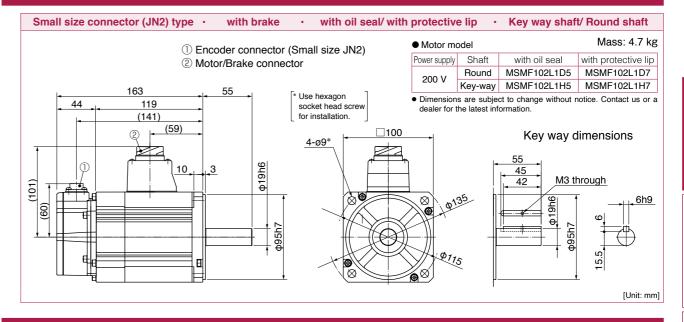




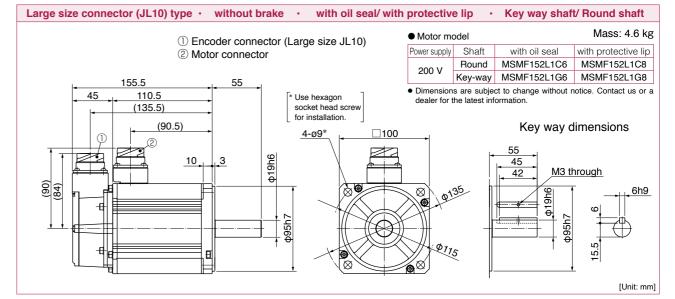
^{*} For motors specifications, refer to P.73.

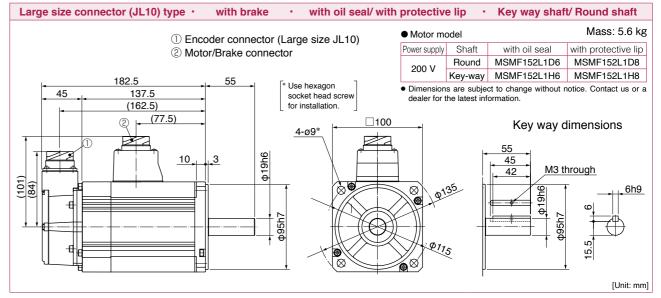
MSMF 1.0 kW

MSMF 1.0 kW to 1.5 kW



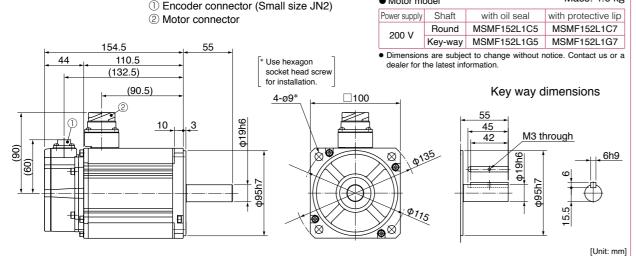
MSMF 1.5 kW

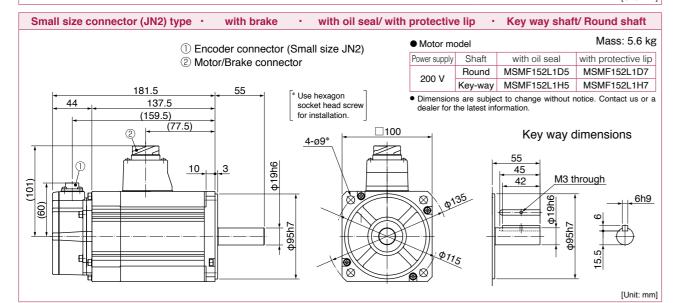




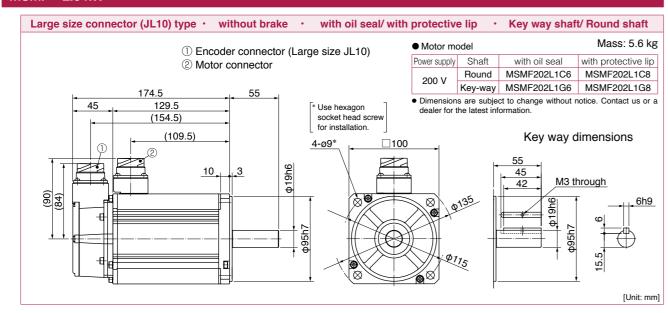
^{*} For motors specifications, refer to P.73, P.74.

MSMF 1.5 kW Small size connector (JN2) type ⋅ without brake ⋅ with oil seal/ with protective lip ⋅ Key way shaft/ Round shaft ① Encoder connector (Small size JN2) ② Motor connector ② Motor connector ② Motor connector 154.5 155.





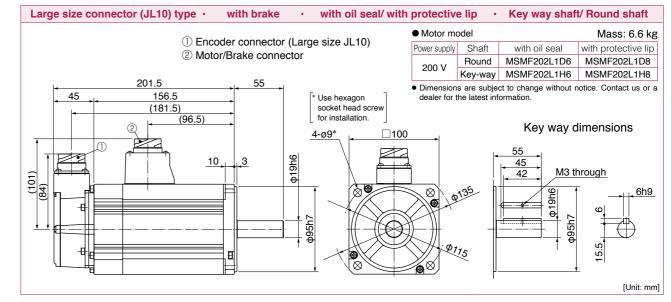
MSMF 2.0 kW

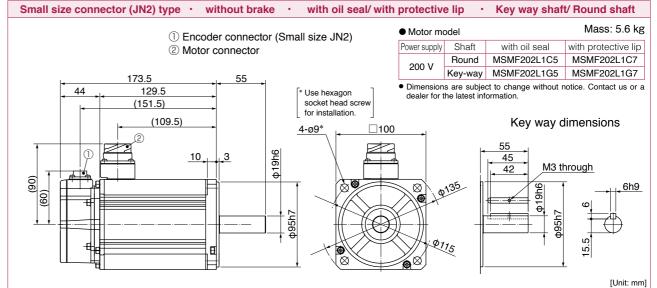


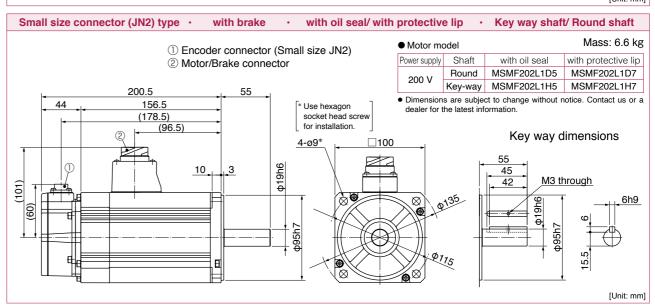
* For motors specifications, refer to P.74, P.75.

MSMF 2.0 kW

MSMF 2.0 kW

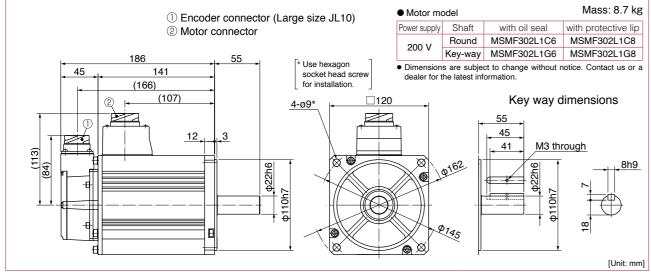


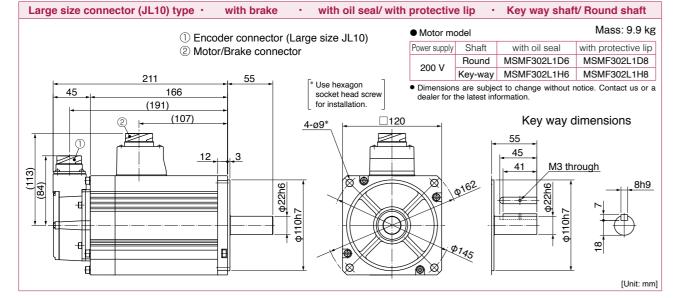


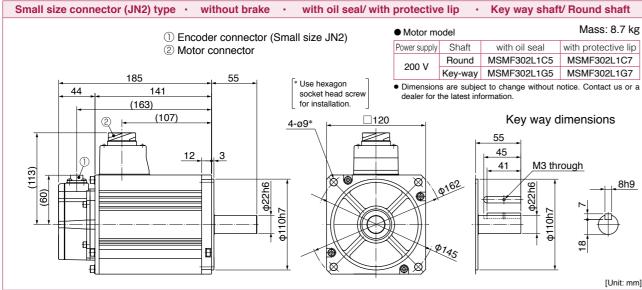


* For motors specifications, refer to P.75.

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



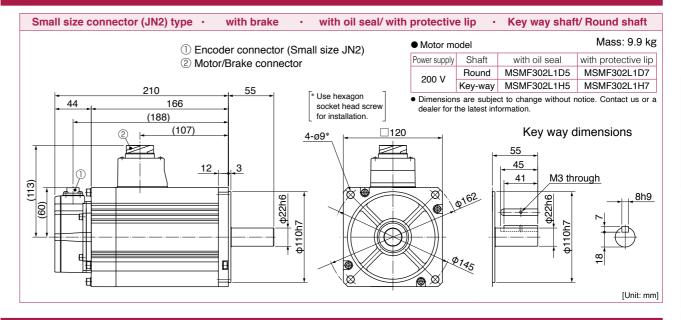




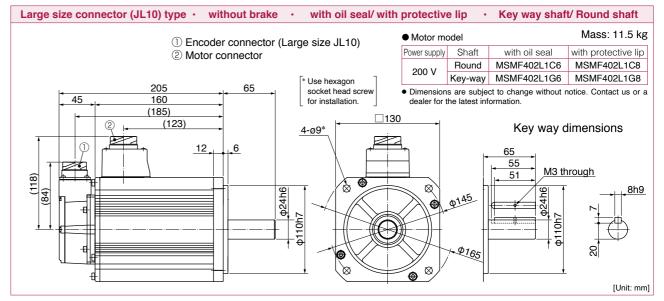
* For motors specifications, refer to P.76.

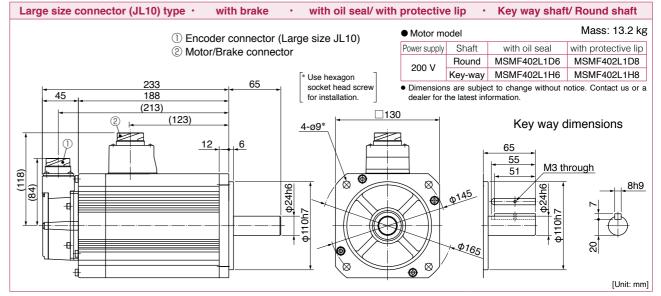
MSMF 3.0 kW

MSMF 3.0 kW to 4.0 kW



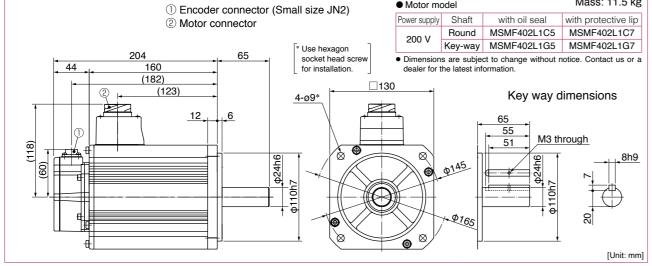
MSMF 4.0 kW

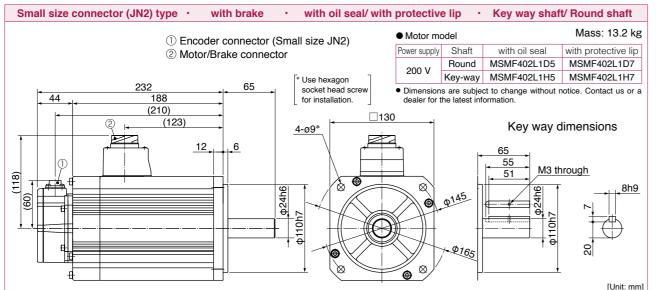




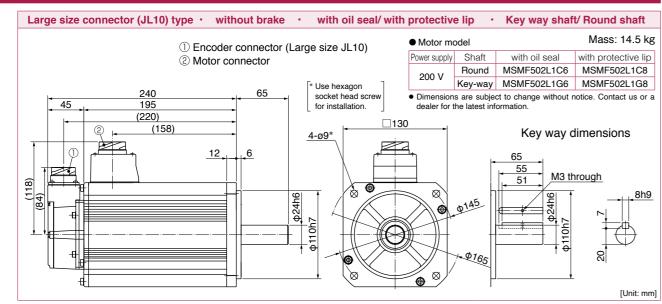
^{*} For motors specifications, refer to P.76, P.77.

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) 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





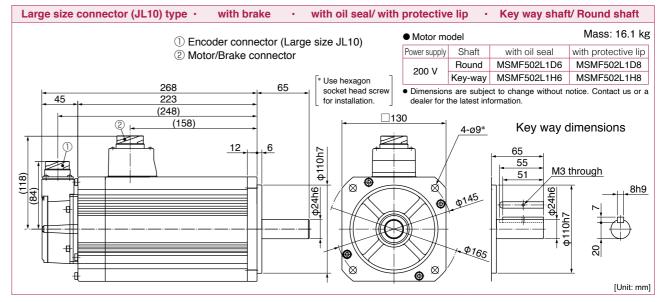
MSMF 5.0 kW

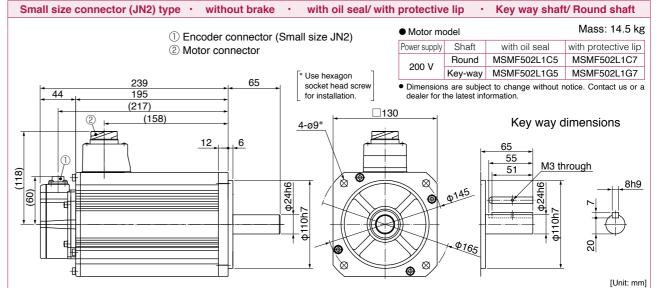


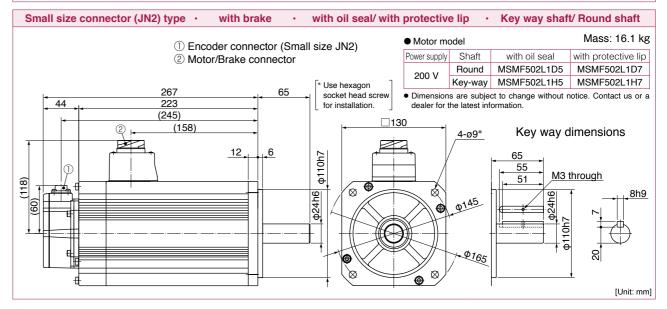
* For motors specifications, refer to P.77, P.78.

MSMF 5.0 kW

MSMF 5.0 kW





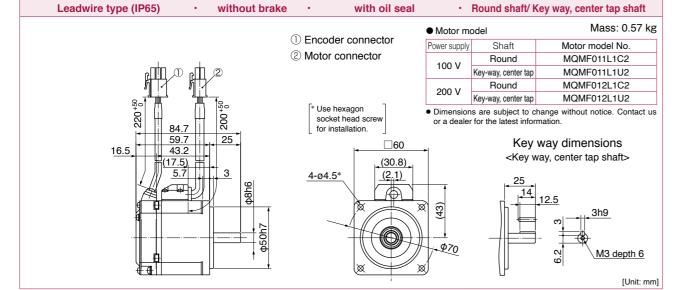


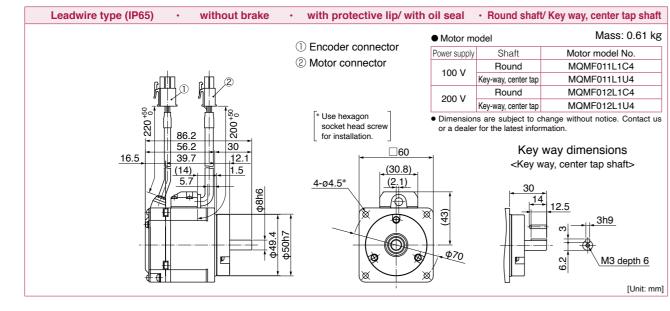
* For motors specifications, refer to P.78.

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* \bigoplus M3 depth 6 [Unit: mm]

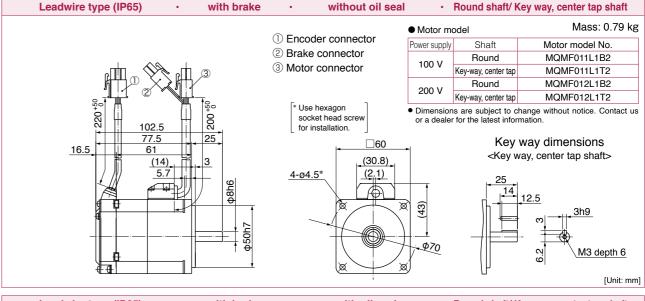
with oil seal

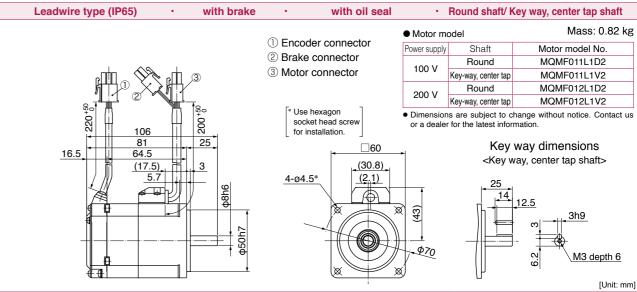


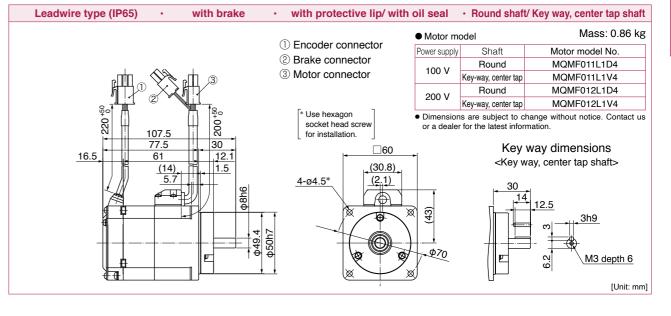


MQMF 100 W

MQMF 100 W







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

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

MQMF 100 W

(21.5) (34.3)

(21.5) (30.8)

39.7

② <u>5.7</u>

Connector type (IP67)

5.7

without brake

12.1

Shaft

Round

Key-way center tan

Round

Key-way, center tap

or a dealer for the latest information

Dimensions are subject to change without notice. Contact us

Key way dimensions

<Key way, center tap shaft>

Power supply

100 V

200 V

② Motor/Brake connector

* Use hexagon socket head

screw for installation.

4-ø4.5*

Motor model No

MQMF011L1D1

MQMF011L1V1

MQMF012L1D1

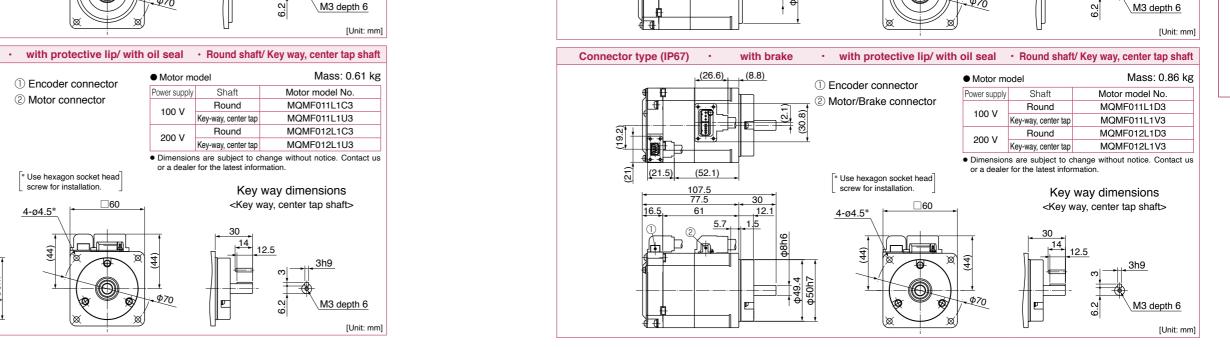
MQMF012L1V1

A6N Series

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: 0.54 kg Mass: 0.79 kg Motor model Motor model Encoder connector ① Encoder connector Shaft Motor model No. Shaft Motor model No. 2 Motor connector ② Motor/Brake connector Round MQMF011L1A1 MQMF011L1B1 Round Key-way, center tap MQMF011L1S1 Key-way, center tap MQMF011L1T1 MQMF012L1A1 MQMF012L1B1 Round Round 200 V 200 V Key-way, center tap MQMF012L1S1 Key-way, center tap MQMF012L1T1 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 (21.5) (30.8) (21.5) (52.1)* Use hexagon socket head * Use hexagon socket head screw for installation. screw for installation. 102.5 Key way dimensions Key way dimensions <Key way, center tap shaft> <Key way, center tap shaft> 4-ø4.5* 4-ø4.5* 5.7 5.7 M3 depth 6 M3 depth 6 [Unit: mm] [Unit: mm] Connector type (IP67) · Round shaft/ Key way, center tap shaft without brake with oil seal Connector type (IP67) . with oil seal · Round shaft/ Key way, center tap shaft with brake (12.3) $_{-}(12.3)$ Mass: 0.57 kg Motor model Motor model Mass: 0.82 kg ① Encoder connector ① Encoder connector

MQMF 100 W

MQMF 100 W



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

(21.5)

(55.6)

5.7

64.5

Power supply

100 V

200 V

2 Motor connector

* Use hexagon socket head

□60

screw for installation.

1) Encoder connector

* Use hexagon socket head

2 Motor connector

4-ø4.5*

Shaft

Round

Kev-way, center tap

Round

Key-way, center tap

or a dealer for the latest information

· Dimensions are subject to change without notice. Contact us

Key way dimensions

<Key way, center tap shaft>

Motor model No.

MQMF011L1C1

MQMF011L1U1

MQMF012L1C1

MQMF012L1U1

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

MQMF 200 W

Leadwire type (IP65)

16.5 49.3

Leadwire type (IP65) · without brake

without brake

with oil seal

(2.1)

① Encoder connector

② Motor connector

* Use hexagon socket head screv

for installation.

① Encoder connector

② Motor connector

* Use hexagon

4-ø63

socket head screw

(30.8)

(2.1)

4-ø6*

Motor model

Shaft

Round

Kev-way, center tap Round

Key-way, center tap

20 18

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>

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

Motor model No.

MQMF021L1B2

MQMF021L1T2

MQMF022L1B2

MQMF022L1T2

Key way dimensions

Mass: 1.5 kg

M4 depth 8

[Unit: mm]

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 Motor model Motor model (1) Encoder connector (1) Encoder connector Shaft Motor model No. Shaft 2 Brake connector ② Motor connector Round MQMF021L1A2 Round 3 Motor connector Key-way, center tap MQMF021L1S2 Key-way, center tap MQMF022L1A2 Round Round 200 V 200 V Key-way, center tap MQMF022L1S2 Key-way, center tap * 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 informati 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 [Unit: mm]

· Round shaft/ 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>

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

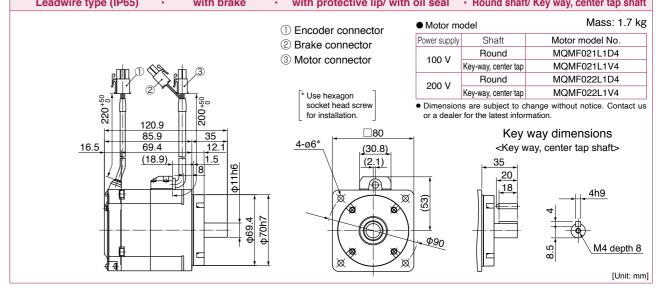
MQMF022L1C2

MQMF022L1U2

MQMF 200 W

MQMF 200 W

Leadwire type (IP65)	•	with brake	•	with oil seal	•	Round shaft/ K	ey way, center tap shaft	
			① Encode	connector	• Motor m	odel	Mass: 1.6 kg	
		② Brake connector ③ Motor connector	_		Power supply	Shaft	Motor model No.	
				400.1/	Round	MQMF021L1D2		
A (1) m	h (3)		o Motor Co	Jilliectoi	100 V	Key-way, center tap	MQMF021L1V2	
	HH/~				200.17	Round	MQMF022L1D2	
2 2			* Use he	xagon	200 V	Key-way, center tap	MQMF022L1V2	
050 050 119.4	200+50		socket for insta	nead screw allation.		ns are subject to ch r for the latest inforn	ange without notice. Contact us nation.	
89.4	30	n *		80		Key v	vay dimensions	
	• •	<u> </u>	4-ø6*			-	Key way, center tap shaft>	
72.9 (22.4) 3 8 94110		411h6			(53)	30 20 18	4h9 4h9 M4 depth 8	
				I			[Unit: mm]	
Leadwire type (IP65) ·	wit	h brake	· with pro	tective lip/ with	oil seal	· Round shaft/	Key way, center tap shaft	
			① Encode	connector	• Motor m	odel	Mass: 1.7 kg	



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

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

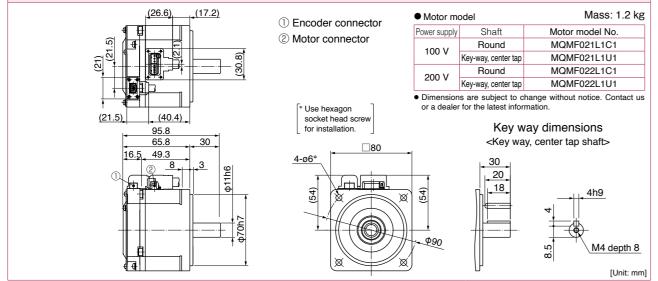
MQMF 200 W

Connector type (IP67)

•

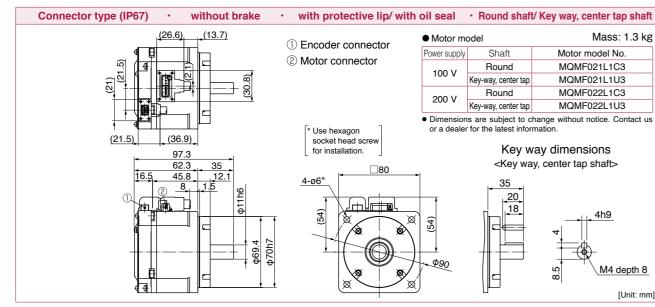
without brake

Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft (26.6)(13.7) Mass: 1.1 kg Motor model ① Encoder connector Shaft Motor model No. ② Motor connector MQMF021L1A1 Round Key-way, center tap MQMF021L1S1 MQMF022L1A1 Round 200 V Key-way, center tap MQMF022L1S1 Dimensions are subject to change without notice. Contact us or a dealer for the latest informati * Use hexagon (36.9) socket head screw Key way dimensions 92.3 <Key way, center tap shaft> 62.3 16.5 45.8 20 18 M4 depth 8 [Unit: mm]



with oil seal

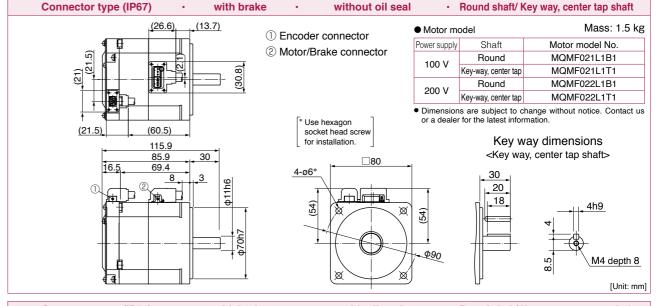
Round shaft/ Key way, center tap shaft

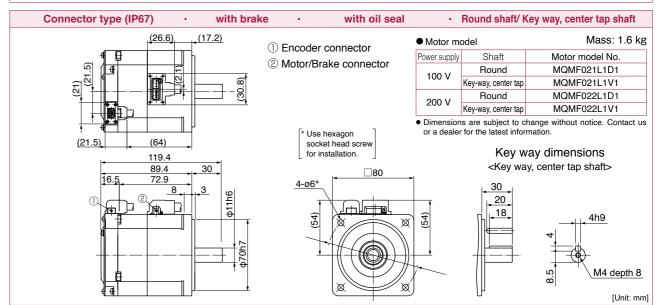


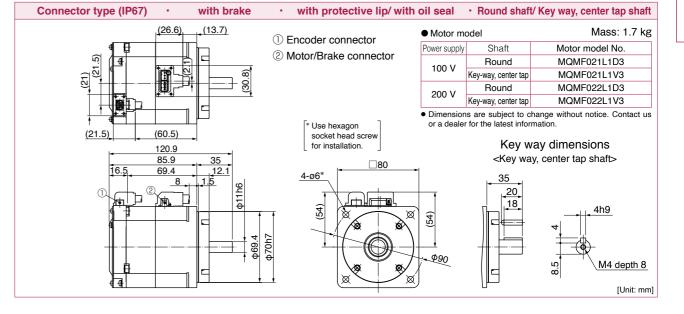
* For motors specifications, refer to P.81, P.82.

MQMF 200 W

MQMF 200 W





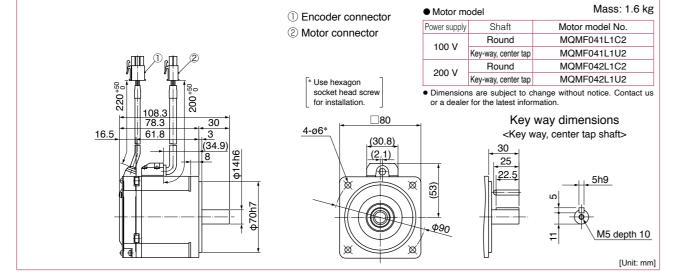


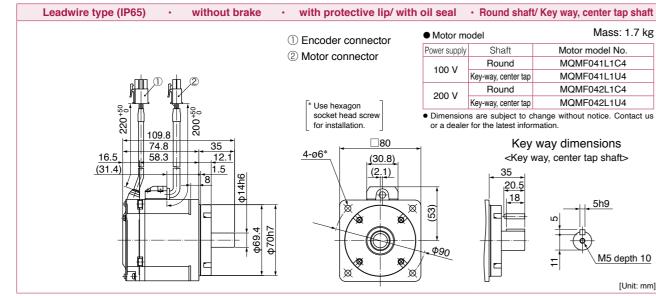
* For motors specifications, refer to P.81, P.82.

MQMF 400 W

[Unit: mm]

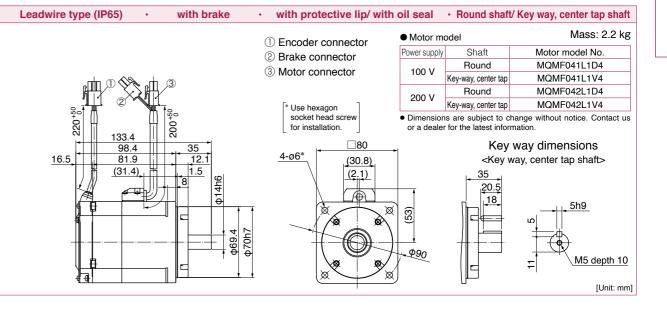
without oil seal Leadwire type (IP65) without brake · Round shaft/ Key way, center tap shaft Mass: 1.5 kg Motor model (1) Encoder connector Shaft Motor model No. ② Motor connector Round MQMF041L1A2 Key-way, center tap MQMF041L1S2 MQMF042L1A2 Round 200 V Key-way, center tap MQMF042L1S2 * Use hexagon socket head screw Dimensions are subject to change without notice. Contact us or a dealer for the latest information. Key way dimensions 4-ø6* <Key way, center tap shaft> 58.3 (30.8)(2.1) 25 22.5 M5 depth 10 [Unit: mm] · Round shaft/ Key way, center tap shaft Leadwire type (IP65) without brake with oil seal





* For motors specifications, refer to P.83, P.84.

MQMF 400 W Dimensions A6 Series 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. 2 Brake connector MQMF041L1B2 Round 3 Motor connector Key-way, center tap MQMF041L1T2 MQMF042L1B2 Round 200 V Key-way, center tap MQMF042L1T2 * Use hexagon socket head screw Dimensions are subject to change without notice. Contact us or a dealer for the latest informat Key way dimensions 98 4 4-ø6* 81.9 16.5 <Key way, center tap shaft> (30.8) $(31.4)_{2}$ 30 (2.1) _25 22.5 M5 depth 10 [Unit: mm] · Round shaft/ Key way, center tap shaft Leadwire type (IP65) with brake with oil seal Mass: 2.1 kg Motor model ① Encoder connector Power supply Shaft Motor model No. ② Brake connector MQMF041L1D2 Round ③ Motor connector 100 V MQMF041L1V2 Key-way, center tan Round MQMF042L1D2 200 V MQMF042L1V2 Key-way, center tap * Use hexagon socket head screw Dimensions are subject to change without notice. Contact us or a dealer for the latest information. for installation. Key way dimensions 101.9 4-ø6* 85.4 <Key way, center tap shaft> $(34.9)_{2}$ 30 (2.1) 25 22.5 M5 depth 10



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* For motors specifications, refer to P.83, P.84.

MQMF 400 W

Connector type (IP67)

•

(26.6) (29.7)

(52.9)

108.3

78.3

61.8

(49.4)

109.8

74.8

58.3

without brake

without brake

35

12.1

with oil seal

□80

with protective lip/ with oil seal

(1) Encoder connector

(2) Motor connector

* Use hexagon

4-ø6*

socket head screw

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

25

22.5

Shaft

Round

Key-way, center tap

Round

Key-way, center tap

20.5

18

or a dealer for the latest informati

Dimensions are subject to change without notice. Contact us

[Unit: mm]

Connector type (IP67) without oil seal without brake · Round shaft/ Key way, center tap shaft Connector type (IP67) with brake without oil seal Round shaft/ Key way, center tap shaft (26.6) (26.2) Mass: 1.5 kg (26.6) (26.2) Mass: 2.0 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 MQMF041L1A1 MQMF041L1B1 Round Round 100 V Key-way, center tap MQMF041L1S1 Key-way, center tap MQMF041L1T1 MQMF042L1A1 MQMF042L1B1 Round Round 200 V 200 V Key-way, center tap MQMF042L1S1 Key-way, center tap MQMF042L1T1 · 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 (21.5)(49.4)(21.5)(73)socket head screw socket head screw Key way dimensions Key way dimensions for installation 128.4 104.8 <Key way, center tap shaft> <Key way, center tap shaft> 98.4 74.8 58.3 81.9 4-ø6* 4-ø6* 2 8 25 25 22.5 22.5 5h9 M5 depth 10 M5 depth 10

[Unit: mm]

Mass: 1.6 kg

M5 depth 10
[Unit: mm]

Mass: 1.7 kg

M5 depth 10

[Unit: mm]

Motor model No

MQMF041L1C3

MQMF041L1U3

MQMF042L1C3

MQMF042L1U3

Motor model No.

MQMF041L1C1

MQMF041L1U1

MQMF042L1C1

MQMF042L1U1

· Round shaft/ Key way, center tap shaft

· Dimensions are subject to change without notice. Contact us

Key way dimensions

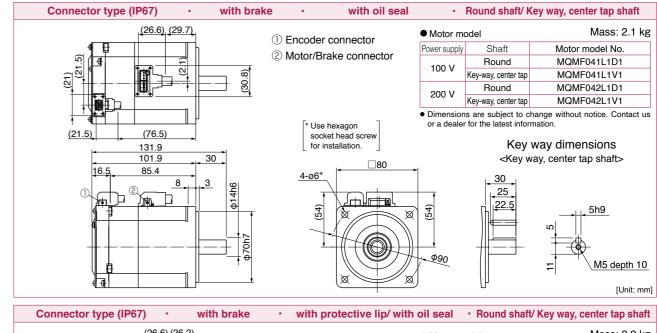
<Key way, center tap shaft>

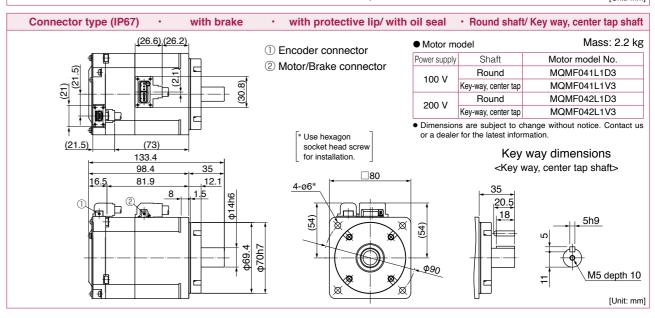
· Round shaft/ Key way, center tap shaft

Key way dimensions

<Key way, center tap shaft>

MQMF 400 W





Connector type (IP67)

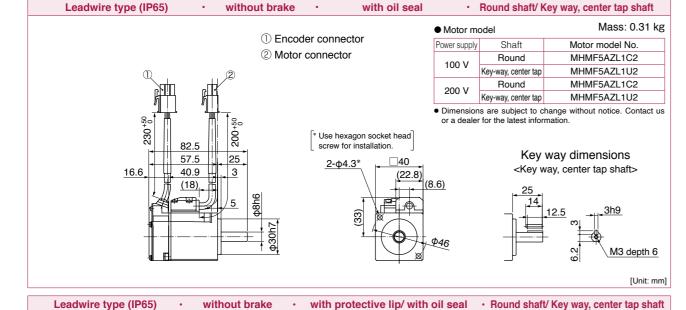
^{*} For motors specifications, refer to P.83, P.84.

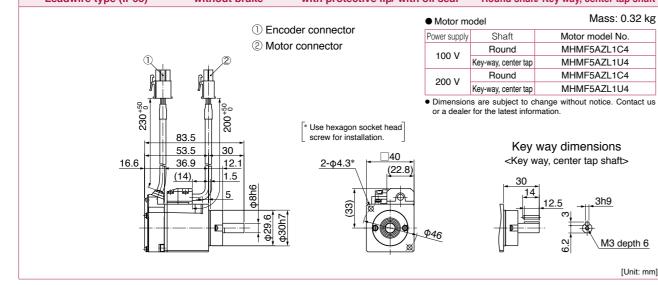
^{*} For motors specifications, refer to P.83, P.84.

14

M3 depth 6

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 [Unit: mm]



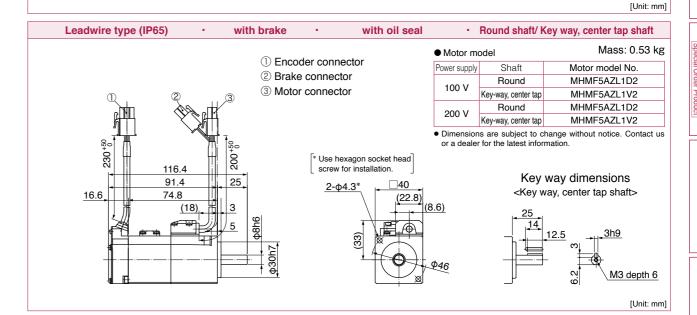


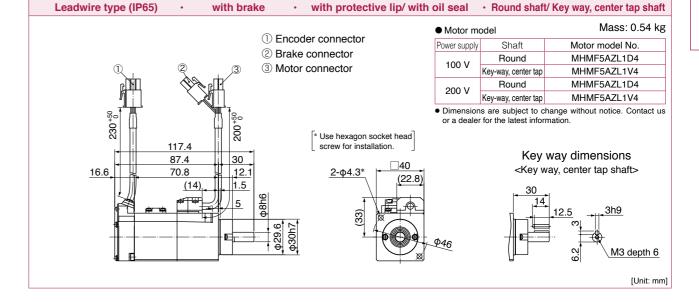
* For motors specifications, refer to P.85, P.86.

MHMF 50 W

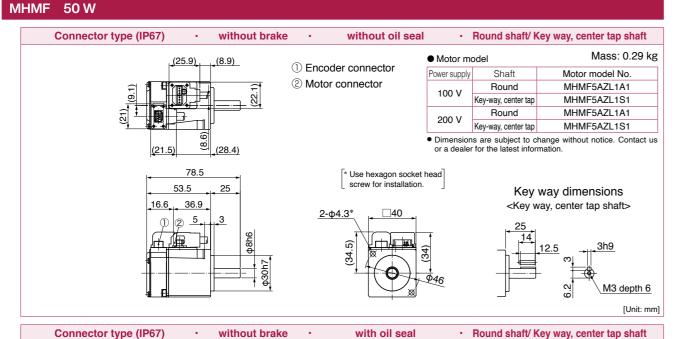
MHMF 50 W Leadwire type (IP65) with brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 0.51 kg Motor model 1) Encoder connector Shaft Motor model No. 2 Brake connector MHMF5AZL1B2 Round 3 Motor connector Key-way, center tap MHMF5AZL1T2 MHMF5AZL1B2 Round 200 V Key-way, center tap MHMF5AZL1T2 Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head Key way dimensions 87.4 <u>2-φ4.3*</u> □40 <Key way, center tap shaft> 70.8 (22.8)

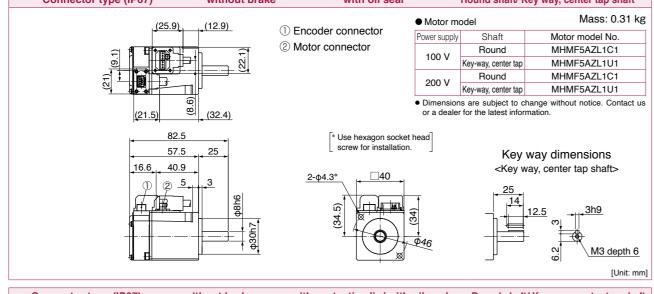
(14)

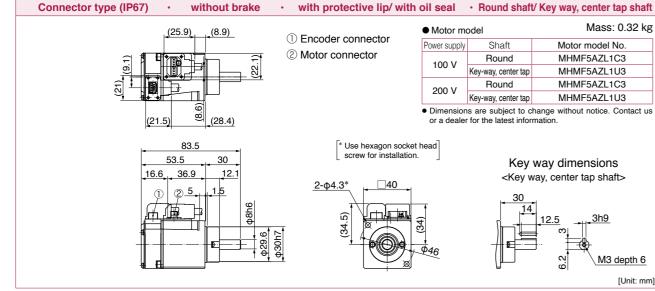




* For motors specifications, refer to P.85, P.86.

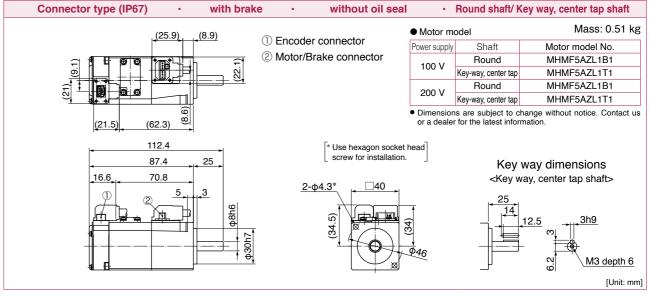


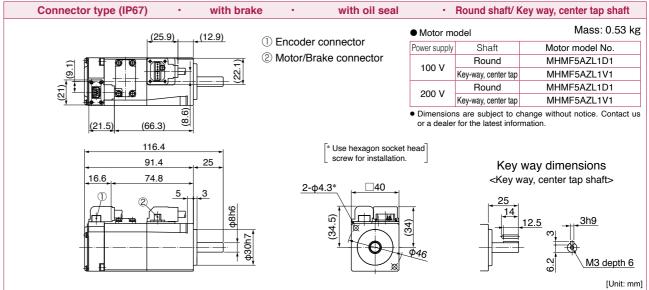


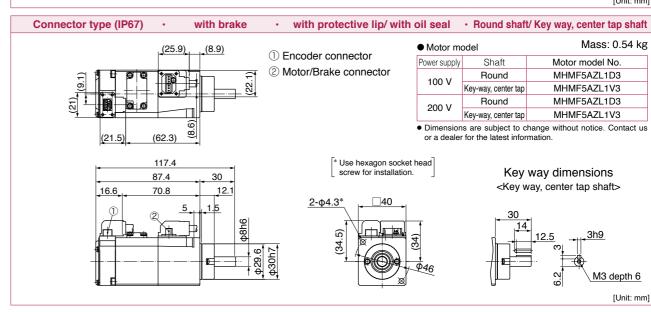


MHMF 50 W

MHMF 50 W





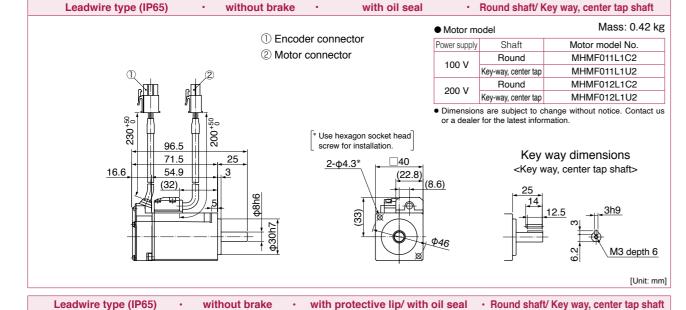


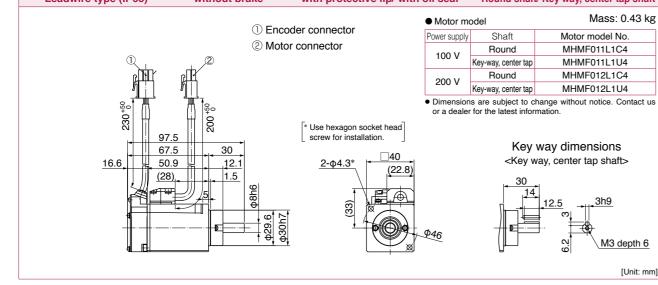
^{*} For motors specifications, refer to P.85, P.86.

^{*} For motors specifications, refer to P.85, P.86.

* For motors specifications, refer to P.87, P.88.

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 MHMF011L1A2 Round Key-way, center tap MHMF011L1S2 MHMF012L1A2 Round 200 V Key-way, center tap MHMF012L1S2 Dimensions are subject to change without notice. Contact us Use hexagon socket head Key way dimensions 67.5 25 2-φ4.3* <Key way, center tap shaft> 16.6 50.9 (22.8) (28) M3 depth 6 [Unit: mm]

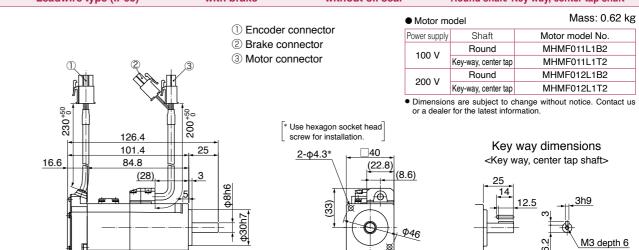


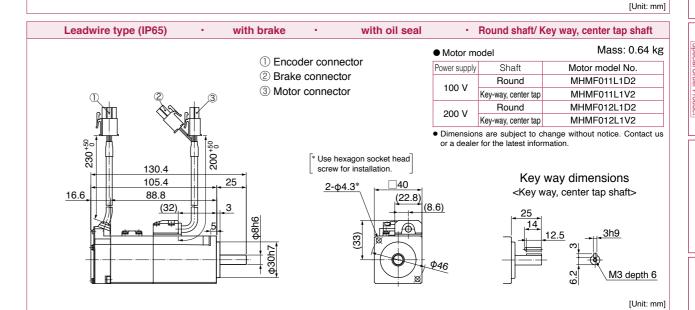


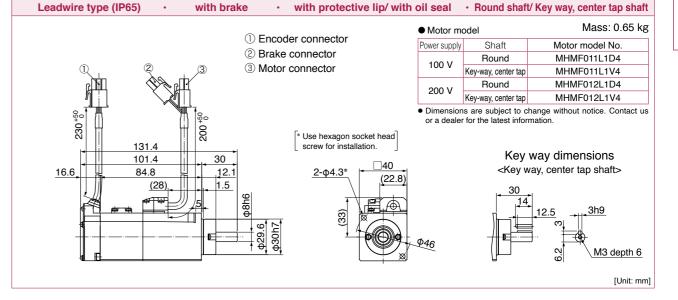
* For motors specifications, refer to P.87, P.88.

MHMF 100 W

MHMF 100 W Leadwire type (IP65) • with brake • without oil seal • Round shaft/ Key way, center tap shaft







71.5

(2)

54.9

16.6

25

MHMF 100 W

Mass: 0.42 kg

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

Key way dimensions

<Key way, center tap shaft>

200 V

* Use hexagon socket head

<u>2-φ4.3*</u>

MHMF011L1V3

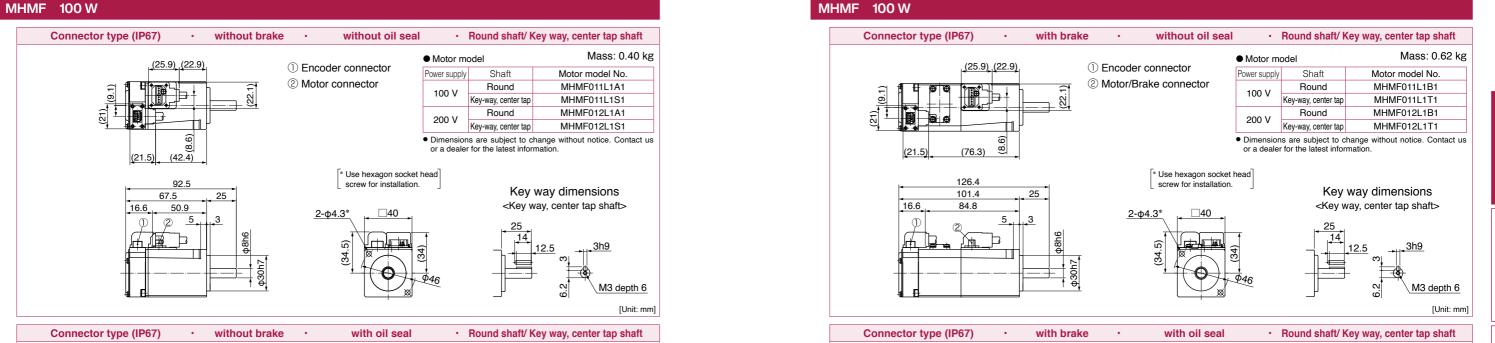
MHMF012L1D3

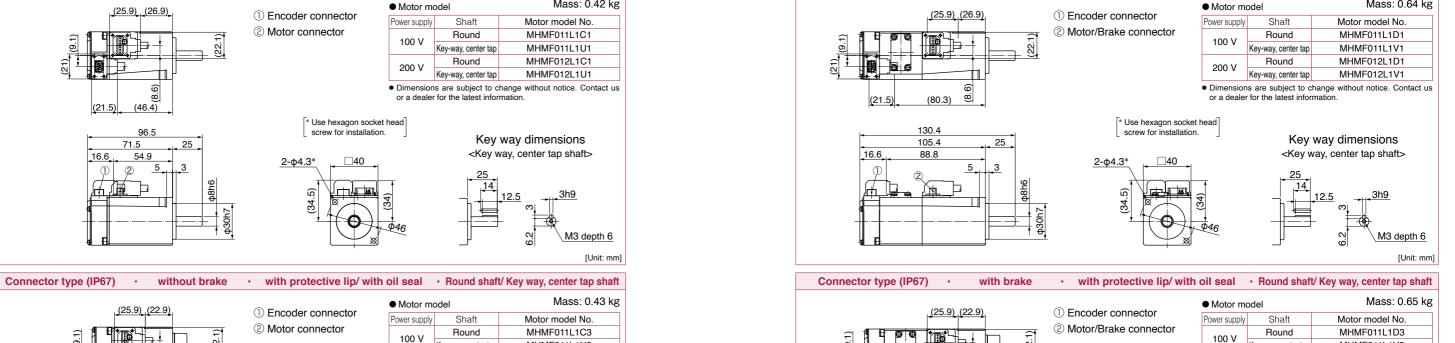
MHMF012L1V3

M3 depth 6

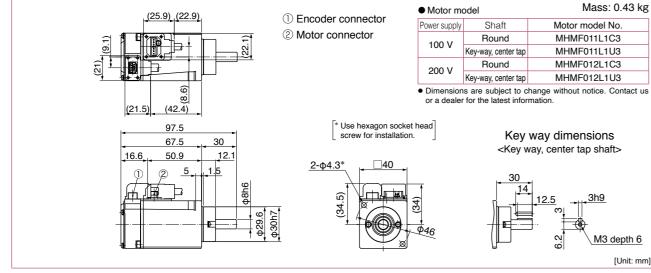
[Unit: mm]

Mass: 0.64 kg





MHMF 100 W



16.6

(76.3)

131.4

101.4

84.8

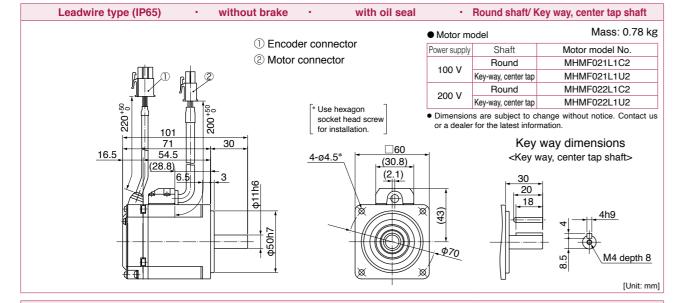
12.1

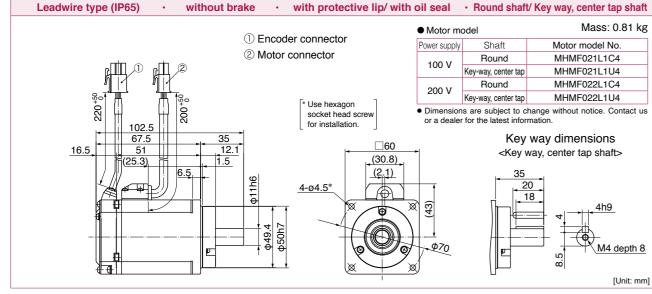
* For motors specifications, refer to P.87, P.88.

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^{*} 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]



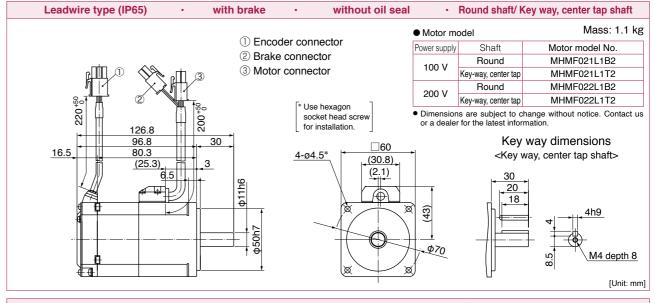


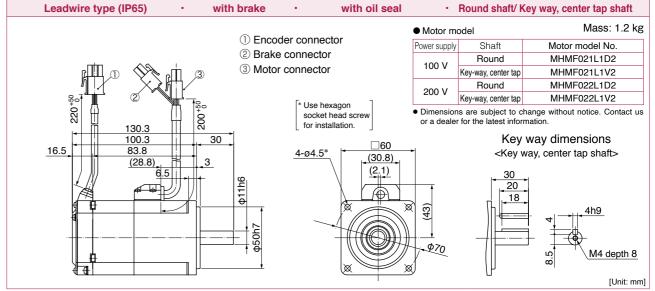
* For motors specifications, refer to P.89, P.90.

Leadwire type (IP65)

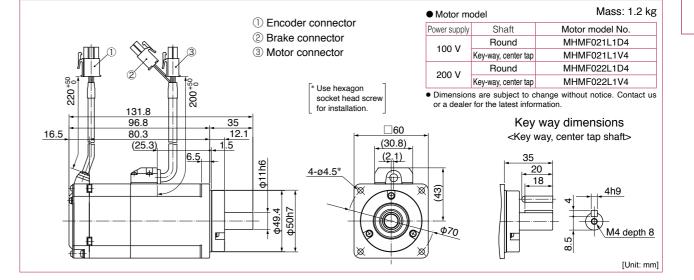
MHMF 200 W

MHMF 200 W





with brake



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

* For motors specifications, refer to P.89, P.90.

MHMF 200 W

Connector type (IP67)

Connector type (IP67)

MHMF 200 W

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

MHMF 200 W

Motor model No.

MHMF021L1B1

MHMF021L1T1

MHMF022L1B1

MHMF022L1T1

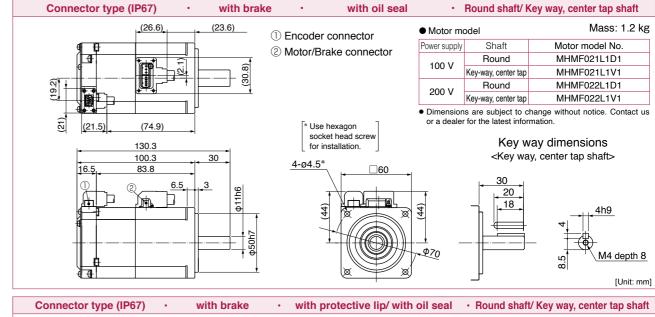
4h9

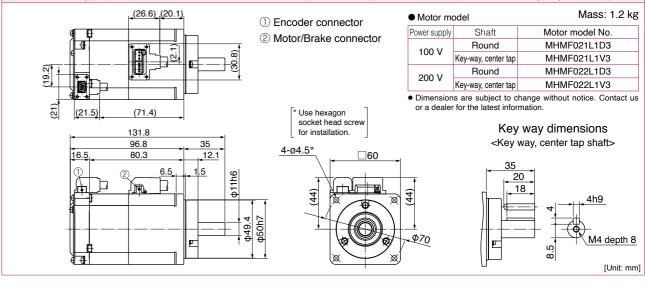
M4 depth 8

[Unit: mm]

Mass: 1.1 kg

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) Motor model Motor model (1) Encoder connector (1) Encoder connector Shaft Motor model No. Shaft ② Motor/Brake connector 2 Motor connector Round MHMF021L1A1 Round Key-way, center tap MHMF021L1S1 Key-way, center tap MHMF022L1A1 Round Round 200 V 200 V Key-way, center tap MHMF022L1S1 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 * 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 M4 depth 8 [Unit: mm]





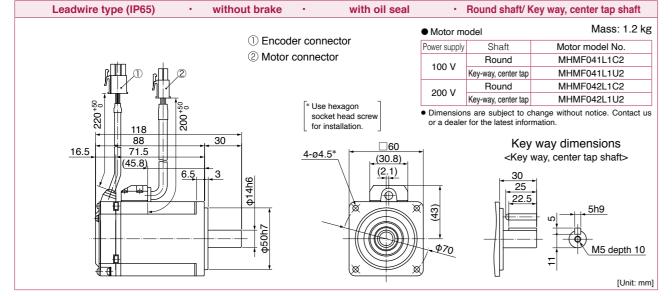
157 | Panasonic Industry Co., Ltd. Panasonic Industry Co., Ltd. | 158

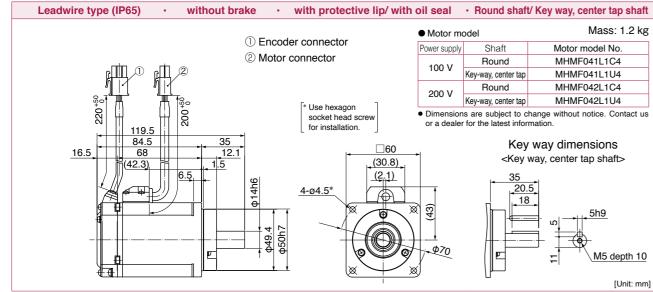
^{*} For motors specifications, refer to P.89, P.90.

^{*} For motors specifications, refer to P.89, P.90.

* For motors specifications, refer to P.91, P.92.

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]

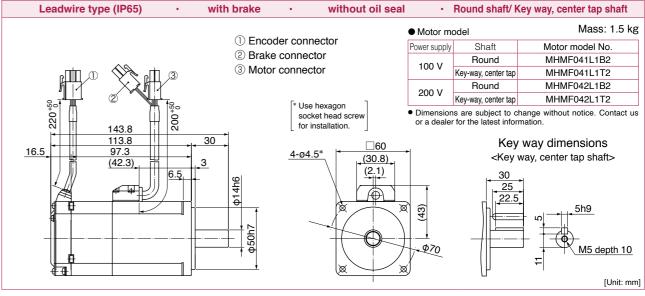


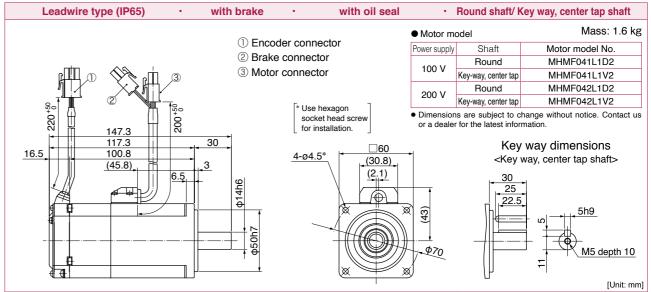


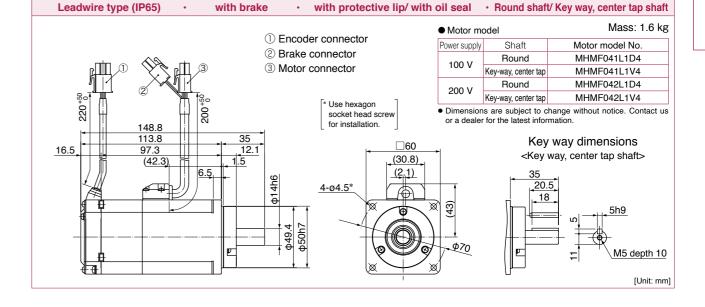
* For motors specifications, refer to P.91, P.92.

MHMF 400 W

MHMF 400 W



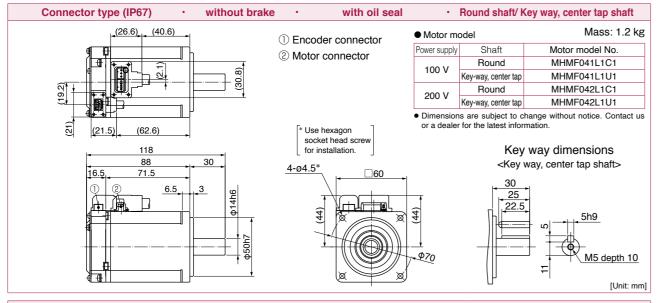


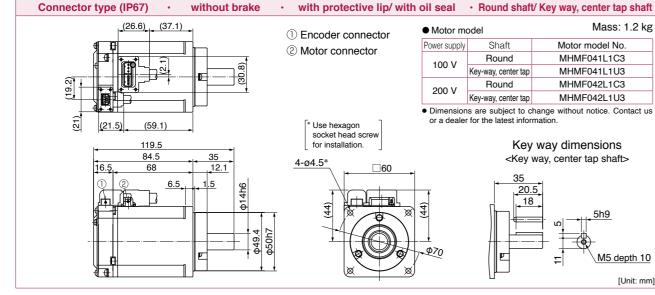


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MHMF 400 W

Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft (26.6) (37.1) Mass: 1.1 kg Motor model (1) Encoder connector Shaft Motor model No. 2 Motor connector MHMF041L1A1 Round Key-way, center tap MHMF041L1S1 MHMF042L1A1 Round 200 V Key-way, center tap MHMF042L1S1 · Dimensions are subject to change without notice. Contact us (59.1)* Use hexagon Key way dimensions 84.5 30 <Key way, center tap shaft> 4-ø4.5* M5 depth 10 [Unit: mm]

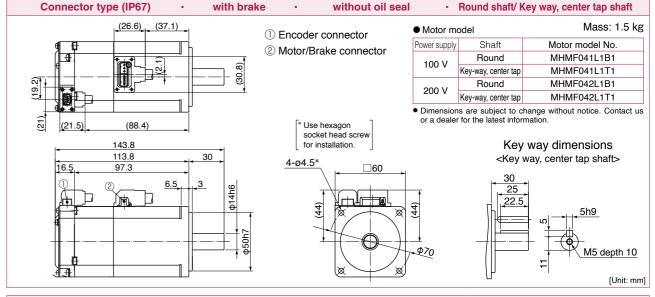


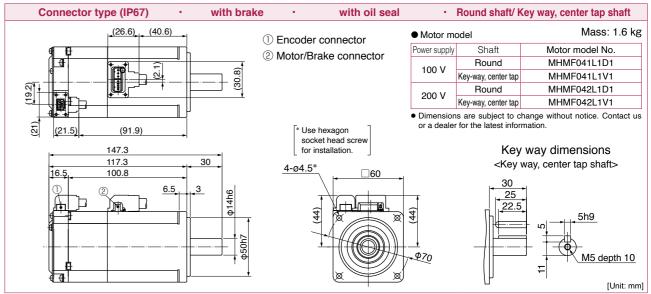


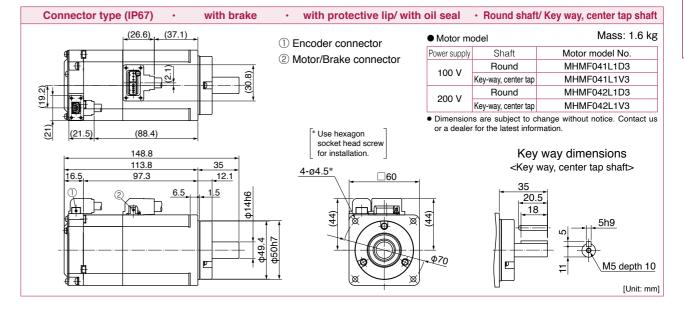
* For motors specifications, refer to P.91, P.92.

MHMF 400 W

MHMF 400 W

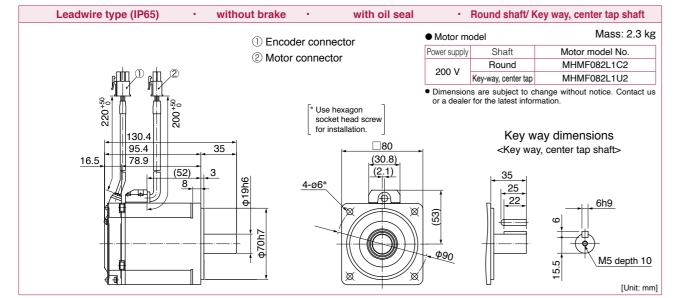


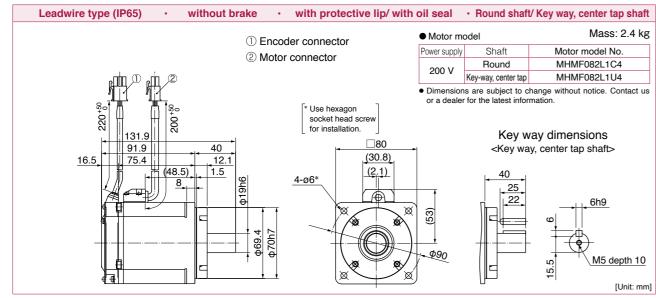




* For motors specifications, refer to P.91, P.92.

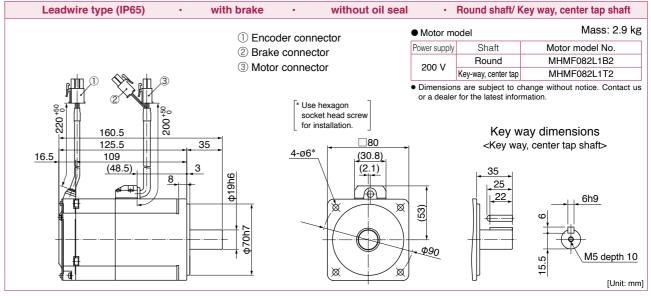
MHMF 750 W without oil seal Leadwire type (IP65) without brake · Round shaft/ Key way, center tap shaft Mass: 2.2 kg Motor model (1) Encoder connector Shaft Motor model No. Power supply ② Motor connector MHMF082L1A2 Round Key-way, center tap MHMF082L1S2 Dimensions are subject to change without notice. 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]

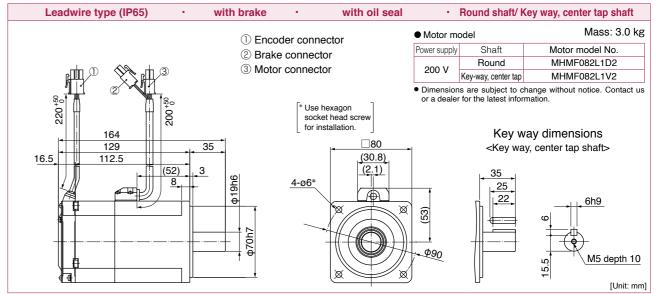


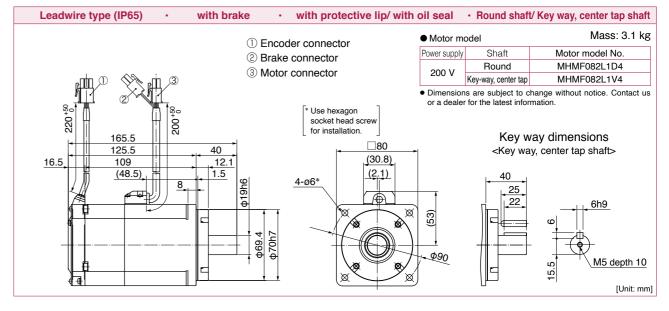


MHMF 750 W

MHMF 750 W





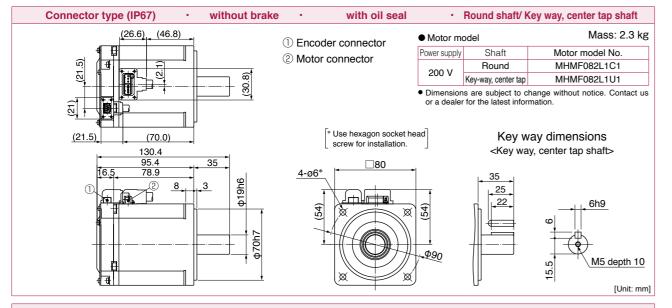


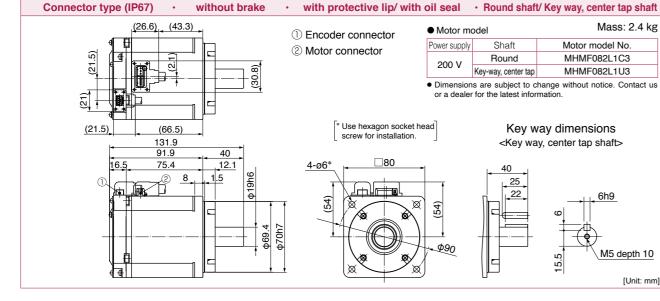
^{*} For motors specifications, refer to P.93.

^{*} For motors specifications, refer to P.93.

MHMF 750 W

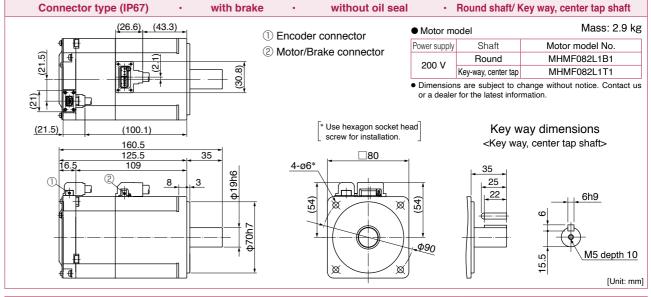
Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 2.2 kg Motor model (1) Encoder connector Shaft Motor model No. ② Motor connector MHMF082L1A1 Round Key-way, center tap MHMF082L1S1 · Dimensions are subject to change without notice. Contact us or a dealer 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]

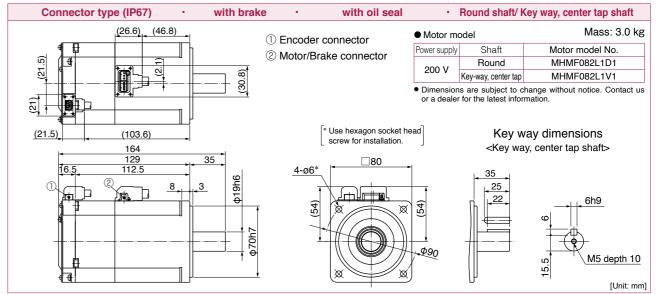


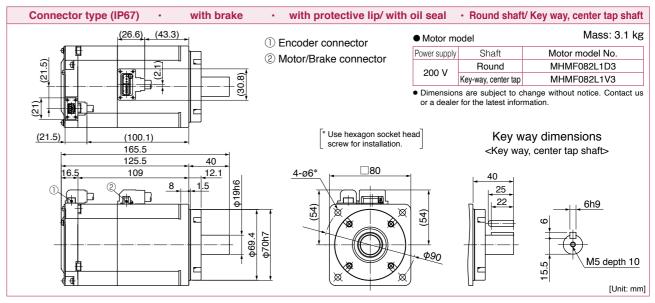


MHMF 750 W

MHMF 750 W







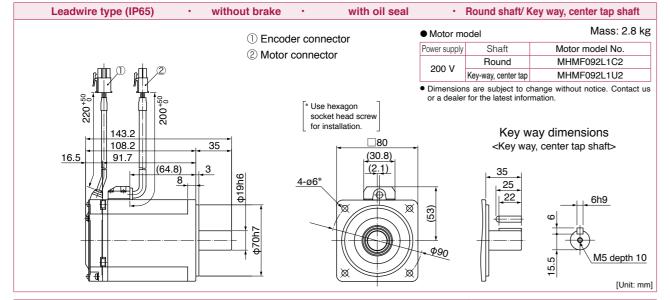
Panasonic Industry Co., Ltd.

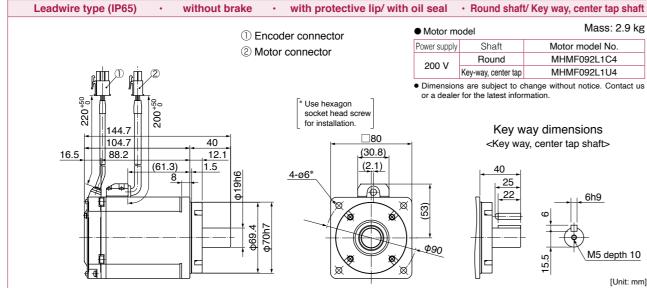
* For motors specifications, refer to P.93.

^{*} For motors specifications, refer to P.93.

MHMF 1000 W

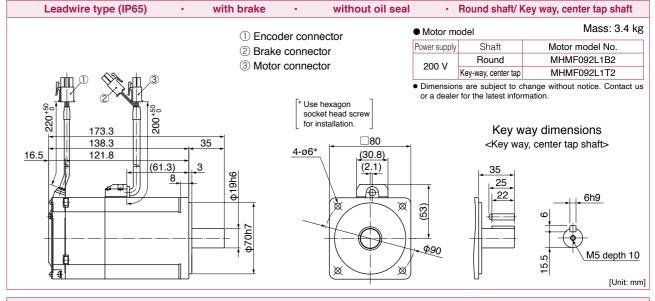
Leadwire type (IP65) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 2.7 kg Motor model ① Encoder connector Shaft Motor model No. ② Motor connector MHMF092L1A2 Round Key-way, center tap MHMF092L1S2 Dimensions are subject to change without notice. Contact us or a dealer for 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]

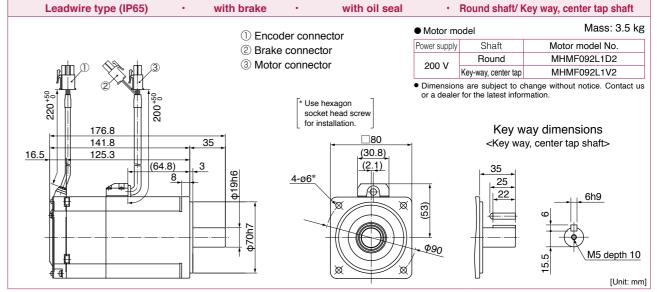


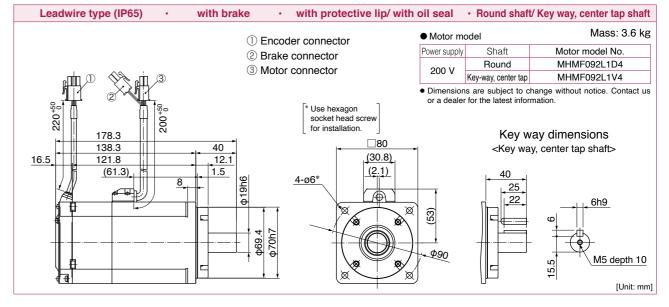


MHMF 1000 W

MHMF 1000 W



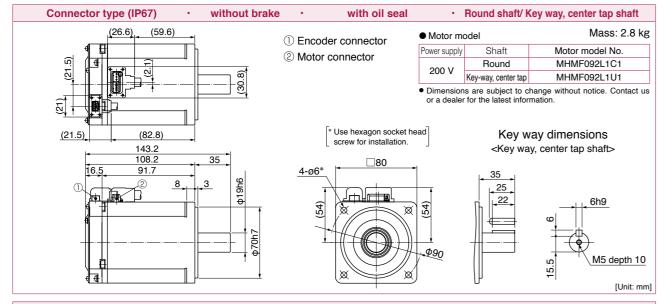


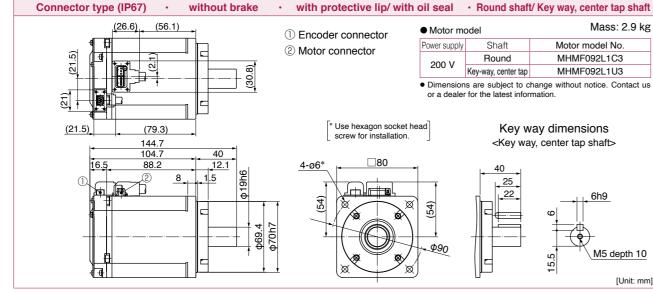


^{*} For motors specifications, refer to P.94.

^{*} For motors specifications, refer to P.94.

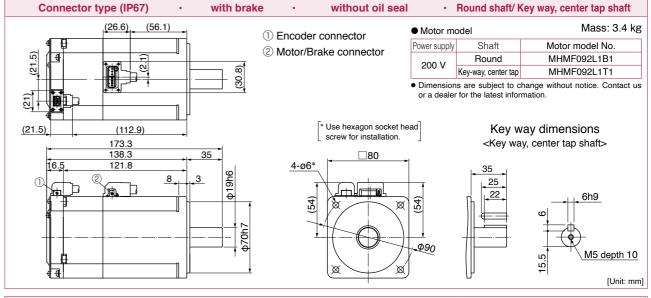
MHMF 1000 W Connector type (IP67) without brake without oil seal · Round shaft/ Key way, center tap shaft Mass: 2.7 kg Motor model (1) Encoder connector Shaft Motor model No. ② Motor connector MHMF092L1A1 Round Key-way, center tap MHMF092L1S1 · Dimensions are subject to change without notice. Contact 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

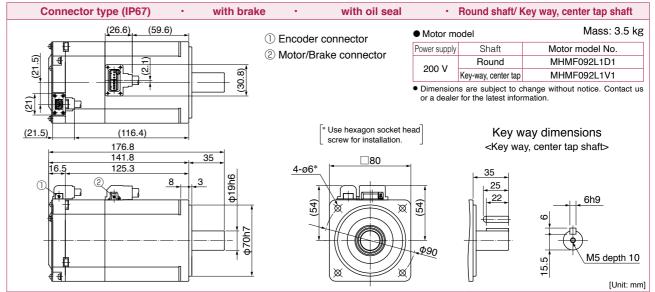


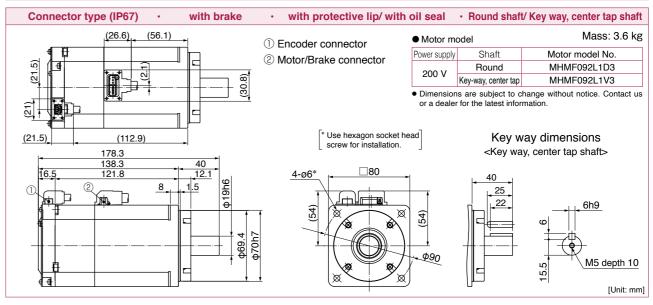


MHMF 1000 W

MHMF 1000 W







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[Unit: mm]

^{*} 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) Power supply 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 41 Ф₁₆₅

① Encoder connector (Large size JL10)	Motor mo	odel		Mass: 7.6 kg
② Motor/Brake connector	Power supply	Shaft	with oil seal	with protective lip
© Motor/Brake connector	000.14	Round	MHMF102L1D6	MHMF102L1D8
178 70 [* Use hexagon	200 V	Key-way	MHMF102L1H6	MHMF102L1H8
45 133 socket head screw for installation.		s are subje he latest inf		notice. Contact us or a
(71) ② 12 → 6 4-ø9* → □130	-		Key way o	dimensions
		*	70 45 41 M3 thi	
8 1 10 10 10 10 10 10 10 10 10 10 10 10 1	9	145	422h6	8h9
		Ф165	7 + 6	8
		'		[Unit: mm]

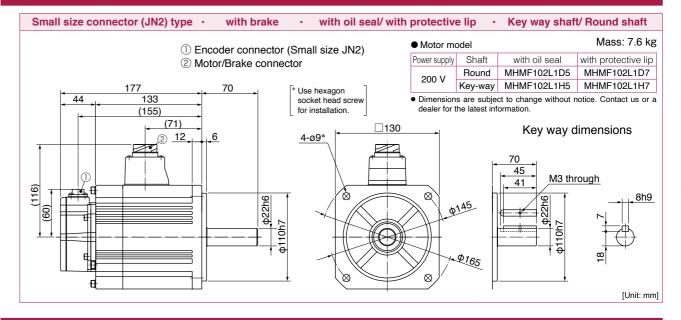
Large size connector (JL10) type · with brake · with oil seal/ with protective lip · Key way shaft/ Round shaft

Small size connector (JN2) type · without brake · with oil seal/ with	protectiv	e lip •	Key way shaf	t/ Round shaft
① Encoder connector (Small size JN2)	• Motor me	odel		Mass: 6.1 kg
② Motor connector	Power supply	Shaft	with oil seal	with protective lip
Ç	200 V	Round	MHMF102L1C5	MHMF102L1C7
[* Hee houses	200 V	Key-way	MHMF102L1G5	MHMF102L1G7
149 70 Socket head screw for installation.		s are subje		notice. Contact us or a
(127) (85) 2 12, 6	-		Key way o	limensions
		<u>-</u>	45 41 M3 thr	rough
(10) (60) (10) (10) (10) (10)		145	4017 4017	<u> </u>
	*	Ф165	10	8
	_			[Unit: mm]

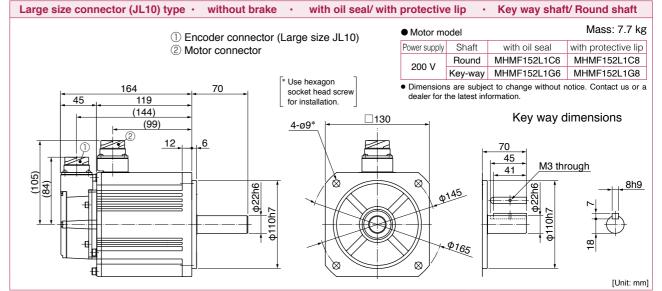
* For motors specifications, refer to P.95.

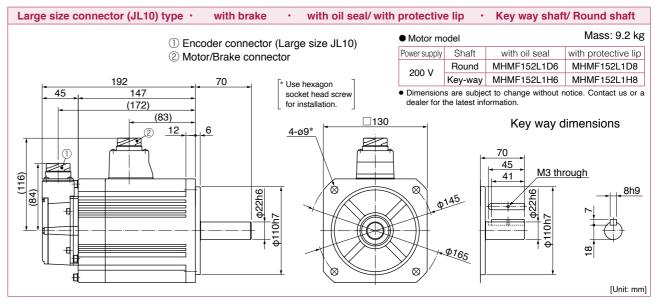
MHMF 1.0 kW

MHMF 1.0 kW to 1.5 kW



MHMF 1.5 kW





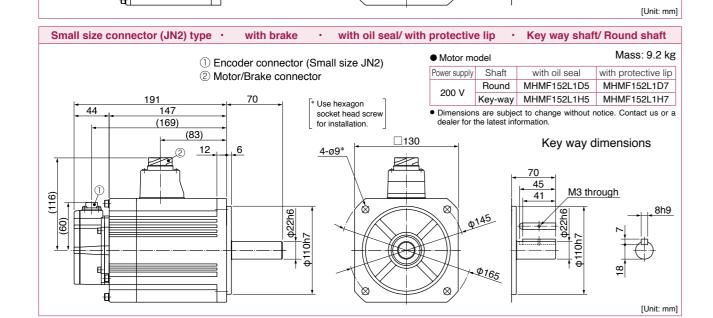
* For motors specifications, refer to P.95, P.96.

45

Ф₁₆₅

M3 through

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) Shaft with oil seal with protective lip Power supply 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*

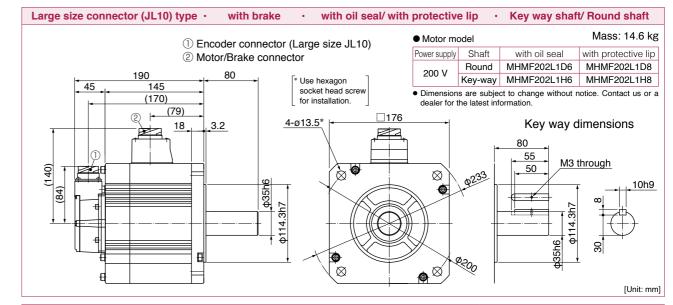


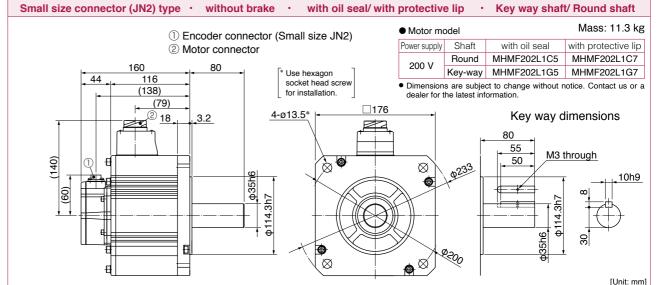
MHMF 2.0 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Mass: 11.3 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal with protective lip ② Motor connector Round MHMF202L1C6 MHMF202L1C8 Key-way MHMF202L1G6 MHMF202L1G8 * Use hexagon socket head screw Dimensions are subject to change without notice. Contact us or a (141)for installation. (79) 4-ø13.5* Key way dimensions ^② 18 . M3 through **(**) 50 \boxtimes \boxtimes [Unit: mm]

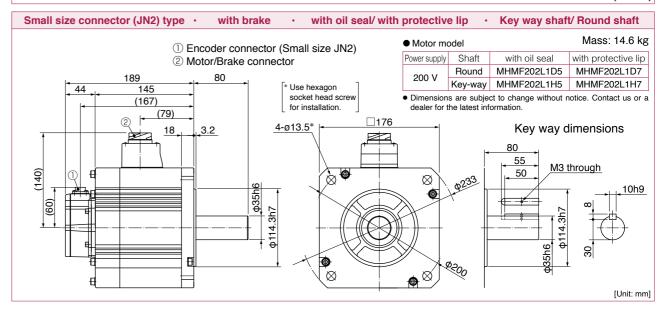
* For motors specifications, refer to P.96, P.97.

MHMF 2.0 kW

MHMF 2.0 kW





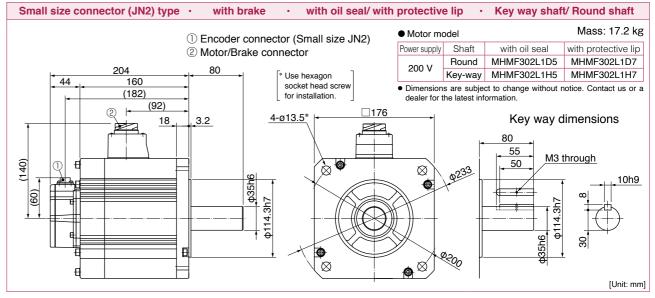


^{*} For motors specifications, refer to P.97.

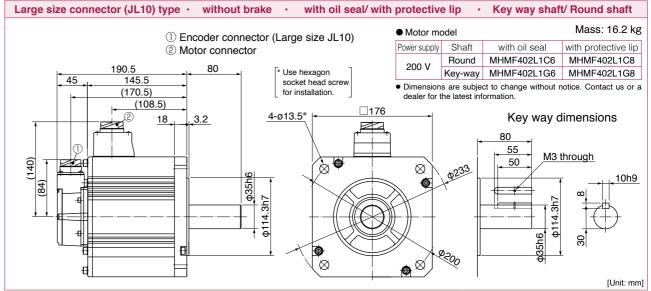
A6N Series

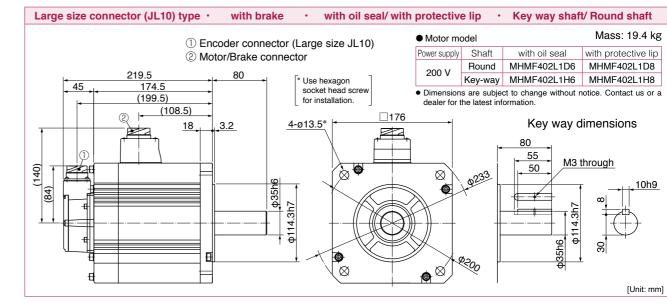
MHMF 3.0 kW

MHMF 3.0 kW to 4.0 kW



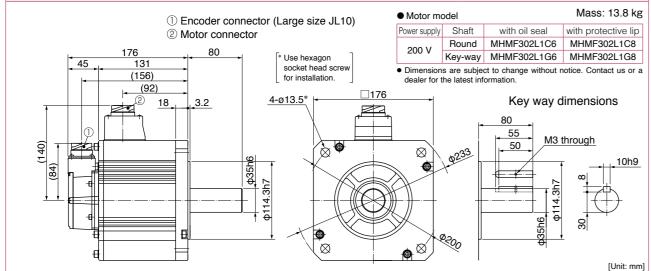
MHMF 4.0 kW

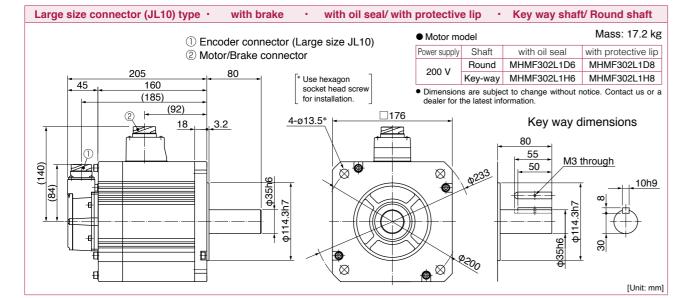




^{*} For motors specifications, refer to P.98, P.99.

Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft ① Encoder connector (Large size JL10) ② Motor connector ② Motor connector 176 80 Round MHMF302L1C6 MHMF302L1C8





Small size connector (JN2) type · without brake · with oil seal/ with	n protective lip	· Key way shaf	ft/ Round shaft
① Encoder connector (Small size JN2)	Motor model		Mass: 13.8 kg
② Motor connector	Power supply Sh	naft with oil seal	with protective lip
_	200 V Ro	und MHMF302L1C5	MHMF302L1C7
175 80	Key	-way MHMF302L1G5	MHMF302L1G7
(153) socket head screw for installation.	 Dimensions are dealer for the la 	subject to change without test information.	notice. Contact us or a
(92) 2 18 3.2 4-ø13.5*		Key way o	dimensions
	⊗ ∞2	80 55 M3	through_
31.4	022	8	10h9
	, ø2	035h6 04142	8
	Ø 8200) <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) Power supply 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)dealer for the latest information (108.5)4-ø13.5* Key way dimensions 18 M3 through 50 \boxtimes

 \boxtimes

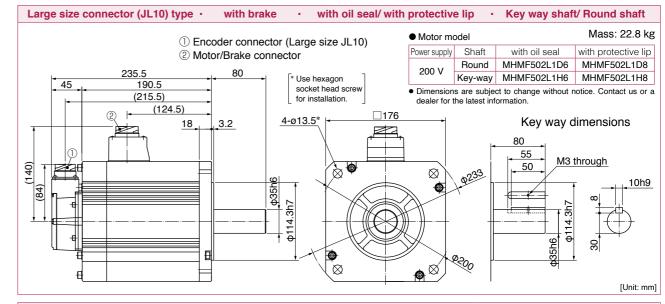
Small size connector (JN2) type · with brake · with oil seal/ wi	ith protective	lip ·	Key way shaf	t/ Round shaft
① Encoder connector (Small size JN2)	Motor mod	lel		Mass: 19.4 kg
② Motor/Brake connector	Power supply	Shaft	with oil seal	with protective lip
_	200 V	Round	MHMF402L1D5	MHMF402L1D7
218.5 80 ** Use hexagon cocket head screw	200 V K	Key-way	MHMF402L1H5	MHMF402L1H7
(196.5) Socker nead screw for installation.	Dimensions a dealer for the			notice. Contact us or a
② + (108.5) 18 3.2 4-ø13.5*	6		Key way o	limensions
(140) (60) (140) (60) (60) (60) (60) (60) (60) (60) (6		0233	935h6 20 20 80 80 80 80 80	through
4	\text{\Quad} \cdot \text{/}	I		[Unit: mm]

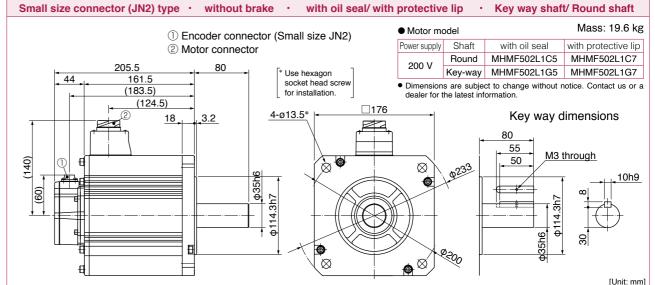
Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Mass: 19.6 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal with protective lip ② Motor connector Round MHMF502L1C6 MHMF502L1C8 Key-way MHMF502L1G6 MHMF502L1G8 * Use hexagon 161.5 socket head screw Dimensions are subject to change without notice. Contact us or a (186.5)for installation. (124.5)4-ø13.5* Key way dimensions 18 M3 through 50 \boxtimes \boxtimes [Unit: mm]

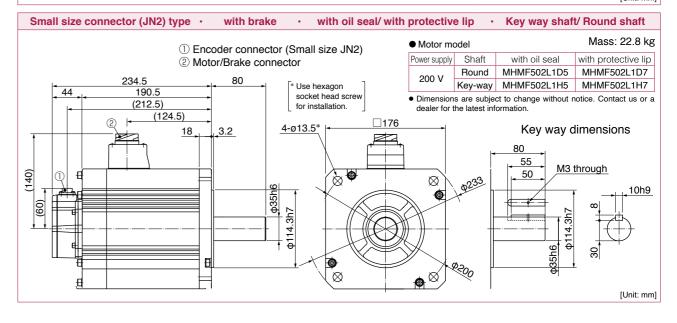
* For motors specifications, refer to P.99, P.100.

MHMF 5.0 kW

MHMF 5.0 kW

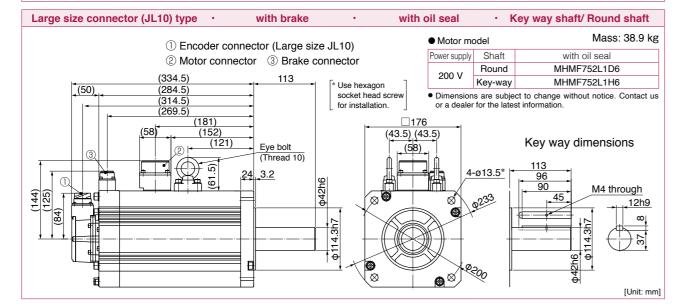






^{*} For motors specifications, refer to P.100.

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 (121) Eye bolt (58) _3.2 M4 through 12h9

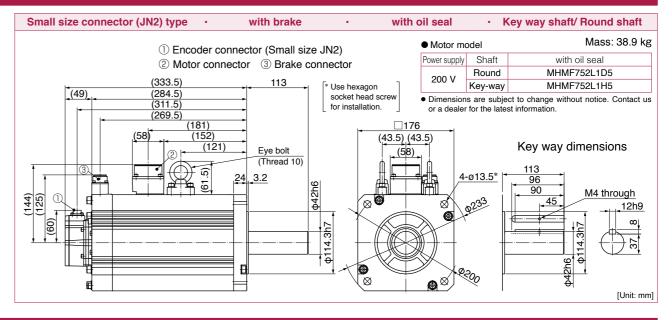


Small size connector (JN2) type · witho	ut brake	• witl	h oil seal	• K	(ey way shaft/ Ro	und shaft
① Encoder connector (Small size	JN2)	Motor mo	odel	Ma	ass: 34.8 kg
② Motor connector		,	Power supply	Shaft	with oil se	al
_			200 V	Round	MHMF752L	1C5
(302.5)	113	* Use hexagon	200 1	Key-way	MHMF752L	1G5
(49) (253.5) (280.5)	110	socket head screw for installation.			ct to change without not st information.	ice. Contact us
(181) (58) (152) (121) Ey	e bolt nread 10)	(43.5) (43.5) (5)	(43.5)	0233	Key way dimer	through 12h9 0 [Unit: mm]
						[Unit: mm

^{*} For motors specifications, refer to P.101.

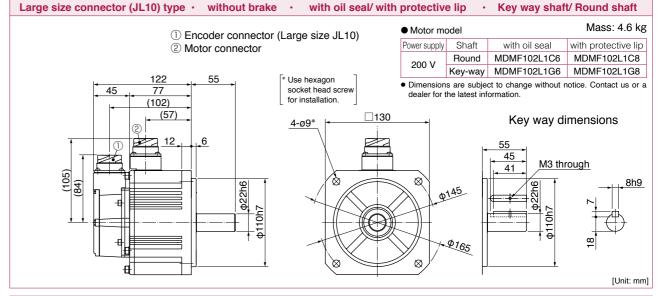
MHMF 7.5 kW

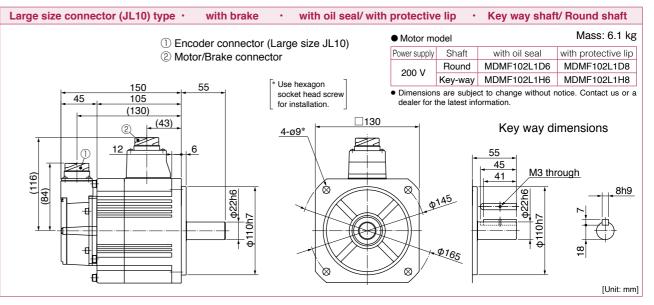
MHMF 7.5 kW / MDMF 1.0 kW



MDMF 1.0 kW

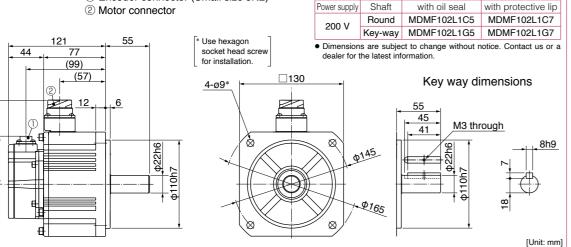
[Unit: mm]

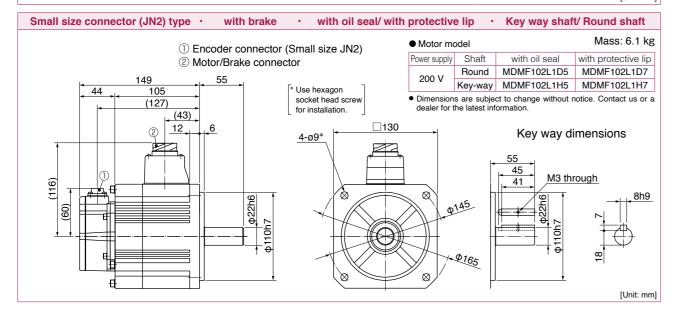




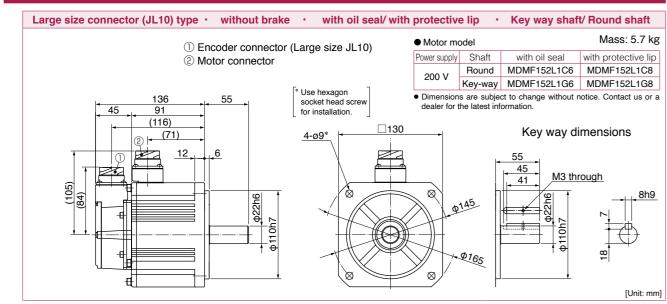
^{*} For motors specifications, refer to P.101, P.102.

MDMF 1.0 kW Small size connector (JN2) type ⋅ without brake ⋅ with oil seal/ with protective lip ⋅ Key way shaft/ Round shaft ① Encoder connector (Small size JN2) ② Motor connector ② Motor connector ② Motor connector ③ Bound MDMF102L1C5 MDMF102L1C7 ☐ Key-way MDMF102L1G5 MDMF102L1G7





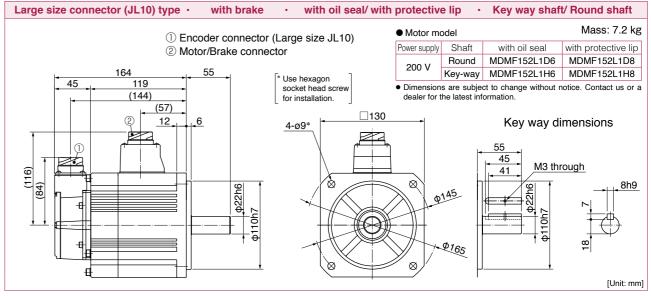
MDMF 1.5 kW

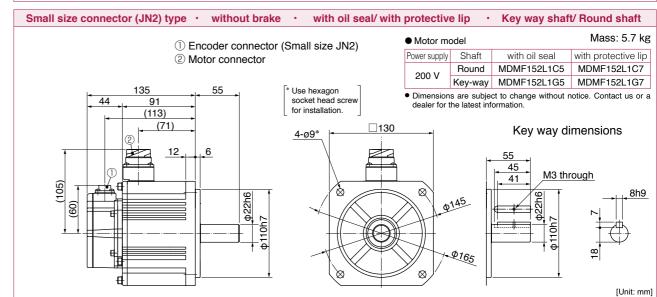


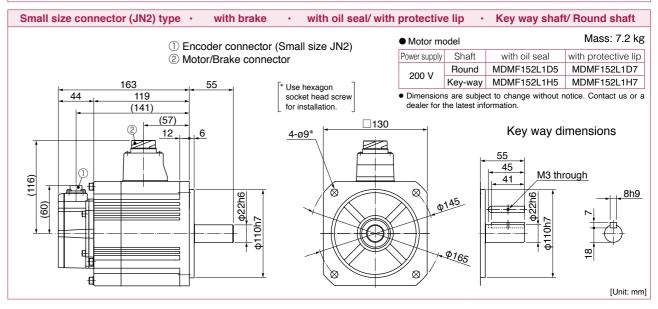
* For motors specifications, refer to P.102, P.103.

MDMF 1.5 kW

MDMF 1.5 kW

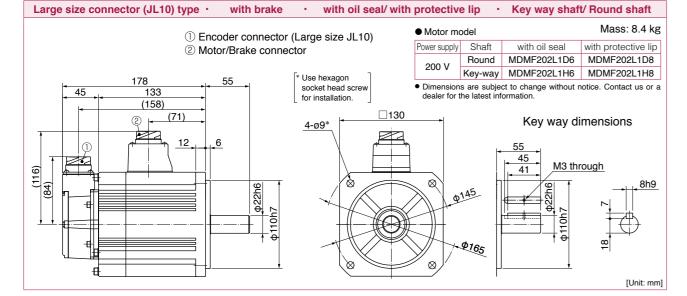


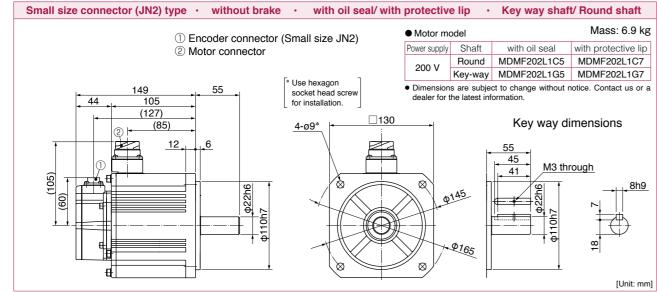




* For motors specifications, refer to P.103.

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 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* M3 through 41 Ф₁₆₅

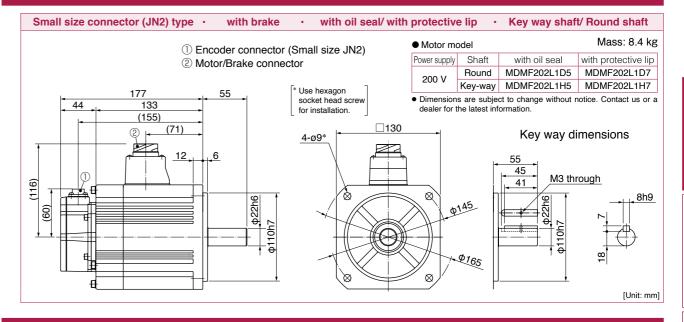




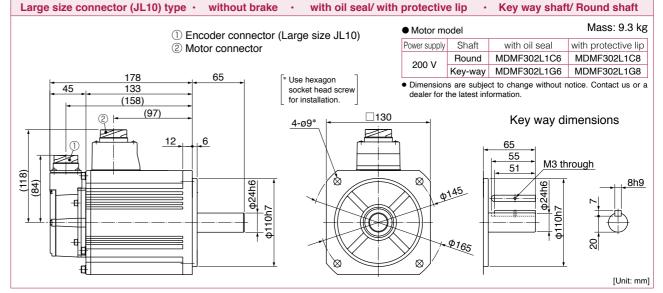
^{*} For motors specifications, refer to P.104.

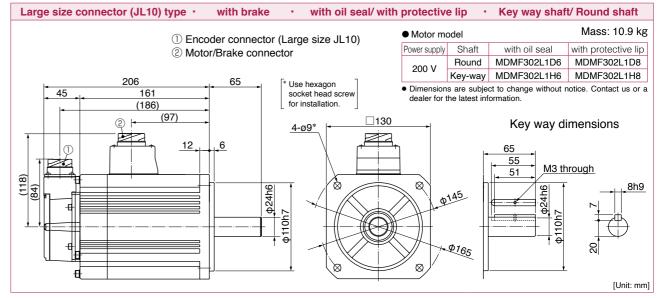
MDMF 2.0 kW

MDMF 2.0 kW to 3.0 kW



MDMF 3.0 kW





^{*} For motors specifications, refer to P.104, P.105.

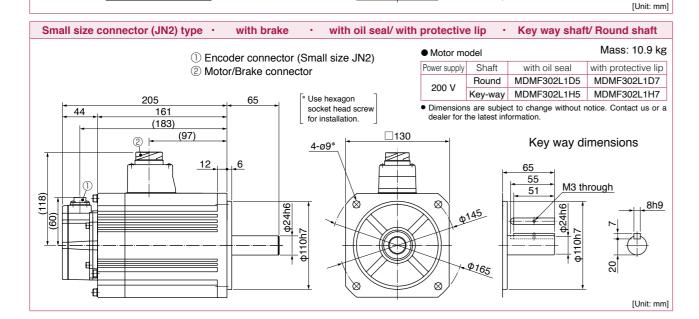
183 | Panasonic Industry Co., Ltd.

[Unit: mm]

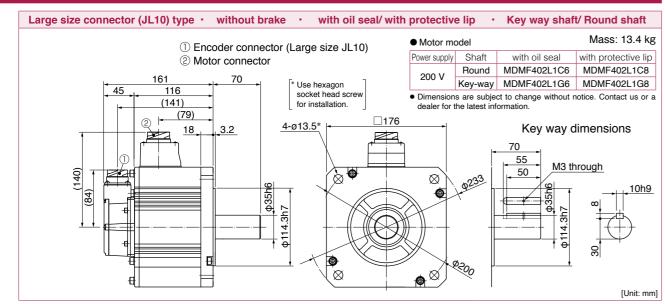
A6N Series

MDMF 3.0 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 MDMF302L1C5 MDMF302L1C7 Key-way MDMF302L1G5 MDMF302L1G7 * Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw 133 dealer for the latest information for installation. (155)(97) (2) H Key way dimensions 4-ø9* 12 M3 through

Ф₁₆₅



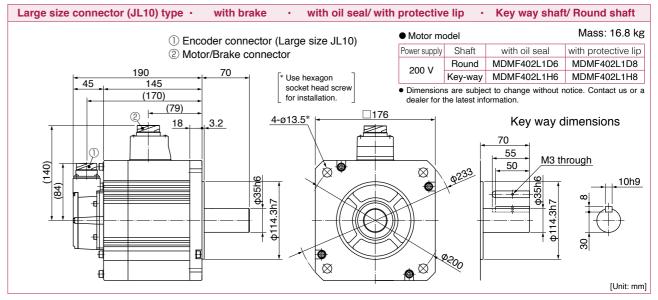
MDMF 4.0 kW

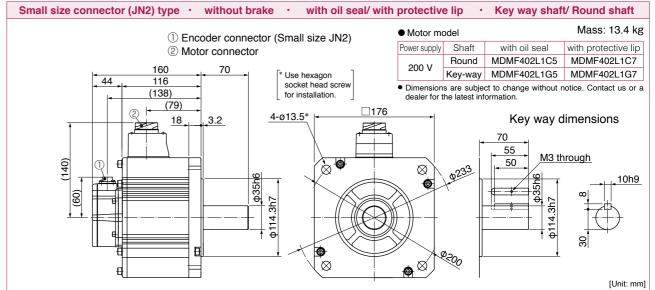


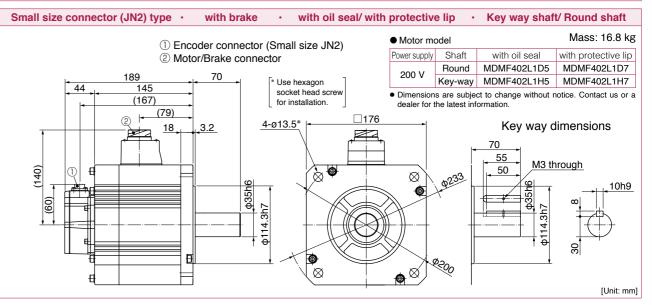
* For motors specifications, refer to P.105, P.106.

MDMF 4.0 kW

MDMF 4.0 kW







* For motors specifications, refer to P.106.

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) Power supply 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)dealer for the latest information (92) 4-ø13.5* Key way dimensions 18 55 M3 through 50 \boxtimes

Large size connector (JL10) type · with brake · with oil se	eal/ with protective lip · Key way shaft/ Round shaft
① Encoder connector (Large size JL10	● Motor model Mass: 19.0 kg
② Motor/Brake connector	Power supply Shaft with oil seal with protective lip
9	200 V Round MDMF502L1D6 MDMF502L1D8
205 70 *Use hexagon	Key-way MDMF502L1H6 MDMF502L1H8
45 160 socket head screw for installation.	 Dimensions are subject to change without notice. Contact us or a dealer for the latest information.
(92) 18 3.2 4-013.5* 4-013.5*	Key way dimensions 70 55 M3 through 90 10h9
	[Unit: mm]

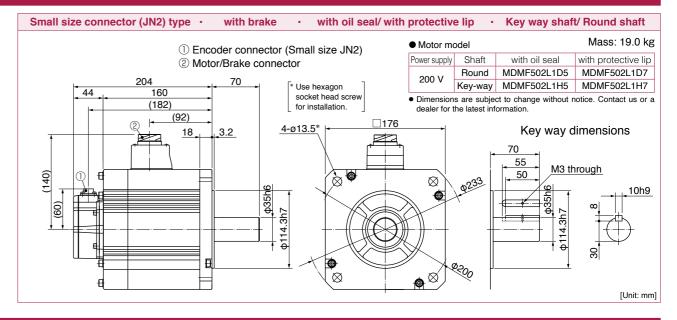
 \boxtimes

Small size connector (JN2) type · without brake · with oil seal/ with	protectiv	e lip ·	Key way shaf	t/ Round shaft
① Encoder connector (Small size JN2)	Motor me	odel		Mass: 15.6 kg
② Motor connector	Power supply	Shaft	with oil seal	with protective lip
0 11 11	200 V	Round	MDMF502L1C5	MDMF502L1C7
175 70 ** Use hexagon socket board occur.	200 V	Key-way	MDMF502L1G5	MDMF502L1G7
(153) Socket flead screw for installation.		s are subje		notice. Contact us or a
(92) 18 3.2 4-ø13.5*	-		Key way o	limensions
		23	70 55 50 M3 th	nrough
(60) 317 317 317 317		0233	347	10h9
			4114	8
		200	*	[linit mm]
				[Unit: mm]

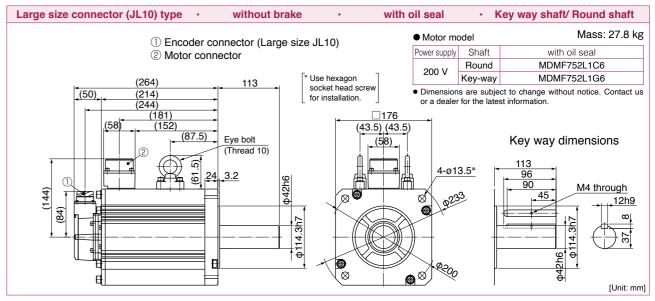
^{*} For motors specifications, refer to P.107.

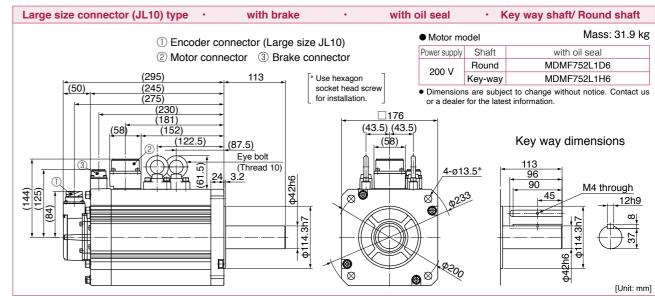
MDMF 5.0 kW

MDMF 5.0 kW to 7.5 kW



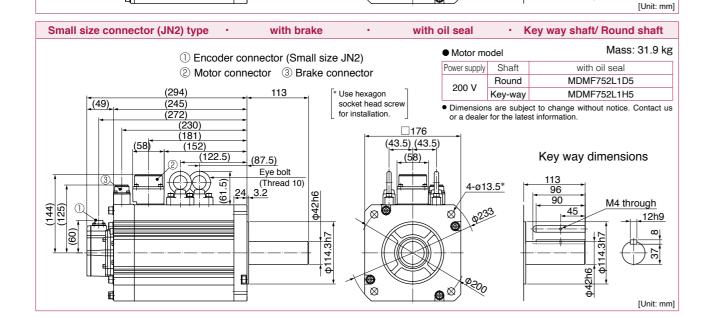






^{*} For motors specifications, refer to P.107, P.108.

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 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

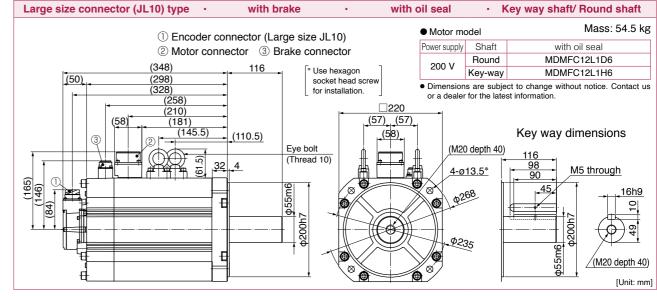


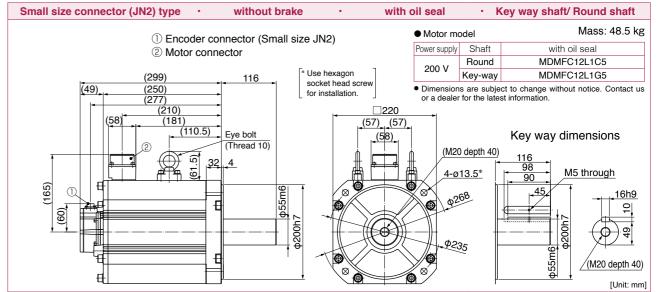
MDMF 11.0 kW Large size connector (JL10) type • without brake with oil seal Key way shaft/ Round shaft Mass: 48.5 kg Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal ② Motor connector MDMFC12L1C6 Round 200 V * Use hexagon MDMFC12L1G6 Key-way (300)socket head screw Dimensions 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]

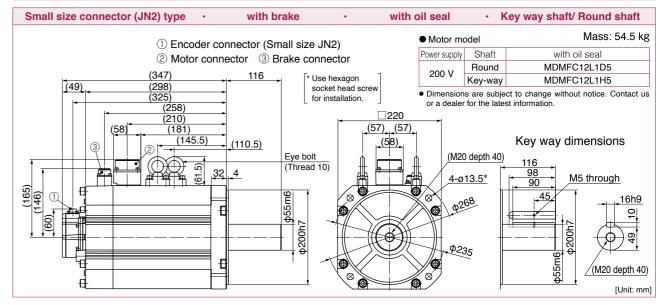
* For motors specifications, refer to P.108, P.109.

MDMF 11.0 kW

MDMF 11.0 kW



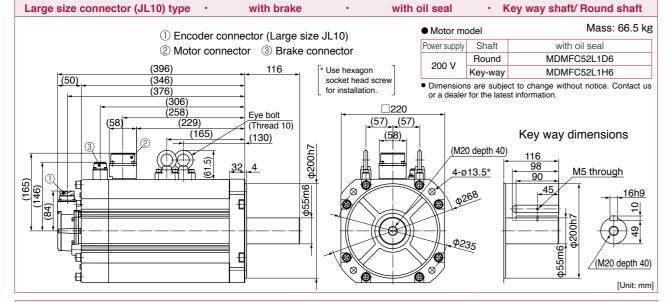


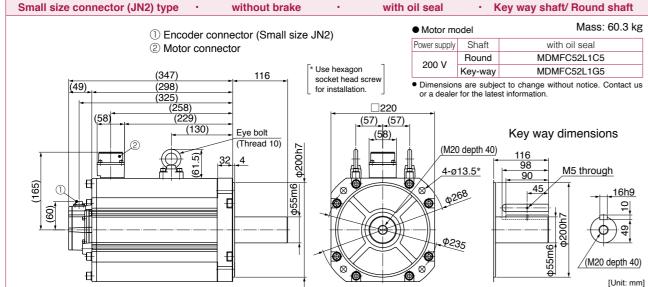


^{*} For motors specifications, refer to P.109.

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) [Unit: mm]

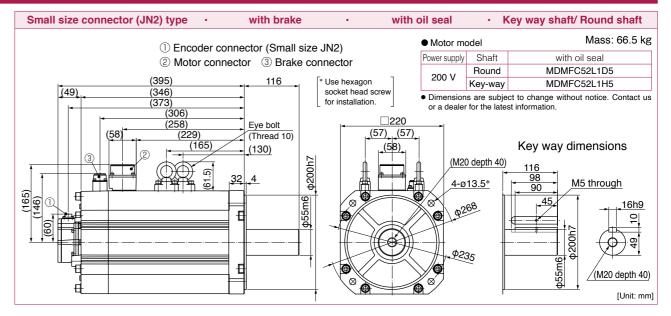




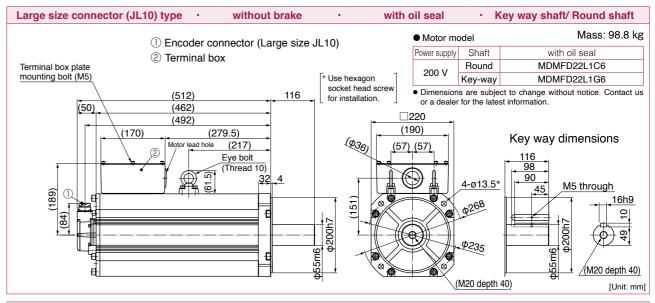
^{*} For motors specifications, refer to P.110.

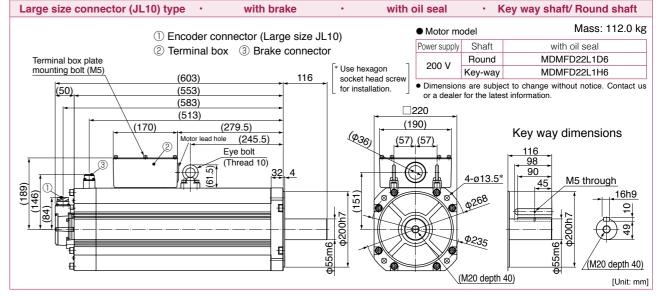
MDMF 15.0 kW

MDMF 15.0 kW to 22.0 kW



MDMF 22.0 kW



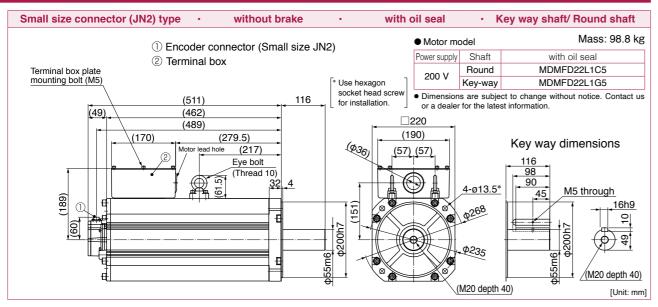


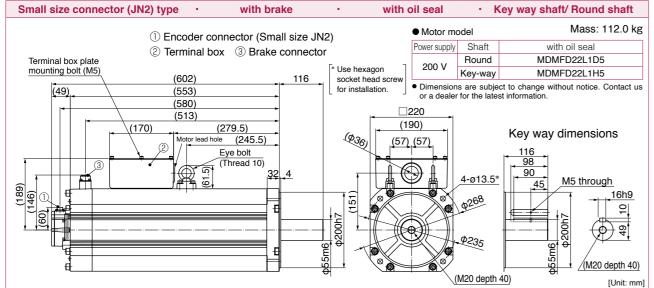
^{*} For motors specifications, refer to P.110, P.111.

MDMF 22.0 kW

MGMF 0.85 kW

MGMF 0.85 kW





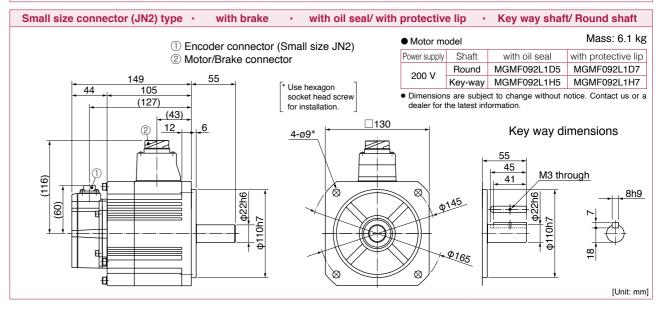
Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal with protective lip ② Motor connector Round MGMF092L1C6 MGMF092L1C8 Key-way MGMF092L1G6 MGMF092L1G8 Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw for installation. (102)(57) □130 Key way dimensions 4-ø9* 45 M3 through 41 [Unit: mm]

* For motors specifications, refer to P.111, P.112.

MGMF 0.85 kW

Large size connector (JL10) type · with brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal with protective lip ② Motor/Brake connector Round MGMF092L1D6 MGMF092L1D8 Key-way MGMF092L1H6 MGMF092L1H8 * Use hexagon 105 Dimensions are subject to change without notice. Contact us or a socket head screw (130)dealer for the latest information for installation. (43) ②, 12_ Key way dimensions 4-ø9* 45 M3 through 41 [Unit: mm]

① F	ncoder connector	r (Small size JN2)	Motor mo	odel		Mass: 4.6 kg
	Notor connector	(Official SIZO OTVZ)	Power supply	Shaft	with oil seal	with protective lip
© "			000.1/	Round	MGMF092L1C5	MGMF092L1C7
		G	200 V	Key-way	MGMF092L1G5	MGMF092L1G7
121	55	* Use hexagon socket head screw for installation.		s are subject he latest info	ct to change without rormation.	notice. Contact us or
(99) (57) 12	40110h7	4-09*	× •	0165	Key way di	

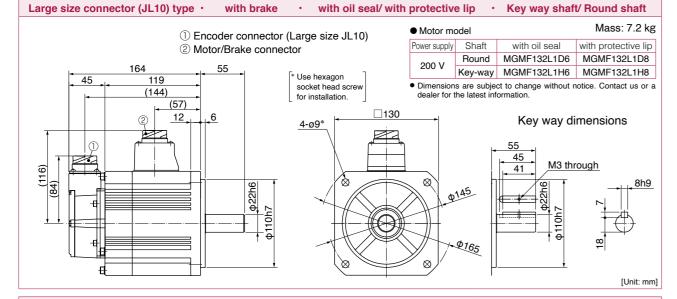


^{*} For motors specifications, refer to P.112.

MGMF 1.3 kW

A6N Series

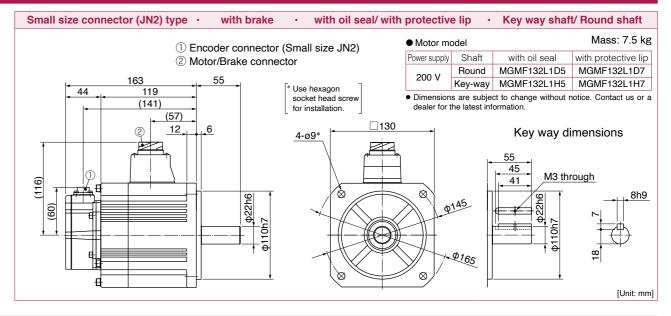
Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Power supply Shaft with oil seal with protective lip ② Motor connector Round MGMF132L1C6 MGMF132L1C8 Key-way MGMF132L1G6 MGMF132L1G8 * Use hexagon Dimensions are subject to change without notice. Contact us or a socket head screw dealer for the latest information for installation. (116)Key way dimensions (71) 4-ø9* 12 45 M3 through Ф₁₆₅ [Unit: mm]



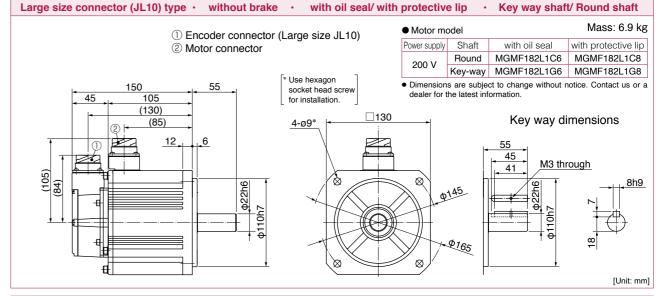
Small size connector (JN2) type · without brake	· with oil seal/	with protective lip	 Key way shaf 	t/ Round shaft
① Encoder connector ((Small size JN2)	Motor model		Mass: 5.7 kg
② Motor connector	(0.114.11 0.120 0.112)	Power supply Shaft	with oil seal	with protective lip
©		200 V Round	MGMF132L1C5	MGMF132L1C7
	* Use hexagon	Key-wa	y MGMF132L1G5	MGMF132L1G7
135 44 91 (113)	socket head screw for installation.	 Dimensions are sub dealer for the latest 	ject to change without r nformation.	notice. Contact us or a
② (71) 12 6	4-ø9*	130	Key way di	imensions
			55 45 41 M3 the	rough
(60) (60) (60) (60) (60) (60) (60)		0145	ф22h6 0h7	8h9
011077		Ø165	100	∞
€	(3 -	<u> </u>		[Unit: mm]

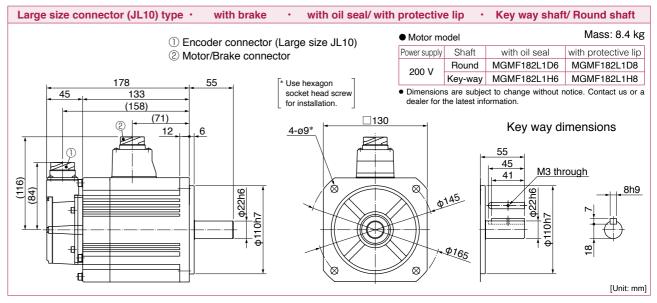
* For motors specifications, refer to P.113.

MGMF 1.3 kW



MGMF 1.8 kW





^{*} For motors specifications, refer to P.113, P.114.

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* 12 45 M3 through 41

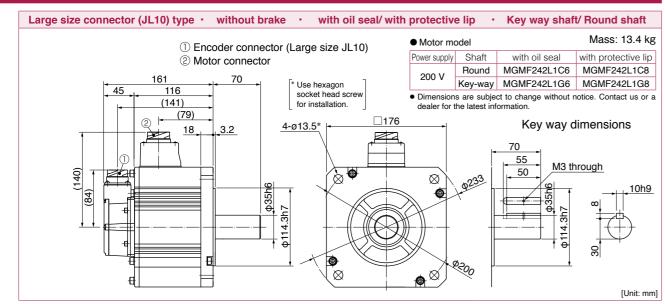
MGMF 1.8 kW to 2.4 kW

Small size connector (JN2) type	· with brake	· with oil seal/ wit	h protectiv	e lip •	Key way shaf	t/ Round shaft
① F	ncoder connector	(Small size JN2)	Motor m	odel		Mass: 8.4 kg
_	lotor/Brake conne	,	Power supply	Shaft	with oil seal	with protective lip
	oton Brano conno		200 V	Round	MGMF182L1D5	MGMF182L1D7
. 177	55 ,	* Use hexagon	200 V	Key-way	MGMF182L1H5	MGMF182L1H7
44 133 (155)		socket head screw for installation.		s are subject the latest inf	ct to change without rormation.	notice. Contact us or
② (71) 12	6	4-ø9*	<u> </u>	l a	Key way di	mensions
	9 1	8		- h	45 41 M3 thr	rough
(09)	422h6		9	145	10h7	
	+ +		// /	Φ165		8
EL T	<u> </u>	(8)	Ø)′	۲		

Φ165

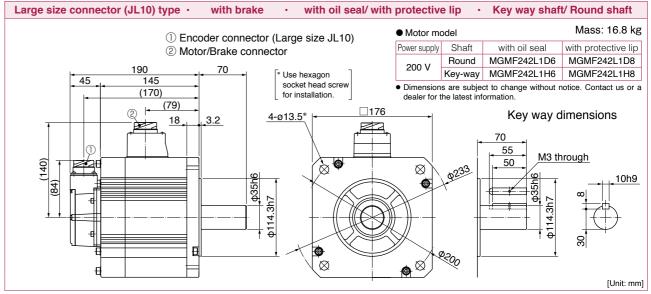
[Unit: mm]

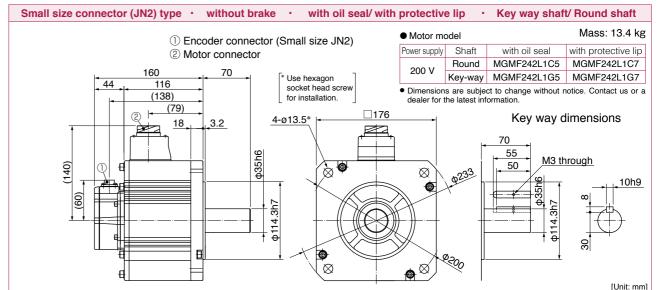
MGMF 2.4 kW

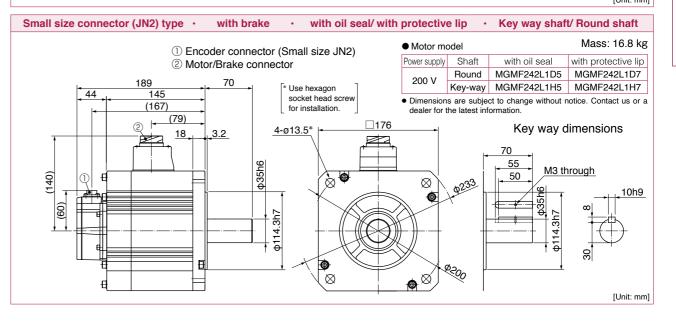


^{*} For motors specifications, refer to P.114, P.115.

MGMF 2.4 kW



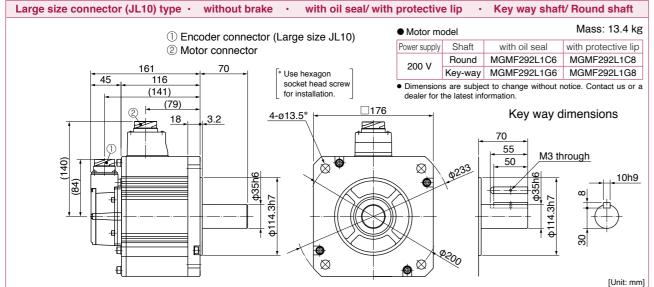


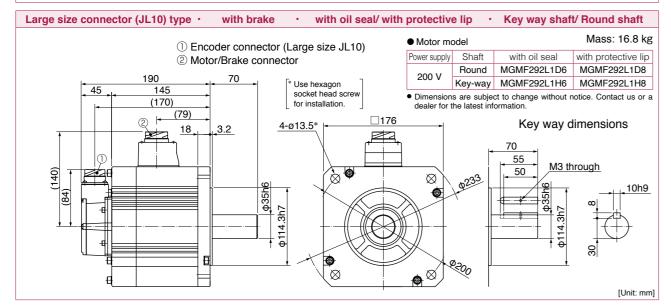


^{*} For motors specifications, refer to P.115.

A6 Family

MGMF 2.9 kW Large size connector (JL10) type · without brake · with oil seal/ with protective lip · Key way shaft/ Round shaft



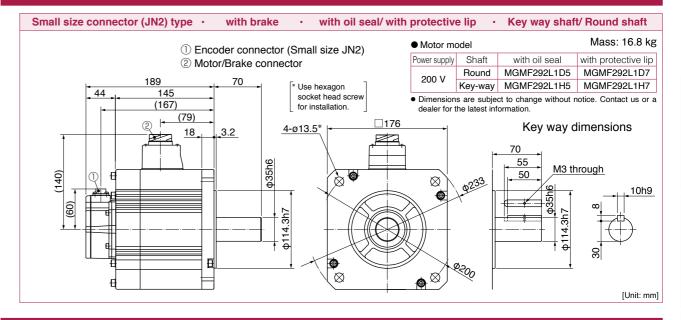


Small size connector (JN2) type · without brake · with oil seal/ with	protective	e lip •	Key way shaft	/ Round shaft
① Encoder connector (Small size JN2)	Motor mo	odel		Mass: 13.4 kg
② Motor connector	Power supply	Shaft	with oil seal	with protective lip
-	200 V	Round	MGMF292L1C5	MGMF292L1C7
160 70 ** Use hexagon	200 V	Key-way	MGMF292L1G5	MGMF292L1G7
(138) Socket riead screw for installation.		s are subje he latest inf		notice. Contact us or a
② (79) 18, 3.2 4-ø13.5*	-		Key way d	limensions
(60) (140) (114.3h7		0233	70 55 50 99 99 148 148 148 148 148 148 148 148 148 148	10h9
				[Unit: mm]

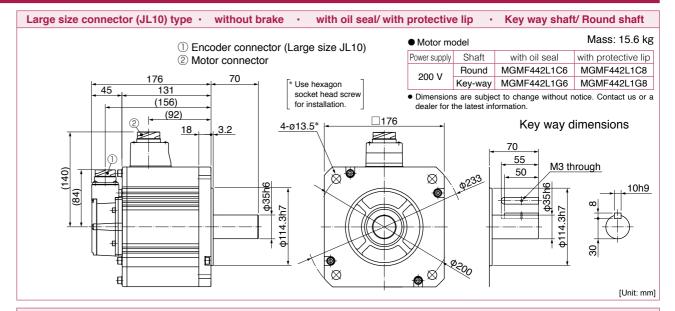
^{*} For motors specifications, refer to P.116.

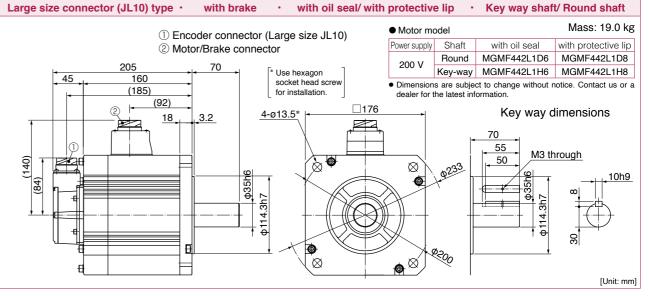
MGMF 2.9 kW

MGMF 2.9 kW to 4.4 kW



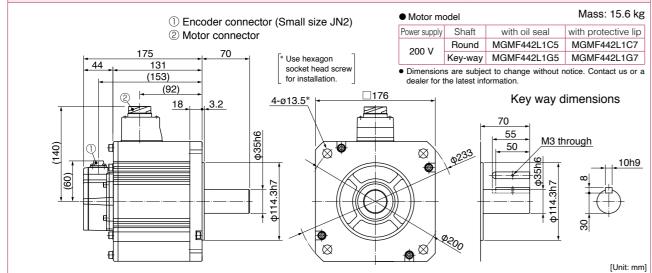
MGMF 4.4 kW

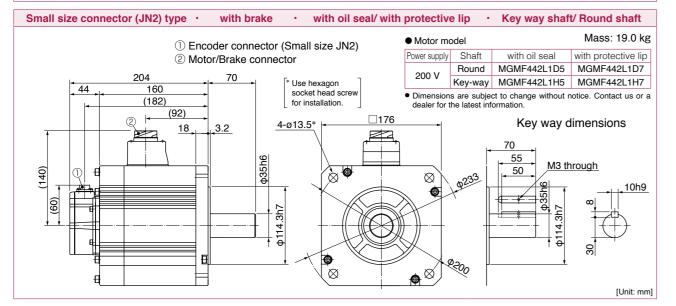




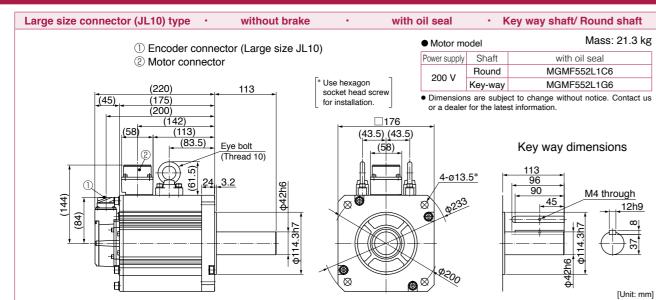
^{*} For motors specifications, refer to P.116, P.117.

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





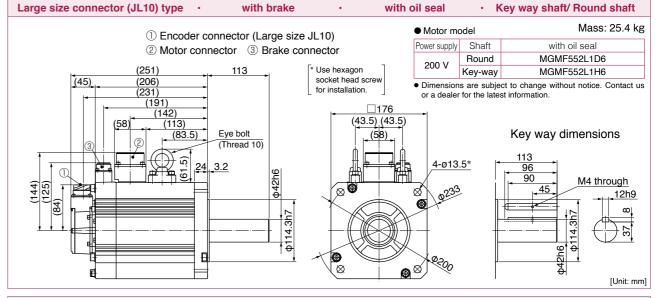
MGMF 5.5 kW

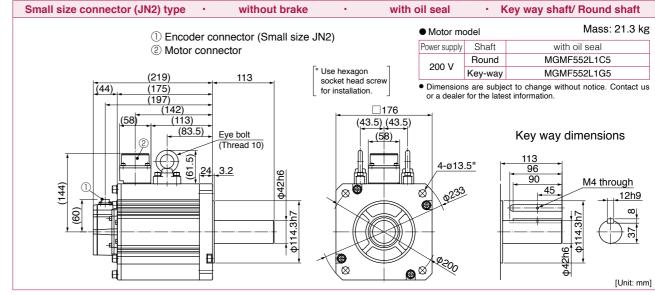


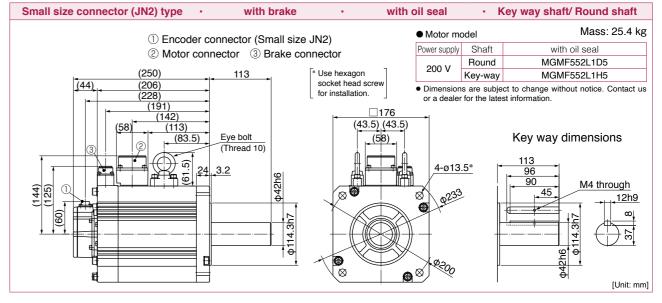
^{*} For motors specifications, refer to P.117, P.118.

MGMF 5.5 kW

MGMF 5.5 kW







^{*} For motors specifications, refer to P.118.

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A6N Series

A6B Series
Special Order Produc

Features

- Line-up IP67 motor: 1.0 kW to 7.5 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

sq. or less

more

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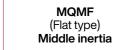
100 mm



MSMF Low inertia

Max. speed : 6000 r/min Rated speed: 3000 r/min Rated output: 50 W to 1000 W Enclosure:

IP65: Leadwire type



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

IP65: Leadwire type

MQMF

(Flat type)



MHMF 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



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



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

Enclosure : IP67

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

Rated speed: 2000 r/min : 1500 r/min (7.5 kW) Rated output: 1.0 kW to 7.5 kW

Special Order Product **Motor Contents**

MSMF (200 V)

50 W to 5.0 kW P.211

MQMF (200 V)

100 W to 400 W... . P.223

MHMF (200 V)

50 W to 7.5 kW... . P.226

MDMF (200 V)

1.0 kW to 7.5 kW... .P.239

MGMF (200 V)

0.85 kW to 5.5 kW P.246

Dimensions

MSME (50 W to 1000 W)......

(1.0 kW to 5.0 kW)....

MOME

(100 W to 400 W)....

(50 W to 1000 W)....

(1.0 kW to 7.5 kW)....

MDMF

(1.0 kW to 7.5 kW)......

MGMF

(0.85 kW to 5.5kW).....

Motor Specification **Description**

Environmental Conditions......P.303 Notes on [Motor specification] page P.303

Permissible Load at

Output Shaft.... Built-in Holding Brake

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 1 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

C							
Symbol	Format	Pulse counts	Resolution	Wires			
L	Absolute	23-bit	8388608	5			

<Note>

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
1	Standard

7 Motor specifications: 80 mm sq. or less Leadwire type IP65 MSMF 50 W to 1000 W

11101111 00 17 10 1000 17								
Symbol		Sh	aft	Holdin	g brake	Oil seal		
		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		Sh	naft	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		•	•				•
٧	2		•		•		•	
٧	4		•		•			•

7 Motor specifications: 100 mm sq. or more Encoder connector: JL10 IP67 MSMF, MHMF, MDMF, MGMF

Symbol		Sh	aft	Holding	g brake	Oil seal	
		Round	Key-way	without	with	with	With protective lip
С	6	•		•		•	
С	8	•		•			•
D	6	•			•	•	
D	8	•			•		•
G	6		•	•		•	
G	8		•	•			•
Н	6		•		•	•	
Н	8		•		•		•

^{*} Encoder connector JL10: Also applicable to screwed type

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

M A D	L	Ν	1	5	S	E	* * *	———— Special specifications
1	2	3	4	5	6	7		

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		

② Series

Symbol	Series name
L	A6 Family

③ Safety Function

Symbol	Specifications
N	without the safety function
T	with the safety function

(4) Max. current rating

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		

© Oup	ply voltage specification
Symbol	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

(5) Supply voltage specifications

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

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			Motor				Driver							Optional p	arts					
						A6SF series	A6 G series RS485		Power		Encoder Cable No	,	Motor Cab	le Note)3						
		Dawas	0	Dovt No.	Rating/	Multi fanction type /Pulse, analog,\	communication		capacity / at \	23-bi	23-bit Absolute	te se in the			Brake Cable	External	Reactor	Noise Filter		
ı	Motor series	Power supply	Output (W)	-	-	Part No. Note)1	Spec. Dimensions (page)	\ full-closed \	A6 SE series Basic (Pulse signal input)	Frame	rated load (kVA)	absolute syste (with battery box Note)5	te system Inci attery box) S	cremental system ut battery box)	without Brake	with Brake	Note)3	Regenerative Resistor	Single phase 3-phase	Single phase 3-phase
							Note)2, Note)4			Fix	Fixed cable		Movable	cable	Movable cable					
			50	MSMF5AZL1 ☐ 2M	211 253	MADLT05SF	MADLN05S♦									DV0P4281				
			100	MSMF012L1 □ 2M	212 253	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5							DV01 4201	DV0P227 DV0P220	DV0P4170		
Low inertia	MSMF (Leadwire) type 3000 r/min IP65	Single phase/	200	MSMF022L1 □ 2M	213 254	MADLT15SF	MADLN15S♦			MFECA 0**0EAE	-	MFECA * * 0EAD	MFM	CA	MFMCB			DV0PM20042		
nertia		3-phase 200 V	400	MSMF042L1 □ 2M	214 255	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9	(For fixed)		For fixed)	0**0EED		0 * * 0GET Note)6	DV0P4283	DV0P228			
			750	MSMF082L1 □ 2M	215 255	MCDLT35SF	MCDLN35S♦	C-frame	Approx. 1.8								DV0P220	DV0PM20042		
			1000	MSMF092L1 □ 2M	216 256	MDDLT45SF	MDDLN45S♦	D-frame	D-frame Approx. 2.4							DV0P4284	DV0P228 DV0P222	DV0P4220		
Middle	MQMF	Single	100	MQMF012L1 ☐ 2M MQMF012L1 ☐ 4M	223 261	MADLT05SF	MADLN05S♦	Λ έ	A-frame							DV0P4281	DV0P227			
inertia F	(Leadwire) type 3000 r/min	phase/ 3-phase	200	MQMF022L1 ☐ 2M MQMF022L1 ☐ 4M	224 263	MADLT15SF	MADLN15S♦			, 0.5	MFECA 0**0EAE (For fixed)	*0EAE 0*	MFECA * * 0EAD For fixed)	MFM 0 * * 0		MFMCB 0 * * 0GET Note)6	DV0P4283	DV0P220	DV0P4170 DV0PM20042	
Flat type	IP65	200 V	400	MQMF042L1 ☐ 2M MQMF042L1 ☐ 4M	225 265	MBDLT25SF	MBDLN25S♦	B-frame ★							Notejo	D V OF 4203	DV0P228 DV0P220			
			50	MHMF5AZL1 ☐ 2M MHMF5AZL1 ☐ 4M	226 267	MADLT05SF	MADLN05S♦									DV0P4281				
			100	MHMF012L1 ☐ 2M MHMF012L1 ☐ 4M	227 269	MADLT05SF	MADLN05S♦	A-frame ★	Approx. 0.5					MCA		DV01 4201	DV0P227 DV0P220	DV0P4170		
High ii	MHMF (Leadwire) type	Single phase/	200	MHMF022L1 ☐ 2M MHMF022L1 ☐ 4M	228 271	MADLT15SF	MADLN15S♦			MFECA 0**0EAE		MFECA * * 0EAD	MFM		MFMCB			DV0PM20042		
inertia	3000 r/min IP65	3-phase 200 V	400	MHMF042L1 ☐ 2M MHMF042L1 ☐ 4M	229 273	MBDLT25SF	MBDLN25S♦	B-frame ★	Approx. 0.9	(For fixed)		For fixed)	0**(EED	0 * * 0GET Note)6	DV0P4283	DV0P228			
			750	MHMF082L1 ☐ 2M MHMF082L1 ☐ 4M	230 275	MCDLT35SF	MCDLN35S♦	C-frame	Approx. 1.8								DV0P220	DV0PM20042		
			1000	MHMF092L1 ☐ 2M MHMF092L1 ☐ 4M	231 277	MDDLT55SF	MDDLN55S♦	D-frame	Approx. 2.4							DV0P4284	DV0P228 DV0P222	DV0P4220		

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

Note)1 : 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.

Note)6 Brake cable and motor cable are required for the motor with brake.

			Motor				Driver					Opt	ional parts > ref	er to P.306		
						A6 SF series Multi fanction type / Pulse, analog, \	A6 SG series RS485 communication		Power capacity	Encoder Cable JL10 (Large One-touch to	je size) ock type	Motor Cab JL One-touch JL04 scre	lock type			
ı	Notor 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)	23-bit Abs Use in the absolute system		without Brake	wed type 7 with Brake	External Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
										Fixed ca	able	Movabl	e cable			
		Single phase/	1000	MSMF102L1 6M MSMF102L1 8M	217 257	MDDLT55SF	MDDLN55S♦	D-frame	Approx.			MFMCD 0 * * 2EUD	MFMCA 0**2FUD	DV0P4284	DV0P228 / DV0P222	DV0P4220
_	MSMF	3-phase 200 V	1500	MSMF152L1 GM MSMF152L1 BM	218 257	MDDLT55SF	MDDLN55S♦		Approx. 2.9	MFECA	MFECA	MFMCD	MFMCA	DV0D400F	DV0PM20047 / DV0P222	
Low in	Large size JL10 type		2000	MSMF202L1 ☐ 6M MSMF202L1 ☐ 8M	219 258	MEDLT83SF	MEDLN83S♦	E-frame	Approx.	0 * * 0EPE	0**0EPD	0 * * 2ECD	0 * * 2FCD	DV0P4285 Note)6	DV0P223	DV0PM20043
inertia	3000 r/min IP67	3-phase	3000	MSMF302L1 6M MSMF302L1 8M	220 259	MFDLTA3SF	MFDLNA3S		Approx. 5.2	MFECA 0 * * 0ESE	MFECA 0**0ESD	MFMCA 0**3EUT	MFMCA 0 * * 3FUT	DV0P4285	DV0P224	
	11 07	200 V	4000	MSMF402L1 6M MSMF402L1 8M	221 259	MFDLTB3SF	MFDLNB3S♦	F-frame	frame Approx. 6.5 Approx.			MFMCA	MFMCA	x2 in parallel	DV0P225	DV0P3410
		Single	5000	MSMF502L1 ☐ 6M MSMF502L1 ☐ 8M MDMF102L1 ☐ 6M	222 260 239	MFDLTB3SF	MFDLNB3S♦		7.8 Approx.			0 * * 3ECT	0 * * 3FCT			
		phase/ 3-phase	1000	MDMF102L1	283 240	MDDLT45SF	MDDLN45S♦	D-frame	2.4 Approx.			MFMCD 0 * * 2EUD	MFMCA 0 * * 2FUD	DV0P4284	DV0P228 / DV0P222	DV0P4220
	MDMF Large size	200 V	1500 2000	MDMF152L1 8M MDMF202L1 6M	284 241	MDDLT55SF MEDLT83SF	MDDLN55S♦ MEDLN83S♦	E-frame	2.9 Approx.	MFECA 0**0EPE	MFECA 0**0EPD	MFMCD 0 * * 2ECD	MFMCA 0 * * 2FCD	DV0P4285	DV0PM20047 / DV0P222 DV0P223	DV0PM20043
	JL10 type 2000 r/min		3000	MDMF202L1 ☐ 8M MDMF302L1 ☐ 6M	285 242	MFDLTA3SF	MFDLNA3S	E-frame	3.8 Approx. 5.2	MFECA	MFECA			Note)6	DV0P223	DV0FIVI20043
	IP67	3-phase 200 V	4000	MDMF302L1 8M	285 243	MFDLTB3SF	MFDLNB3S	F-frame	Approx.	0 * * 0ESE	0 * * 0ESD	MFMCA 0 * * 3EUT	MFMCA 0 * * 3FUT	DV0P4285	D V 01 224	DV0P3410
S			5000	MDMF402L1 8M MDMF502L1 6M	286 245	MFDLTB3SF	MFDLNB3S♦		6.5 Approx. 7.8			MFMCA 0**3ECT	MFMCA 0 * *3FCT	x2 in parallel	DV0P225	2 101 0 110
Middle i		Single phase/	850	MDMF502L1 ☐ 8M MGMF092L1 ☐ 6M MGMF092L1 ☐ 8M	287 246 288	MDDLT45SF	MDDLN45S♦		Approx.			MFMCD	MFMCA		DV0P228 / DV0P221	
inertia		3-phase 200 V	1300	MGMF132L1 GM MGMF132L1 BM	247 289	MDDLT55SF	MDDLN55S♦	D-frame	Approx.			0 * * 2EUD	0 * * 2FUD	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
	MGMF Large size		1800	MGMF182L1 6M MGMF182L1 8M	248 289	MEDLT83SF	MEDLN83S♦		Approx.	MFECA	PE 0**0EPD A MFECA	MFMCD 0**2FCD 0**2FCD MFMCE 0**3EUT 0**3FUT MFMCD	MFMCA 0 * * 2FCD		DV0P223	
	JL10 type (Low speed/ High torque type	3-phase	2400	MGMF242L1	249 290	MEDLT93SF	MEDLN93S♦	E-frame	Approx.	0 * * 0EPE MFECA 0 * * 0ESE			0 * *3FUT MFMCD	DV0P4285	DV0P224	
	1500 r/min IP67	200 V	2900	MGMF292L1 ☐ 6M MGMF292L1 ☐ 8M	250 291	MFDLTB3SF	MFDLNB3S♦		Approx. 5.0	0.10202	0.1.0202	0 * * 3ECT MFMCA 0 * * 3EUT	0 * * 3FCT MFMCA 0 * * 3FUT	D) (0D 1000		
	07		4400	MGMF442L1 6M MGMF442L1 8M	251 291	MFDLTB3SF	MFDLNB3S♦	F-frame	Approx.			MFMCA 0 * * 3ECT	MFMCA 0**3FCT	DV0P4285 ×2 in parallel	DV0P225	DV0P3410
		Single	1000	MHMF102L1 6M MHMF102L1 8M	232 279	MDDLT45SF	MDDLN45S♦		Approx.			MFMCD 0**2EUD	MFMCA 0 * * 2FUD		DV0P228 / DV0P222	
		phase/ 3-phase 200 V	1500	MHMF152L1 6M MHMF152L1 8M	233 279	MDDLT55SF	MDDLN55S♦	D-frame	Approx.			MFMCD	MFMCA 0 * * 2FCD	DV0P4284	DV0PM20047 / DV0P222	DV0P4220
High	MHMF Large size JL10 type		2000	MHMF202L1	234 280	MEDLT83SF	MEDLN83S♦	E-frame	Approx.	MFECA 0**0EPE	MFECA 0**0EPD	MFMCE MFM 0**2EUD 0**2	MFMCE 0 * * 2FUD MFMCE	DV0P4285 Note)6	DV0P223	DV0PM20043
inertia	2000 r/min	3-phase		MHMF302L1 6M	235				Approx.	MFECA	MFECA	MFMCE 0**2ECD	0 * * 2FCD	7.5.5/5		
	IP67	200 V	3000	MHMF302L1 8M MHMF402L1 6M	281	MFDLTA3SF	MFDLNA3S♦	_	5.2 Approx.	0 * * 0ESE	0 * * 0ESD	MFMCA 0 * * 3EUT	MFMCA 0 * *3FUT	DV0P4285	DV0P224	
			5000	MHMF402L1 ☐ 8M MHMF502L1 ☐ 6M	281 237	MFDLTB3SF MFDLTB3SF	MFDLNB3S<	F-frame	6.5 Approx.			MFMCA 0**3ECT	MFMCA 0 * *3FCT	×2 in parallel	DV0P225	DV0P3410
Note)	1 D : Donro			MHMF502L1 ☐ 8M ecifications. (refer to "N	282		WII DENDOO		7.8	Note)E Line of II 10 t	tuna anaadar aak			uch look connection	ns. Conventional screwed t	true N/MC and

Note)1 : Represents the motor specifications. (refer to "Model designation" P.204.)

: 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/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.

Special Order Product

						Driver						Opt	ional parts Frefe	er to P.306			
						A6SF series	A6SG series RS485		Power capacity		JL10 (Lar One-touch	rge size) lock type	Motor				
		Power	Output	Part No.	Rating/ Spec.	Multi fanction type /Pulse, analog,\	communication		/ at \		N/MS scre 23-bit Al						
	Motor series	supply	(W)	Note)1	Dimensions (page)	(full-closed)	A6SE series Basic (Pulse signal input)	Frame	(rated) (load) (kVA)	absolu (with l	Jse in the olute system	Use in the Incremental system (without battery box)	without Brake	with Brake	Regenerative Resistor	Reactor (Single phase / 3-phase)	Noise Filter
											Fixed	cable					
Middle	MDMF Large size JL10 type 1500 r/min IP67	3-phase 200 V	7500	MDMF752L1 ☐ 6M	245 287	MGDLTC3SF	_	G-frame	Approx.	0* 	MFECA **0EPE MFECA **0ESE	MFECA 0**0EPD ——— MFECA 0**0ESD	Note)6	Note)6	DV0P4285 x3 in parallel	– Note)5	HF3080C-SZA (Recommended) components P.413
Middle inertia	MGMF Large size JL10 type (Low speed/) High torque type 1500 r/min IP67	3-phase 200 V	5500	MGMF552L1 □ 6M	252 292	MGDLTC3SF	_	G-frame	Approx. 8.5	0* 	MFECA **0EPE MFECA **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 ☐ 6M	238 283	MGDLTC3SF	_	G-frame	Approx.	0* 	MFECA **0EPE MFECA **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

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

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.

Recommended resistance: 1.2 Ω 400 W or more × 3 pieces

For inquiries: Iwaki Musen Kenkyusho Co.,Ltd. Tel: +81-44-833-4311

☐ : 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

	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	G	ME	DV0PM20108	One-touch lock type	For	Connector	(to be supplied) by customer	Connector Screwed type	/to be supplied\	
MGMF 5.5 kW MHMF 7.5 kW	G	M5	DV0PM20111	Large size connector	Connector X6	Screwed type	M5 Round terminal	not included	(by customer)	
			DV0PM20112	Screwed type				Connector Screwed type		

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.

Please contact us for more information.

Specifications

				AC200 V
Motor model*1				MSMF5AZL1□□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)	50
Rated torque			(N·m)	0.16
Continuous st	all torqu	ie	(N·m)	0.16
Momentary M	ax. pea	k 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 (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.

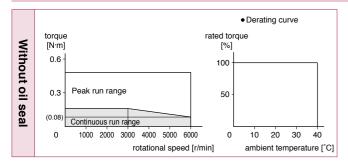
Static friction torque (N·m)	0.294 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

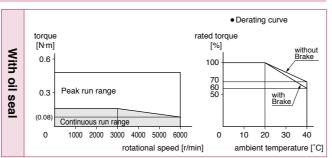
• Permissible load (For details, refer to P.304)

	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.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	53		P.2						

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

Dimensions are subject to change without notice. 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				MSMF012L1 M	
		Multi	function type	MADLT05SF	
Applicable	Model No	RS48	5 communication type *2	MADLN05SG	
driver	140.	Basic	type *2	MADLN05SE	
	Frame	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	е	(N·m)	0.32	
Momentary Ma	ax. peal	k torqu	ue (N·m)	0.95	
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	l speed		(r/min)	6000	
Moment of ine	rtia		Without brake	0.048	
of rotor (×10 ⁻⁴	kg·m²)		With brake	0.051	
Recommende ratio of the loa			30 times or less		
Rotary encode	er speci	ficatio	ns ^{*3}	23-bit Absolute	
	Res	solutio	n per single turn	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.

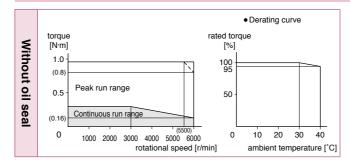
Static friction torque (N·m) 0.294 or more Engaging time (ms) 35 or less Releasing time (ms) Note)4 20 or less Exciting current (DC) (A) 0.30 Releasing voltage (DC) (V) 1 or more Exciting voltage (DC) (V) 24±1.2

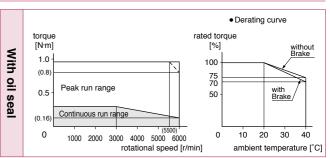
• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88.0
documbry	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.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	53	— 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.

A6N Series

Series

Series

Please contact us for more information.

Specifications

				AC200 V
Motor model*	model *1			MSMF022L1□□M
	l	Multi	function type	MADLT15SF
Applicable	Model No.	RS48	5 communication type *2	MADLN15SG
driver		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 st	tall torqu	е	(N·m)	0.64
Momentary Max. peak torqu			ue (N·m)	1.91
Rated current			(A(rms))	1.5
Max. current			(A(o-p))	6.5
Regenerative	Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2
-			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 inertia ratio of the load and the rotor				30 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.

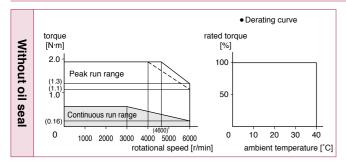
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

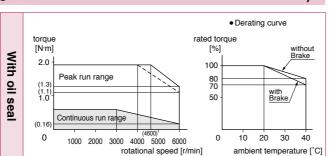
• Permissible load (For details, refer to P.304)

, , ,								
	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.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.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	
		Multi	Multifunction type		MBDLT25SF	
Applicable Mod		RS48	5 communication type	e *2	MBDLN25SG	
driver			type *2		MBDLN25SE	
	Frame	e sym	bol		B-frame	
Power supply	capacit	y	(kV	A)	0.9	
Rated output			(V	N)	400	
Rated torque			(N·r	n)	1.27	
Continuous st	all torqu	е	(N·r	n)	1.27	
Momentary M	ax. peal	k torqu	ıe (N·r	n)	3.82	
Rated current			(A(rms	3))	2.4	
Max. current			(A(o-p)))	10.2	
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/mi	n)	3000	
Max. rotationa	ıl speed		(r/mi	n)	6000	
Moment of ine	ertia		Without brake		0.27	
of rotor (×10 ⁻⁴	kg·m²)		With brake		0.30	
	ecommended moment of inertia tio of the load and the rotor			e)3	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.

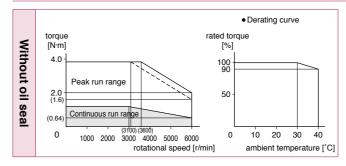
Static friction torque (N·m)	1.27 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

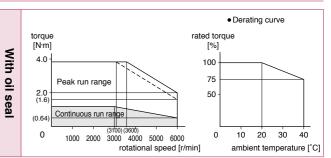
• Permissible load (For details, refer to P.304)

	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.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.2	P.255 — P.255		_			

<Cautions>

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

Dimensions are subject to change without notice. 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.

A6 Family

A6N Series

Series

Series

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		Basic	type *2	MCDLN35SE
	Fram	e sym	bol	C-frame
Power supply	capacit	y	(kVA)	1.8
Rated output			(W)	750
Rated torque		2.39		
Continuous stall torque			(N·m)	2.39
Momentary Ma	ax. peal	k torqu	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	l speed		(r/min)	6000
Moment of ine	rtia		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	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.

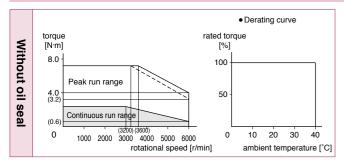
Static friction torque (N·m)	2.45 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±1.2

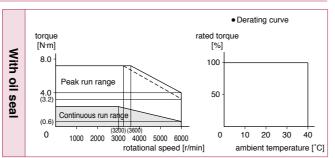
• Permissible load (For details, refer to P.304)

	, , ,							
	During assembly	Radial load P-direction (N)	686					
		Thrust load A-direction (N)	294					
۱	documbry	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)	Leadwire type (IP65) P.2		_	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.

Specifications

Special Order

				AC200 V	
Motor model*1		MSMF092L1□□M			
		Multifunction type		MDDLT45SF	
Applicable	Model No	RS48	5 communication type *2	MDDLN45SG	
driver	INO.	Basic	type *2	MDDLN45SE	
	Frame	e sym	bol	D-frame	
Power supply	capacit	у	(kVA)	2.4	
Rated output			(W)	1000	
Rated torque (N·m)				3.18	
Continuous stall torque (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	al spee	d	(r/min)	3000	
Max. rotationa	al speed		(r/min)	6000	
Moment of ine	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 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.

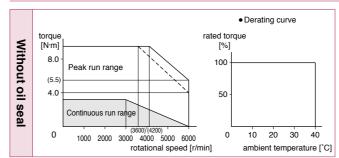
Static friction torque (N·m)	3.80 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

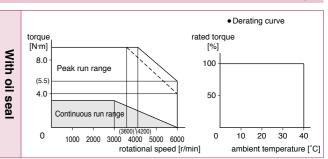
• Permissible load (For details, refer to P.304)

During assembly 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

		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.2	56	_	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

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Specifications

				AC200 V
Motor model*1		MSMF102L1□□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)	2.4
Rated output			(W)	1000
Rated torque		(N·m)	3.18	
Continuous stall torque			(N·m)	3.82
Momentary M	ax. pea	k torqı	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	al 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)

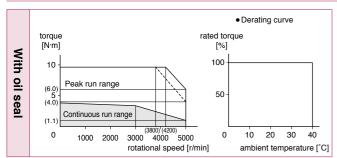
	During assembly During operation	Radial load P-direction (N)	980					
		Thrust load A-direction (N)	588					
a		Thrust load B-direction (N)	686					
D		Radial load P-direction (N)	490					
op		Thrust load A, B-direction (N)	196					

- 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.257			P.2	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	r model *1			MSMF152L1□□M
		Multi	function type	MDDLT55SF
Applicable	Model No	RS48	5 communication type *2	MDDLN55SG
driver	140.	Basic	type *2	MDDLN55SE
	Frame	e sym	bol	D-frame
Power supply	capacit	у	(kVA)	2.9
Rated output			(W)	1500
Rated torque			(N·m)	4.77
Continuous st	all torqu	е	(N·m)	5.72
Momentary M	ax. peal	k torqu	ue (N·m)	14.3
Rated current			(A(rms))	8.2
Max. current			(A(o-p))	35
Regenerative	brake		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4284	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	3.10
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	3.45	
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
	Resolution per			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)

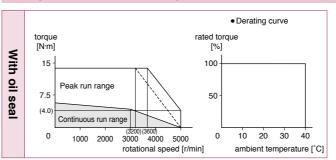
During assembly During operation	Radial load P-direction (N)	980
	Thrust load A-direction (N)	588
	Thrust load B-direction (N)	686
	Radial load P-direction (N)	490
	Thrust load A, B-direction (N)	196

- 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			
meter speemeanerie	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.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

Please contact us for more information.

Specifications

				AC200 V
Motor model *1	Motor model ^{*1}			MSMF202L1□□M
			unction type	MEDLT83SF
Applicable	Model No.	RS48	communication type *2	MEDLN83SG
driver		Basic	type *2	MEDLN83SE
	Fram	e sym	bol	E-frame
Power supply	capacit	y	(kVA)	3.8
Rated output			(W)	2000
Rated torque	Rated torque			6.37
Continuous sta	all torqu	, ,		7.64
Momentary Ma	ax. pea			19.1
Rated current			(A(rms))	11.3
Max. current			(A(o-p))	48
Regenerative	generative 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)	3000
Max. rotationa	l speed		(r/min)	5000
Moment of ine	rtia		Without brake	4.06
of rotor (×10 ⁻⁴	of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	4.41
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
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.

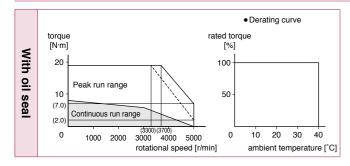
Static friction torque (N·m)	8.0 or more
Engaging time (ms)	50 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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.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.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
		Multi	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	s stall torque (N·m)			11.0
Momentary M	ax. peal	ue (N·m)	28.6	
Rated current			(A(rms))	18.1
Max. current			(A(o-p))	77
Regenerative	brake	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 ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	7.38	
Recommended moment of ine ratio of the load and the rotor				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.

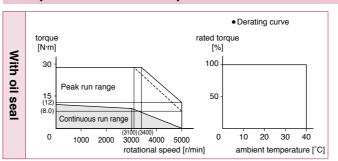
Static friction torque (N·m)	12.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	15 or less
Exciting current (DC) (A)	0.81
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
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.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.2	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.

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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	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	al 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
Recommende ratio of the loa		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.

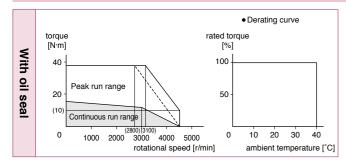
Static friction torque (N·m)	16.2 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	,	,
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.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.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	у	(kVA)	7.8	
Rated output			(W)	5000	
Rated torque			(N·m)	15.9	
Continuous st	all torqu	19.1			
Momentary Max. peak torque				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)	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 ir ratio of the load and the roto				15 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.

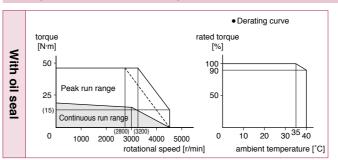
Static friction torque (N·m)	22.0 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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

	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.260		_	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.

A6N Series

Series

Specifications

				AC200 V	
Motor model *	1	MQMF012L1□□M			
	l	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 stall torque (N				0.33	
Momentary M	lax. peal	k torqu	ue (N·m)	1.11	
Rated current			(A(rms))	1.1	
Max. current (A(o-			(A(o-p))	5.5	
Regenerative	brake		Without option	No limit Note)2	
frequency (tim		Note)1	DV0P4281	No limit Note)2	
Rated rotation	nal spee	d	(r/min)	3000	
Max. rotation	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 ratio of the load and the roto				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.

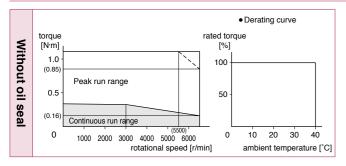
Static friction torque (N·m)	0.39 or more
Engaging time (ms)	15 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

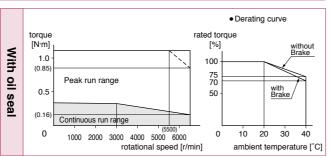
• Permissible load (For details, refer to P.304)

	,	,
During assembly	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.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	MQMF022L1□□M		
			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	y	(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. peal	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. rotation	al speed		(r/min)	6500
Moment of inc	ertia		Without brake	0.50
of rotor (×10 ⁻⁴ kg·m ²)		With brake	0.59	
Recommended moment of iner ratio of the load and the rotor				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.

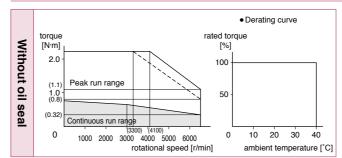
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

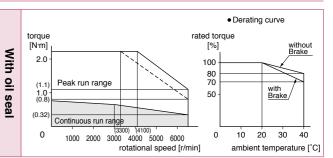
• Permissible load (For details, refer to P.304)

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.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.

A6B

A6N Series

Series

Series

Specifications

		AC200 V		
Motor model	1			MQMF042L1□□M
		Multi	function type	MBDLT25SF
Applicable	Model No	RS48	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	uous stall torque (N·m) ntary Max. peak torque (N·m)			1.40
Momentary N				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	of rotor (×10 ⁻⁴ kg⋅m²) 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	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.

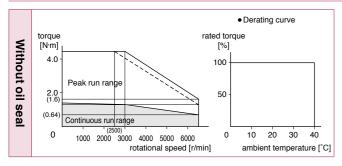
Static friction torque (N·m)	1.6 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.36
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

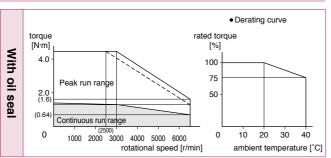
• Permissible load (For details, refer to P.304)

	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.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.265	P.265	P.265	P.266	P.266	P.266	

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

Dimensions are subject to change without notice. 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				MHMF5AZL1 M
		Multifunction type		MADLT05SF
Applicable	Model No	RS48	5 communication type	MADLN05SG
driver			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	tall torqu	е	(N·m)	0.18
Momentary M	lax. peal	0.56		
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	0.038
of rotor (×10 ⁻⁴ kg·m ²)		With brake	0.042	
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	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.

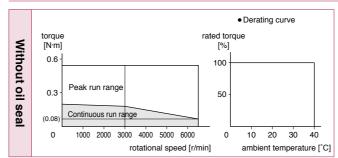
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

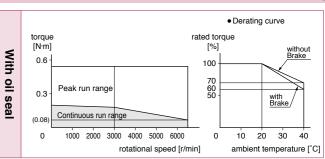
• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	147
During assembly	Thrust load A-direction (N)	88
document	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 \(\subseteq \) 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.267	P.267	P.267	P.268	P.268	P.268		

<Cautions>

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

Dimensions are subject to change without notice. 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

A6B Series

E Series

Please contact us for more information.

Specifications

				AC200 V		
Motor model*	ı	MHMF012L1□□M				
		Multi	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	у	(kVA)	0.5		
Rated output			(W)	100		
Rated torque			(N·m)	0.32		
Continuous stall torque (N·m)				0.33		
Momentary M	ax. pea	k torqı	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 ⁻²	¹ kg·m²)		With brake	0.074		
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	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.

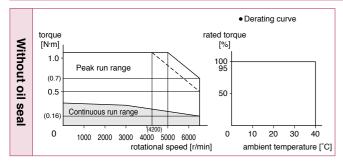
Static friction torque (N·m)	0.38 or more
Engaging time (ms)	35 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.30
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

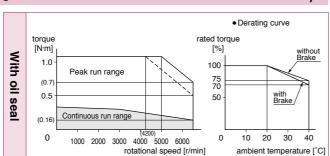
• Permissible load (For details, refer to P.304)

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

Dimensions are subject to change without notice. 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		MHMF022L1 M			
		Multi	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	capacity	y	(kVA)	0.5	
Rated output			(W)	200	
Rated torque			(N·m)	0.64	
Continuous sta	all torqu	0.76			
Momentary Max. peak torque (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 (time	es/min) I	Note)1	DV0P4283	No limit Note)2	
Rated rotation	al spee	d	(r/min)	3000	
Max. rotationa	l speed		(r/min)	6500	
Moment of ine	rtia		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 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.

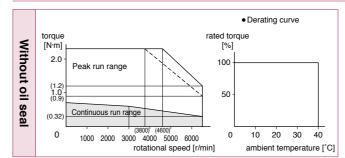
1.6 or more
50 or less
20 or less
0.36
1 or more
24±2.4

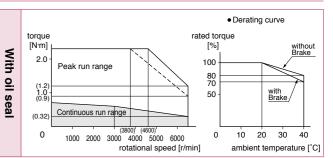
• Permissible load (For details, refer to P.304)

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

A6 Family

A6N Series

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		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 torqı	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	nal 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 ine ratio of the load and the rotor				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.)

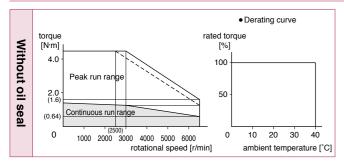
Static friction torque (N·m)	1.6 or more		
Engaging time (ms)	50 or less		
Releasing time (ms) Note)4	20 or less		
Exciting current (DC) (A)	0.36		
Releasing voltage (DC) (V)	1 or more		
Exciting voltage (DC) (V)	24±2.4		

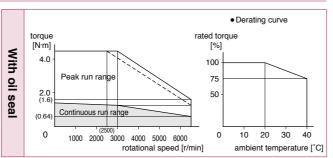
• Permissible load (For details, refer to P.304)

-								
		Radial load P-direction (N)	392					
During assembly	Thrust load A-direction (N)	147						
	Thrust load B-direction (N)	196						
Dι	During operation	Radial load P-direction (N)	245					
ор		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 \(\subseteq \) 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.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	Notor model *1		MHMF082L1 M		
		Multifunction 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)	2.86	
Momentary M	lax. pea	k torqı	ue (N·m)	8.36	
Rated current	İ		(A(rms))	3.8	
Max. current			(A(o-p))	18.8	
Regenerative	egenerative 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 in	ertia		Without brake	1.56	
of rotor (×10	4 kg·m²)		With brake	1.66	
Recommended moment of inertia ratio of the load and the rotor				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.

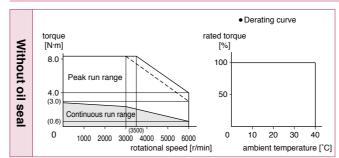
Static friction torque (N·m)	3.8 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

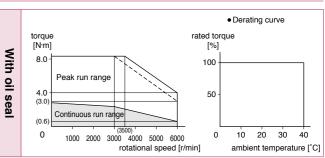
• Permissible load (For details, refer to P.304)

	Radial load P-direction (N)	686
During assembly	Thrust load A-direction (N)	294
accombiy	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.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.275	P.275	P.275	P.276	P.276	P.276	

<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.

Specifications

				AC200 V
Motor model *1				MHMF092L1□□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	у	(kVA)	2.4
Rated output			(W)	1000
Rated torque			(N·m)	3.18
Continuous stall torque			(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-p))	28.2
Regenerative	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)	3000
Max. rotation	al speed		(r/min)	6000
Moment of in	ertia		Without brake	2.03
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	2.13	
Recommended moment of inertia ratio of the load and the rotor				15 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.

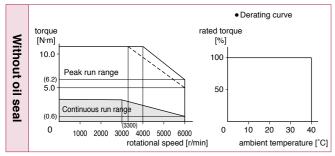
Static friction torque (N·m)	3.8 or more
Engaging time (ms)	70 or less
Releasing time (ms) Note)4	20 or less
Exciting current (DC) (A)	0.42
Releasing voltage (DC) (V)	1 or more
Exciting voltage (DC) (V)	24±2.4

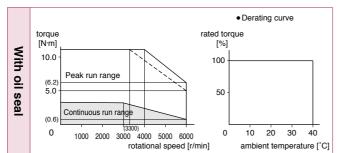
• Permissible load (For details, refer to P.304)

	,	,
	Radial load P-direction (N)	686
During assembly	Thrust load A-direction (N)	294
document	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			
motor opcomouncing	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

				AC200 V
Motor model*1				MHMF102L1
		Multi	function type	MDDLT45SF
Applicable	Model No	RS48	5 communication type *2	MDDLN45SG
driver			type *2	MDDLN45SE
	Frame	e sym	bol	D-frame
Power supply	capacity	y	(kVA)	2.4
Rated output			(W)	1000
Rated torque			(N·m)	4.77
Continuous st	all torqu	е	(N·m)	5.25
Momentary Ma	ax. peal	c torqu	ıe (N⋅m)	14.3
Rated current			(A(rms))	5.2
Max. current			(A(o-p))	22
Regenerative	brake	orake Without		No limit Note)2
frequency (time			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	22.9
of rotor ($\times 10^{-4}$	kg·m²)		With brake	24.1
	led moment of inertia bad and the rotor Note)3			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.

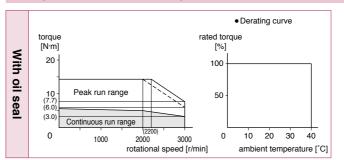
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

During assembly 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.279		_	P.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		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	all torqu	ie	(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				5 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.

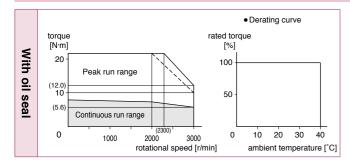
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	,	,
During assembly	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.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.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			
		Multifunction type		MEDLT83SF	
Applicable	Model No	RS48	5 communication type *2	MEDLN83SG	
driver	140.	Basic	type *2	MEDLN83SE	
	Frame	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) 1	Note)1	DV0P4285	No limit Note)2	
Rated rotation	al speed	b	(r/min)	2000	
Max. rotationa	l speed		(r/min)	3000	
Moment of ine	rtia		Without brake	55.7	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	61.0		
Recommended moment of i 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.

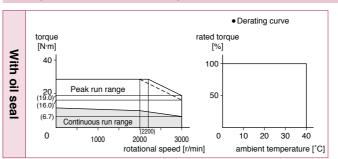
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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.280		_	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.

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Specifications

				AC200 V
Motor model*1		MHMF302L1□□M		
			function type	MFDLTA3SF
Applicable	Model No.	RS48	5 communication type *2	MFDLNA3SG
driver		Basic	type *2	MFDLNA3SE
	Fram	e sym	bol	F-frame
Power supply	capacit	y	(kVA)	5.2
Rated output			(W)	3000
Rated torque		14.3		
Continuous sta	all torqu	17.2		
Momentary Ma	ax. pea	k torqu	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	rtia		Without brake	85.3
of rotor (×10 ⁻⁴	kg·m²)		With brake	90.7
Recommende ratio of the loa	u	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

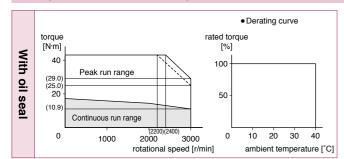
Please contact us for more information.

• 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.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.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	
	Frame	e sym	bol	F-frame	
Power supply	capacity	y	(kVA)	6.5	
Rated output			(W)	4000	
Rated torque			(N·m)	19.1	
Continuous st	all torqu	е	(N·m)	22.0	
Momentary M	ax. peal	c 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) I	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 (×10 ⁻⁴	kg·m²)		With brake	110	
	nended moment of inertia ne 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.

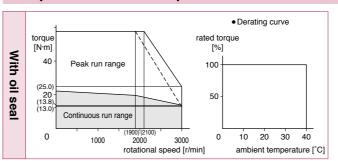
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

- For details of Note)1 to Note)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.281		_	P.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.

A6N Series

Series

Specifications

				AC200 V
Motor model*1		MHMF502L1□□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)	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	tive brake Without option		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	146
of rotor (x10 ⁻⁴ kg·m²) With brake Recommended moment of inertia ratio of the load and the rotor Note)3			With brake	151
			5 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.

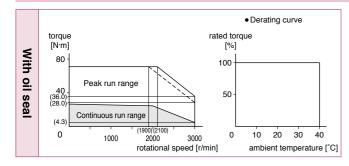
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	,	,
	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
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.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 speciments	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.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

				AC200 V	
Motor model*	I	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	all torqu	ie	(N·m)	47.8	
Momentary M	ax. 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·m²)		With brake	279	
Recommender ratio of the loa				5 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.

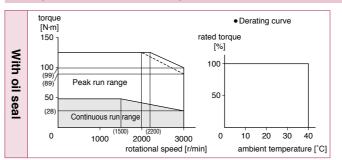
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	Radial load P-direction (N)	2058
During assembly	Thrust load A-direction (N)	980
accombiy	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

		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.

A6N Series

Series

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	140.	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	(N·m)	5.25	
Momentary M	ax. peal	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 (×10 ⁻⁴	kg·m²)		With brake	7.40
Recommended moment of inertia ratio of the load and the rotor				10 times or less
Rotary encode	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.

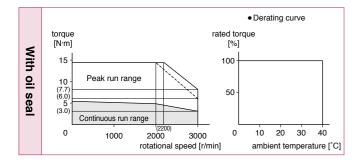
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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 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.283			P.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.

Specifications

Special Order

					AC200 V
Motor model*1		MDMF152L1□□M			
		Multi	function type		MDDLT55SF
Applicable	Model No	RS48	5 communicatio	n type *2	MDDLN55SG
driver	110.	Basic	c 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 stall torque					7.52
Momentary M	ax. pea	k torqı	que (N·m)		21.5
Rated current			(A	(rms))	8.0
Max. current			(A	A(o-p))	34
Regenerative	brake		Without opt	ion	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	al speed		((r/min)	3000
Moment of ine	ertia		Without bra	ke	9.16
of rotor (×10 ⁻⁴	kg·m²)		With brake		10.4
Recommende ratio of the loa				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.

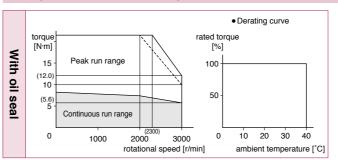
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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

	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.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.

A6N Series

Series

Specifications

				AC200 V
Motor model	l	MDMF202L1□□M		
		Multi	function type	MEDLT83SF
Applicable	Model No.	RS48	5 communication type *2	MEDLN83SG
driver	140.	Basic	type *2	MEDLN83SE
	Fram	e sym	bol	E-frame
Power supply	capacit	y	(kVA)	3.8
Rated output			(W)	2000
Rated torque			(N·m)	9.55
Continuous stall torque (N·r				10.0
Momentary M	ax. pea	k torqu	ue (N·m)	28.6
Rated current			(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. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	12.1
of rotor (×10 ⁻⁴	¹ 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
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.

Please contact us for more information.

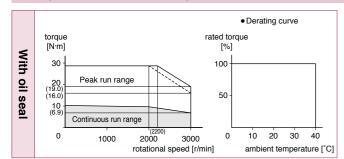
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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 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

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.285		_	P.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

				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	
	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	е	(N·m)	15.0	
Momentary M	ax. peal	k torqu	43.0		
Rated current			(A(rms))	16.4	
Max. current			(A(o-p))	70	
Regenerative	tive brake Without option		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	18.6	
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)		With brake	19.6		
Recommended moment of inertia ratio of the load and the rotor				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.

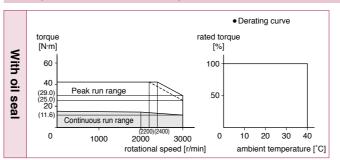
Static friction torque (N·m)	22.0 or more
Engaging time (ms)	110 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.90
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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		
		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.

A6N Series

Series

Specifications

				AC200 V
Motor model *	I			MDMF402L1□□M
			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 stall torque			(N·m)	22.0
Momentary M	ax. pea	torque (N·m)		57.3
Rated current	Rated current		(A(rms))	20.0
Max. current			(A(o-p))	85
Regenerative	Regenerative brake frequency (times/min) Note)1		Without option	No limit Note)2
frequency (tim			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	46.9
of rotor (×10 ⁻⁴	kg·m²)		With brake	52.3
	mmended moment of inertia 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.

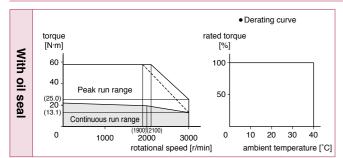
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	,	,
	Radial load P-direction (N)	1666
During assembly	Thrust load A-direction (N)	784
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.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.286		_	P.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.

Specifications

Special Order

				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	у	(kVA)	7.8	
Rated output			(W)	5000	
Rated torque			(N·m)	23.9	
Continuous st	all torqu	е	(N·m)	26.3	
Momentary M	ax. peal	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	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				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.

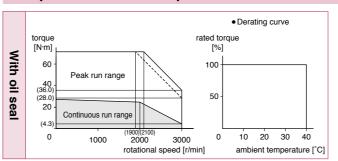
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

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

- For details of Note)1 to Note)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.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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A6N Series

Series

Special Order

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

Please contact us for more information.

Specifications

				AC200 V
Motor model*1		MDMF752L1□□M		
	Multifunction 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 st	all torqu	ie	(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		Without option	No limit Note)2
frequency (time	es/min)	Note)1	DV0P4285×3	No limit Note)2
Rated rotation	al spee	d	(r/min)	1500
Max. rotationa	ıl speed		(r/min)	3000
Moment of ine	ertia		Without brake	122
of rotor (×10 ⁻⁴	kg·m²)		With brake	127
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.

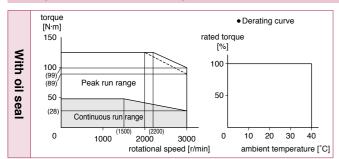
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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 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.

Special Order

200 V MGMF 0.85 kW Middle inertia Low speed/ High torque type 130 mm sq.]

Motor Specifications

A6 Series

Please contact us for more information.

Specifications

				AC200 V
Motor model	1			MGMF092L1□□M
		Multi	function type	MDDLT45SF
Applicable	Model No	RS48	5 communication 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			(N·m)	5.41
Continuous s	tall torqu	ie	(N·m)	5.41
Momentary N	lax. pea	14.3		
Rated curren	t		(A(rms))	5.9
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)	1500
Max. rotation	al speed		(r/min)	3000
Moment of in	ertia		Without brake	6.18
of rotor ($\times 10^{-4} \text{ kg} \cdot \text{m}^2$)			With brake	7.40
Recommenderatio of the lo				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.

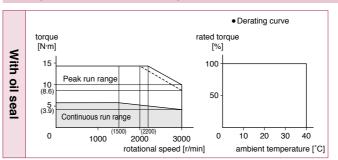
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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)	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.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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A6N Series

Series

Series

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	у	(kVA)	2.6
Rated output			(W)	1300
Rated torque			(N·m)	8.28
Continuous st	all torqu	ie	(N·m)	8.28
Momentary M	ax. pea	k torqı	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	nal spee	d	(r/min)	1500
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	9.16
of rotor (×10 ⁻⁴	kg·m²)		With brake	10.4
Recommender ratio of the load				10 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.

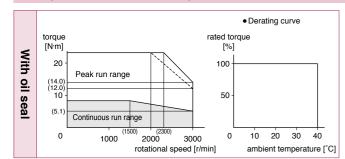
Static friction torque (N·m)	13.7 or more
Engaging time (ms)	100 or less
Releasing time (ms) Note)4	50 or less
Exciting current (DC) (A)	0.79
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	,	,
	Radial load P-direction (N)	980
During assembly	Thrust load A-direction (N)	588
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.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.289		_	P.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
		Multi	function type		MEDLT83SF
Applicable driver	Model No	RS48	5 communication t	type *2	MEDLN83SG
	140.	Basic	type *2		MEDLN83SE
	Fram	e sym	bol		E-frame
Power supply	capacit	y	(1	kVA)	3.4
Rated output				(W)	1800
Rated torque			(1	N·m)	11.5
Continuous stall torque (N·m)					11.5
Momentary M	ax. peal	k torqu	ie (i	N·m)	28.7
Rated current			(A(r	ms))	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 (×10 ⁻⁴	kg·m²)		With brake		13.3
Recommended moment of inertia ratio of the load and the rotor Note)3			Note)3	10 times or less	
Rotary encode	er speci	ficatio	ns*3		23-bit Absolute
	Re	solutio	n per single tu	rn	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.

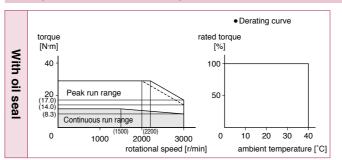
Static friction torque (N·m) 13.7 or more Engaging time (ms) 100 or less Releasing time (ms) Note)4 50 or less Exciting current (DC) (A) 0.79 Releasing voltage (DC) (V) 2 or more Exciting voltage (DC) (V) 24±2.4

• 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.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 opeomeanone	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	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

Please contact us for more information.

Specifications

				AC200 V
Motor model*	I	MGMF242L1□□M		
		Multi	function type	MEDLT93SF
Applicable	Model No	RS48	5 communication type *2	MEDLN93SG
driver		Basic	type *2	MEDLN93SE
	Frame	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	е	(N·m)	15.3
Momentary M	ax. peal	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 (tim	es/min)	Note)1	DV0P4285×2	No limit Note)2
Rated rotation	Rated rotational speed		(r/min)	1500
Max. rotationa	al speed		(r/min)	3000
Moment of ine	ertia		Without brake	46.9
of rotor (×10 ⁻²	kg·m²)		With brake	52.3
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
	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.

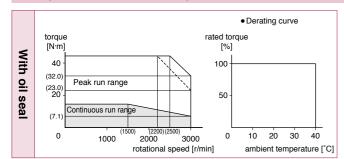
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	, , ,						
		Radial load P-direction (N)	1666				
	During assembly	Thrust load A-direction (N)	784				
	assembly	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.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.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
			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)	5.0
Rated output			(W)	2900
Rated torque			(N·m)	18.5
Continuous s	tall torqu	ie	(N·m)	18.5
Momentary N	1ax. pea	k torqu	ue (N·m)	45.2
Rated curren	t		(A(rms))	19.3
Max. current			(A(o-p))	67
Regenerative	brake		Without option	No limit Note)2
frequency (tim	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 (x10 ⁻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 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.

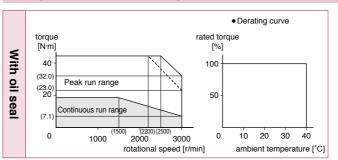
Static friction torque (N·m)	25.0 or more
Engaging time (ms)	80 or less
Releasing time (ms) Note)4	25 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

• 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/ Round shaft					
Motor specifications	without brake			with brake		
motor opeomeanone	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.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

Series

Series

Please contact us for more information.

Specifications

				AC200 V
Motor model *1		MGMF442L1□□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)	7.0
Rated output			(W)	4400
Rated torque			(N·m)	28.0
Continuous st	all torqu	ie	(N·m)	28.0
Momentary M	ax. pea	k torqı	ue (N·m)	70.0
Rated current			(A(rms))	27.2
Max. current			(A(o-p))	96
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	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	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.

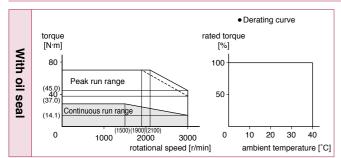
	-
Static friction torque (N·m)	44.1 or more
Engaging time (ms)	150 or less
Releasing time (ms) Note)4	30 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	. •		,
		Radial load P-direction (N)	1666
	During assembly	Thrust load A-direction (N)	784
	assembly	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.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	INO.	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 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 (tim	nes/min)	Note)1	DV0P4285×3	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	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	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.

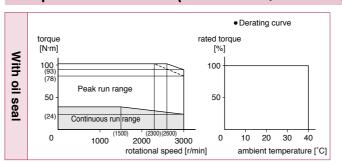
Static friction torque (N·m)	63.0 or more
Engaging time (ms)	200 or less
Releasing time (ms) Note)4	80 or less
Exciting current (DC) (A)	1.29
Releasing voltage (DC) (V)	2 or more
Exciting voltage (DC) (V)	24±2.4

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

	Radial load P-direction (N)	2058
During assembly	Thrust load A-direction (N)	980
	Thrust load B-direction (N)	1176
During	Radial load P-direction (N)	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/ 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.

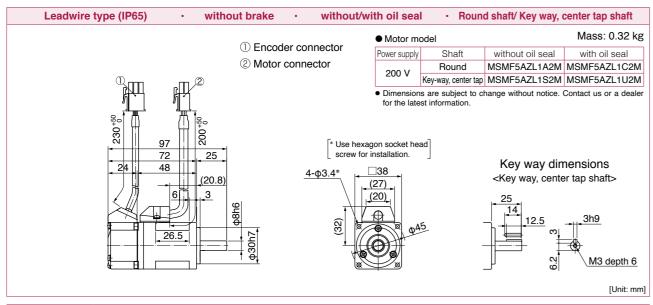
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

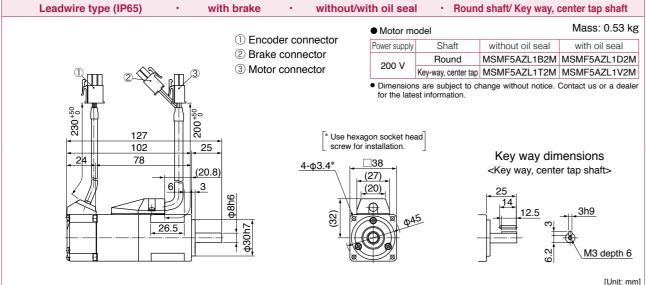
Please avoid the motor, or equipment containing the motor to be distributed to Japan, or other regions through Japan.

A6N Series

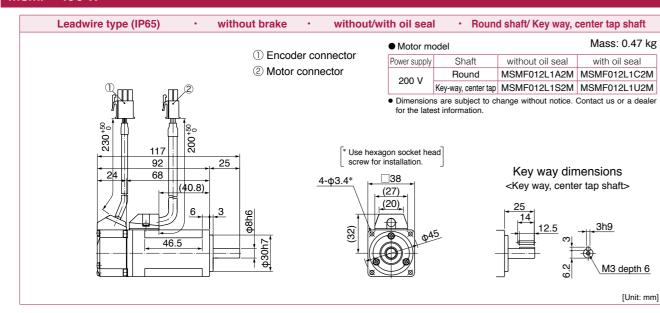
Series

MSMF 50 W





MSMF 100 W

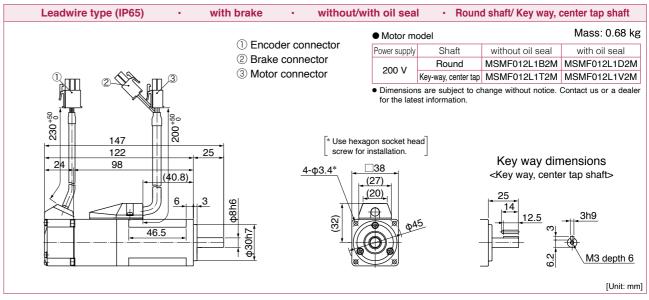


^{*} For motors specifications, refer to P.211, P.212.

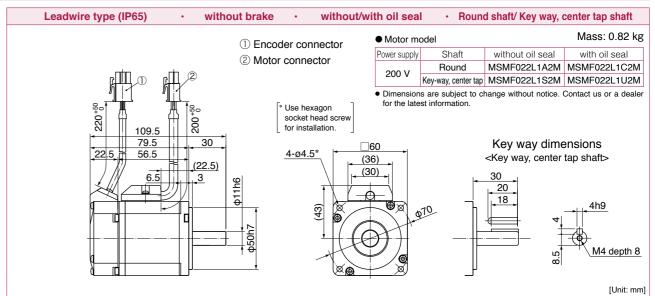
MSMF 100 W

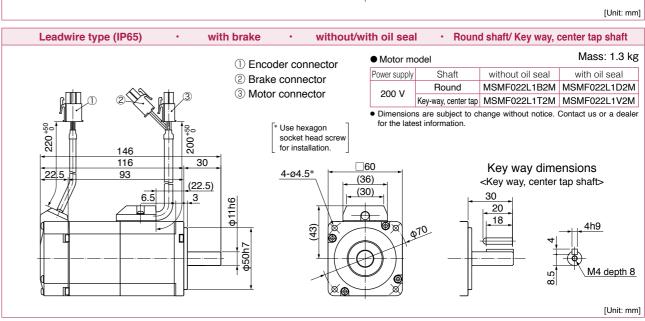
MSMF 100 W to 200 W

Special Order



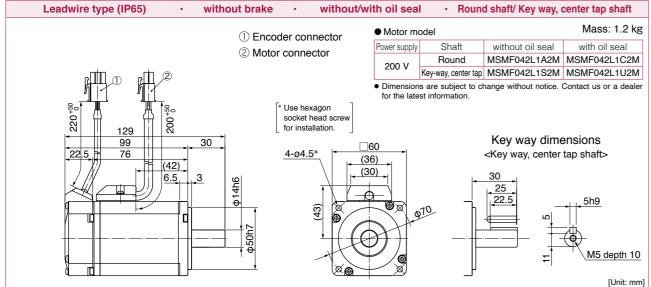


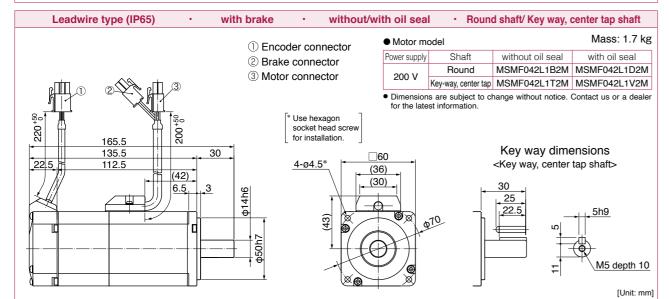




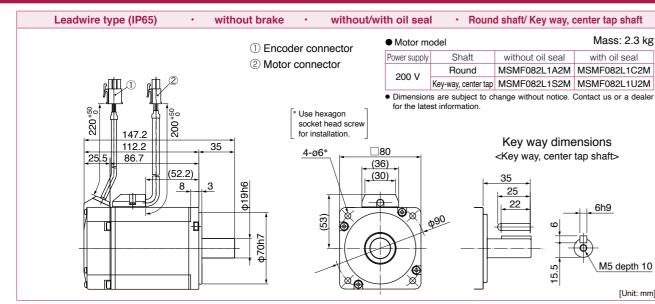
^{*} For motors specifications, refer to P.212, P.213.

MSMF 400 W Leadwire type (IP65) • without brake • without/with oil seal • Round shaft/ Key way, center tap shaft





MSMF 750 W

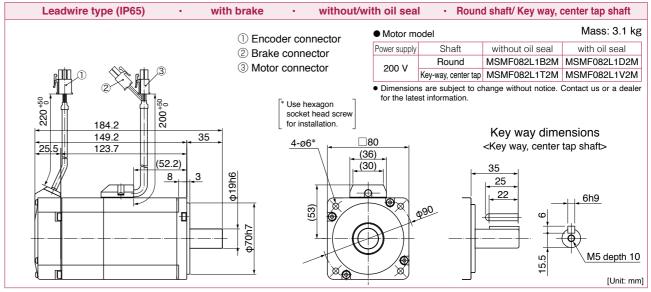


* For motors specifications, refer to P.214, P.215.

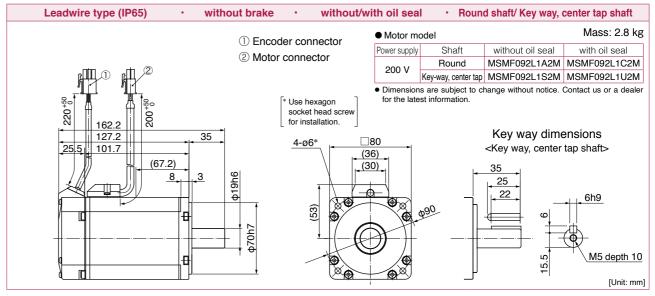
MSMF 750 W

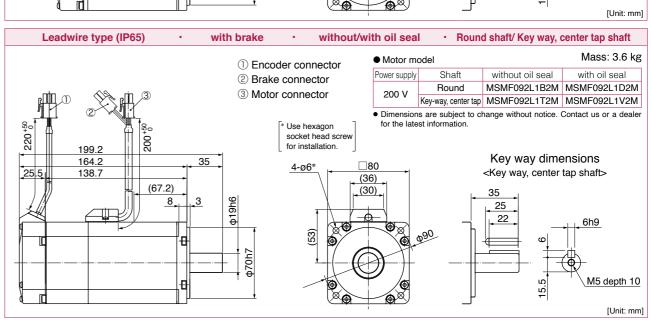
MSMF 750 W to 1000 W

Special Order



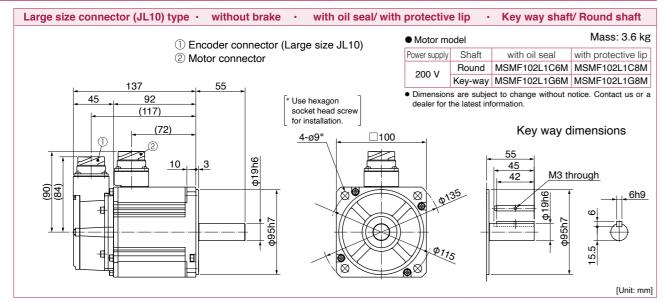
MSMF 1000 W

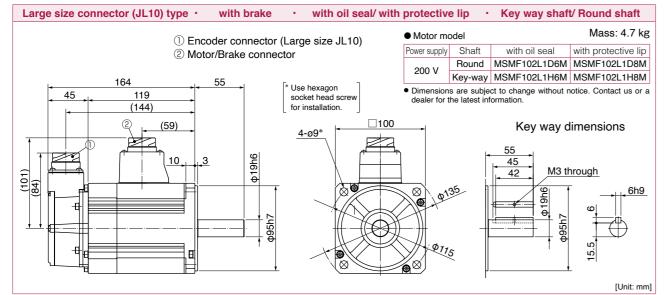




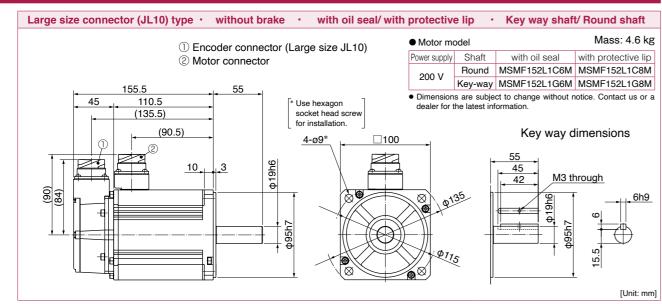
* For motors specifications, refer to P.215, P.216.

MSMF 1.0 kW





MSMF 1.5 kW

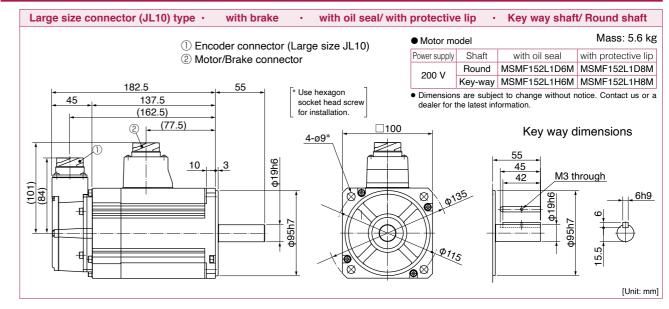


^{*} For motors specifications, refer to P.217, P.218.

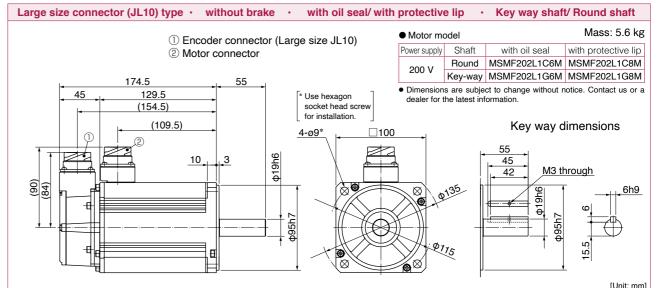
MSMF 1.5 kW

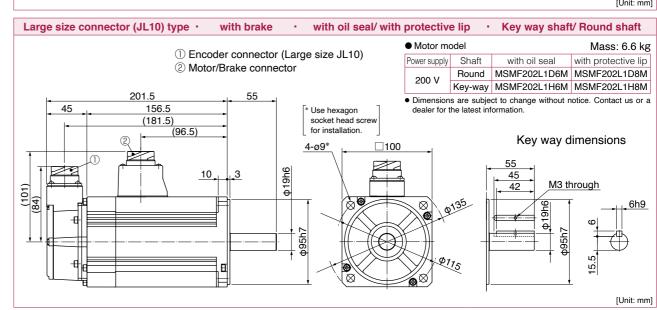
MSMF 1.5 kW to 2.0 kW

Special Order



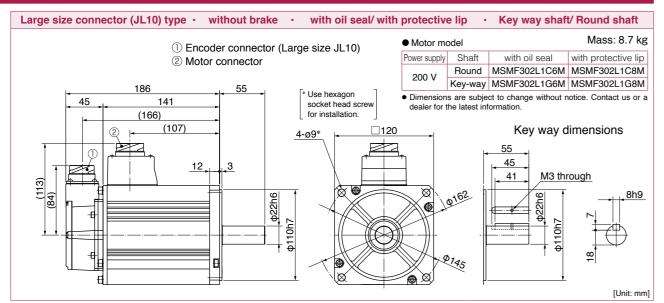
MSMF 2.0 kW

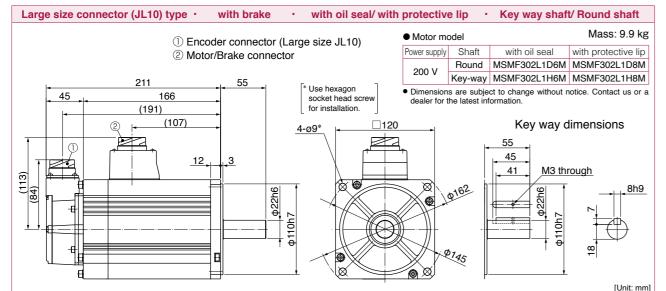




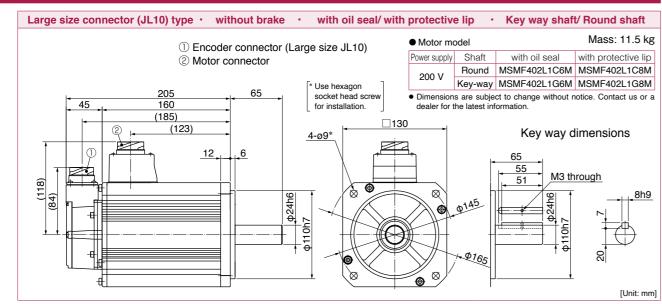
^{*} For motors specifications, refer to P.218, P.219.

MSMF 3.0 kW





MSMF 4.0 kW

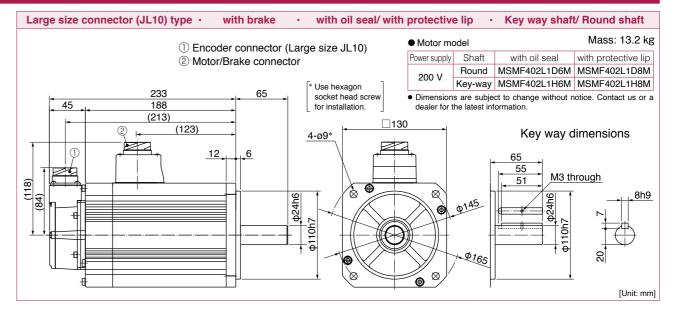


^{*} For motors specifications, refer to P.220, P.221.

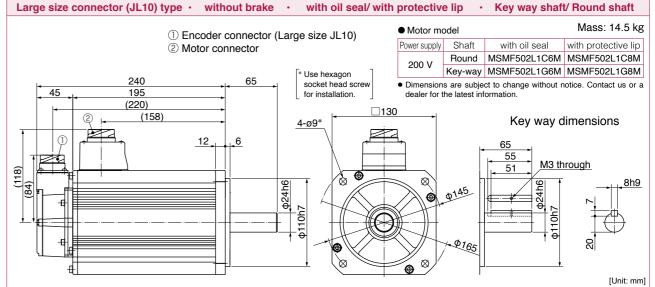
MSMF 4.0 kW

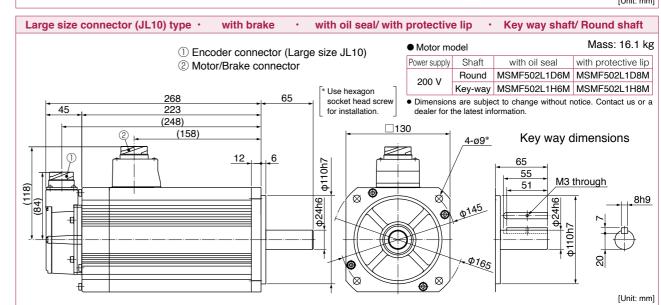
MSMF 4.0 kW to 5.0 kW

Special Order



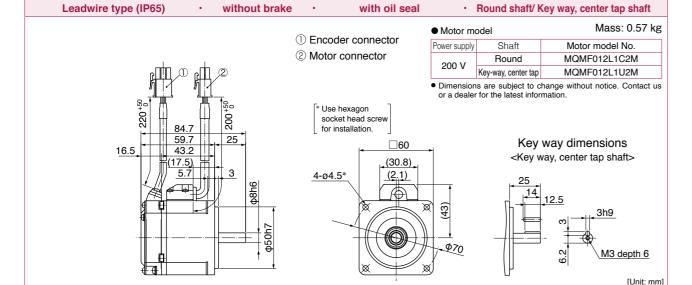
MSMF 5.0 kW

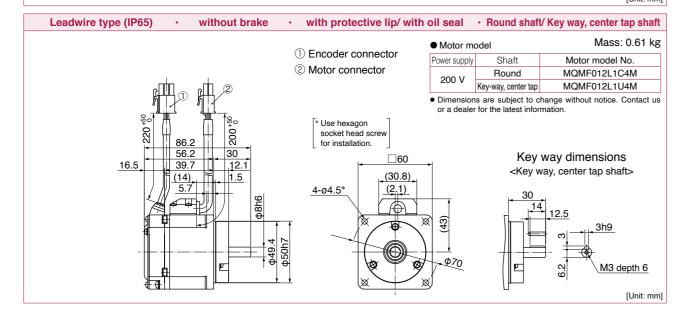




^{*} For motors specifications, refer to P.221, P.222.

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 M3 depth 6

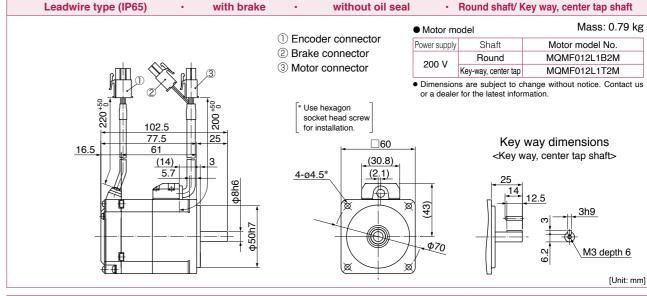


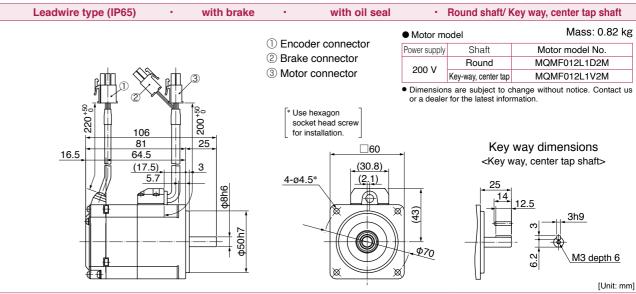


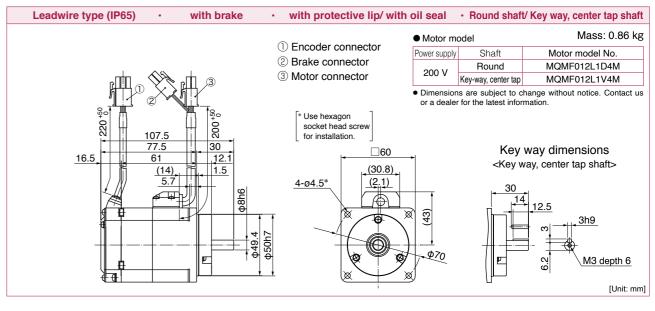
MQMF 100 W

MQMF 100 W

Special Order





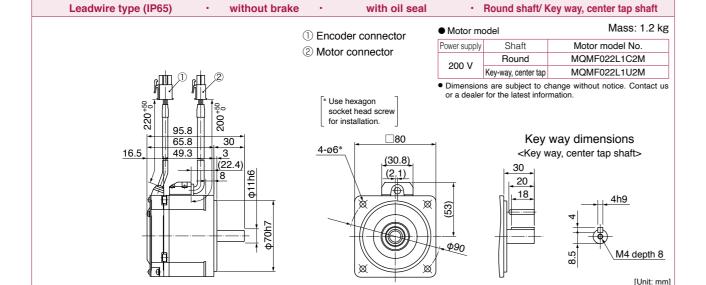


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^{*} For motors specifications, refer to P.223.

^{*} For motors specifications, refer to P.223.

MQMF 200 W 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> (30.8)(2.1) 20 18

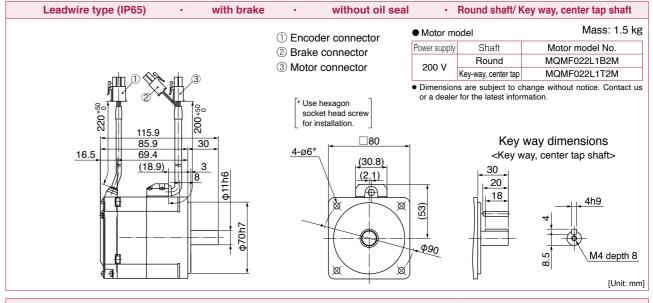


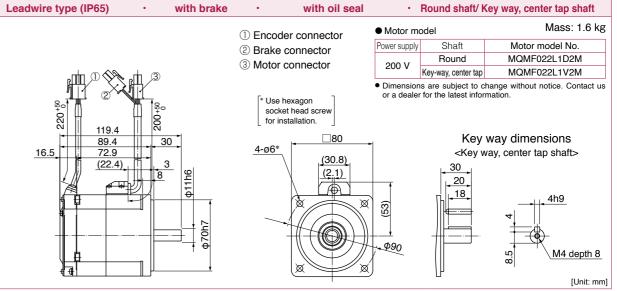
Leadwire type (IP65) · without brake	• with protective lip/ with o	Motor mo		Key way, center tap shaft Mass: 1.3 kg
		Power supply	Shaft	Motor model No.
	2 Motor connector	200 V	Round	MQMF022L1C4M
		200 V	Key-way, center tap	MQMF022L1U4M
97.3 97.3 97.3 97.3 97.3 97.3 97.3 97.3	* Use hexagon socket head screw for installation.		is are subject to chi	ange without notice. Contact us nation.
62.3 35	□80		Key w	ay dimensions
16.5 45.8 12.1	4-ø6* (30.8)		<key td="" wa<=""><td>y, center tap shaft></td></key>	y, center tap shaft>
1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	(2.1)) 000 000	35 20 18	4h9 M4 depth 8

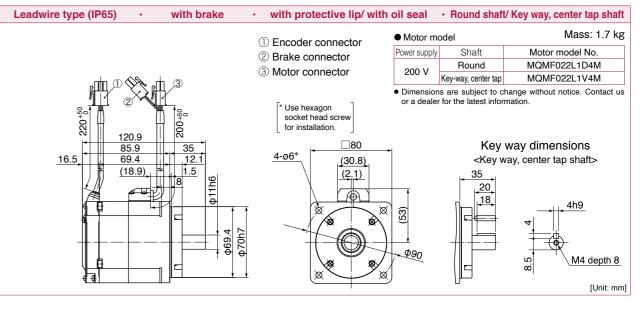
MQMF 200 W

MQMF 200 W

Special Order







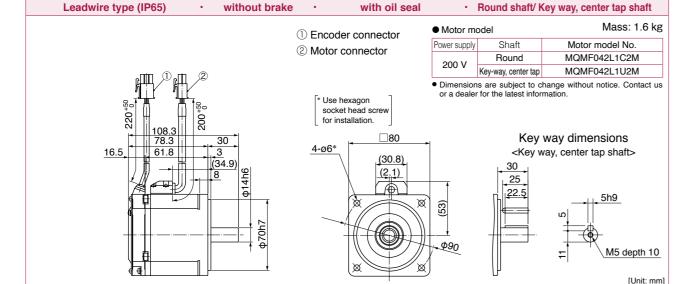
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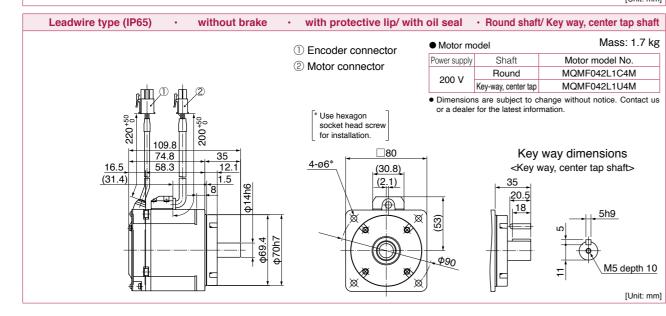
M4 depth 8

^{*} For motors specifications, refer to P.224.

^{*} For motors specifications, refer to P.224.

MQMF 400 W 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

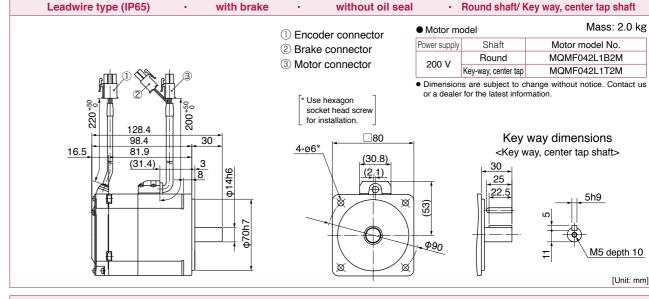


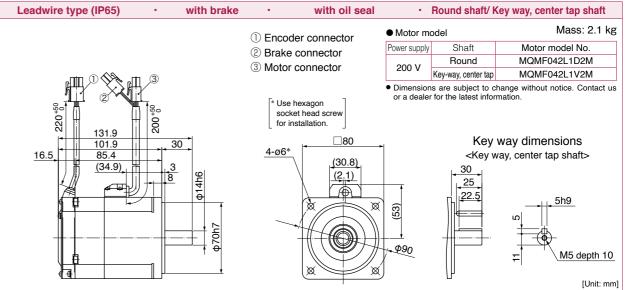


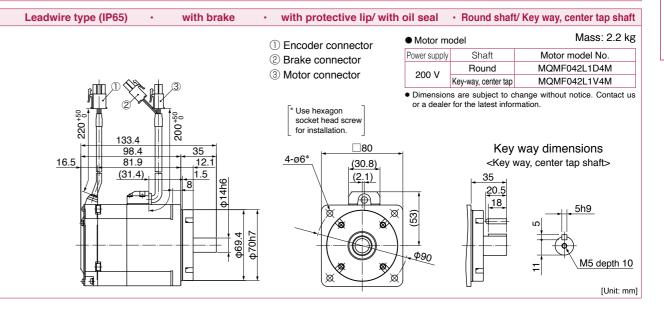
MQMF 400 W

MQMF 400 W

Special Order







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M5 depth 10

^{*} For motors specifications, refer to P.225.

^{*} For motors specifications, refer to P.225.

53.5

36.9

without brake

(14)

16.6

Leadwire type (IP65)

Leadwire type (IP65) · without brake · without oil seal · Round shaft/ Key way, center tap shaft Leadwire type (IP65) · without brake · without oil seal · Round shaft/ Key way, center tap shaft ① Encoder connector ② Motor connector ② Motor connector ② Motor connector ② Motor connector ② Round MHMF5AZL1A2M Key-way, center tap MHMF5AZL1S2M

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

* Use hexagon socket head screw for installation.

2-\ph4.3*

(22.8)

(8.6)

with oil seal

Key way, center tap shaft>
25
14
12.5
3h9
N3 depth 6

· Round shaft/ Key way, center tap shaft

[Unit: mm]

[Unit: mm]

Key way dimensions

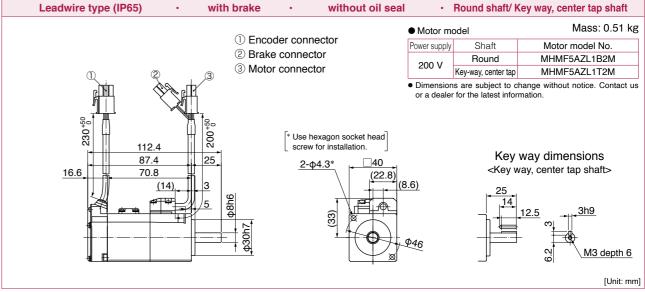
	- · ·	• Motor m	odel	Mass: 0.31 kg
	① Encoder connector	Power supply	Shaft	Motor model No.
	② Motor connector	000 1/	Round	MHMF5AZL1C2M
(Ī) (Ž)		200 V	Key-way, center tap	MHMF5AZL1U2M
§			ns are subject to ch r for the latest inforn	nange without notice. Contact us nation.
82.5 57.5 25 40.9 3 (18) 5	(33)	<u>Φ46</u>	<key th="" w<=""><th>way dimensions ay, center tap shaft> 12.5 M3 depth 6</th></key>	way dimensions ay, center tap shaft> 12.5 M3 depth 6

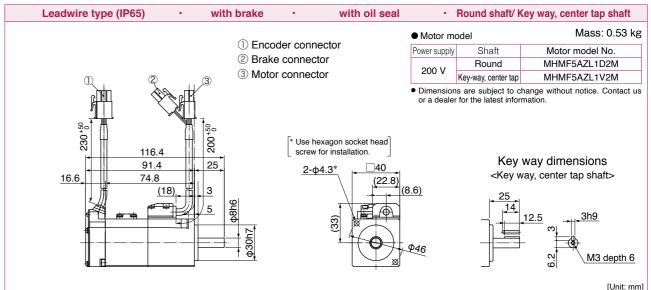
① Encoder connector	Motor me	odel	Mass: 0.32 kg
	Power supply	Shaft	Motor model No.
② Motor connector	200 V	Round	MHMF5AZL1C4M
	200 V	Key-way, center tap	MHMF5AZL1U4M
		ns are subject to cl r for the latest infor	hange without notice. Contact us mation.
83.5			
53.5 30	_	Key	way dimensions
16.6 36.9 12.1 2-\phi4.3*	(20.0)	<key td="" w<=""><td>ay, center tap shaft></td></key>	ay, center tap shaft>
(14), 1.5	(22.8)	. 30	
5 948 0		.14	1
88		l -	12.5 <u>3h9</u>
9 2			<u></u> π
\$ \$29.6 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	Φ46	#==	7
		(البا	N M3 depth 6

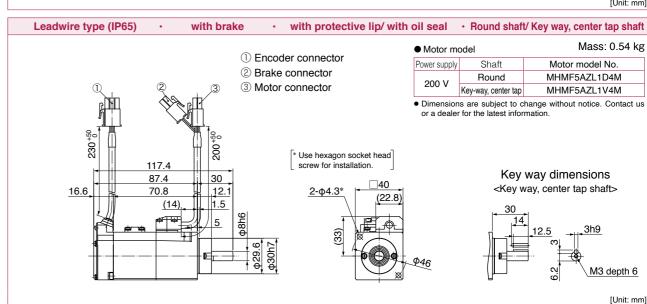
MHMF 50 W

MHMF 50 W

Special Order







^{*} For motors specifications, refer to P.226.

^{*} For motors specifications, refer to P.226.

MHMF 100 W

Leadwire type (IP65)

16.6

Leadwire type (IP65)

16.6

530

97.5

50.9

(28)

67.5

30

12.1

67.5

50.9

(28)

71.5

54.9

(32)

25

without brake

① Encoder connector

② Motor connector

① Encoder connector

2 Motor connector

without brake

Use hexagon socket head

2-φ4.3*

without oil seal

□40

with oil seal

40

* 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*

(22.8)

Motor model

Motor model

Motor model

Shaft

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

200 V

Shaft

Round

Kev-way, center tap

or a dealer for the latest information

Power supply

200 V

Shaft

Round

or a dealer for the latest information

Key-way, center tap

· 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

• Dimensions are subject to change without notice. Contact us

Key way dimensions

<Key way, center tap shaft>

Mass: 0.40 kg

M3 depth 6

Mass: 0.42 kg

M3 depth 6

Mass: 0.43 kg

M3 depth 6

[Unit: mm]

Motor model No.

MHMF012L1C4M

MHMF012L1U4M

[Unit: mm]

Motor model No.

MHMF012I 1C2M

MHMF012L1U2M

[Unit: mm]

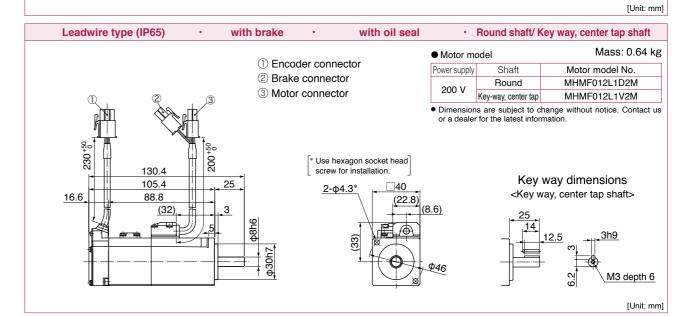
Motor model No.

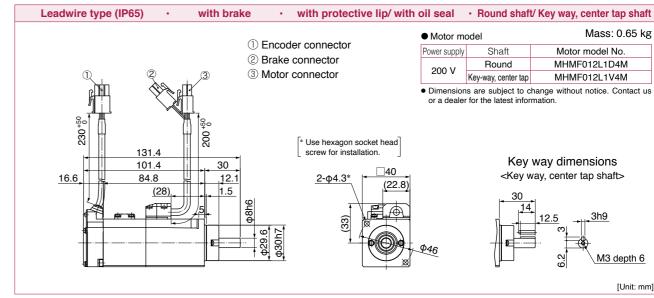
MHMF012L1A2M

MHMF012L1S2M

MHMF 100 W Leadwire type (IP65) • with brake • without oil seal • Round shaft/ Key way, center tap shaft Mass: 0.62 H

Mass: 0.62 kg 1) Encoder connector Shaft Motor model No. Power supply 2 Brake connector MHMF012L1B2M Round 200 V 3 Motor connector Key-way, center tap MHMF012L1T2M • Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head Key way dimensions 101.4 <u>2-φ4.3*</u> □40 <Key way, center tap shaft> 16.6 84.8 (22.8) (28) 14 M3 depth 6





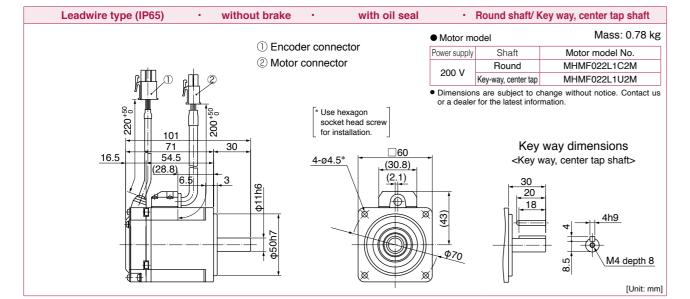
* For motors specifications, refer to P.227.

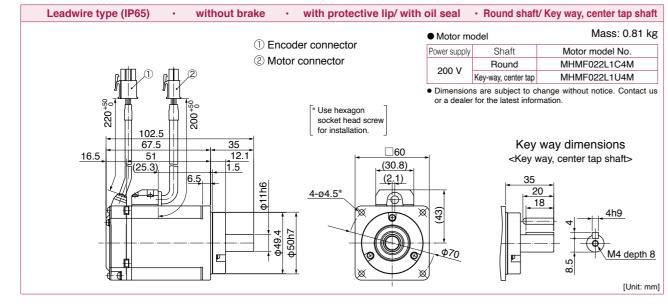
Special Order

MHMF 100 W

^{*} 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) M4 depth 8

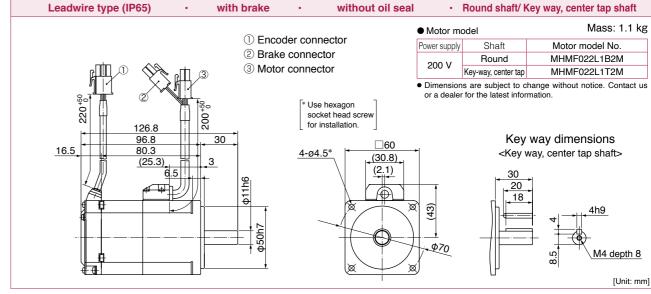


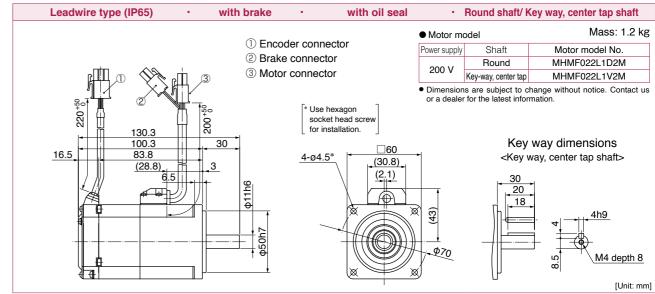


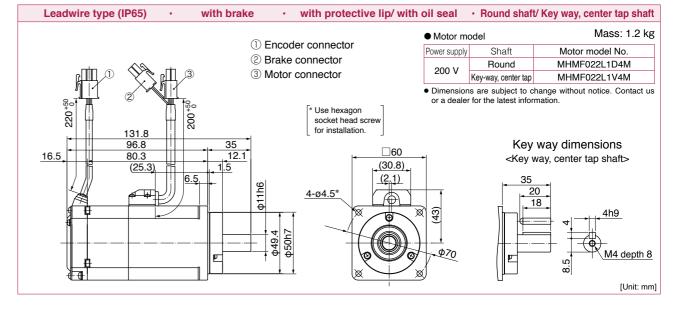
MHMF 200 W

MHMF 200 W

Special Order





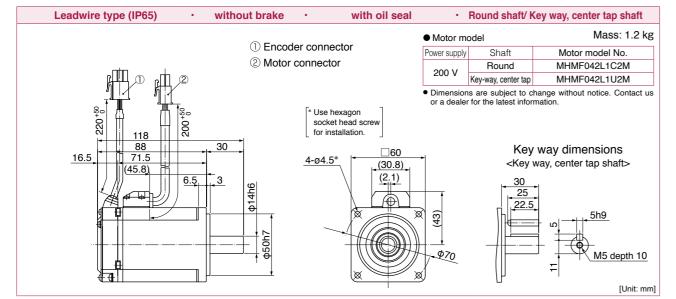


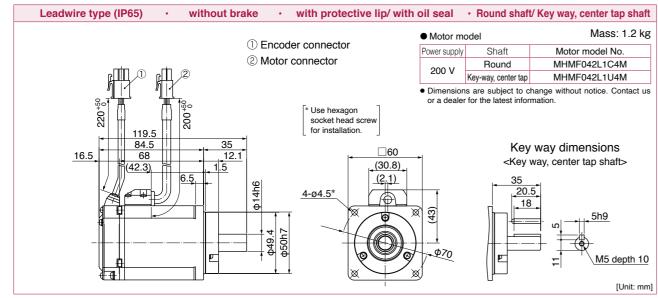
271 | Panasonic Industry Co., Ltd.

^{*} 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

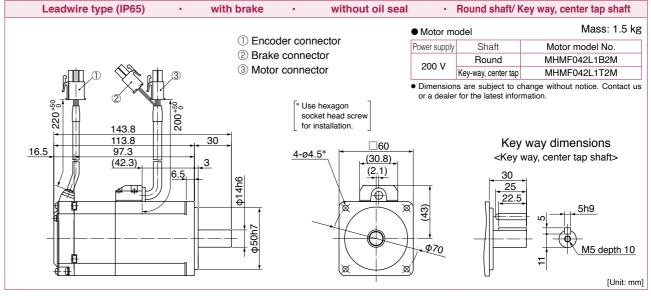


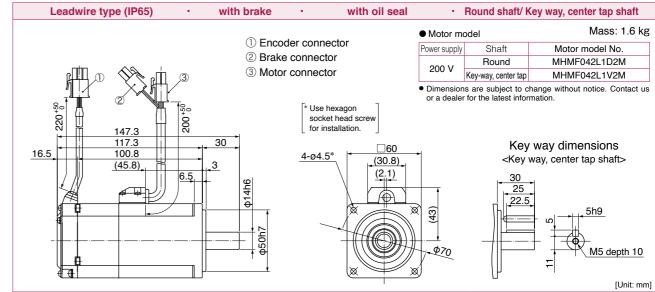


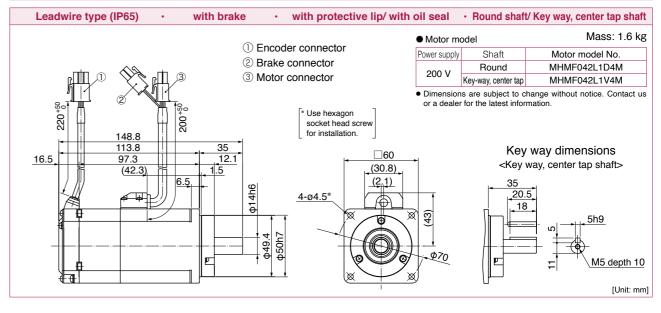
MHMF 400 W

MHMF 400 W

Special Order







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^{*} For motors specifications, refer to P.229.

^{*} For motors specifications, refer to P.229.

Leadwire type (IP65) · without brake · without oil seal · Round shaft/ Key way, center tap shaft ① Encoder connector ② Motor connector ② Motor connector ② Motor connector ② Dimensions are subject to change without notice. Contact us

1) Encoder connector

② Motor connector
② Motor connector
② Motor model

Power supply
Shaft
Motor model No.

200 V Round
MHMF082L1A2M

Elementary
MHMF082L1S2M

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

Key way dimensions
Key way, center tap shaft

Key way, center tap shaft

Key way, center tap shaft

Mass: 2.2 kg

Power supply
Shaft
Motor model
No.

Round
MHMF082L1A2M

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

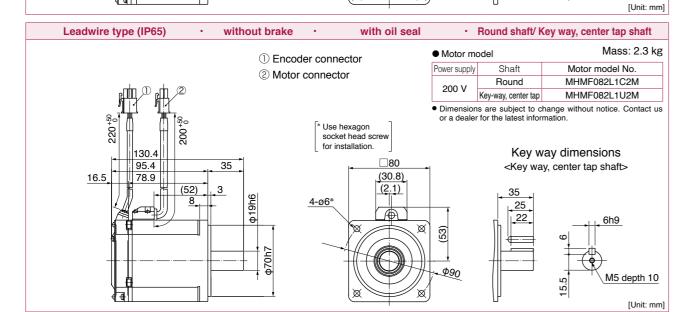
Key way dimensions

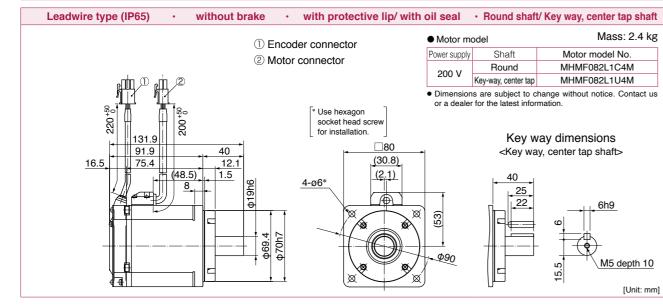
Key way, center tap shaft

Motor model
No.

100 V Rey-way, center tap
MHMF082L1S2M

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

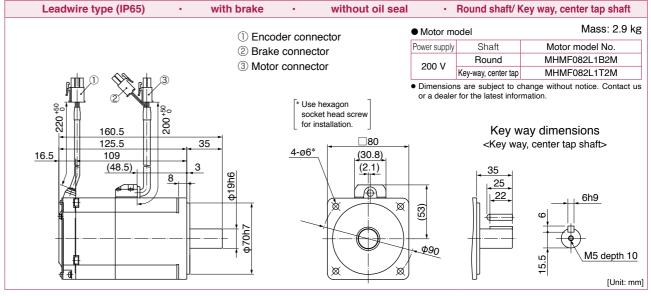


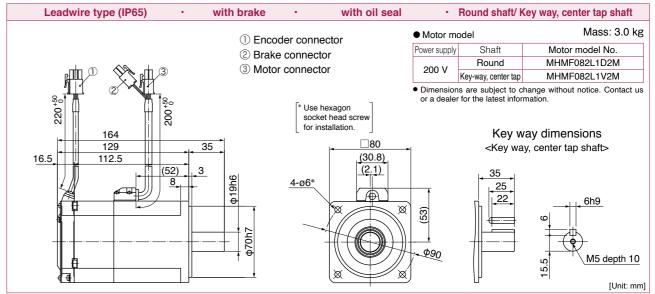


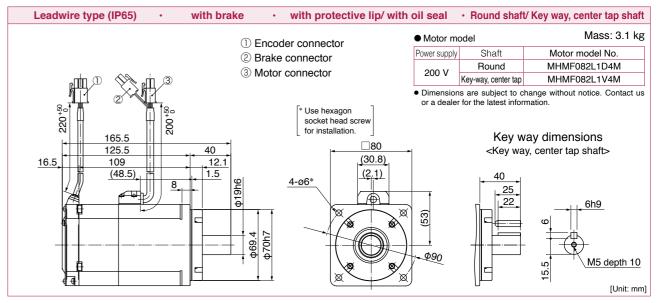
MHMF 750 W

MHMF 750 W

Special Order





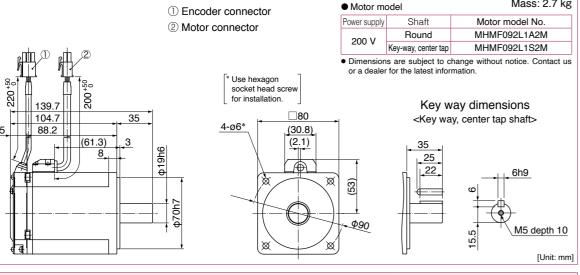


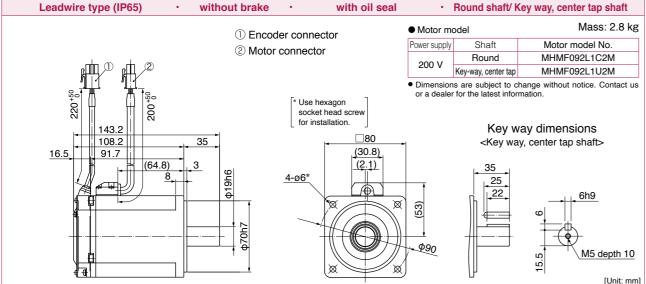
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* For motors specifications, refer to P.230.

^{*} 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 Motor model ① Encoder connector Shaft Motor model No. 2 Motor connector MHMF092L1A2M Round Key-way, center tap MHMF092L1S2M Dimensions are subject to change without notice. Contact us or a dealer for the latest information * Use hexagon socket head screw for installation.



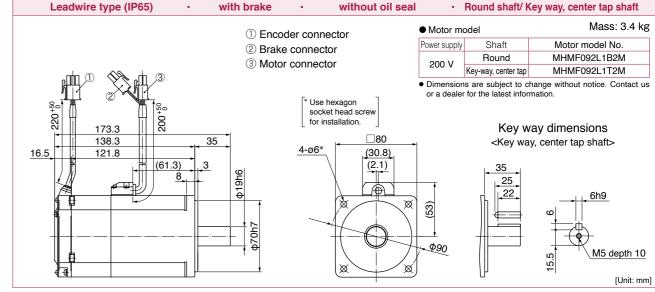


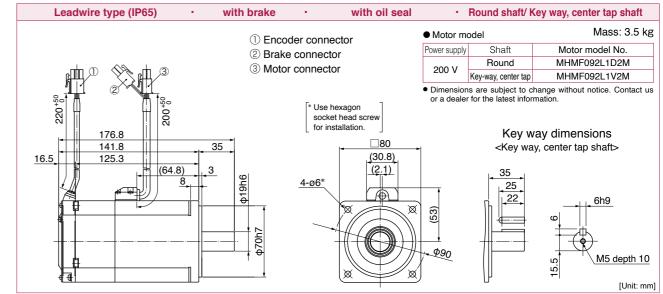
	① Encod	der connector	Motor m	odel	Mass: 2.9 kg
	_	connector	Power supply	Shaft	Motor model No.
	© WOO	Connector	200 V	Round	MHMF092L1C4M
ு ப் இ			200 V	Key-way, center tap	MHMF092L1U4M
220+650		* Use hexagon socket head screw		is are subject to cl for the latest infor	hange without notice. Contact us mation.
$\left\ \left\ \right\ _{144.7} \right\ \left\ \left\ \right\ _{\infty}$		for installation.		Kev w	ay dimensions
104.7	*	□80	- I	-	y, center tap shaft>
16.5	<u>i</u>	(30.8)		Citoy wa	y, contor tap snatz
(61.3) 1.5	_	(2.1)		. 40	
8 1	ф19h6	4-ø6*		25	
	 			22	. L L 6h9
	1 1	X	(53)		ω - - - - - - - - - -
† T	4 5		=		— M
##	ф69.4 ф70h7		 	#	+ +++++++++++++++++++++++++++++++++++++
	기 현 현		<u>φ90</u>		M5 depth 10
	' l l		1	IJd	€ Mis debtu 10
₹₹\\		\boxtimes)		← [Unit: mm]

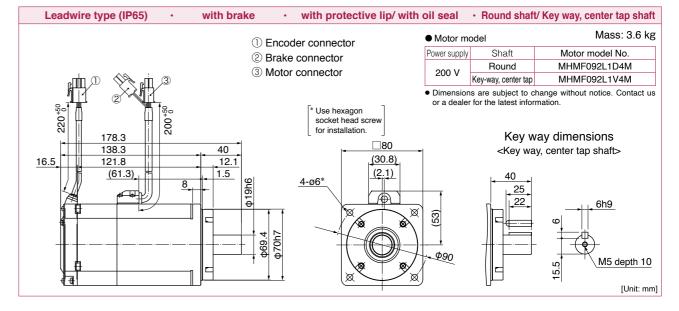
MHMF 1000 W

MHMF 1000 W

Special Order







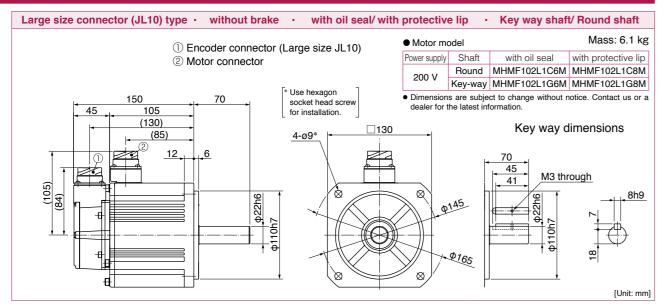
277 | Panasonic Industry Co., Ltd. Panasonic Industry Co., Ltd. | 278

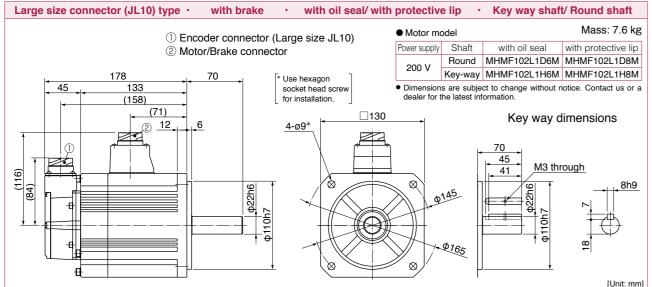
^{*} For motors specifications, refer to P.231.

^{*} For motors specifications, refer to P.231.

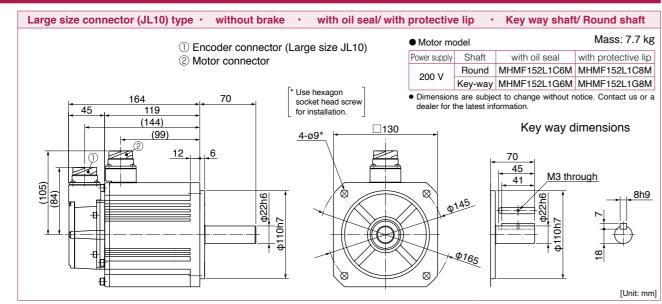
MHMF 1.0 kW

MHMF 1.5 kW





MHMF 1.5 kW



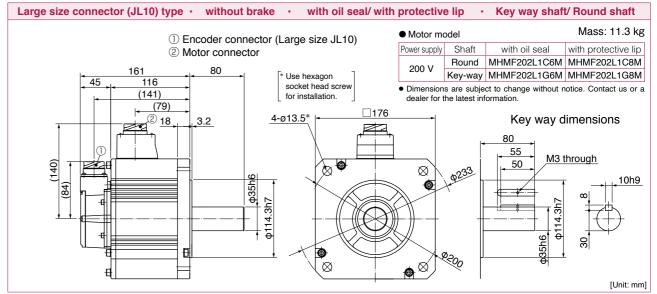
* For motors specifications, refer to P.232, P.233.

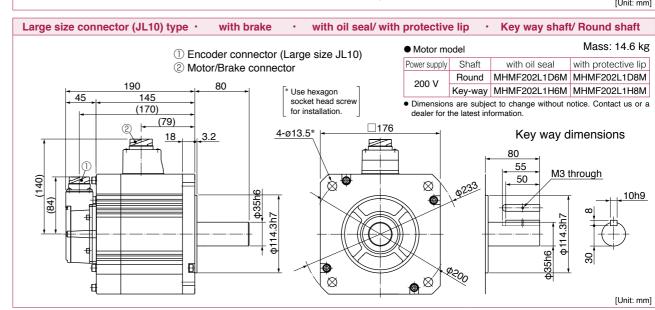
Large size connector (JL10) type · with brake · with oil seal/ with protective lip · Key way shaft/ Round shaft Motor model ① Encoder connector (Large size JL10) Shaft with oil seal with protective lip Power supply ② Motor/Brake connector Round MHMF152L1D6M MHMF152L1D8M Key-way MHMF152L1H6M MHMF152L1H8M * Use hexagon 147 • Dimensions are subject to change without notice. Contact us or a socket head screv dealer for the latest information (172)for installation. (83)Key way dimensions 4-ø9* M3 through [Unit: mm]

MHMF 2.0 kW

Special Order

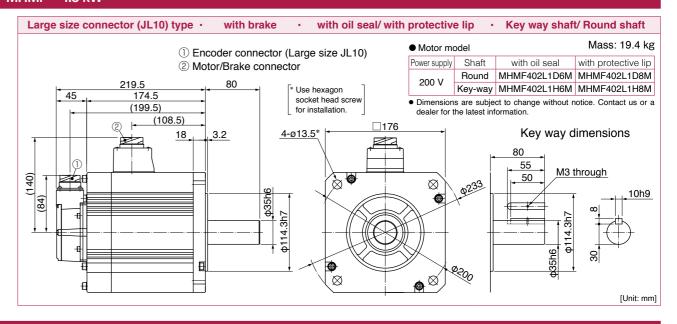
MHMF 1.5 kW to 2.0 kW



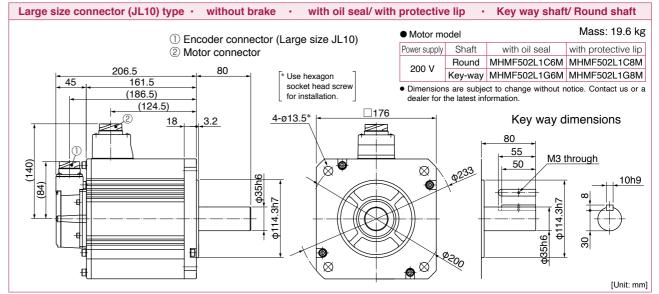


* For motors specifications, refer to P.233, P.234.

MHMF 4.0 kW



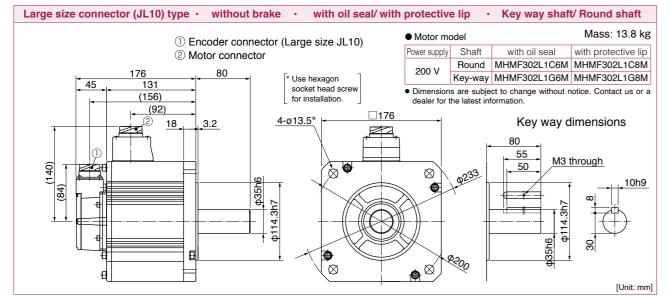
MHMF 5.0 kW



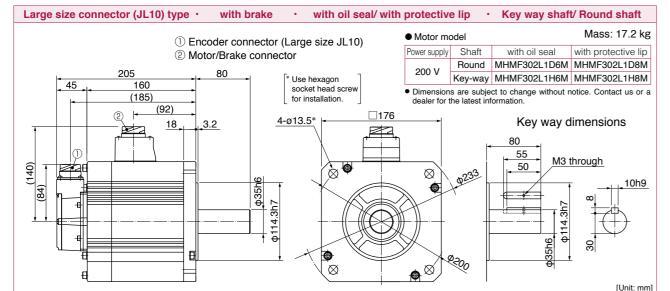
	① Fr	ncoder connec	ctor (Large size JL10)	Motor me	odel		Mass: 22.8 k
		otor/Brake co	,	Power supply	Shaft	with oil seal	with protective lip
				200 V	Round	MHMF502L1D6M	MHMF502L1D8N
4-	235.5	80 →	* Use hexagon	200 V	Key-way	MHMF502L1H6M	MHMF502L1H8
45	190.5 (215.5) (124.5)	→	socket head screw for installation.		is are subje the latest in	ct to change without n formation.	otice. Contact us o
+	② 18	3.2	<u>4-ø13.5*</u> □ 176	-		Key way d	limensions
140			ω		0233	80 55 50 M3 t	hrough
(84)			4.3177			4.3h7	ω
		E .	1 5		200	ф35h6 Ф11	8

^{*} For motors specifications, refer to P.236, P.237.

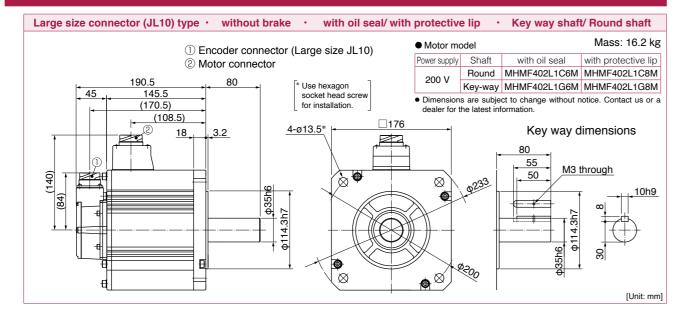
MHMF 3.0 kW



MHMF 3.0 kW to 4.0 kW



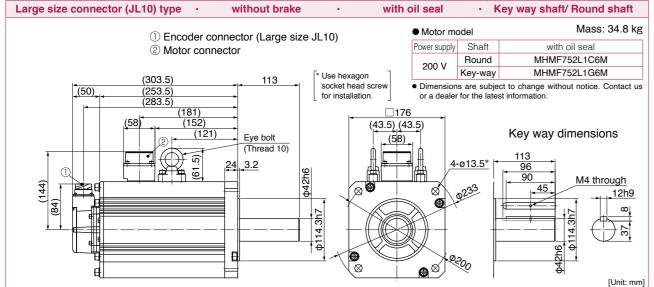
MHMF 4.0 kW

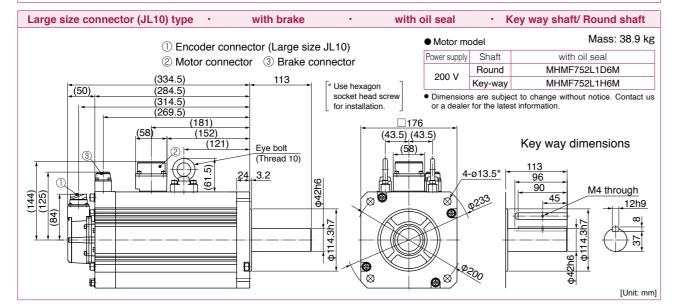


* For motors specifications, refer to P.235, P.236.

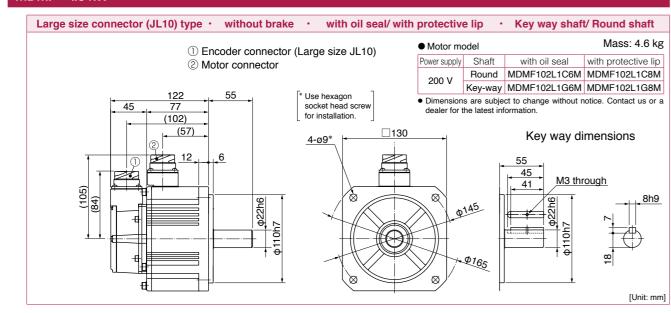
MHMF 7.5 kW Large size connector (JL10) type • without brake • with oil seal • Key way shaft/ Round shaft

MHMF 7.5 kW / MDMF 1.0 kW





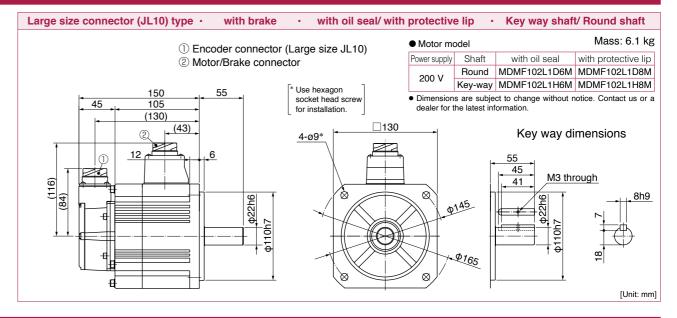
MDMF 1.0 kW



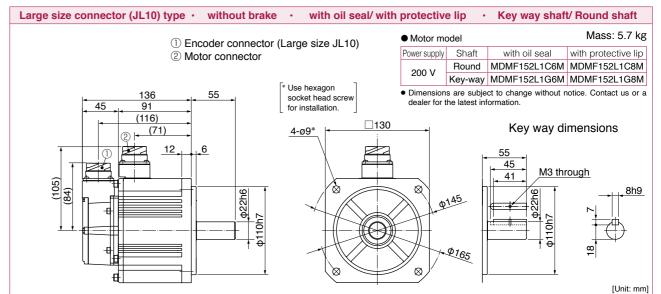
^{*} For motors specifications, refer to P.238, P.239.

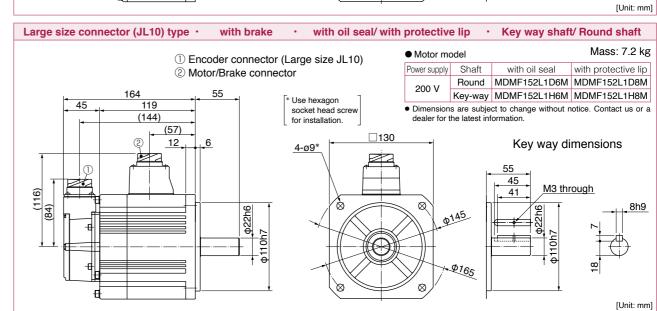
MDMF 1.0 kW

Special Order



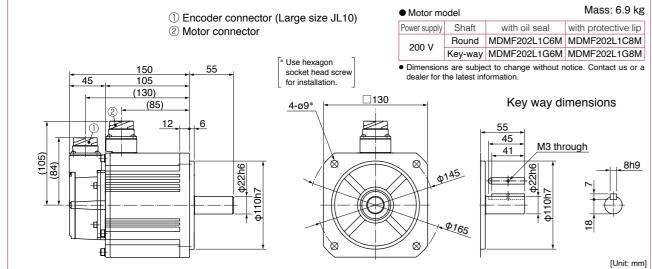
MDMF 1.5 kW

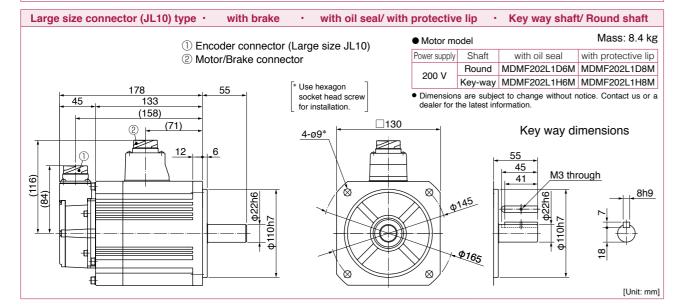




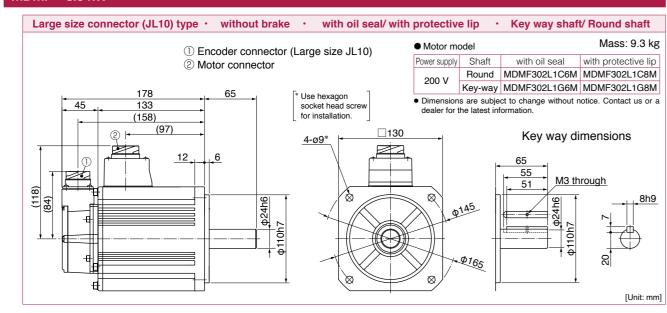
^{*} For motors specifications, refer to P.239, P.240.

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 ② Motor connector





MDMF 3.0 kW

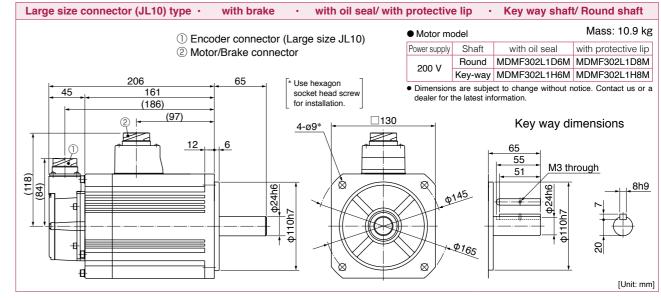


^{*} For motors specifications, refer to P.241, P.242.

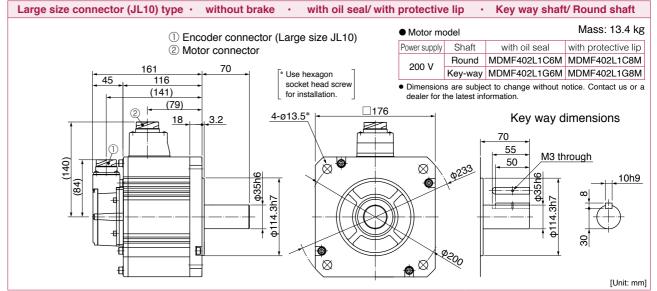
MDMF 3.0 kW

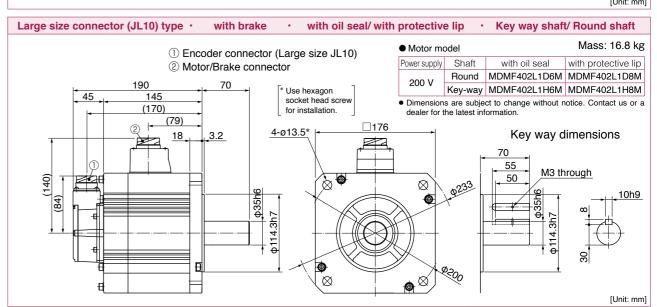
MDMF 3.0 kW to 4.0 kW

Special Order



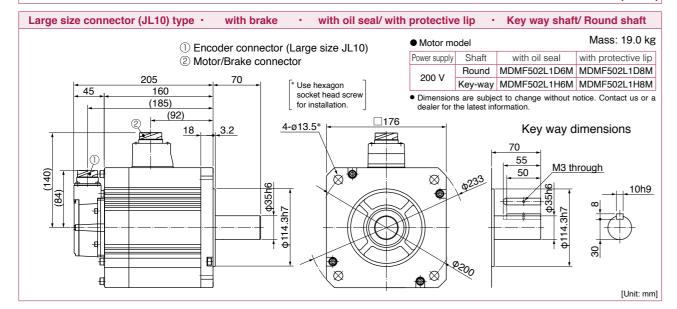
MDMF 4.0 kW



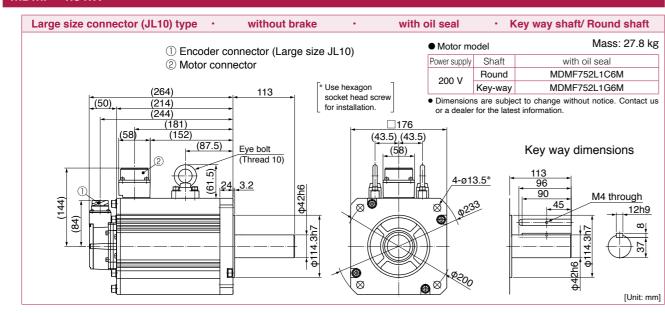


^{*} For motors specifications, refer to P.242, P.243.

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MDMF 7.5 kW

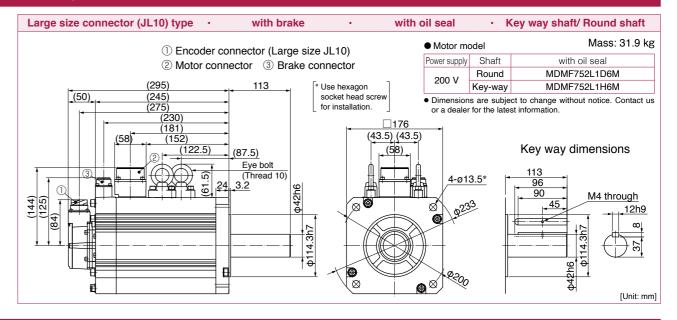


* For motors specifications, refer to P.244, P.245.

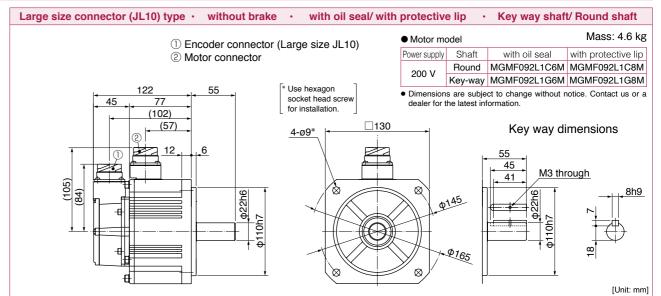
MDMF 7.5 kW

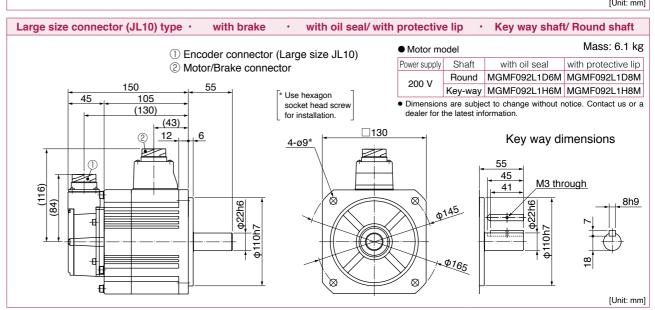
MDMF 7.5 kW / MGMF 0.85 kW

Special Order



MGMF 0.85 kW





* For motors specifications, refer to P.245, P.246.

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A6N Series

A6B Series

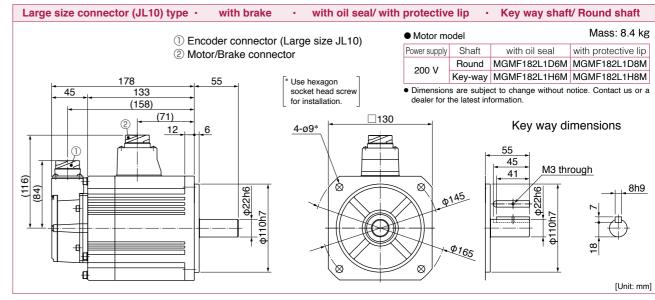
E Series

Information

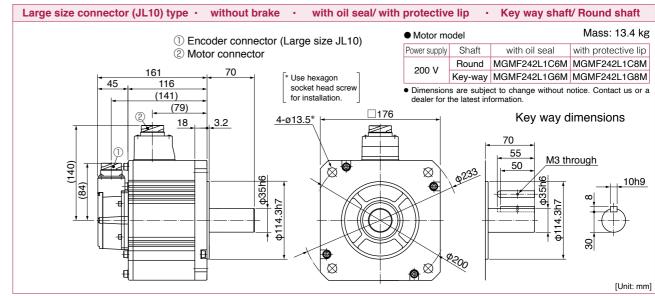
MGMF 1.8 kW

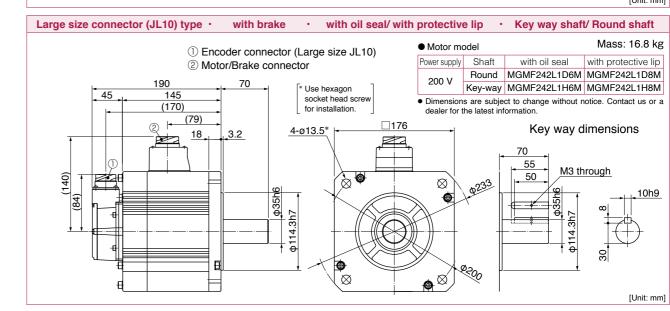
MGMF 1.8 kW to 2.4 kW

Special Order

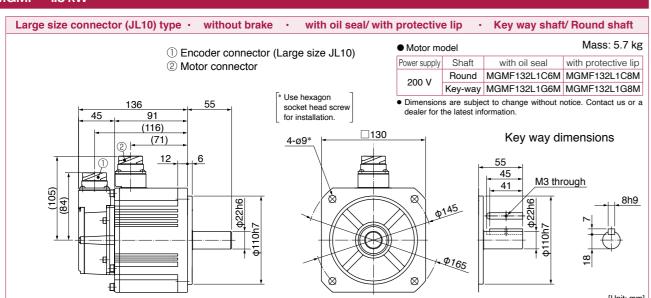


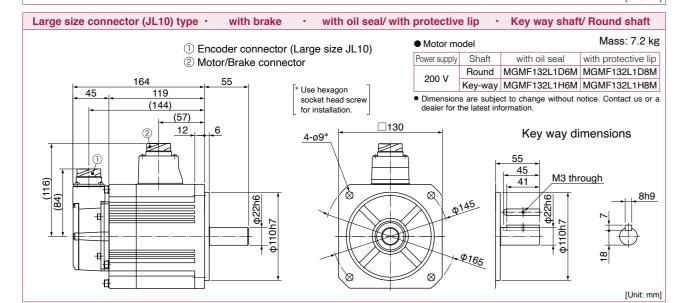
MGMF 2.4 kW



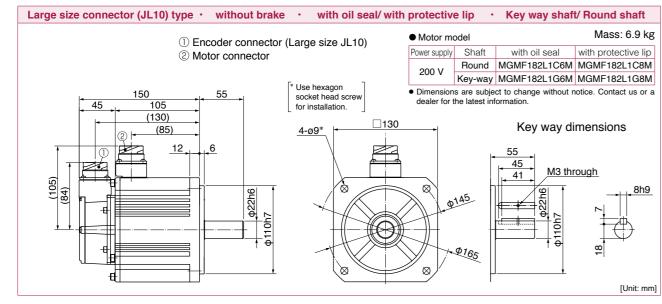


^{*} For motors specifications, refer to P.248, P.249.





MGMF 1.8 kW

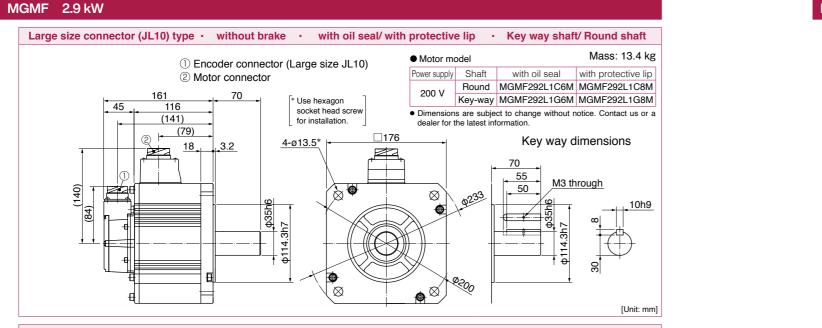


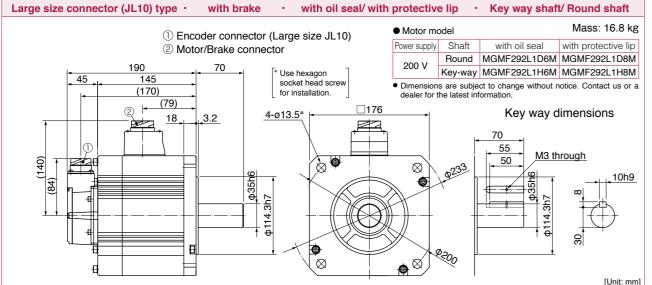
* For motors specifications, refer to P.247, P.248.

MGMF 4.4 kW

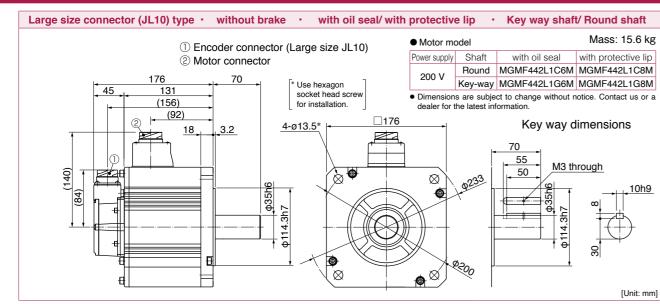
Special Order

MGMF 4.4 kW to 5.5 kW



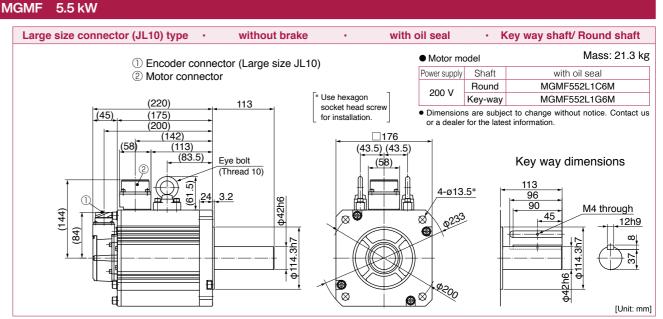


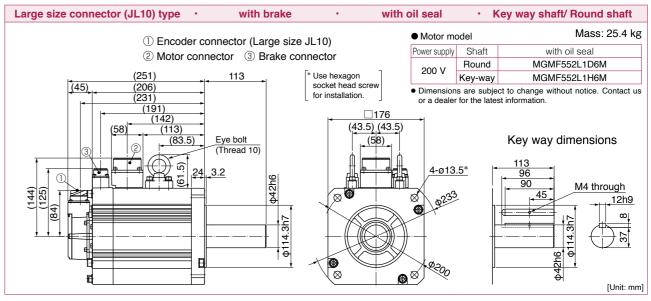
MGMF 4.4 kW



* For motors specifications, refer to P.250, P.251.

Large size connector (JL10) type · with 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/Brake connector Round MGMF442L1D6M MGMF442L1D8M Key-way MGMF442L1H6M MGMF442L1H8M * Use hexagon 160 socket head screv for installation. • Dimensions are subject to change without notice. Contact us or a (185)(92)Key way dimensions 4-ø13.5 18 55 M3 through 50 \boxtimes [Unit: mm]





^{*} For motors specifications, refer to P.251, P.252.

A6N Series

A6B Series
Special Order Produc

Motor Types with Gear Reducer

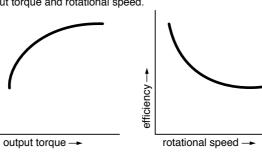




Reduction		Motor ou	utput (W)		Type of
ratio	100	200	400	750	reducer
1/5	•	•	•	•	
1/9	•	•	•	•	For high
1/15	•	•	•	•	precision
1/25	•	•	•	•	

- * 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 N: Standard Motor rated output Symbol Type Symbol Specifications Middle inertia 01 100 W Motor types with gear reducer MQMF Flat type 02 200 W Motor output (W) 100 W to 400 W Reduction Symbol 04 400 W 100 200 400 750 reducer High inertia MHMF 80 750 W 100 W to 750 W 1N 1/5 2N 1/9 For high Symbol Voltage specifications precision 3N 1/15 Symbol Rated output A6 Family 4N 1/25 100 V * MQMF 750 W is not prepared. 2 200 V * MHMF 100 W 1/25, 400 W 1/25 are not prepared.

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wire
L	Absolute	23-bit	8388608	7

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

Motor structure

Cumbal	Motor I/E	Shaft	Holding	g brake
Symbol	Motor I/F	Key way	without	with
3	Connector	•	•	
4	Connector	•		•
7	Leadwire	•	•	
8	Leadwire	•		•

The Combination of the Driver and the Motor

	34	- -		Dri	ver
	IVI	otor		A6SF series	A6SE series
	Power	Output		Multi fanction type	Basic type
Motor series	supply	(W)	Part No.*	Pulse, analog, full-closed	Pulse signal input (Incremental only)
	Single	100	MQMF011L □□ N	MADLT11SF	MADLN11SE
	phase	200	MQMF021L □□ N	MBDLT21SF	MBDLN21SE
MQMF	100 V	400	MQMF041L □□ N	MCDLT31SF	MCDLN31SE
Middle inertia Flat type	Single	100	MQMF012L □□ N	MADLT05SF	MADLN05SE
	phase/ 3-phase	200	MQMF022L □□ N	MADLT15SF	MADLN15SE
	200 V	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 uu	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 $\square\,\square$ of the motor part number. Please refer to the above "Model Designation".

^{*} 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.

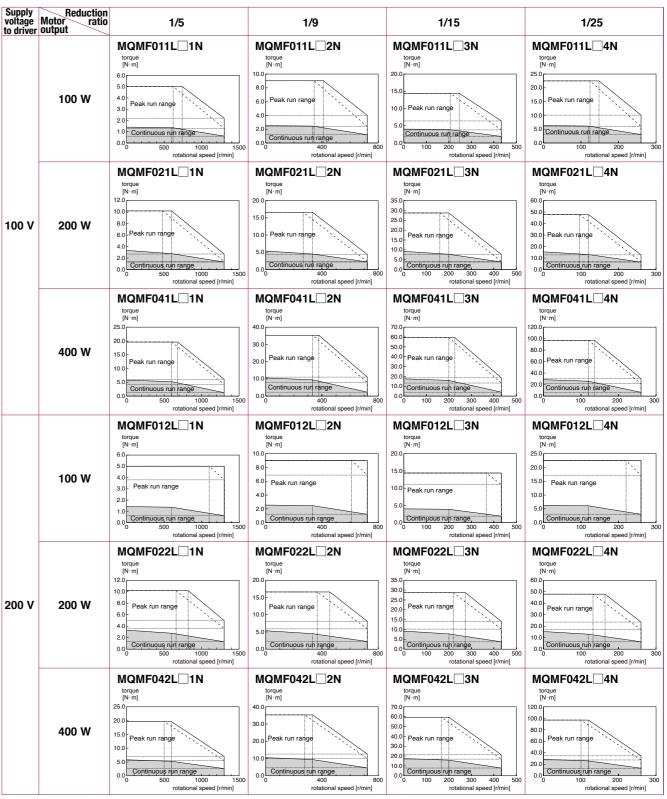
Table of Motor Specifications

	Part No.*	Motor Output	Reduction ratio	Output	Rated speed	Max. speed	Rated torque	Peak max. torque	to moto	reducer/ erted or shaft)	-	iss	Permissible radial load	Permissible thrust load
		(w)	-	(w)	(r/min)	(r/min)	(N·m)	(N·m)	w/o brake J(×10 ⁻⁴			w/ brake g)	(N)	(N)
	MQMF01□L□1N	(W)	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
liddle	MQMF02 L 2N	_	1/9	157	333	722	4.49	16.6	0.770	0.860	3.0	3.4	1180	588
iner	MQMF02□L□3N	200	1/15	163	200	433	7.78	28.7	0.800	0.890	3.4	3.8	1470	735
Middle inertiaa Flat type	MQMF02□L□4N	-	1/25	163	120	260	13.0	47.9	0.790	0.880	3.4	3.8	1670	833
lat ty	MQMF04□L□1N		1/5	331	600	1300	5.27	19.6	1.35	1.43	3.4	3.9	980	490
pe	MQMF04□L□2N	_	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	-	1/9	157	333	722	4.49	16.6	0.563	0.583	2.5	2.8	1180	588
MHMF	MHMF02□L□3N	200	1/15	163	200	433	7.78	28.7	0.592	0.612	2.9	3.2	1470	735
₹ E	MHMF02□L□4N		1/25	163	120	260	13.0	47.9	0.583	0.603	2.9	3.2	1670	833
igh ir	MHMF04□L□1N		1/5	339	600	1300	5.39	19.6	0.930	0.950	2.8	3.2	980	490
gh inertia	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	750	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.

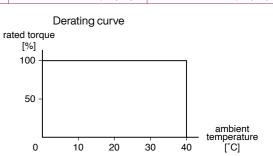
MQMF series (100 W to 400 W)

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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∆6 Family

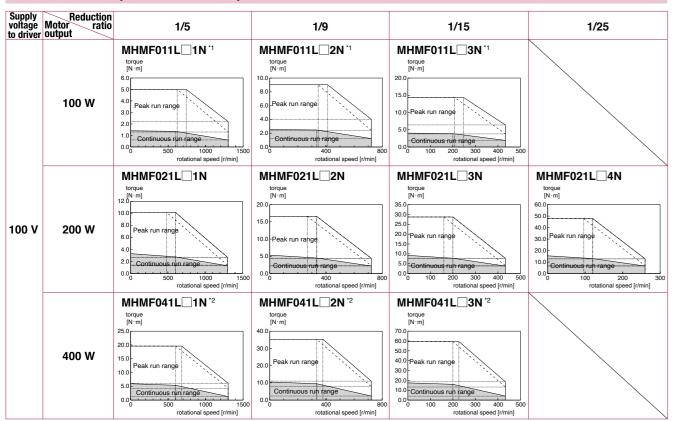
A6N Series

A6B Series

E Series

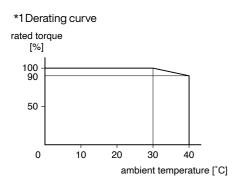
Information

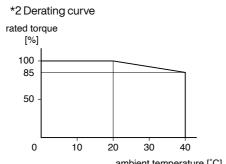
MHMF series (100 W to 750 W)



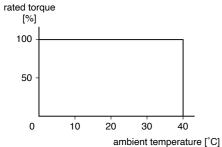
Dotted line represents the torque at 10 % less supply voltage to driver.

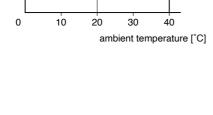
* The symbols of the motor structure are entered in \square of the motor part number. Please refer to "Model Designation" in P.294.

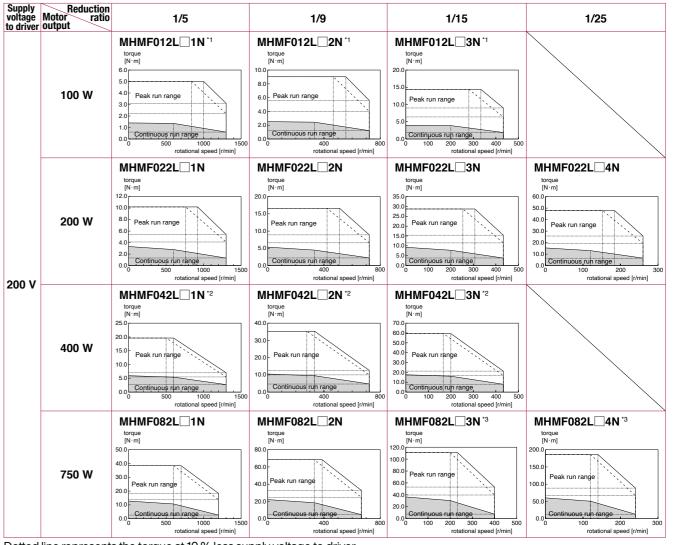




Motor number without *1, *2 Derating curve

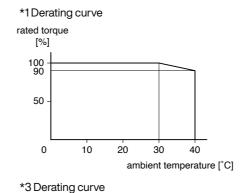


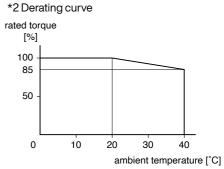


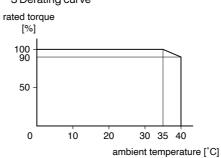


Dotted line represents the torque at 10 % less supply voltage to driver.

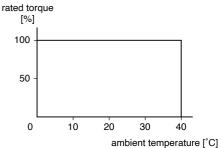
* The symbols of the motor structure are entered in \square of the motor part number. Please refer to "Model Designation" in P.294.



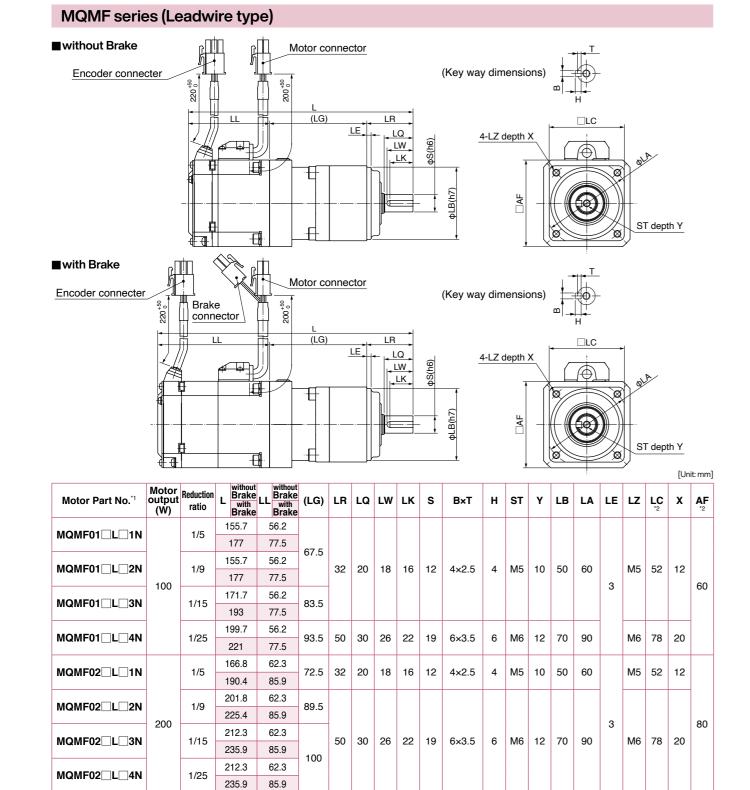




Motor number without *1, *2, *3 Derating curve



M8



40 35 30 24

100

50 30 26 22 19 6×3.5 6 M6 12 70 90 3

7 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 (C	onne	ctor ty	/pe)																	
without Brake															_	T					
<u> </u>	Encoder	r connec	cter	Motor	connec	ctor					(Key way	v dim	ensi	ons)	+		_				
					L						()	,		,,,	m						
		-	/LL /	→ 	(LG)		- -	LR	_							Н					
			/ /				+	<u>LE</u>								□LC		-			
		1		Ы					LW .	(9	-	4-LZ	depth	<u>x</u>	$\overline{}$		\neg				
								117	LK,	фS(h6)			Ŧ	$-\lambda$				3 2	A		
			't	\$	1			711			1				\ \	\bigcirc	Ø				
									\Rightarrow	_	(h7)		□AF					$\ \ $			
										+	φLB(h7					Y		/			
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		# <u>#</u>		4 1									<u> †</u>					Y			
with Brake															_	T	-				
Encode	er conne	ecter		Motor/I	Brake	conn	ector				(Key way	/ dim	ensio	ons)	ļ _		_				
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	_	/ L	L /		(LG))	- -	LR	_						, -	Н					
							+	<u>LE</u>						1		□LC		-			
		_ь		ы					LW .	(90	=	4-LZ	depth	X	$\overline{}$		\neg				
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		}	' · ·E	#	1			7			1			ľ	8/	\bigcirc	ZØ.				
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										•	фLB(h7)		□AF	71	W	W		1			
		₽	 	a	-4			ال										S ⁻	T dep	th Y	
	4 4		l t	#:									<u> </u>			\top		9		Γι. I	
	Motor	Doduca	L Without Brake	without Brake																Įυn	nit: mr
Motor Part No.*1	output (W)	Reduction ratio	L Brake With Brake		(LG)	LR	LQ	LW	LK	S	B×T	Н	ST	Y	LB	LA	LE	LZ	ĻC	Х	AF
			155.7	56.2																	
MQMF01□L□1N		1/5	177	77.5																	
MONEO4 TI TON		4 /0	155.7	56.2	67.5		-	4.0	4.0			_				-00				40	
MQMF01 L 2N		1/9	177	77.5		32	20	18	16	12	4×2.5	4	M5	10	50	60		M5	52	12	
MOMEO4 TI TON	100	445	171.7	56.2	00.5												3				60
MQMF01 L 3N		1/15	193	77.5	83.5																
MQMF01□L□4N		1/05	199.7	56.2	00.5		20	00	00	10	C. O. F	_	MC	10	70	00		MC	70	00	
MQMFUI_L_4N		1/25	221	77.5	93.5	50	30	26	22	19	6×3.5	6	M6	12	70	90		M6	78	20	
MOMEO2 I I 1N		1/5	166.8	62.3	72.5	22	20	10	16	10	4×2.5	4	ME	10	50	60		ME	50	10	
MQMF02□L□1N		1/5	190.4	85.9	12.5	32	20	18	16	12	4X2.5	4	M5	10	50	60		M5	52	12	
MQMF02□L□2N		1/9	201.8	62.3	89.5																
IVIQIVIFUZLLZN	200	1/3	225.4	85.9	09.5												3				80
MQMF02□L□3N		1/15	212.3	62.3	_	50	30	26	22	19	6×3.5	6	M6	12	70	90		M6	78	20	30
		.,,,	235.9	85.9	100	55		20		13	570.0			1,2	, 5	50		0	, 5		
MQMF02□L□4N		1/25	212.3	62.3	100																
		20	235.9	85.9																	
MQMF04□L□1N		1/5	214.3	74.8																	
	-		237.9	98.4	89.5																
MQMF04□L□2N		1/9	214.3	74.8		50	30	26	22	19	6×3.5	6	M6	12	70	90	3	M6	78		
	400		237.9	98.4																20	80
MQMF04□L□3N		1/15	224.8	74.8	100																
	-		248.4	98.4																	

^{*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.

40 35 30 24

7 M8

16 90

74.8

98.4

1/25

MQMF04 L 4N

239.8

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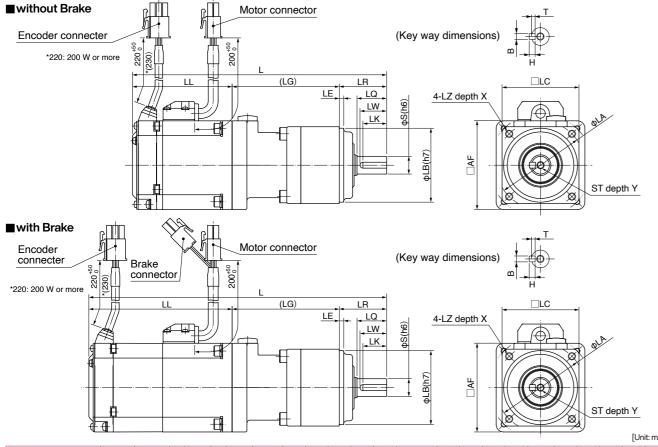
20 80

^{*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

MHMF series (Leadwire type)



Ч	U II												•		-			ソ		[Un	nit: mm
Motor Part No. ^{*1}	Motor output (W)	Reduction ratio	L Without Brake with Brake	LL Without Brake with 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																	
		1/0	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
01			200.9	101.4								·							-		
MHMF01□L□3N		1/15	177.5	67.5	78																
			211.4	101.4																	<u> </u>
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	
	-		201.3	96.8																	-
MHMF02 L2N		1/9	207	67.5	89.5																
	200		236.3	96.8		-											3				60
MHMF02 L 3N		1/15	217.5 246.8	67.5		50	30	26	22	19	6×3.5	6	M6	12	70	90		M6	78	20	
	-		240.8	96.8 67.5	100																
MHMF02 \square L \square 4N		1/25	246.8	96.8																	
			224	84.5																	
MHMF04□L□1N		1/5	253.3	113.8																	
			224	84.5	89.5																
MHMF04□L□2N	400	1/9	253.3	113.8		50	30	26	22	19	6×3.5	6	M6	12	70	90	3	M6	78	20	60
			234.5	84.5		-															
MHMF04_L_3N		1/15	263.8	113.8	100																
			235.4	91.9								_					_				
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		
MUMEROOI DON		1 10	250.4	91.9	07.5															1	
MHMF082L□2N	750	1/9	284	125.5	97.5															00	
MUMEOOJI TON	750	1/15	262.9	91.9		61	40	25	20	24	04	7	MO	16	00	115	_	MO	00	20	80
MHMF082L□3N		1/15	296.5	125.5	110	וט	40	35	30	24	8×4	/	M8	16	90	115	5	M8	98		
MHMF082L□4N		1/25	262.9	91.9	110																
WITHIVIFUOZL_4IN		1/23	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)

IVITIVIT SELIE	es (Co	onne	ctor ty	/pe)																	
without Brake	coder co	onnecte		Motor co	L	Or (LG)			LR LE	2	фS(h6		lepth 2	×		H LC		8)			
■with Brake Encoder cor	nnecter	7		Motor/Bra		nnec	tor		LR LE	-	(Key way	/ dim	Hensic	<u>(a</u>		T H		S	T dept	th Y	
		}								N	φ(h6)	I-LZ d	AP AP					S	T dept		
																				[Un	it: mn
Motor Part No.*1	Motor output (W)	Reduction ratio	Brake		(LG)	LR	LQ	LW	LK	s	B×T	н	ST	Y	LB	LA	LE	LZ	LC	X	AF
MHMF01□L□1N		1/5	167 200.9	67.5 101.4																	
	1 1		167	67.5	67.5																

Motor Part No. 1	Motor output (W)	Reduction ratio	L Without Brake with Brake	LL Brake	(LG)	LR	LQ	LW	LK	s	В×Т	н	ST	Y	LB	LA	LE	LZ	LC	X	AF	
MHMF01□L□1N		1/5	167	67.5																		
WITHWIT OT LE TH		1/3	200.9	101.4	67.5																	
MHMF01□L□2N	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		0_						·							0_			
MHMF01 L3N		1/15	177.5	67.5	78																	
			211.4	101.4																		
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		
	-		201.3	96.8																		
MHMF02 L2N		1/9	207	67.5	89.5																	
	200		236.3 217.5	96.8 67.5													3				60	
MHMF02 L 3N		1/15	246.8	96.8		50	30	26	22	19	6×3.5	6	M6	12	70	90		M6	78	20		
			217.5	67.5	100																	
MHMF02 L 4N		1/25	246.8	96.8																		
			224	84.5																		
MHMF04 L 1N		1/5	253.3	113.8																		
			224	84.5	89.5							_					_					
MHMF04□L□2N	400	1/9	253.3	113.8		50	30	26	22	19	6×3.5	6	M6	12	70	90	3	M6	78	20	60	
MUMEO4 I I I ON		4/45	234.5	84.5	400																	
MHMF04□L□3N		1/15	263.8	113.8	100																	
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			
WITHINFUOZE IN		1/5	269	125.5	93.5	50	30	20	22	19	0x3.5	О	IVIO	12	70	90	3	IVIO	70			
MHMF082L□2N		1/9	250.4	91.9	97.5																	
WII IIWII OOZL_ZIV	750	1/3	284	125.5	31.3															20	80	
MHMF082L□3N	750	1/15	262.9	91.9		61	40	35	30	24	8×4	7	M8	16	90	115	5	M8	98	20	00	
III IVII OOZE_SIN		1/13	296.5	125.5	110	01	70	00	50	4	0.4	,	IVIO	10	30	113		IVIO	30			
MHMF082L□4N		1/25	262.9	91.9	110																	
		1,20	296.5	125.5																		

^{*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} \square LC: flange size of the reduction gear \square , AF: \square flange size of the motor

Environmental Conditions

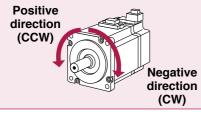
Motor Specification

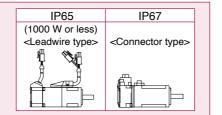
Ite	m	Conditions
Ambient ten	nperature *1	0 °C to 40 °C (free from freezing)
Ambient hur	midity	20 %RH to 85 %RH (free from condensation*5*6)
Storage tem	perature *2	-20 °C to 65 °C (Max.temperature guarantee: 80 °C for 72 hours free from condensation '5)
Storage hun	nidity	20 %RH to 85 %RH (free from condensation*5*6)
Vibration	Motor only	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 TIT 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.

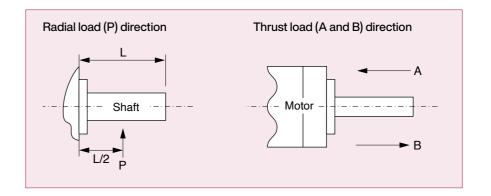
- If the load is connected, frequency will be defines as 1/(m+1), where m=load moment of inertia/rotor moment of inertia.
- When the motor speed exceeds the rated speed, regenerative brake frequency is in inverse proportion to the square of (running speed/rated speed).
- Power supply voltage is AC230 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.

Options

• Specifications of Built-in Holding Brake

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 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	30000
/80 mm sq.\	750 W	2.45 or more					24±1.2	196	147	
(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	3.0 kW	12.0 or more	0.170	80 or less	10 01 1000	0.01	2 or more	000	900	10000
(100 mm sq.) or more	4.0 kW	16.2 or more					24±2.4	1470	2160	10000
	5.0 kW	22.0 or more	1.12	110 or less	50 or less	0.90		1545	2000	
MQMF	100 W	0.39 or more	0.018	15 or less	00	0.30	1 or more	105	44.1	00000
(80 mm sq.) or less	200 W, 400 W	1.6 or more	0.075	70 or less	20 or less	0.36	24±2.4	185	80	30000
NALINAT	50 W, 100 W	0.38 or more	0.002	35 or less		0.30	1 or more 24±2.4	39.2	4.9	30000
MHMF /80 mm sq.\	200 W, 400 W	1.6 or more	0.018	50 or less	20 or less	0.36		105	44.1	
\ or less /	750 W, 1000 W	3.8 or more	0.075	70 or less		0.42		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	4000	3000	5440
or more	5.0 kW	44.1 or more	4.1	150 or less	30 or less	1.29	24±2.4		3100	5108
	7.5 kW	63.0 or more	3.9	200 or less	80 or less					
	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	5.0 kW	44.1 or more	4.1	150 or less	30 or less	1.29	2 or more	2 or more 1800 24±2.4 2000	2100	5400
(100 mm sq.) or more	7.5 kW	63.0 or more	3.9	200 or less	80 or less		24±2.4		3100	
	11.0 kW	100	7.4		4.40	4.00				5108
	15.0 kW	100 or more	7.1	300 or less	140 or less	1.08			4000	3000
	22.0 kW	200 or more	28		150 or less	1.72		3000		
	0.85 kW, 1.3 kW, 1.8 kW	13.7 or more	1.12	100 or less	50 or less	0.79		1470	2160	10000
MGMF	2.9 kW	25.0 or more	4.7	80 or less	25 or less		2 or more		3000	5440
(100 mm sq.) 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				0.00	3100

- 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.

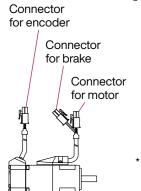
Contents					
Specifications of Motor connector	307				
Encoder Cable	309				
Motor Cable	313				
Brake Cable	32				
Interface Cable	322				
Connector Kit	323				
Battery for Absolute Encoder	338				
Surge Absorber for Motor Brake	339				
Mounting Bracket	340				
Reactor	342				
External Regenerative Resistor	343				
Daisy Chain	345				
Cable part No. Designation	346				
List of Peripheral Devices Manufacturers	347				

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]



			1			
	3	2	1		PIN No.	Application
	6	5	4		1	BAT+*
	9	8	7		2	BAT-*
					3	FG(SHIELD)
172169-1				4	PS	
2	:3-bit	Abs	solut	e	5	PS
			ስ		6	NC
					7	E5V



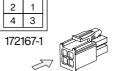
* Connector pin diagram is viewed from the direction of the arrow.

<Remarks> Do not connect anything

E0V

NC

[Connector for motor]



* Connector pin diagram is viewed from the direction of the arrow.

[Connector for Brake]



1 11 4 1 40.	, ibbiioarioii					
1	Brake					
2	Brake					
* Flectromagnetic brake						

is a nonpolar device.

PIN No. Application

PIN No. Application

3

U-phase

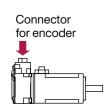
V-phase

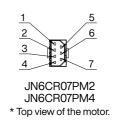
W-phase

Ground

- $\ensuremath{^\star}$ 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.)







PIN No. Application

PIN No. Application

2

Brake

Brake

3

U-phase

V-phase

W-phase

Ground

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>



PΕ JN8AT04NJ1 * Top view of the motor.

Tightening torque of the screw (M2) 0.085 N·m to 0.095 N·m (screwed to plastic)

- * Be sure to use only the screw supplied with the connector, to avoid damage
- * Secure the gasket in place without removing it from the connector.

<MHMF 50 W, 100 W>





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

5

PE

with Brake

Brake

Ground

Ground Tightening torque of the screw (M2) 0.085 N·m to 0.095 N·m

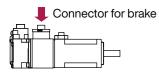
NC

without Brake

PΕ

- * 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>
A A B C D D D B B C D D B B C D D D B B B C D D D D

JL10-2A20-29P 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			

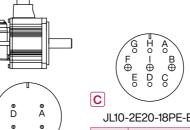
<Remarks> Do not connect anything to NC.

* When using the motor system, BAT+ and BATcan be left unconnected

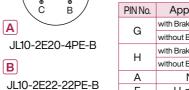
Connector for motor/brake

Table for motor connector and brake connector

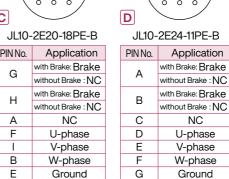
Motor	Motor output	200 V		
part No.	Motor output	without Brake	with Brake	
MSMF	1.0 kW to 2.0 kW	Α	С	
IVIOIVII	3.0 kW to 5.0 kW	В	D	
	1.0 kW to 2.0 kW	Α	С	
MDMF	3.0 kW to 5.0 kW	В	D	
	7.5 kW to 15.0 kW	E	E, F	
	22.0 kW	G	G, F	
	0.85 kW to 1.8 kW	Α	С	
MGMF	2.4 kW to 4.4 kW	В	D	
	5.5 kW	E	E, F	
	1.0 kW 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



1140 00		А		
JL10-2E	F			
PIN No.	Application		I	
Α	U-phase		В	Ī
В	V-phase		Е	
С	W-phase		D	
D	Ground		С	



Н

Ground

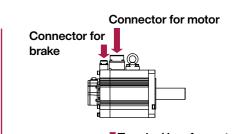
Ground

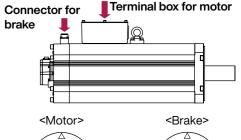
* Electromagnetic brake

is a nonpolar device.

E

<Remarks> Do not connect anything to NC.



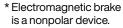




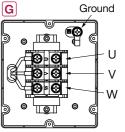


N No.	Application		PIN No.	Applicat
Α	U-phase		Α	Brake
В	V-phase		В	Brake
С	W-phase		С	NC
D	Ground		D	NC
		+ -	Ta atua ma a .	





0 0



	Terminal	Application				
	U	U-phase				
J	V	V-phase				
	W	W-phase				
/	Ground	Ground				
V	U, V, W, Earth screw					
-	Naminal MO					

Tightening torque: 12.0 N·m

^{*} 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					
Specifications	23-bit absolute encoder W	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 x3P (6-wire)	Oki Flectric Cable Co. Ltd		

Part No.	MFECAO * * OEAE	80 mm sq. or less Applicable model		50 W to 1000 W, 50 W to 1000 W re type)	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]

Part No.(ex.)

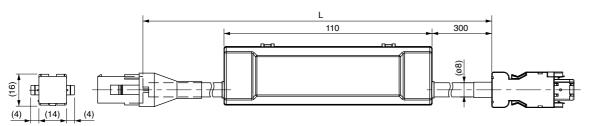
MFECA0030EAE

MFECA0050EAE

MFECA0100EAE

MFECA0200EAE

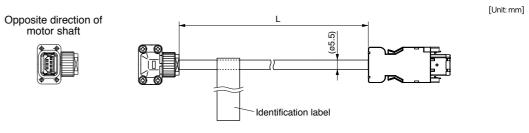
[Unit: mm]



Title	Part No.	Manufacturer	L (m)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3
Shell kit	3E306-3200-008	(or equivalent)	5
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.	

Part No.	MFECAO * * OMJD (Highly bendable type, Direction of motor shaft) MFECAO * OMKD (Highly bendable type, Opposite direction of motor shaft) MFECAO * OTJD (Standard bendable type, Direction of motor shaft) MFECAO * OTKD (Standard bendable type, Opposite direction of motor shaft)	80 mm sq. or less Applicable model	MQMF MHMF	50 W to 1000 W 100 W to 400 W 50 W to 1000 W ctor type)
Specifications	23-bit absolute encoder When used in incremental system (without battery box)			



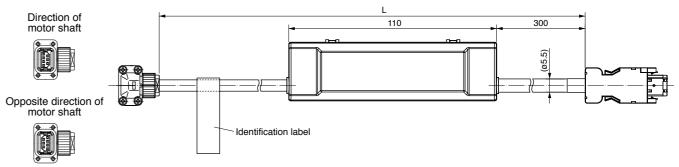


Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	MFECA0030MJD
Shell kit	3E306-3200-008	(or equivalent)	5	MFECA0050MJD
Connector (Motor side)	JN6FR07SM1	Japan Aviation	10	MFECA0100MJD
Connector pin	LY10-C1-A1-10000	Electronics Ind.	20	MFECA0200MJD
Cable	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.

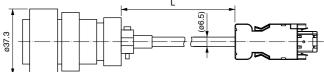
[Unit: mm]



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.		

A6N Series

Part No.	MFECAO * * OEPD	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>			



[Unit: mm]

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 x3P (6-wire)	Oki Electric Cable Co., Ltd.

	L (m)	Part No.(ex.)
	3	MFECA0030EPD
	5	MFECA0050EPD
	10	MFECA0100EPD
	20	MFECA0200EPD
٦		

[Unit: mm]

[Unit: mm]

Part No.(ex.)

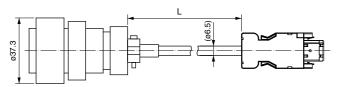
MFECA0030EPE MFECA0050EPE

MFECA0100EPE MFECA0200EPE

L (m)

5

Part No.	MFECA0 * * 0ESD	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW
Specifications	23-bit absolute encoder \ <large screwed="" type=""></large>	23-bit absolute encoder When used in incremental system (without battery box) <large screwed="" type=""></large>	



0.2 mm² ×3P (6-wire)

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

Oki Electric Cable Co., Ltd.

	Part No.	MFECAO * * OEPE	100 mm sq. or more Applicable motor output	
Specifications 23-bit absolute encoder When used in absolute system (with battery box) *			ute system (with battery box) *	
	Specifications	<large lock="" one-touch="" td="" typ<=""><th>)e></th><td></td></large>)e>	

 ${}^\star\textsc{Battery}$ is not included. Please buy the absolute encoder battery "DV0P2990" separately.

Cable

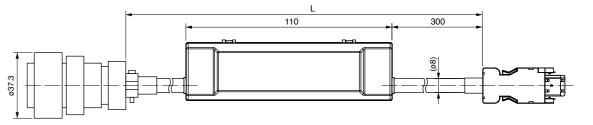
	l-	L	-I	
		110	300	
937.3			(80)	

Title	Part No.	Manufacturer
Connector (Driver side)	Oriver side) 3E206-0100 KV Sumitom	
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.

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>			

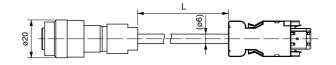
* Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.

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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.		

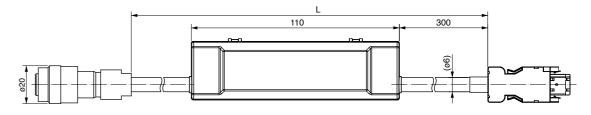
Part No.	MFECA0 * * 0ETD	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW (IP67 motor)
Specifications	23-bit absolute encoder When used in incremental system (without battery box) <small lock="" one-touch="" type=""></small>		



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 x3P (6-wire)	Oki Electric Cable Co., Ltd.	•	

	Part No.	MFECAO * * OETE	100 mm sq. or more Applicable motor output	0.85 kW to 22.0 kW (IP67 motor)	
s	pecifications	23-bit absolute encoder When used in absolute system (with battery box) * <small lock="" one-touch="" type=""></small>			

 * Battery is not included. Please buy the absolute encoder battery "DV0P2990" separately.



Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector (Driver side)	3E206-0100 KV	Sumitomo 3M	3	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 Electric Cable Co., Ltd.		

MSMF 50 W to 1000 W,

[Unit: mm]

[Unit: mm]

80 mm sq. MQMF 100 W to 400 W or less MHMF 200 W to 1000 W Applicable (Connector type) model

Direction of motor shaft Opposite direction of

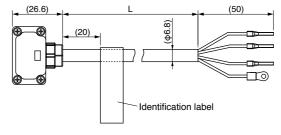
Part No.

MFMCA0 * * **OUFD** (Highly bendable type, Direction of motor shaft)

MFMCAO * * OWFD (Standard bendable type, Direction of motor shaft)

MFMCAO * * OUGD (Highly bendable type, Opposite direction of motor shaft)

MFMCA0 * * OWGD (Standard bendable type, Opposite direction of motor shaft)





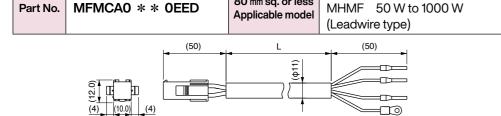
Title	Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector	JN11FH06SN1	Japan Aviation	3	MFMCA0030UFD
Cable clamp	JN11S35H3A1	Electronics Ind.	5	MFMCA0050UFD
Rod terminal	AI0.75-8GY	PHOENIX CONTACT	10	MFMCA0100UFD
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.	20	MFMCA0200UFD
Cable	AWG18 6-wire (φ6.8)	NIKKO ELECTRIC WIRE CO.,LTD		

Part No.	MFMCDO * * 2EUD	100 mm sq. or more Applicable model	MHMF	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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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	ROBO-TOP 600V 2.0mm ² 4-wire	DYDEN CORPORATION		

Part No.	MFMCDO * * 2ECD	100 mm sq. or more Applicable model	MHMF	1.0 kW to 2.0 kW, 1.0 kW, 1.5 kW, ed type>	MDMF MGMF	1.0 kW to 2.0 kW 0.85 kW to 1.8 kW
----------	-----------------	----------------------------------------	------	--------------------------------------------------	--------------	---------------------------------------

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		



80 mm sq. or less

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
ľ		

MQMF 100 W to 400 W

[Unit: mm]

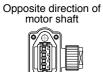
	MFMCAO * * ONJD (Highly bendable type, Direction of motor shaft)	00
Dort No.	MFMCAO * * ORJD (Standard bendable type, Direction of motor shaft)	80 mm sq. or less
Part No.	MFMCAO * * ONKD (Highly bendable type, Opposite direction of motor shaft)	Applicable model
	MFMCAO * * ORKD (Standard bendable type, Opposite direction of motor shaft)	model

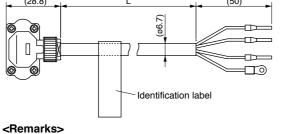
(Connector type) MSMF 200 W to 1000 W (Connector type)

MSMF 50 W to 1000 W

[Unit: mm]





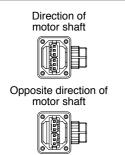


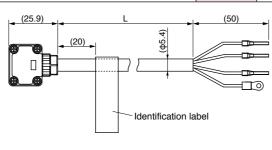
Motor cable for opposite direction of motor shaft cannot be used with a motor 50 W and 100 W.

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.

rer	L (m)	Part No.(ex.)
tion	3	MFMCA0030NJD
Ind.	5	MFMCA0050NJD
NTACT	10	MFMCA0100NJD
., Ltd.	20	MFMCA0200NJD
l td		

Don't No.	MFMCA0 * * 7UFD	(Movable/fixed common-use, 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

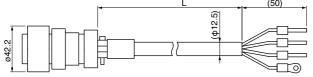
	L (m)	Part No.(ex.)
	3	MFMCA0037UFD
	5	MFMCA0057UFD
	10	MFMCA0107UFD
	20	MFMCA0207UFD
$\overline{}$		

[Unit: mm]

[Unit: mm]

[Unit: mm]

Part No. MFMCEO * * 2EUD 100 mm sq. or more Applicable model MHMF 2.0 kW <One-touch lock type>

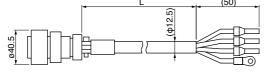


Title	Part No.	Manufacturer		
Connector	JL10-6A22-22SE-EB	Japan Aviation		
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.		
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.		
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.		
Cable	ROBO-TOP DP6/2501 2.0 mm ² 4-wire	DYDEN CORPORATION		

	L (m)	Part No.(ex.)
	3	MFMCE0032EUD
	5	MFMCE0052EUD
	10	MFMCE0102EUD
	20	MFMCE0202EUD
N		

Part No.	MFMCEO * * 2ECD	100 mm sq. or more Applicable model	MHMF	2.0 kW	<screwed th="" type<=""></screwed>
		L .	(50)		

[Unit: mm]

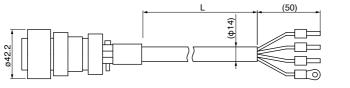


Title	Part No.	Manufacturer	L (m)
Connector	JL04V-6A22-22SE-EB-R	Japan Aviation	3
Cable clamp	JL04-2022CK(14)-R	Electronics Ind.	5
Rod terminal	NTUB-2	J.S.T Mfg. Co., Ltd.	10
Nylon insulated round terminal	N2-M4	J.S.T Mfg. Co., Ltd.	20
Cable	ROBO-TOP 600V 2.0 mm ² 4-wire	DYDEN CORPORATION	

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

Part No.	MFMCE0 * * 3EUT 100 m	0 mm sq. or more pplicable model MGMF 2.4 kW	<one-touch lock="" type=""></one-touch>
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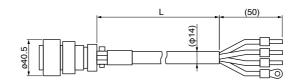
[Unit: mm]



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

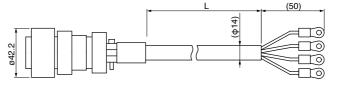
L (m)	Part No.(ex.)
3	MFMCE0033EUT
5	MFMCE0053EUT
10	MFMCE0103EUT
20	MFMCE0203EUT

Part No. MFMCE0 * * 3ECT 100 mm sq. or more Applicable model MGMF 2.4 kW <Screwed type>



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		

Part No.	MFMCAO * * 3EUT		MHMF	3.0 kW to 5.0 kW, 3.0 kW to 5.0 kW, ouch lock type>	MDMF MGMF	3.0 kW to 5.0 kW 2.9 kW to 4.4 kW	
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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

Part No.	MFMCAO * * 3ECT	100 mm sq. or more Applicable model	MSMF MHMF	3.0 kW to 5.0 kW, 3.0 kW to 5.0 kW,	MDMF MGMF	3.0 kW to 5.0 kW 2.9 kW to 4.4 kW
		Applicable model		ed type>		

T (20)

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]

[Unit: mm]

Part No. MFMCA0 * * 7VFD (Movable/fixed common-use, direction of motor shaft)

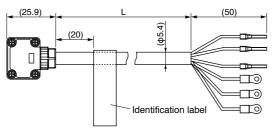
MFMCA0 * * 7VGD (Movable/fixed common-use, opposite direction of motor shaft)

MFMCA0 * * 7VGD (Movable/fixed common-use, opposite direction of motor shaft)

MHMF 50 W, 100 W (Connector type)

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

Part No.

MFMCA0 * * OVFD (Highly bendable type, Direction of motor shaft)

MFMCA0 * * OVGD (Highly bendable type, Opposite direction of motor shaft)

MFMCA0 * * OXFD (Standard bendable type, Direction of motor shaft)

MFMCA0 * * OXGD (Standard bendable type, Opposite direction of motor shaft)

MFMCA0 * * OXGD (Standard bendable type, Opposite direction of motor shaft)

MQMF 100 W to 400 W MHMF 200 W to 1000 W (Connector type)

Part No.(ex.)

MFMCA0030VFD

MFMCA0050VFD

MFMCA0100VFD

MFMCA0200VFD

=10

L (m)

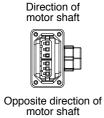
3

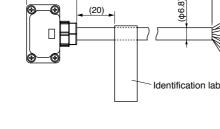
5

10

20

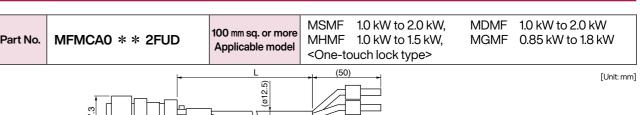
[Unit: mm]

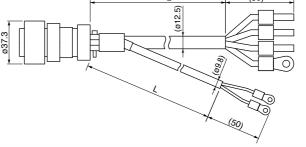






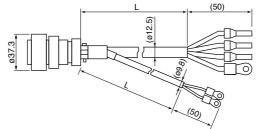
Title	Part No.	Manufacturer
Connector	JN11FH06SN1	Japan Aviation
Cable clamp	JN11S35H3A1	Electronics Ind.
Rod terminal	AI0.75-8GY	PHOENIX CONTACT
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	AWG18 6-wire (φ6.8 mm)	NIKKO ELECTRIC WIRE CO.,LTD



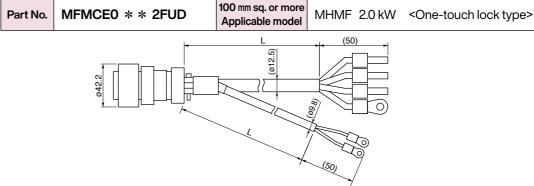


			/		
Title		Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector		JL10-6A20-18SE-EB	Japan Aviation	3	MFMCA0032FUD
Cable clamp		JL042022CK(14)-R	Electronics Ind.	5	MFMCA0052FUD
Rod terminal		NTUB-2	J.S.T Mfg. Co., Ltd.	10	MFMCA0102FUD
Nylon insulated	Earth	N2-M4	LC T Mfa Co. Ltd	20	MFMCA0202FUD
round terminal	Brake	N1.25-M4	J.S.T Mfg. Co., Ltd.		
Cable		ROBO-TOP 600V 2.0 mm ² 4-wire	DYDEN CORPORATION		





Title		Part No.	Manufacturer	L (m)	Part No.(ex.)
Connecto	r	JL04V-6A20-18SE-EB-RK	Japan Aviation	3	MFMCA0032FCD
Cable clamp		JL04-2022CK(14)-R	Electronics Ind.		MFMCA0052FCD
Rod termir	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
Connector		JL10-6A24-11SE-EB	Japan Aviation
Cable clamp		JL04-2428CK(17)-R	Electronics Ind.
Rod terminal		NTUB-2	J.S.T Mfg. Co., Ltd.
Nylon insulated	Earth	N2-M4	LC T Mfa Co Ltd
round terminal	Brake	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable		ROBO-TOP DP6/2501 2.0 mm ² 4-wire ROBO-TOP DP6/2501 0.75 mm ² 2-wire	DYDEN CORPORATION

 L (m)
 Part No.(ex.)

 3
 MFMCE0032FUD

 5
 MFMCE0052FUD

 10
 MFMCE0102FUD

 20
 MFMCE0202FUD

MGMF 2.4 kW <One-touch lock type>

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	np	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

L (m)	Part No.(ex.)
3	MFMCE0032FCD
5	MFMCE0052FCD
10	MFMCE0102FCD
20	MFMCE0202FCD

[Unit: mm]

[Unit: mm]

100 mm sq. or more Applicable model

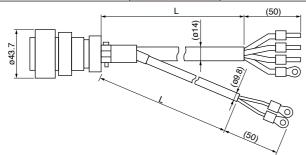
Part No. MFMCD0 * * 3FUT

275	(014) L	(50)	
	5		

Title		Part No.	Manufacturer
Connector		JL10-6A24-11SE-EB	Japan Aviation
Cable clan	пр	JL04-2428CK(17)-R	Electronics Ind.
Rod termin	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 Mig. Co., Ltd.
Cable		ROBO-TOP DP6/2501 3.5 mm ² 4-wire ROBO-TOP DP6/2501 0.75 mm ² 2-wire	DYDEN CORPORATION

L (m)	Part No.(ex.)
3	MFMCD0033FUT
5	MFMCD0053FUT
10	MFMCD0103FUT
20	MFMCD0203FUT

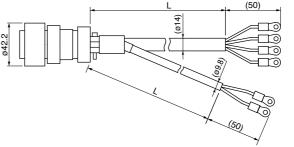
100 mm sq. or more Part No. MFMCD0 * * 3FCT MGMF 2.4 kW <Screwed type> Applicable model



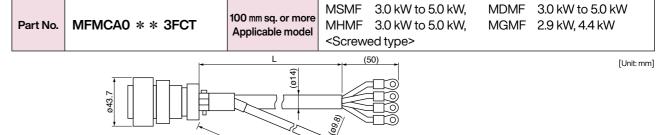
Title	Title Part No.		Manufacturer
Connector		JL04V-6A24-11SE-EB-R	Japan Aviation
Cable clan	amp JL04-2428CK(17)-R Electronics In		Electronics Ind.
Rod termin	nal	TMENTC3.5-11S	NICHIFU Co., Ltd.
Nylon insulated	Earth	N5.5-5	J.S.T Mfg. Co., Ltd.
round terminal	Brake	N1.25-M4	J.S. 1 Wilg. Co., Ltd.
Cable		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

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		Part No.	Manufacturer	L (m)	Part No.(ex.)
Connector		JL10-6A24-11SE-EB	Japan Aviation	3	MFMCA0033FUT
Cable clamp		JL04-2428CK(17)-R	Electronics Ind.	5	MFMCA0053FUT
Nylon insulated	Earth	N5.5-5	LC T Mfa Co. Ltd	10	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.)
Connector		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	LC TMfa Co Ltd	10	MFMCA0103FCT
round terminal	Brake	N1.25-M4	J.S.T Mfg. 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		

Direction of motor shaft

Opposite direction of motor shaft

Part No.	MFMCBO * * OGET	80 mm sq. or less Applicable model	NALINAE	50 W to 1000 W, 50 W to 1000 W re type)	MQMF	100 W to 400 W
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(40) L (50)

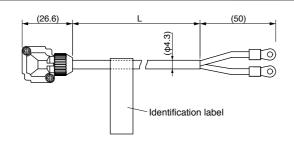
Title	Part No.	Manufacturer
Connector	172157-1	Tyco Electronics Japan
Connector pin	170366-1, 170362-1	G.K.
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.
Cable	BOBO-TOP 600V 0.75 mm ² 2-wire	DYDEN CORPORATION

L	(m)	Part No.(ex.)
	3	MFMCB0030GET
	5	MFMCB0050GET
	10	MFMCB0100GET
	20	MFMCB0200GET

[Unit: mm]

[Unit: mm]

	MFMCBO * * OPJT (Highly bendable type, Direction of motor shaft)	90	
Dort 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	



Title	Part No.	Manufacturer		
Connector	JN4FT02SJMR	Japan Aviation		
Connector pin	ST-TMH-S-C1B-3500	Electronics Ind.		
Nylon insulated round terminal	N1.25-M4	J.S.T Mfg. Co., Ltd.		
Cable	AWG22 2-wire (φ4.3)	Hitachi Cable, Ltd.		

L (m)	Part No.(ex.)
3	MFMCB0030PJT
5	MFMCB0050PJT
10	MFMCB0100PJT
20	MFMCB0200PJT

Cable for Interface

Interface Cable

Part No. DV0P4360

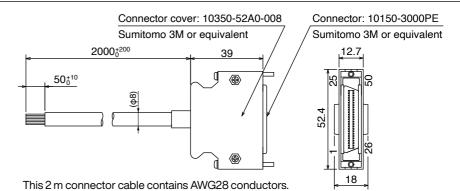


Table for wiring

Pin No.	color	Pin No.	color	Pin No.	color	Pin No.	color	Pin No.	color
1	Orange (Red1)	11	Orange (Black2)	21	Orange (Red3)	31	Orange (Red4)	41	Orange (Red5)
2	Orange (Black1)	12	Yellow (Black1)	22	Orange (Black3)	32	Orange (Black4)	42	Orange (Black5)
3	Gray (Red1)	13	Gray (Red2)	23	Gray (Red3)	33	Gray (Red4)	43	Gray (Red5)
4	Gray (Black1)	14	Gray (Black2)	24	Gray (Black3)	34	White (Red4)	44	White (Red5)
5	White (Red1)	15	White (Red2)	25	White (Red3)	35	White (Black4)	45	White (Black5)
6	White (Black1)	16	Yellow (Red2)	26	White (Black3)	36	Yellow (Red4)	46	Yellow (Red5)
7	Yellow (Red1)	17	Yel (Blk2)/Pink (Blk2)	27	Yellow (Red3)	37	Yellow (Black4)	47	Yellow (Black5)
8	Pink (Red1)	18	Pink (Red2)	28	Yellow (Black3)	38	Pink (Red4)	48	Pink (Red5)
9	Pink (Black1)	19	White (Black2)	29	Pink (Red3)	39	Pink (Black4)	49	Pink (Black5)
10	Orange (Red2)	20	_	30	Pink (Black3)	40	Gray (Black4)	50	Gray (Black5)

<Remarks>

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

[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

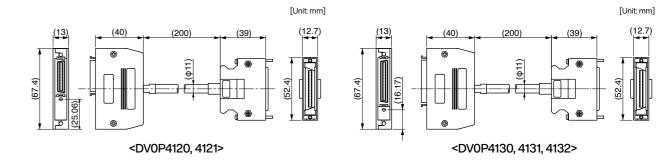
Part No. DV0P4120, 4121, 4130, 4131, 4132

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.



[Unit: mm]

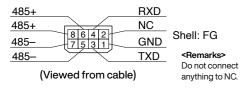
Connector Kit for Communication Cable (for RS485, RS232) (Excluding A6SE, A6NE, A6BE Series)

Part No. DV0PM20102

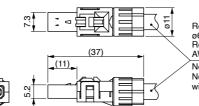
Components

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



Recommended corewire size: AWG 26 to AWG 30

[Unit: mm]

[Unit: mm]

[Unit: mm]

No wires are supplied

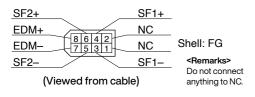
Connector Kit for Safety (Excluding A6SE, A6SG, A6NE, A6BE Series)

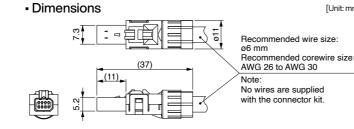
Part No. DV0PM20103

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





Safety bypass plug (Excluding A6SE, A6SG, A6NE, A6BE Series)

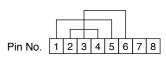
Part No. DV0PM20094

Components

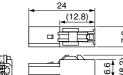
Title	Part No.	Manufacturer	Note
Connector	CIF-PB08AK-GF1R	J.S.T Mfg. Co., Ltd.	For Connector X3

Internal wiring

(Wiring of the following has been applied inside the plug.)



- Dimensions (Resin color: black)



• 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".

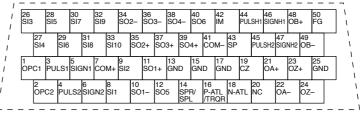
Connector Kit for Interface

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.

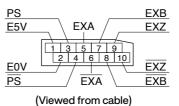
Connector Kit for External Scale (Excluding A6SE, A6SG, A6NE, A6BE Series)

Part No. DV0PM20026

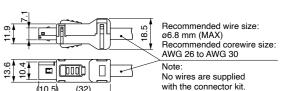
Components

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







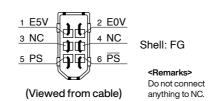
Connector Kit for Encoder

Part No. DV0PM20010

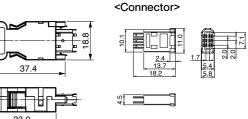
Components

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 A6

Pin disposition of connector, connector X6







<Remarks>

Connector X1: use with commercially available cable.

· Configuration of connector X1: USB mini-B



A6N Series

Connector Kit for Power Supply Input

Part No. DVOPM20032 (For A-frame to D-frame: Single row type)

Components

• Please refer to the Dimensions of driver P.57 for connector XA.

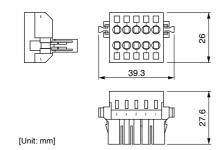
Manufacturer Title Part No. Number Note 05JFAT-SAX-GGKK-A 1 Connector J.S.T Mfg. Co., Ltd. For Connector XA 2 J-FAT-OT Handle lever

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

Dimensions



* When connection multiple axes in series, make sure the sum of the current value does not exceed the rated current (11.25 A) of DV0PM20033.

Remarks …

When using drivers MDDL * 55 * * in single-phase power supply, do not use DV0PM20033.

Driver part No.	Power supply	Rated input current
MADL * 01 * *	Single phase 100 V	1.7 A
MADL * 11 * *	Single phase 100 V	2.0 A
MADL*05**	Single phase/3-phase 200 V	1.6 A/0.9 A
MADL * 15 * *	Single phase/3-phase 200 V	2.0 A/1.1 A
MBDL * 21 * *	Single phase 100 V	4.5 A
MBDL * 25 * *	Single phase/3-phase 200 V	3.7 A/2.1 A
MCDL*31**	Single phase 100 V	7.0 A
MCDL * 35 * *	Single phase/3-phase 200 V	6.4 A/3.4 A
MDDL * 45 * *	Single phase/3-phase 200 V	7.9 A/4.6 A
MDDL * 55 * *	Single phase/3-phase 200 V	13.6 A/7.2 A

Part No. DV0PM20044 (For E-frame)

Components

Title	Part No.	Number	Manufacturer	Note
Connector	05JFAT-SAXGSA-L	1	LC T Mfg. Co. Ltd	For Connector VA
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	LC T Mfg. Co. Ltd	200 V: For Connector XC
Handle lever	J-FAT-OT-L	2	J.S.T Mfg. Co., Ltd.	* 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".

Connector Kit for Motor Connection (Driver side)

Part No. DV0PM20034 (For A-frame to D-frame)

Connector Kit for Motor/Encoder Connection

Components

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

	Part No.	DV0PM20046	(For F-frame)
1	raitivo.	DVUFIVIZUUTU	(I UI L-IIaiii e)

Components

• Please refer to the Dimensions of driver P.59 for connector XB.

• Please refer to the Dimensions of driver P.57 for connector XB.

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

Connector Kit for Motor/Encoder Connection

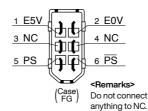
* When IP65 or IP67 are necessary, the customer must give appropriate processing

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

Componente						
Part No.	Number	Manufacturer	Note			
3E206-0100 KV	1	Sumitomo 3M	For Connector X6 (6-pins)			
3E306-3200-008	1	(or equivalent)				
172161-1	1	Tyco Electronics Japan	For Encoder cable (9-pins)			
170365-1	9	G.K.				
172159-1	1	Tyco Electronics Japan	For Motor cable (4-pins)			
170366-1	4	G.K.				
	3E206-0100 KV 3E306-3200-008 172161-1 170365-1 172159-1	3E206-0100 KV 1 3E306-3200-008 1 172161-1 1 170365-1 9 172159-1 1	3E206-0100 KV 1 Sumitomo 3M (or equivalent) 3E306-3200-008 1 Tyco Electronics Japan G.K. 172161-1 9 G.K. 172159-1 1 Tyco Electronics Japan C.K.			

connector X6



(Viewed from cable)

• Pin disposition of connector, • Pin disposition of connector for encoder cable

		1	
1	2	3	
4	5	6	
7	8	9	
			* Connector pip dicare

viewed from the direction of the arrow

1	BAT+*
2	BAT-*
3	FG(SHIELD)
4	PS
5	PS
6	NC
7	E5V
8	E0V
9	NC

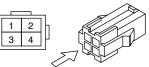
PIN No. Application

* When using the motor as an incremental system BAT+ and BAT- can be left unconnected.

<Remarks> Do not connect anything to NC.

 Pin disposition of connector for motor cable

* MSMF092 1 2, MHMF092 1



* Connector pin diagram is viewed from the direction of the arrow

'IIN INO.	Application
1	U-phase
2	V-phase
3	W-phase
4	Ground

* 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".

A6N Series

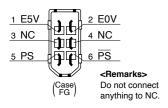
Part No.	DV0PM20035	80 mm sq. or less Applicable model	MSMF	50 W to 1000 W * (Connector type IP67)
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Components

* MSMF092L1□1

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	3E206-0100 KV 1 Sumitomo 3M		For Connector V6 (6 pine)	
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins)	
Encoder connector	JN6FR07SM1	1	Japan Aviation	For Encoder cable	
Socket contact	LY10-C1-A1-10000	7	Electronics Ind.	(7-pins)	
Motor connector	JN8FT04SJ1	1	Japan Aviation	For Motor cable	
Socket contact	ST-TMH-S-C1B-3500	4	Electronics Ind.	(4-pins)	

• Pin disposition of connector • Pin disposition of connector connector X6



(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

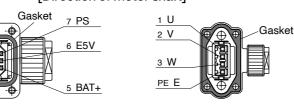
3 E0V

2 BAT-

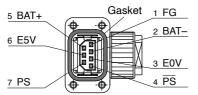
1 FG

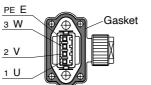
Pin disposition of connector for motor cable

[Direction of motor shaft]

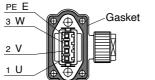


[Opposite direction of motor shaft]





used in incremental system.



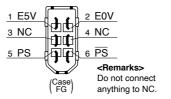
* Pins 2 and 5 are left unused (NC) when

MHMF 50 W, 100 W with/without brake 80 mm sq. or less DV0PM24581 Part No. Applicable model (Connector type IP67) common use

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	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)

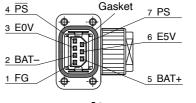
• Pin disposition of connector • Pin disposition of connector connector X6



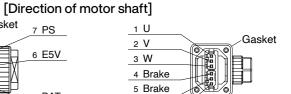
(Viewed from cable)

<Remarks>

Secure the gasket in place without removing it from the connector. Otherwise, the degree of protection of IP67 will not be guaranteed.



for encoder cable

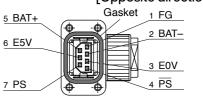


for motor cable

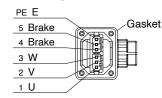
PE E

Pin disposition of connector

[Opposite direction of motor shaft]



* Pins 2 and 5 are left unused (NC) when used in incremental system.



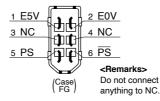
* 4-pin and 5-pin are not used in case of no brake.

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	For Connector X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector Ao (o-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



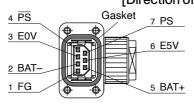
(Viewed from cable)

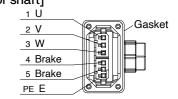
<Remarks>

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

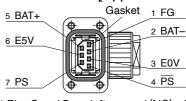
for motor cable [Direction of motor shaft]



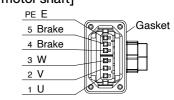


Pin disposition of connector

[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".

Connector Kit for Motor/Encoder Connection * When IP65 or IP67 are necessary, the customer must give appropriate processing.

* MSMF102 [] [], MHMF102 [] []

* MSMF102L1 \Bigcup_, MHMF102L1 \Bigcup_

Part No.	DV0PM24583	100 mm sq. or more Applicable model			Small size connector> MDMF 1.0 kW to 2.0 kW MGMF 0.85 kW to 1.8 kW		Without brake
			IVIITIIVII	1.0 KVV ", 1.5 KVV,	MAINIF	0.05 KVV 10 1.0 KVV	
_	_				* N	ISMF102□1□□, MHMF1	02 🗆 1 🗆 🗆

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 o</th><th>connector></th><th>\\/;+b</th></s<>	Small size o	connector>	\\/;+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 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	JL10-6A20-18SE-EB	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	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 X6 (6-pins)
Shell kit	3E306-3200-008	1	(or equivalent)	For Connector A6 (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.	DV0PM24589	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	
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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)

<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".

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	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 Compostor VC (C mino)	
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	JL10-6A24-11SE-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,	MDMF	3.0 kW to 5.0 kW	Without brake
			MHMF	2.0 kW to 5.0 kW,	MGMF	2.4 kW to 4.4 kW	101 011 10

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	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 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	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	JL10-6A24-11SE-EB	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2428CK(17)-R	1	Electronics Ind.	(One-touch lock 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.

* MSMF102 [] [], MHMF102 [] []

Part No.	DV0PM20036	100 mm sq. or more Applicable model	MSMF	otor) Encoder JN2 <s< th=""><th>MDMF</th><th>1.0 kW to 2.0 kW</th><th>Without brake</th></s<>	MDMF	1.0 kW to 2.0 kW	Without brake
			MHMF	1.0 kW *, 1.5 kW,	MGMF	0.85 kW to 1.8 kW	1 1
	_				* N	ISMF102□1□□, MHMF1	02 🗆 1 🗆 🗆

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100 KV	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-6A20-4SE-EB-RK	1	Japan Aviation	For Motor cable
Cable clamp	JL04-2022CK(14)-R	1	Electronics Ind.	(Screwed type)

		100 mm eg or more	(IP67 motor) Encoder JN2 <small connector="" size=""></small>					
Part No.	DV0PM20038	Applicable model	MSMF	1.0 kW * to 2.0 kW,	MDMF	1.0 kW to 2.0 kW	With	
		Applicable Illouei		1.0 kW *, 1.5 kW,		0.85 kW to 1.8 kW	brake	

Components

Title	Part No.	Number	Manufacturer	Note	
Connector (Driver side)	3E206-0100 KV	1	Sumitomo 3M	F ()	
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-6A20-18SE-EB-RK	1	Japan Aviation	For Motor cable	
Cable clamp	II 04-2022CK(14)-B	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
						* 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	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		(IP67 motor) Encoder JL10 < Large size connector> MSMF 1.0 kW * to 2.0 kW, MDMF 1.0 kW to 2.0 kW				
		Applicable model	MHMF	1.0 kW *, 1.5 kW,	MGMF	0.85 kW to 1.8 kW	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	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)	

• 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.	DV0PM20037	100 mm sq. or more Applicable model	MSMF	otor) Encoder JN2 < 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
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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	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 mm sq. or more Applicable model	MSMF		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		
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-6A24-11SE-EB-R	1	Japan Aviation	For Motor cable	
Cable clamp	JL04-2428CK(17)-R	1	Electronics Ind.	(Screwed type)	

Part No.	DV0P4320	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 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	N/MS3106B22-22S	1	Japan Aviation	For Motor cable	
Cable clamp	N/MS3057-12A	1	Electronics Ind.	(Screwed type)	

		100 mm sq. or more	(IP67 m	otor) Encoder JL10 <	Large size	connector>	With
Part No.	DV0P4340	Applicable model	MSMF	3.0 kW to 5.0 kW,	MDMF	3.0 kW to 5.0 kW	brake
			MHMF	2.0 kW to 5.0 kW.	MGMF	2.4 kW to 4.4 kW	10.00.00

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/MS3106B24-11S	1	Japan Aviation	For Motor cable
Cable clamp	N/MS3057-16A	1	Electronics Ind.	(Screwed 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".

100 mm sq. or more

Applicable model

(IP67 motor) Encoder JL10 < Large size connector>

Without

brake

A6N Series

A6B Series
Special Order Produc

E Series

Information

Components

Part No. DV0PM20107

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 At (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)

MDMF 7.5 kW to 15.0 kW

MGMF 5.5 kW, MHMF 7.5 kW

^{*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. DV0PM20108	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 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	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.

Components

DV0PM20112

Part No.

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)		
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)	

MDMF 7.5 kW to 15.0 kW

MGMF 5.5 kW, MHMF 7.5 kW

100 mm sq. or more

Applicable model

(IP67 motor) Encoder JL10 < Large size connector>

^{*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 model		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	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 (or equivalent)	F 0
Shell kit	3E306-3200-008	1		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".

• 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 brake

A6N Series

Part No.	DV0PM20109	•	(IP44 motor) Encoder JL10 <large connector="" size=""> MDMF 22.0 kW</large>	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 Ab (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)

Part No. DVOPM20110 100 mm sq. or more Applicable model MDMF 22.0 kW	With brake
--------------------------------------------------------------------------	------------

Components

Title	Part No.	Number	Manufacturer	Note
Connector (Driver side)	3E206-0100KV	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)
Brake connector	N/MS3106B14S-2S	1	Japan Aviation	For Brake cable
Cable clamp	N/MS3057-6A	1	Electronics Ind.	(Screwed type)

Part No. DV0PM20113 100 mm sq. or more Applicable model MDMF 22.0 kW	rge size connector> 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	N/MS3106B20-29S	1	Japan Aviation	For Encoder cable
Cable clamp	N/MS3057-12A	1	Electronics Ind.	(Screwed type)

rt No.		(IP44 motor) Encoder JL10 < Large size connector> MDMF 22.0 kW

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 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	
Connecto	r (Driver side)	3E206-0100KV	1	Sumitomo 3M	For Connector VC (C nine)	
S	hell kit	3E306-3200-008	1	(or equivalent)	For Connector X6 (6-pins	
Encode	Encoder connector JN2DS10SL1-R		1	Japan Aviation	For Encoder cable	
Con	nector pin	JN1-22-22S-PKG100	5	Electronics Ind.	(One-touch lock type)	

Part No.	DV0PM20116	100 mm sq. or more	(IP44 motor) Encoder JN2 <small connector="" size=""></small>	With	
Part INO.	DVUPIVIZUTIO	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	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)

• 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".

• 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

A6B Series
Special Order Produc

		80 mm sa. or less	
Part No.	DV0PM20040	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 broke cable
Socket contact	ST-TMH-S-C1B-3500	2	Electronics Ind.	For brake cable

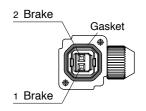
· Pin disposition of connector for brake cable

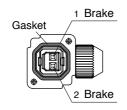
[Direction of motor shaft]

[Opposite direction of motor shaft]

Connector Kit for Motor/Brake Connection

* When IP65 or IP67 are necessary, the customer must give appropriate processing.





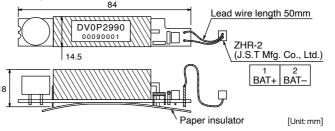
<Remarks>

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

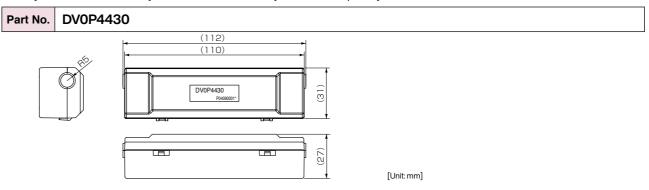


<Caution>

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.

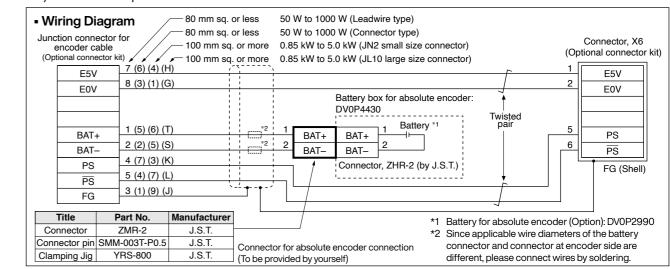
<Caution>

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

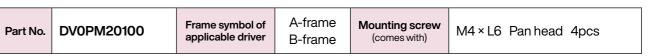
- 1) Indoors, where the products are not subjected to rain or direct sun beam.
- 2) Where the products are not subjected to corrosive atmospheres such as hydrogen sulfide, sulfurous acid, chlorine, ammonia, chloric gas, sulfuric gas, acid, alkaline and salt and so on, and are free from splash of inflammable gas, grinding oil, oil mist, iron powder or chips and etc.
- 3) Well-ventilated and humid and dust-free place.
- 4) Vibration-free place

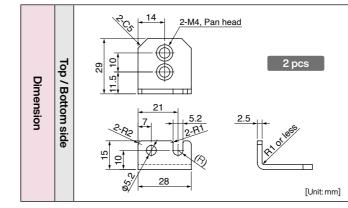


A6N Series

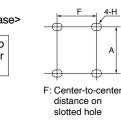
■ Recommended components

	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	TND441/ 0741/	NIPPON CHEMI-CON
	50 W to 1000 W	TND14V-271K	CORPORATION
NAL INAF	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



[Unit: mm]

												[01
	Part No.	A	В	С	D	E(Max)	F	G	Н	ı	Inductance (mH)	Rated current (A)
F:_ 4	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
	DV0P222	60±1	150±1	(113)	155мах	140	70+3/-0	85±2	4-7φ×12	M4	2	8
Fig.1	DV0P223	60±1	150±1	(113)	155мах	150	79+3/-0	95±2	4-7φ×12	M4	1.39	11
	DV0P224	60±1	150±1	(113)	160мах	155	84+3/-0	100±2	4-7φ×12	M5	0.848	16
	DV0P225	60±1	150±1	(113)	160мах	170	100+3/-0	115±2	4-7φ×12	M5	0.557	25
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".

: Center-to-center distance

on outer circular arc

Harmonic restraint

Α (Mounting pitch)

• Wiring of the reactor <3-Phase>

Servo driver

side

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>

Reactor

Fig.1

Power

supply side

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

341 | Panasonic Industry Co., Ltd. Panasonic Industry Co., Ltd. | 342

Mounting Bracket

Frame symbol of

applicable driver

14+0.1

C-frame

D-frame

[Unit: mm]

1 piece each

Mounting screw

(comes with)

M4 × L6 Pan head 4pcs

2-M4, Pan head

1 piece each

[Unit: mm]

Options

A6 Series

Dimension Top side

Part No. DV0PM20101

A6N Series

			Spec				
Part No.	Manufacturer's	Resistance	cable core	Walashi	Rated power (reference)*1		Activation temperature of
Part No.	part No.		diameter	Weight	Free air	with fan 1 m/s ²	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	/ wife /	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.

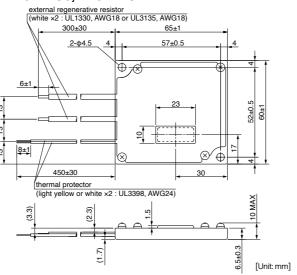
The built-in thermal fuse blows depending on changes in heat dissipation condition, operating temperature limit, power supply voltage or load.

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.

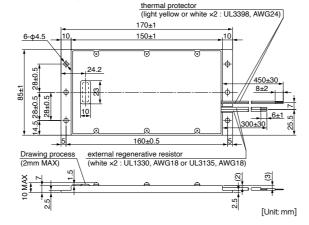
*2 If the wind speed is 1m / s by the fan.

	Power 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	D V 01 4200				
D		DV0P4284				
E		DV0P4284 × 2 in parallel or DV0P4285				
F	_	DV0P4285 × 2 in parallel				
G		DV0P4285 × 3 in parallel				
Н		DV0P4285 × 6 in parallel				

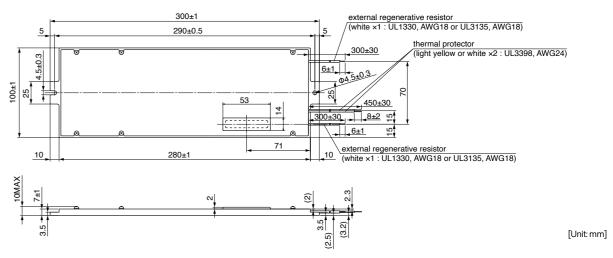
DV0P4280, DV0P4281



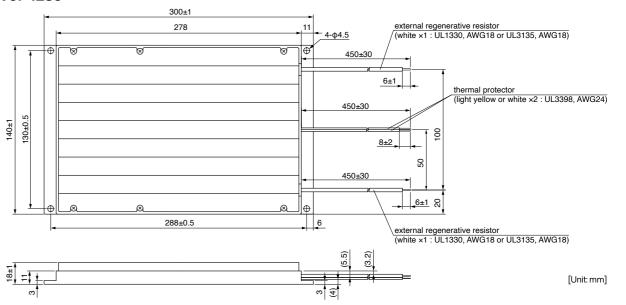
DV0P4282, DV0P4283



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

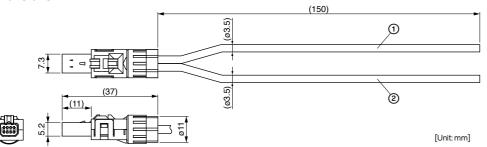
Cable ①

Pin No.	Signal name	Core color
8	485+	Red
7	485-	Yellow
1	GND	White

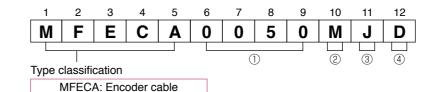
Cable 2

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	

Cable type
 PVC cable with shield by Oki Electric Cable Co., 0.20 mm² × 4P(8-wire), 3P(6-wire)
 M Hitachi Cable, Ltd. Highly bendable type

T Hitachi Cable, Ltd. Standard bendable type

T Japan Aviation Electronics Industry, Ltd. plug connector

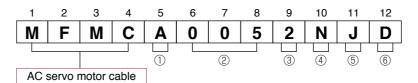
3 Cable end (Encoder side)

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
Е	Connector (With battery box)

Motor Cable, Brake Cable For available optional items, please refer to P.309 to P.312.



1) Type classification

O Type diagomeaners		
Α	A Standard B Special : Design order	
В		

② Cable length

Cable length		
3 m		
5 m		
10 m		
20 m		

③ Sectional area of cable core

0	0.75 mm ² 1.25 mm ² 2.0 mm ² 3.5 mm ²	
1		
2		
3		
7	0.3 mm ²	

4 Cable type

ROBO-TOP® is a trade mark of 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)

P 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)
X 6-wire for A6 series small motor* (Standard bendable type)

* 80 mm sq. or less

⑤ Cable end at motor side

<u> </u>	S out of the 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

\sim	 ons	
\mathbf{U}	 \mathbf{c}	

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/	Fortament and
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

Communication 0.0625 ms Ultra-high-speed network driver

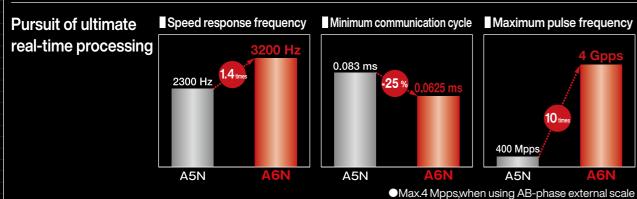


Realtime Express(RTEX)

S A6N Series



Pursuit of ultimate real-time processing



Simple network

- O Satisfies both high performance and low cost
- O Synchronization established by communication IC
- © Easier development of compatible equipment
- Easy setup with setup support software "PANATERM".

O Supports all positions, speeds and torque modes

High-precision position latch and comparisonCommunication cycle can be set to any time between

(w/built-in positioning function)

2 ms and 62.5 µs.

Multifunctional capabilities to match various needs

Features	349
Advantages of RTEX	351
Model designation	353
Driver appearance	354
System configretion	
Table of parts numbers	355
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Driver common specifications.	359
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Interface connector Kit	368

INDEX

requirements

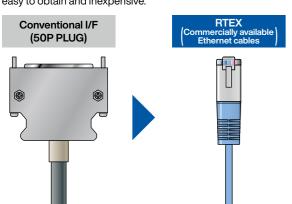
- * For options other than for Interface cable and connector kit for interface, see P.29 to P.42.
- Realtime Express and RTEX are registered trademarks of Panasonic Holdings Corporation..

MINAS A6N Series Advantages of RTEX

● The "Conventional I/F" used in this document means a pulse train and analog I/F.

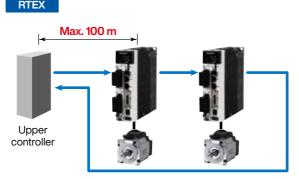
Wire-saving

Wire-saving reduces various troubles relating to wires. The cables used are widely available Ethernet cables, which are easy to obtain and inexpensive.



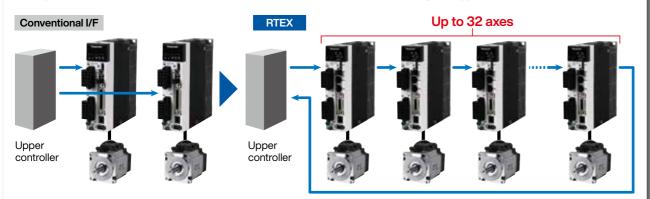
Flexibility increases in the layout of an upper controller and servo motors. The RTEXs can also support large-scale systems. RTEX Max. 100 m

Maximum length of the node-to-node cable is 100 m.



Up to 32 axes can be controlled.

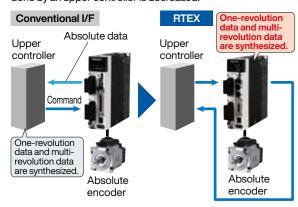
In comparison with conventional I/Fs, the number of axes increases that can be controlled by next upper controllers.



* 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.

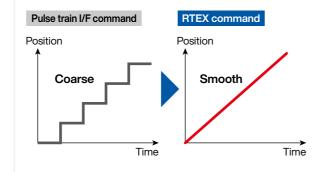
Absolute system can easily be built.

Conventional I/F requires an additional wire to transmit absolute data, while the RTEX doesn't. Each servo motor synthesizes one-revolution data and multi-revolution data to produce an actual position, so that the amount of work to be done by an upper controller is decreased.



High resolution command is enabled

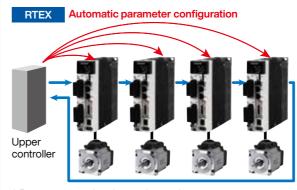
The position command rate of max. 8 Mpps* in a pulse train I/F is improved to 4 Gpps* in the RTEX. Vibrations are reduced due to a smooth command sent to a servo motor using the advantage of the high-resolution encoder.



* Max. 8 Mpps is a rate when A6 servo driver is used. Max. 4 Gpps is a rate when A6N servo driver is used.

Configurable parameter settings

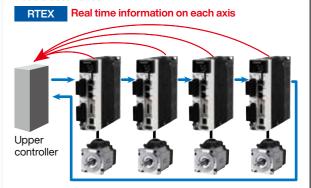
Upper controllers can configure servo parameters. This enables parameters to be configured automatically instead by human at installation.



* Parameters can be changed even during operation

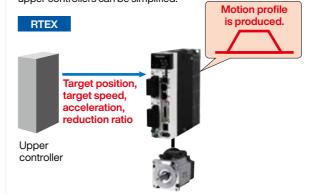
Real time monitoring is enabled.

Upper controllers can monitor various information, such as position, speed, and torque, etc. in real time. Since alarm codes can also be read out, analysis can be performed promptly at trouble occurrence.



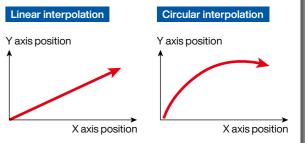
Profile position mode is supported

Profile position mode is supported for PTP control as well as cyclic position, speed, and torque. The processing done by upper controllers can be simplified.



High synchronization capability among axes

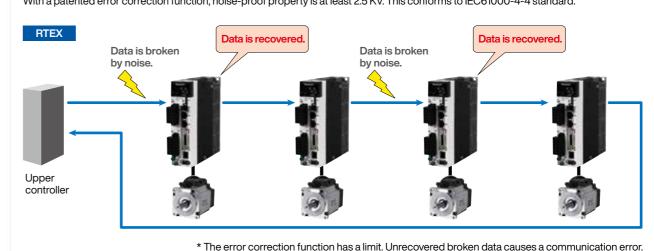
Upper controllers synchronize with entire servo motor axes at high accuracy. With the synchronization capability higher than that of conventional I/F, the RTEX is best suitable for machine tools, robots, gantry systems, and others.



* Interpolation depends on the specification of upper controllers. This is not the function of individual servo motor.

High noise-proof property

With a patented error correction function, noise-proof property is at least 2.5 KV. This conforms to IEC61000-4-4 standard.



Servo Motor

F 5 A Z L 1 A 1 * **Special specifications** 2 6

B 1

C 1

D 1

S 2

T 2

U 2

D 2 •

① Type

2 Series

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)

Symbol Series name F A6 Family

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		

4 Voltage specifications

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

© Boolgii ordor							
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.

IVISIVIF, IVIDIVIF, IVIDIVIF, IVIGIVIF										
		Shaft		Holding brake		Oil seal		Encoder terminal		
Syn	nbol	Round	Key- way	without	with	with	with With protective lip		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		•		•		•		•	

cations	7 Motor specifications: 80 mm sq. or less	MHMF 50 W to 1000 W
dard		MQMF 100 W to 400 W

* 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

		Sh	naft	Holding	g brake		Oil sea	I	termi	
S	ymbol	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		•	•				•		•
٧	1		•		•		•		•	
٧	2		•		•		•			•
٧	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** 2 3 4 5 6

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

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

Oa		9	
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		

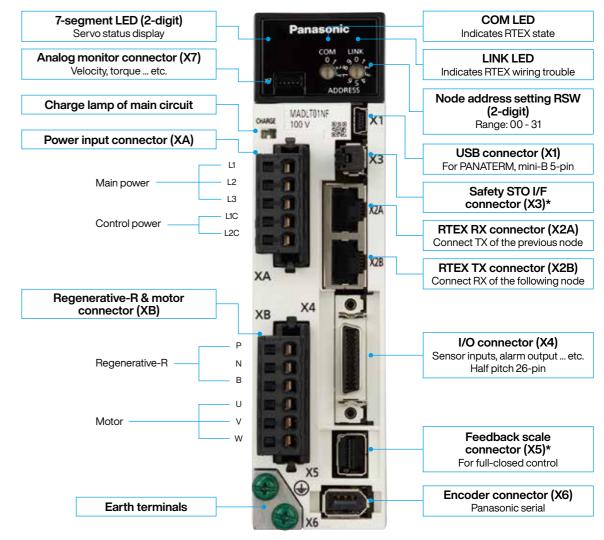
Supply voltage specifications					
Symbol	Specifications				
1	Single phase 100 V				
3	3-phase 200 V				
5	Single/3-phase 200 V				

(6) I/f specifications **(7)** Classification of type *4

Symbol (specification)	Symbol	Specification
	E	Standard for rotary motor
	F	Multifunction for rotary motor
N	L	Standard for linear/ DD motor
(RTEX)		Special Order Product
	М	Multifunction for linear/ DD motor Special Order Product

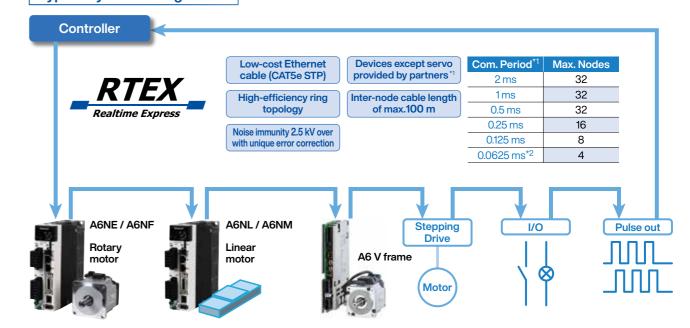
^{*4} Standard type (with a part number ending in E or L) has no safety function. Multi-function type (with a part number ending in F or M) has a safety function.

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	Motor series		Output (W)	Part No.	A6N series Part No.	Dimension Frame	capacity (at rated load)
		supply	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
			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 (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 0.113.
		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 (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☆			
		Single phase	100	MSMF011L1 1	MADL☆11N☆	A-frame	Approx. 0.4 kV/	
MSMF (Connector type)		100 V	200	MSMF021L1 ☐ 1	MBDL☆21N☆	B-frame	Approx. 0.5 kV/	
		400	MSMF041L1 ☐ 1	MCDL☆31N☆	C-frame	Approx. 0.9 kV/		
		50	MSMF5AZL1 ☐ 1	MADL☆05N☆				
3000 r/min Low inertia			100	MSMF012L1 ☐ 1	MADLXOSINX	A-frame	Approx. 0.5 kV	
		Single phase/ 3-phase	200	MSMF022L1 ☐ 1	MADL☆15N☆			
		200 V	400	MSMF042L1 ☐ 1	MBDL☆25N☆	B-frame	Approx. 0.9 kV	
			750	MSMF082L1 ☐ 1	MCDL☆35N☆	C-frame	Approx. 1.8 kV	
			1000	MSMF092L1 ☐ 1	MDDL☆45N☆	D-frame	Approx. 2.4 kV	
		Single phase 100 V	100	MQMF011L1 🗆	MADL☆11N☆	A-frame	Approx. 0.4 kV	
MOME			200	MQMF021L1 □□	MBDL☆21N☆	B-frame	Approx. 0.5 kV	
MQMF (Connector type) 3000 r/min			400	MQMF041L1 □□	MCDL☆31N☆	C-frame	Approx. 0.9 kV	
Middle inertia Flat type		Single phase/ 3-phase 200 V	100	MQMF012L1 □□	MADL☆05N☆	- A-frame	Approx. 0.5 kVA	
r lat type			200	MQMF022L1 □□	MADL☆15N☆			
		200 1	400	MQMF042L1 □□	MBDL☆25N☆	B-frame	Approx. 0.9 kV	
			50	MHMF5AZL1 □□	MADL☆01N☆	A-frame	Approx. 0.4 kV	
		Single phase	100	MHMF011L1 🔲	MADL☆11N☆	A-IIaille	Approx. U.4 KV	
		100 V	200	MHMF021L1 □□	MBDL☆21N☆	B-frame	Approx. 0.5 kV	
			400	MHMF041L1 🗆	MCDL☆31N☆	C-frame	Approx. 0.9 kV	
MHMF (Connector type)	2		50	MHMF5AZL1 □□	MADI ~OEN.~			
3000 r/min High inertia			100	MHMF012L1 🗆	MADL☆05N☆	A-frame	Approx. 0.5 kV	
		Single phase/	200	MHMF022L1 □□	MADL☆15N☆			
		3-phase 200 V	400	MHMF042L1 🔲	MBDL☆25N☆	B-frame	Approx. 0.9 kV	
			750	MHMF082L1 □□	MCDL☆35N☆	C-frame	Approx. 1.8 kV	
			1000	MHMF092L1 □□	MDDL☆55N☆	D-frame	Approx. 2.4 kV	

● 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	r		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 (Large size JL10 type) 3000 r/min Low inertia	3-phase 200 V	1500	MSMF152L1 □□*	MIDDLXSSINX	D-Irame	Approx. 2.9 KVA
		2000	MSMF202L1 □□*	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
	3-phase	3000	MSMF302L1 □□*	MFDL☆A3N☆		Approx. 5.2 kVA
IP67	200 V	4000	MSMF402L1 □□*	MEDI ADONA	F-frame	A 7.0 Id/A
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)	3-phase 200 V	2000	MDMF202L1 □□*	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
2000 r/min Middle inertia		3000	MDMF302L1 □□*	MFDL☆A3N☆	F-frame	Approx. 5.2 kVA
IP67		4000	MDMF402L1 □□*	MFDL☆B3N☆		Approx. 7.8 kVA
0.		5000	MDMF502L1 □□*	MILDEX DOIN X		Approx. 7.8 KVA
MGMF	Single phase/	850	MGMF092L1 □□*	MDDL☆45N☆	D-frame	Approx. 2.4 kVA
(Large size JL10 type)	3-phase 200 V	1300	MGMF132L1 □□*	MDDL☆55N☆	D-Irame	Approx. 2.9 kVA
Low speed/ High torque type		1800	MGMF182L1 □□*	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
1500 r/min	3-phase	2400	MGMF242L1 □□*	MEDL☆93N☆	E-IIaille	Approx. 4.5 kVA
Middle inertia	200 V	2900	MGMF292L1 □□*	MFDL☆B3N☆	□ frama	Annew 7.0 k)/A
IP67		4400	MGMF442L1 □□*	MILDEX DOIN X	F-frame	Approx. 7.8 kVA
	Single phase/	1000	MHMF102L1 □□*	MDDL☆45N☆	D frama	Approx. 2.4 kVA
MHMF	3-phase 200 V	1500	MHMF152L1 □□*	MDDL☆55N☆	D-frame	Approx. 2.9 kVA
(Large size JL10 type) 2000 r/min		2000	MHMF202L1 □□*	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
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
07		5000	MHMF502L1 □□*	NIFULXDOINX		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

	Moto	r		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 □□	MIDDEXSOINX	D-IIaille	Applox. 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
		5000	MSMF502L1 □□	IVII DEMOSINA		Applox. 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	3-phase 200 V	2000	MDMF202L1 □□	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
Middle inertia		3000	MDMF302L1 □□	MFDL☆A3N☆	F-frame	Approx. 5.2 kVA
IP67		4000	MDMF402L1 □□	MFDL☆B3N☆		Approx. 7.8 kVA
07		5000	MDMF502L1 □□			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☆		Approx. 2.9 kVA
Low speed/		1800	MGMF182L1 □□	MEDL☆83N☆	E-frame	Approx. 3.8 kVA
High torque type	3-phase	2400	MGMF242L1 □□	MEDL☆93N☆	E-Irame	Approx. 4.5 kVA
Middle inertia	200 V	2900	MGMF292L1 □□	MEDI -A-DON-A-	F-frame	A 7 0 k\/A
IP67		4400	MGMF442L1 □□	MFDL☆B3N☆	r-iranie	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-Irame	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 □□	MEDI A-DON A	F-frame	A 7.0 13/A
11 07		5000	MHMF502L1 □□	MFDL☆B3N☆		Approx. 7.8 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

Motor			Driver	Power		
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

	Moto	or		Driver		Power
Motor series	Power supply	Output (W)	Part No.	A6N series Part No.	Dimension Frame	capacity (at rated load)
MDMF		7500	MDMF752L1 ☐ 5	MGDLTC3NF	G-frame	Approx. 11 kVA
(Small size JN2 type)	3-phase	11000	MDMFC12L1 ☐ 5	MHDLTE3NF		Approx. 15 kVA
1500 r/min Middle inertia	200 V	15000	MDMFC52L1 ☐ 5	MHDLTE3NF	H-frame	Approx. 20 kVA
IP67*3		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.

Panasonic Industry Co., Ltd. | 358 357 | Panasonic Industry Co., Ltd.

	100 V	Mai	n circuit	Single phase 100 V +10 % to 120 V +10 % 50 Hz / 60 Hz			
	100 V	Cont	rol 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	200 V	circuit	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			
		circuit	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)			
Env	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			
Coi	ntrol metho	od		IGBT PWM Sinusoidal wave drive			
End	coder feedk	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).			
<u>n</u> .	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		Control signal Output		Each 8 input can be assigned by the parameter.			
Interface connector	Control si			Each 3 output can be assigned by the parameter.			
onne	Analog signal		Output	2 outputs for analog monitors 1 and 2			
ector	Pulse sign	nal	Output	Line driver output for encoder pulses (A/B phase signal) or external scale pulses.			
			ne Express RTEX)	Communication for transmission of a real-time operation command, the parameter setting, or the status monitoring.			
Con	nmunication	USB		USB interface to connect to computers (setup support software PANATERM) for parameter setting or status monitoring.			
Saf	fety termina	al		Terminal to support safety function.			
	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)			
Reg	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)			
Dyr	namic brak	е		A to G frame: built-in H frame: External resistor only			
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 damping filter		Available (2 filter available used simultaneously)
ğ	Feed forward function		Available (speed/torque)
S	Load variation suppression control		Available
ĭ	Gain 3 switching function		Available
<u>5</u>	Quadrant glitch is		Available
		edom control mode	Available
	Motor operatable		Available
	-	on information monitor	Available
			Friction torque compensation, Torque limit switching function, Torque saturation protection
	Other available f	unctions	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/slowdo	wn function	0 s to 10 s / 1000 r/min Acceleration and deceleration can be set separately.
396			S-curve acceleration/deceleration is also available.
S	Feed forward fun		Available (torque)
contro	Load variation sup	opression control	Available
<u>o</u>	Two-degree-of-free	edom control mode	Available (standard type)
		sition information	Available
	monitor		
	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
Š	Control output		At speed etc.
Torque contro	Position command input	Input mode	Command type by RTEX command
일	Speed limit function		Speed limit value can be set by parameter. (Switched by RTEX command.)
Ť	External scale position information monitor		Available
_	Other available f		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.
		J	1/40 times to 125200 times
Full-closed	Setting range of division/multiplication		Although the ratio of the encoder pulse (numerator) and external scale pulse (denominator can be set anywhere between the range of 1 to 2^{23} for the numerator and 1 to 2^{23} for the
SO	Domning control		denominator, Please use within the range indicated above.
ed	Damping control Feed forward fur		Available (Up to 3 frequency settings, out of 4 settings in total, can be used simultaneously.) Available (speed/torque)
8			` ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
contro		ippression control	Available
으	Gain 3 switching		Available
		uppression function	Available
	Quadrant glitch i		Available
		edom control mode	Available (standard type)
	Motor operatable		Available
	External scale positi	on information monitor	Available
	Other available f	unctions	Friction torque compensation, Torque limit switching function, Torque saturation protection functi
	Electronic gear re	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.
S	Notch filter		Available (5 filters available)
Common	Gain switching fu	ınction	Available
l Mo	2-step torque filte		Available
ž		son output function	Available
	Protective function	•	Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current,
)	encoder error, excess position deviation, EEPROM error etc.
	Alarm data trace b	pack function	Tracing back of alarm data is available Available

		100 V	Maiı	n circuit	Single phase 100 V $^{+10}_{-15}$ % to 120 V $^{+10}_{-15}$ % 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	200 V	circuit	E-frame, F-frame	3-phase 200 V ⁺¹⁰ % to 240 V ⁺¹⁰ % 50 Hz / 60 Hz		
		200 V	Control	A-frame to D-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		
			circuit	E-frame, F-frame	Single phase $200 \text{ V} ^{+10 \%}_{-15 \%}$ to $240 \text{ V} ^{+10 \%}_{-15 \%}$ 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		
			Vibration		5.88 m/s ² 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).		
ecific	Inte	0 1 1 1	Input Output		Each 8 input can be assigned by the parameter.		
Specifications	пасе	Control si			Each 3 output can be assigned by the parameter.		
G	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).		
			Realtime Express (RTEX)		Communication for transmission of a real-time operation command, the parameter setting, or the status monitoring.		
	Cor	nmunication	unication		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	е		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						

^{*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	Damping control		Available(Up to 3 frequency settings,out of 4 settings in total,can be used simultaneously.)
	itio	Model type dam	ping filter	Available(2 filter available used simultaneously)
		Feed forward fur	nction	Available (speed/torque)
	control	Load variation su	ppression control	Available
	2	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 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
		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.
Ĕ	S	Feed forward function		Available (torque)
Function	control	Load variation suppression control		Available
_	_	Two-degree-of-freedom 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
	σď	Control output		At speed etc.
	Torque co	Position command input	Input mode	Command type by RTEX command
	control	Speed limit function		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.
	ဂ္ဂ	Notch filter		Available (5 filters available)
	Common	Gain switching for	unction	Available
	М	2-step torque filt		Available
			son output function	Available
		Protective function		Over-voltage, under-voltage, over-speed, over-load, over-heat, over-current, encoder error, excess position deviation, EEPROM error etc.
		Alarm data trace l	back function	Tracing back of alarm data is available
		Deterioration dia		Available

Connector X5 MUF-RS10SK-GKX-TB (or equivalent) J.S.T. Mfg. Co., Ltd.

Sumitomo 3M

3E106-2230KV (or equivalent)

* All dimensions shown in this catalog are for the A6NF series, but outer dimensions are the same as the A6NE series.

Connector of power and motor side

Connector XA 05JFAT-SAXGGKK-A J.S.T. Mfg. Co., Ltd.

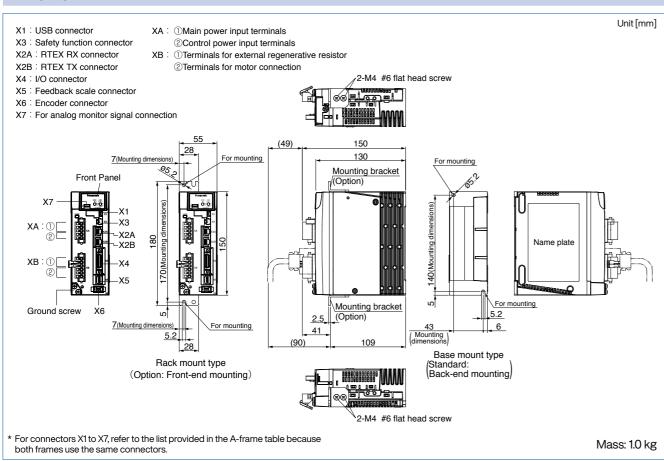
Connector XB 06JFAT-SAXGGKK-A J.S.T. Mfg. Co., Ltd.

A-frame X1: USB connector Unit [mm] X3: Safety function connector X2A: RTEX RX connector X2B: RTEX TX connector For mounting X4: I/O connector X5 : Feedback scale connector 130 For mounting X6: Encoder connector Mounting bracke X7: For analog monitor signal connection (Option) Front Panel -X3 ~X2B XB:(Mounting bracket For mounting Ground screw X6 (Option) XA: ①Main power input terminals 7(Mounting dimensions) ____6 ②Control power input terminals XB: ①Terminals for external regenerative resistor Base mount type ②Terminals for motor connection Rack mount type /Standard: Back-end mounting (Option: Front-end mounting) 2-M4 #6 flat head screw Multifunction type Basic type A-frame: Connector of driver side Connector XA S05B-F32SK-GGXR (or equivalent) J.S.T. Mfg. Co., Ltd. S06B-F32SK-GGXR (or equivalent) UB-M5BR-S14-4S (or equivalent) J.S.T. Mfg. Co., Ltd. J.S.T. Mfg. Co., Ltd. Connector XB Connector X1 Mass: 0.8 kg Connector X3 CIF-HS08SS-071-TB (or equivalent) J.S.T. Mfg. Co., Ltd. Connector X2A MOD-WRJ88LY1G-TP+ (or equivalent) HTK Connector X2B MOD-WRJ88LY1G-TP+ (or equivalent) HTK Attached to the driver> Connector X4 DF02R026NA2 (or equivalent)

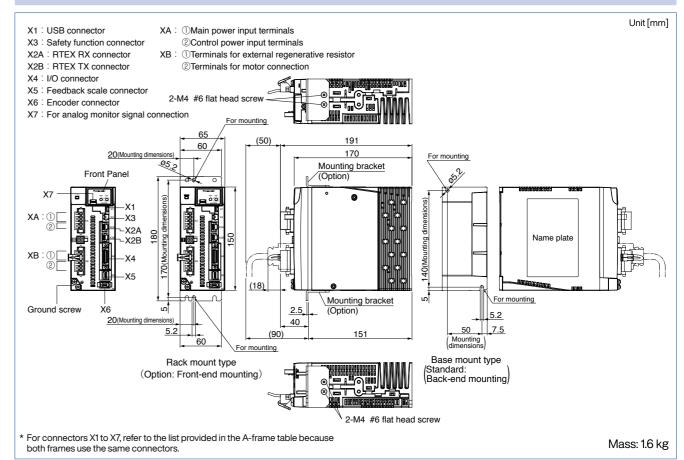
B-frame

Connector X6

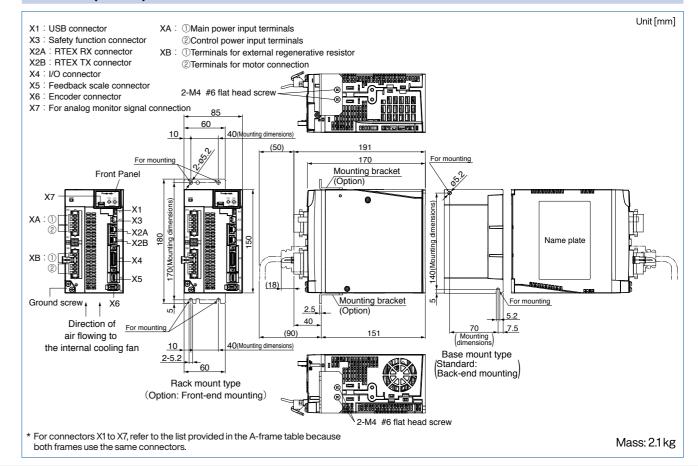
Connector X7 53398-8605 (5pin)



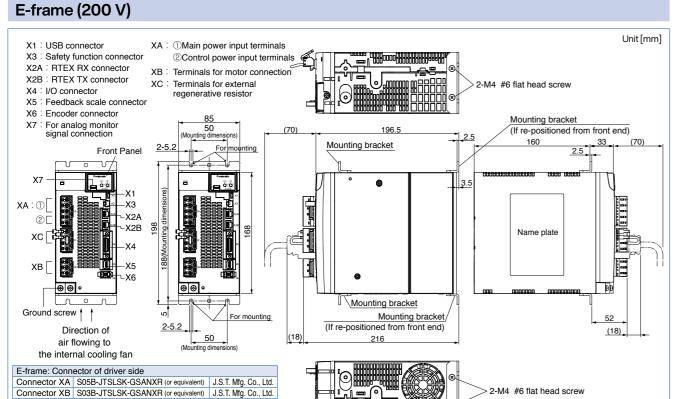
C-frame



D-frame (200 V)



the same as the A6NE series.



* All dimensions shown in this catalog are for the A6NF series, but outer dimensions are

* For connectors X1 to X7, refer to the list provided in the A-frame table because

both frames use the same connectors.

Mass: 2.7 kg

F-frame (200 V)

E-frame: Connector of power and motor side

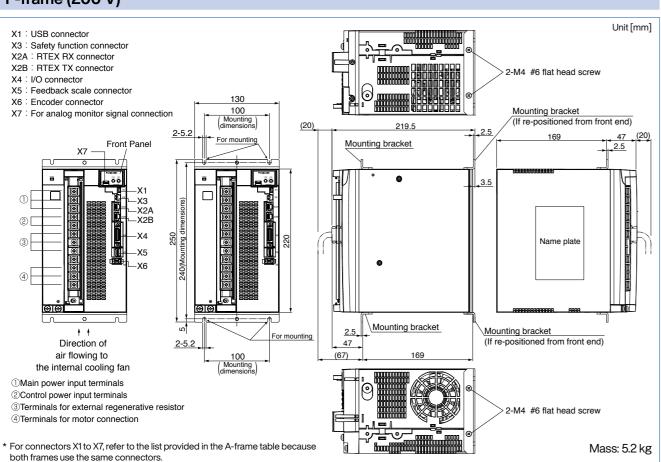
<Attached to the driver>

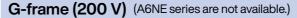
Connector XC | S04B-JTSLSS-GSANXR (or equivalent) | J.S.T. Mfg. Co., Ltd.

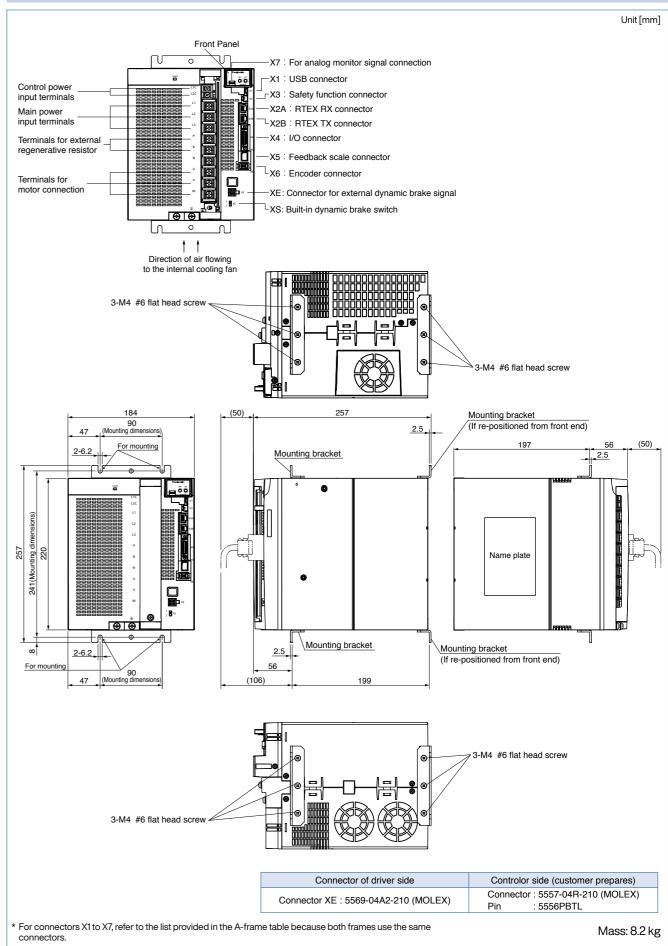
Connector XA 05JFAT-SAXGSA-L (or equivalent) J.S.T. Mfg. Co., Ltd.

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.







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

in 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.

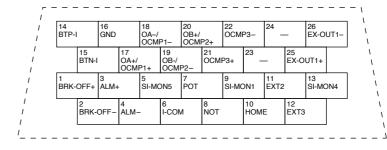
Connector Kit for Interface

Part No. DV0P0770

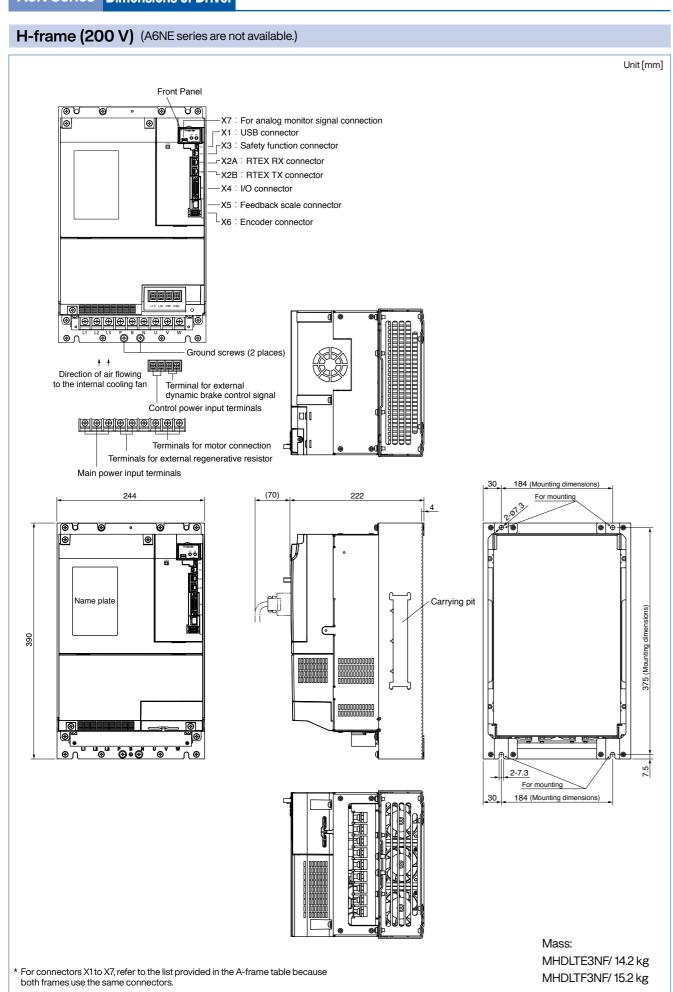
Components

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

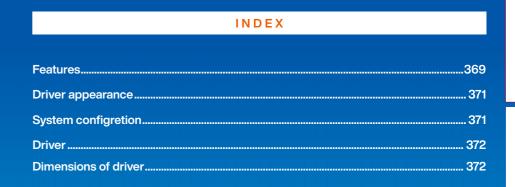


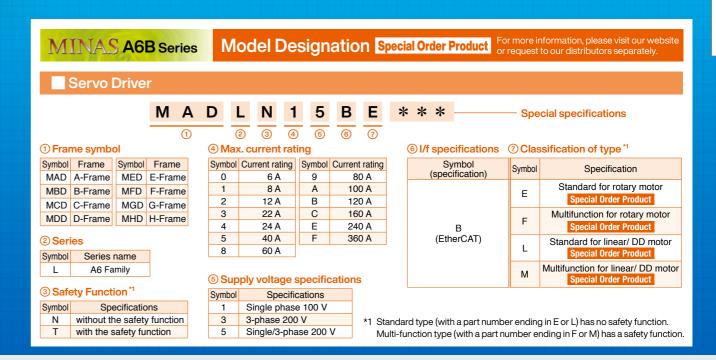
New algorithm "Two-degree-of-freedom control method" is used to improve machining accuracy and productivity.



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.





Charge lamp of main circuit

Power input connector (XA)

Main power

Control power

Regenerative-R & motor

connector (XB)

Regenerative-R

Earth terminals

MADLT01BI

Appearance 7-segment LED (2-digit) Servo status display Analog monitor connector (X7) Velocity, torque ... etc.

L2C

EtherCAT Indicators
RUN : EMS status (Green)

ERR : Alarm status (Red)

L/A IN : Indication of LINK status and operation status of the physical L/A OUT : layer of each port (Green)

Rotary switch to set Station alias (ID)

USB connector (X1)
For PANATERM, mini-B 5-pin

Safety STO I/F connector (X3)*

Connector X2A: IN for EtherCAT
Connection to TX of upstream node

Connector X2B: OUT for EtherCAT
Connection to RX of downstream node

I/O connector (X4)
Sensor inputs, alarm output ... etc. Half

pitch 26-pin

Feedback scale connector (X5)*

For full-closed control

Encoder connector (X6)
Panasonic serial

* The photo is A6BF series. There are no X3 and X5 connectors in the A6BE series.

Typical system configuration

EtherCAT specification

	Controller		Device profile	CoE (CANOpen over EtherCAT)		
			Control mode	csp, pp, hm, csv, cst, pv, tq		
/			hm method (homing mode)	1 to 14, 17 to 30, 33, 34, 35, 37		
	Г±Ь	OKCATT	Synchronized mode	DC (Synch.), SM2 (Synch.), FreeRu	un (Non-synch.)	
		er CAT ®	Supported cycle time	125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms		
,	 	+	1			
	A6BE / A6B	F A6BL / A6BM		tepping I/O	Pulse out	
	Rotary motor	Linear	A6 V frame	Drive	\mathcal{M}	
	1		10	Motor	ML	

Applicable motor

Please refer to P.29 to P.42 of the A6 series.

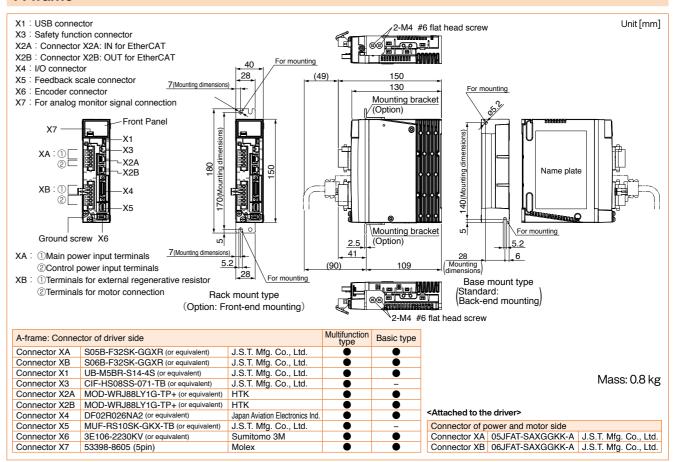
Applicable option

Interface cable	DV0P0800	
Interface connector kit	DV0P0770	
Options other than interface cables and interface connectors	Please refer to P.29 to P.42 of the A6 series.	

* Refer to P.368 of the A6N series for the "parallel I/O connector (X4)" option. The "signal names" and "pin assignments" for the parallel I/O connector (X4) option "interface cable" and "interface connector kit" are different from those described on P.368. For details, please refer to the specifications of the A6B series.

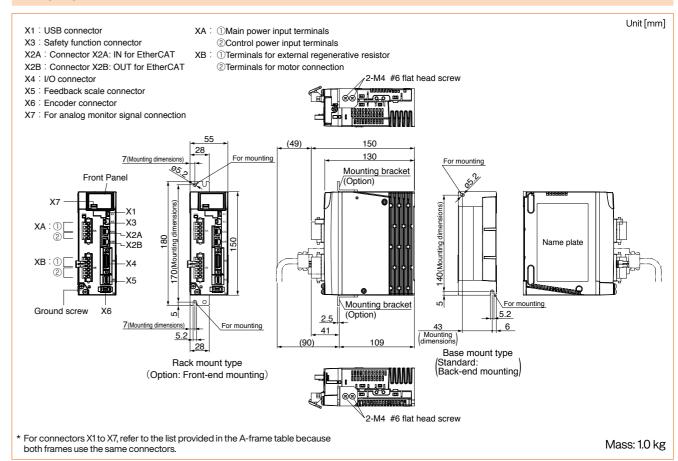
A-frame

the same as the A6BE series.

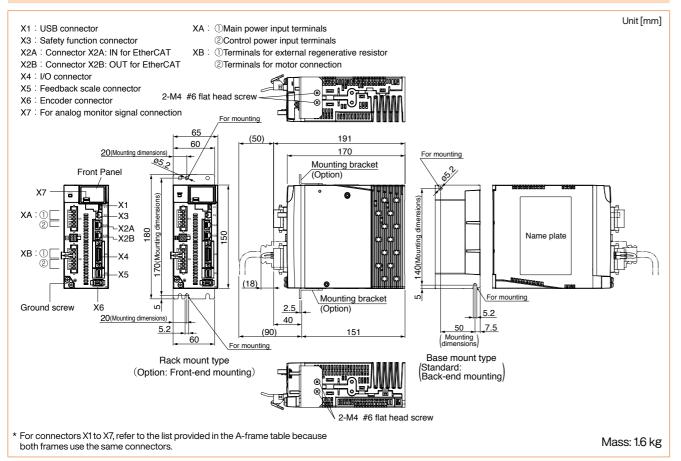


* All dimensions shown in this catalog are for the A6BF series, but outer dimensions are

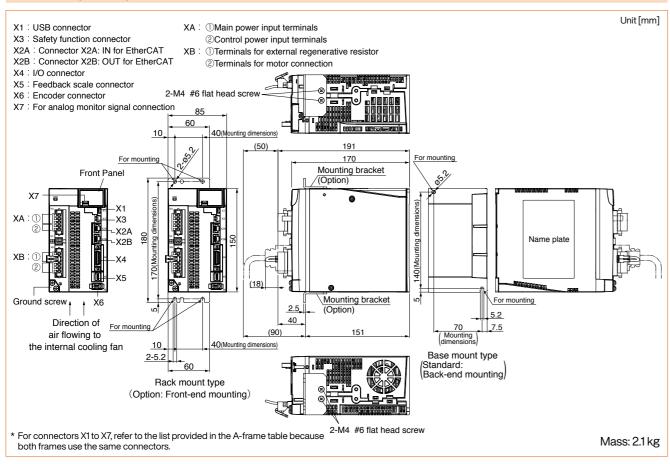
B-frame



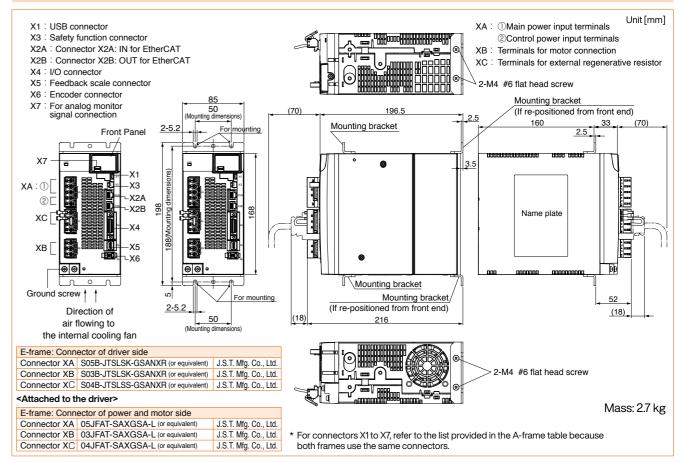
C-frame



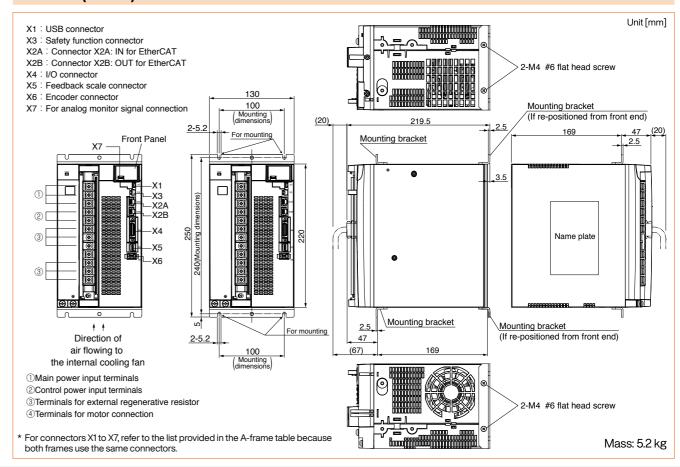
D-frame (200 V)



E-frame (200 V)

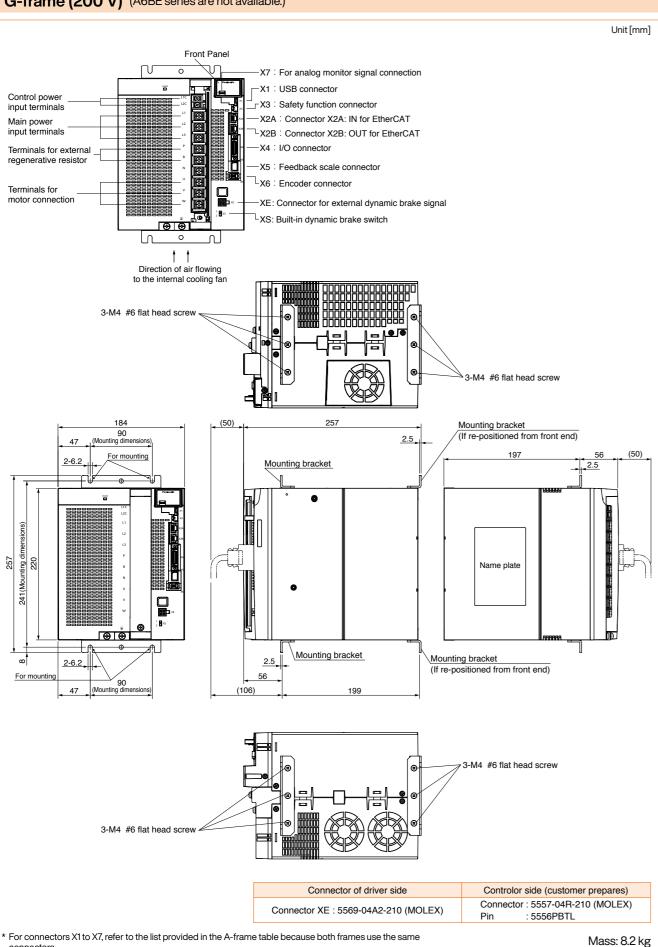


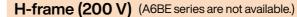
F-frame (200 V)

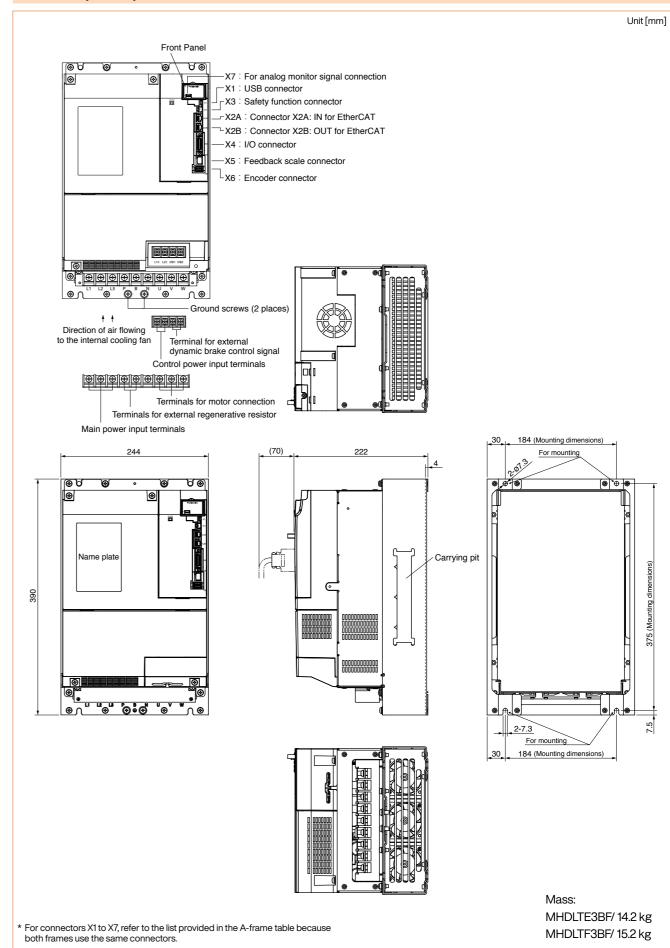


connectors.

G-frame (200 V) (A6BE series are not available.)







Compact Servo Only for

Position Control.

Ultra compact position control type

MINAS E Series

Last Order Date: April 30, 2025 After this date, we will no longer accept new orders for the product.



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

Contents	
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Motor Line-up	381
Model Designation	382
Overall Wiring	
·	
Driver and List of Applicable Peripheral Devices	
Driver	
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Encoder Wiring Diagram	
Control Circuit Standard Wiring Example	
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Motor Cable	400
Brake Cable	400
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External Regenerative Resistor	404
Reactor	405
Surge Absorber for Motor Brake	405

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.

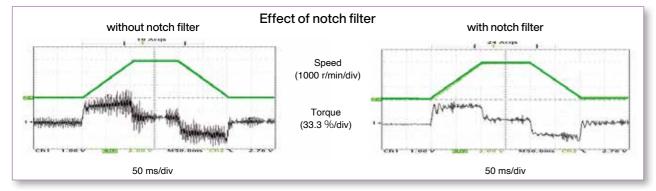
2. Further Reduction of Vibration

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.

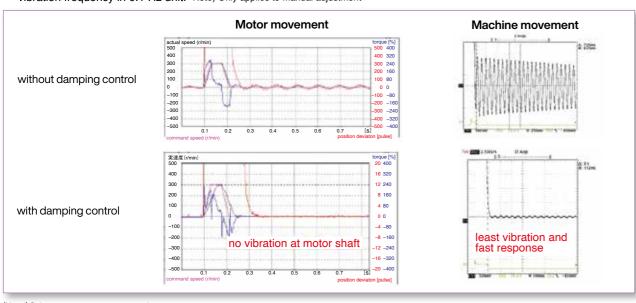
Notch filter (Note1)

- 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 Directives/UK	
		UL508C CSA22.2 No.14	Low Voltage Regulation	
	EN55011 Radio Disturbance Characteristics of Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment			
	EN61000-6-2	Immunity for Industrial Environments		
Motor	EC61000-4-2	00-4-2 Electrostatic Discharge Immunity Test		
and driver	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	Conforms to references by EU EMC	
	IEC61000-4-4	Electric High-Speed Transition Phenomenon/Burst Immunity Test	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		

EN: Europaischen Normen

EMC: Electromagnetic Compatibility III · I Inderwriters I aboratories

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

MUMA

0.05 to 0.4

0.05

0.1

0.2

0.4

Ultra low inertia

 \bigcirc

(5000)

 \bigcirc

 \bigcirc

 \circ

5A 50 W 01 100 W 02 200 W 04 400 W

Voltage specifications Symbol Specifications

100 V 2 200 V 100 V/200 V common Z (50 W only)

Rotary encoder specifications

Symbol	Format	Pulse counts	Resolution	Wires	
Р	Incremental	2500 P/r	10000	5	

Series

MUMA Ultra low inertia (50 W to 400 W)

MINAS Eseries Model Designation

M U M A 5 A Z P 1 S **

Servo Motor

Special specifications

Motor structure

	Shaft	Holding	g brake	Oil	seal
Symbol	Key-way, center tap	without	with	without	with*
S	•	•		•	
Т	•		•	•	

* Motor with oil seal is manufactured by order.

Design order

Symbol	Specifications
1	Standard

See P.389 for motor specifications

Motor with gear reducer

M U M A 0 1 1 P 3 1 N

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

Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

Gear reduction ratio, gear type

	Gear	Moto	_		
Symbol	reduction ratio	100	200	400	Gear type
1N	1/5	•	•	•	F
2N	1/9	•	•	•	For high accuracy
4N	1/25	•	•		accuracy

Motor structure

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

See P.394 for motor with gear reducer specifications

Servo Driver

M K D E T 1 3 1 0 P ** **Special specifications** Control mode Frame symbol Symbol Specifications Symbol P Pulse train MKDE E series, K-frame **Current detector** MLDE E series, L-frame current rating Supply voltage specifications Symbol Current rating Power device 05 5 A Max. cui 10 10 A

	Max. cur	rent rating	Symbol	Specifications		
Symbol Current rating			1	Single phase, 100 V		
			2	Single phase, 200 V		
	T1	10 A	3	3-phase, 200 V		
	T2	15 A	5	Single/3-phase, 200 V		
				·		

See P.385 for driver specifications

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SMT machines Inserters

High repetitive

positioning

application

Except shaft Small capacity

throughhole Ultra low inertia

and

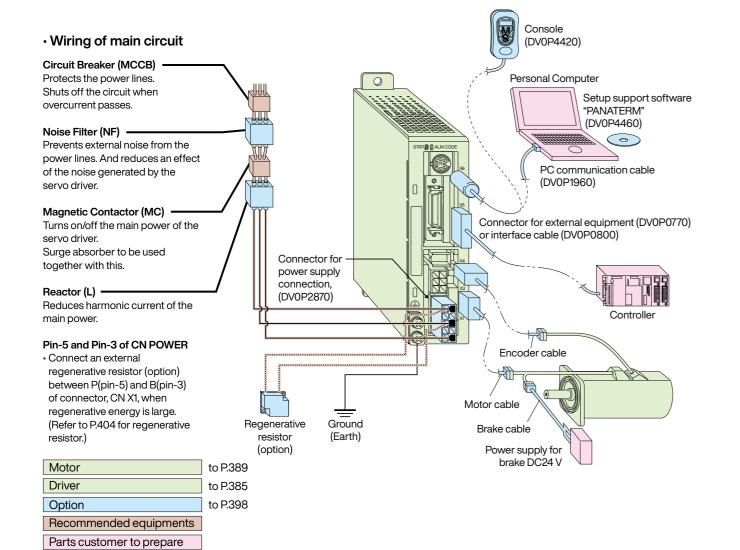
connector

A6 Series

A6N Series

A6B Series
Special Order Product

Information



List of recommended peripheral devices

_	Motor		Power			Magnetic		
Power supply	Series	Output	capacity (at rated) output)	Circuit Breaker (Rated current)	Noise Filter	Contactor (Contact Composition)	Wire diameter (L1, L2, L3, U, V and W)	
Single		50 W	0.3 kVA	5 A		40.4		
phase,		100 W	0.4 kVA	S A	10 A (3P+1a) 15 A DV0P4160 (3P+1a)	· ·		
100 V	MUMA	200 W	0.5 kVA	10 A		(31 + 1a)	-	
		50 W	0.3 kVA	5 A				
Single		100 W	0.5 KVA			15 A	15 A	0.75
phase, 200 V		200 W	0.5 kVA			(3P+1a)	0.75 mm ² to 0.85 mm ² AWG18	
		400 W	0.9 kVA	10 A			AVVOID	
		50 W	0.3 kVA	5 A				
3-phase		100 W	U.S KVA			10 A		
200 V		200 W	0.5 kVA			(3P+1a)		
		400 W	0.9 kVA	10 A				

- * Select the single and 3-phase common specifications corresponding to the power supplies.
- To conform to 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		nector to host ontroller[X5]
Nominal size	Fastening torque (N•m)(Note 3)	Nominal size	Fastening torque (N•m)(Note 3)
M4	0.7~0.8	M2.6	0.2±0.05

(Note 3) < Caution>

 Applying fastening torque larger than the maximum value may result in damage to the product.

<Remarks>

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

			2500P/r, Inc	remental				Option	on				
Power supply	Output (W)	Motor Note) 1	Rating/Spec. (page)	Driver	Dimensions (Frame (symbol)	Encoder Cable Note) 2	Motor Cable		ake 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)	MFECA0 * * 0EAM					DV0P228		
	50	MUMA5AZP1 □	391	MKDET1505P	388 (K)		CA0**0EAM MFMCA0**0AEB						
Single	100	MUMA012P1	391	MKDET1505P	388 (K)								
phase 200 V	200	MUMA022P1	391	MLDET2210P	388 (L)			FOAG that OF AMA IMPMOAG that OA FD					DV0P4160
	400	MUMA042P1	391	MLDET2510P	388 (L)			MFMCB	B0**0GET	DV0P2891		DV0P4160	
	50	MUMA5AZP1 □	391	MKDET1505P	388 (K)						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

Setup Support Software, PANATERM RS232 Communication Cable (for Connection with PC) DV	V0P4420 V0P4460 V0P1960	403 398	
Software, PANATERM English RS232 Communication Cable (for Connection with PC)		398	
PANATERM English RS232 Communication Cable (for Connection with PC)		390	
(for Connection with PC)	V0P1960		
Interface Cable DV		403	
	V0P0800	403	
Connector Kit for Interface DV	V0P0770	402	
Connector Kit for Motor and Encoder DV	V0P3670	401	
Connector Kit for Driver Power Supply DV	V0P2870	401	
Encoder Cable MFECA0 * * 0EA	AM.	400	
Motor Cable MFMCA0 * * 0Al	MFMCA0 * * 0AEB		
Brake Cable MFMCB0 * * 0G	ET	400	
Cable Set (3 m) (Note 4) DV0P37300	DV0P37300		
Cable Set (5 m) (Note 4) DV0P39200	DV0P39200		
DIN Rail Mount Unit DV0P3811	DV0P3811		
	V0P2890	404	
Regenerative Resistor 200 V 100 Ω 10 W DV	V0P2891	404	
100 V	V0P227		
Reactor D\	V0P228	405	
200 V DV	V0P220		
Noise Filter DV	V0P4160	416	
Surge Absorber Single phase DV	V0P4190	416	
3-phase 200 V DV	V0P1450	1	
Ferrite core DV	V0P1460	416	

(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

Single phase, 100 V

A6 Series

A6B Series

Single phase, 200 V to 240 V +10 % Single phase, 200 V 3-phase, 200 V to 240 V 3-phase, 200 V 50 Hz/60 Hz -15 % Operating: 0 °C to 55 °C, Storage: -20 °C to 65 °C Temperature (Max.temperature guarantee 80 °C for 72 hours <Nomal temperature>) Humidity Both operating and storage: 90 %RH or less (free from condensation) Altitude 1000 m or lower Vibration 5.88 m/s² or less, 10 Hz to 60 Hz (No continuous use at resonance frequency) Withstand voltage Should be 1500 VAC (Sensed current: 20 mA) for 1 minute between Primary and Ground. Control method IGBT PWM Sinusoidal wave drive Encoder feedback 2500 P/r (10000 resolution) incremental encoder 7 inputs (1) Servo-ON, (2) Alarm clear and other inputs vary depending on the control mode. Control signal 4 outputs (1) Servo alarm, (2) Alarm, Output (3) Release signal of external brake and other outputs vary depending on the control mode. 2 inputs Supports both line driver I/F and open collector I/F. Input 4 outputs Feed out the encoder pulse (A, B and Z-phase) in line driver. Output Z-phase pulse is also feed out in open collector. Communication function RS232 1:1 communication to a host with RS232 interface is enabled. Display LED (1) Status LED (STATUS), (2) Alarm code LED (ALM-CODE) Regeneration No built-in regenerative resistor (external resistor only) Dynamic brake 3 modes of (1) High-speed position control, (2) Internal velocity control and Control mode (3) High-functionality positioning control are selectable with parameter (1) CW over-travel inhibition, (2) CCW over-travel inhibition, (3) Deviation counter clear, Control input (4) Gain switching, (5) Electronic gear switching Control output (1) Positioning complete (In-position) Max. command pulse Line driver: 500 kpps, Open collector: 200 kpps frequency Differential input. Selectable with parameter, ((1) CW/CCW, (2) A and B-phase, (3) Command and Type of input pulse train Electronic gear /Division/Multiplication Setup of electronic gear ratio Setup range of $(1-10000) \times 2^{(0-17)}/(1-10000)$ of command pulse Smoothing filter Primary delay filter or FIR type filter is selectable to the command input. (1) CW over-travel inhibition, (2) CCW over-travel inhibition, (3) Selection 1 of internal command speed, Control input (4) Selection 2 of internal command speed, (5) Speed zero clamp Control output (1) Speed arrival (at-speed) Internal speed command Internal 4-speed is selectable with control input. Individual setup of acceleration and deceleration are enabled, with 0 s to 10 s/1000 r/min. Soft-start/down function Sigmoid acceleration/deceleration is also enabled. Zero-speed clamp 0-clamp of internal speed command with speed zero clamp input is enabled. Estimates the load inertia in real-time in actual operation and sets up the gain automatically Real-time corresponding to the machine stiffness. Useable at (1) High-response position control, (2) Internal

speed control and (3) High-functionality position control.

Masking of the following input signal is enabled.

Manual setup with parameter

Console

1 P/r to 2500 P/r (encoder pulses count is the max.).

Traceable up to past 14 alarms including the present one.

Setup support software PANATERM (Supporting OS: Windows98, Windows ME, Windows2000, and WindowsXP)

Estimates the load inertia with an action command inside of the driver, and sets up the gain

control, (2) Internal speed control and (3) High-functionality position control.

(1) Over-travel inhibition, (2) Speed zero clamp, (3) Torque limit switching

Excess position deviation, command pulse division error, EEPROM error etc.

automatically corresponding to setup of the machine stiffness. Useable at (1) High-response position

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

Single phase, 100 V to 115 V $^{+10}$ %

50 Hz/60 Hz

50 Hz/60 Hz

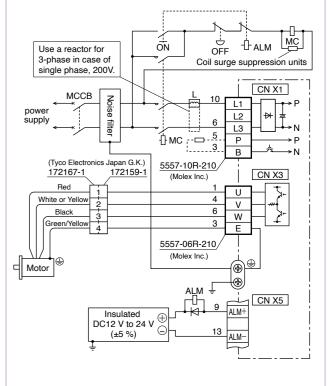
Standard Wiring Example of Main Circuit

3-Phase, 200 V

Encoder Wiring Diagram

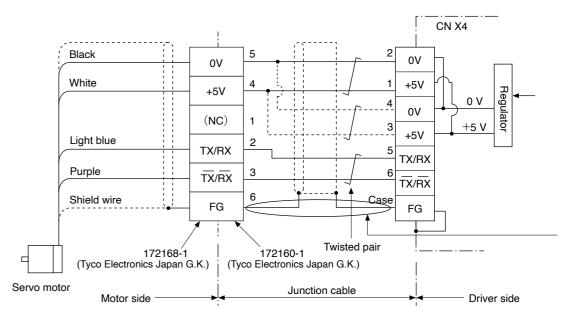
- D⊤ALM ΟN OFF Coil surge suppression units CN X1 ∱мс.---(Tyco Flectronics Japan G K 5557-10R-210 172167-1 172159-(Molex Inc.) White or Yellov 5557-06R-210 (Molex Inc.) Motor CN X5 DC12 V to 24 V (±5 %) ALM-

Single Phase, 100 V / 200 V



Wiring Diagram

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.

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input

pulse

Normal mode

Masking of unnecessary

Division of encoder feedback

Hardware error

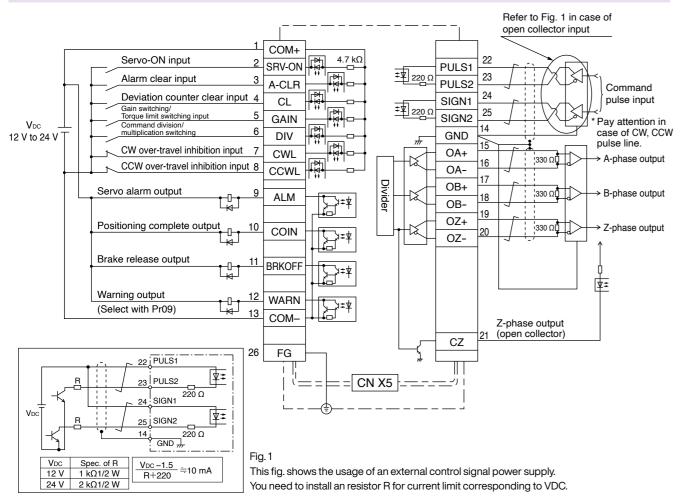
Software error

Traceability of alarm data

Damping control function

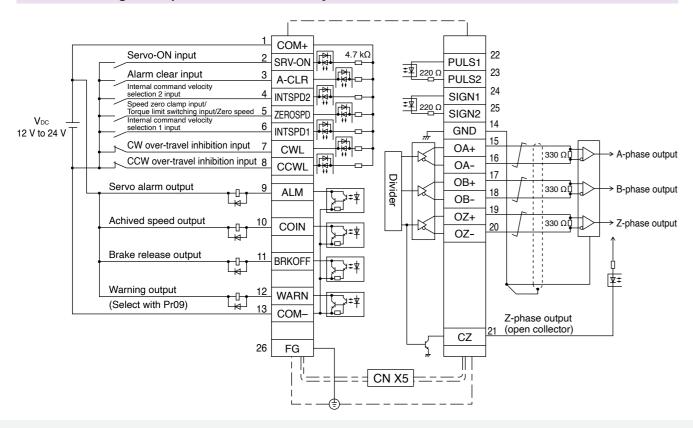
Manual

CN X 5 Wiring Example at Position Control Mode

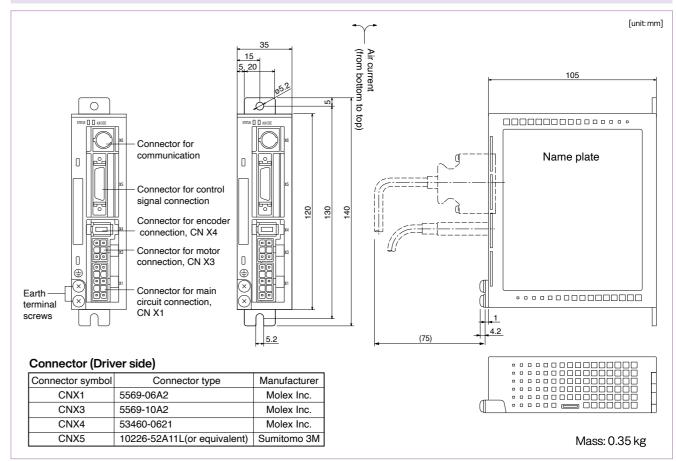


Control Circuit Standard Wiring Example

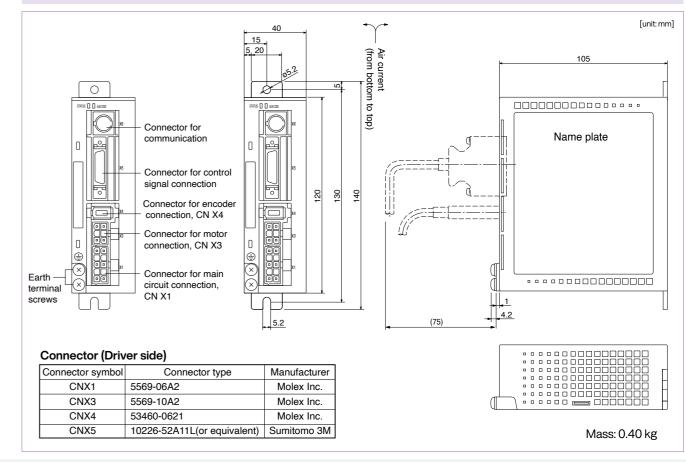
CN X 5 Wiring Example at Internal Velocity Control Mode







Frame L



Motor model

Applicable driver

Rated output (W)

Rated torque (N·m)

Rated current (Arms)

Max. current (Ao-p)

Regenerative brake

Moment of inertia

frequency

of rotor (×10⁻⁴ kg·m²)

(times/min)

Power supply capacity (kVA)

Momentary Max. peak torque (N·m)

Note)1

Recommended moment of inertia ratio

Rated rotational speed (r/min)

Max. rotational speed (r/min)

of the load and the rotor

Rotary encoder specifications

Protective enclosure rating

Static friction torque (N m)

Engaging time (ms)

Releasing time (ms)

Releasing voltage

Exciting voltage

Permissible load

During

During

operation

assembly

Exciting current (DC) (A)

Environment

MUMA

Model No

Frame symbol

Without option

DV0P2890

Without brake

Note)3

Resolution per single turn

Ambient temperature

Ambient humidity

Installation location

Vibration resistance

Note)4

Radial load P-direction (N)

Thrust load A-direction (N)

Thrust load B-direction (N)

Radial load P-direction (N)

Thrust load A-direction (N)

Thrust load B-direction (N)

For motor dimensions, refer to P.393, and for the driver, refer to P.388.

Altitude

Mass (kg), () represents holding brake type

5AZP1

MKDET1105P

0.3

50

0.16

0.48

1.0

4.3

0.021

0.026

0.4 (0.6)

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

0.29

25

20 (30)

0.26

147

88

117

68

58

58

Frame K

AC100 V

011P1

MKDET1110P

0.4

100

0.32

0.95

1.6

6.9

No limit Note)2

No limit Note)2

3000

5000

0.032

0.036

30 times or less

2500 P/r

Incremental

10000

IP65 (except rotating portion of output shaft and lead wire end)

0 $^{\circ}$ C to 40 $^{\circ}$ C (free from freezing), Storage : –20 $^{\circ}$ C to 65 $^{\circ}$ C

(Max.temperature guarantee 80 °C for 72 hours <nomal humidity>)

85 %RH or lower (free from condensing)

Indoors (no direct sunlight), free from corrosive gas, inflammable gas, oil mist and dust

1000 m or lower 49 m/s² or less

0.5 (0.7)

DC 1 V or more

DV 24 V ±10 %

021P1

MLDET2110P

Frame L

0.5

200

0.64

1.91

2.5

11.7

0.10

0.13

0.96 (1.36)

1.27

50

15 (100)

0.36

392

147

196

245

98

98

Mod	lel De	signa	ition						
e.g.)	M	U	M	Α	5	Α	Ζ	Р	1
Svi	mbol	Serie	25					T	Design o

Symbol Ultra low inertia MUMA (50 W to 200 W) Mot

Motor rated output							
Symbol	Rated out	put					
5A	5A 50 W						
01	100 W						
02	200 W						

Voltage specifications Symbol Specifications 100 V 100/200 V Z (50 W only)

order 1: Standard

Motor structure

S

S • Without with without with		Shaft	Holding	brake	Oil s	eal
	ymbol	Key-way, center tap	without	with	without	with
T A A A	S	•	•		•	
	Т	•		•	•	

Rotary encoder specifications

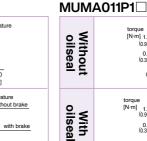
Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

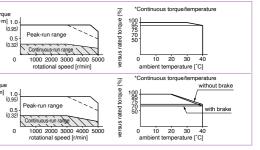
Peak-run range

Peak-run range

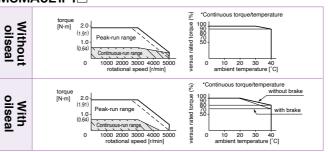
Torque Characteristics [at AC100 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]

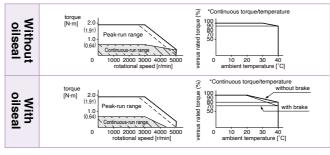
MUMA5AZP1 *Continuous torque/temperature Without oilseal Peak-run range Peak-run range

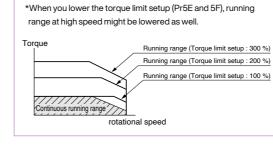


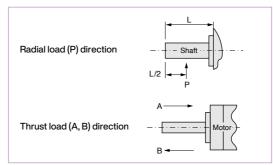


MUMA021P1









- 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 regenera-
 - tive brake 3. Consult us or a dealer if the load moment of inertia exceeds the specified
 - 4. Specified releasing time is obtained with the use of surge absorber for brake (Z15D151 by SEMITEC Corporation or equivalent).
 - () represents the actually measured value using a diode (200 V, 1 A or equivalent)

			AC200 V						
Motor model	MUMA 5AZP1□ 012P1□ 022P1□ 042P1								
Motor model MUMA Model No.				MKDET1310P	MLDET2310P				
Applicable driver	r	Model No.	MKDET1505P		MKDET2210P	MLDET2510P			
		Frame symbol	Fra	me K	Frame K Frame L	Frame L			
Power supply capacity (kVA)			0.3	0.3	0.5	0.9			
Rated output (W)			50	100	200	400			
Rated torque (N	l·m)		0.16	0.32	0.64	1.3			
Momentary Max	. 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 (Ad	o-p)		4.3	4.3	7.5	11.7			
Regenerative brake frequency (times/min) Without option			No limit Note)2						
	Note)1	DV0P2891	No limit Note)2						
Rated rotational	speed (r/min)		30	000				
Max. rotational speed (r/min)			5000						
Moment of inertia of rotor (×10 ⁻⁴ kg·m²)		Without brake	0.021 0.032		0.10	0.17			
		With brake	0.026	0.036	0.13	0.20			
Recommended moment of inertia ratio of the load and the rotor Note)3			30 times or less						
Rotary encoder	cnocific	ations	2500 P/r						
notary encoder	specifica	ations	Incremental						
	Resoluti	ion per single turn		10	000				
Protective enclo	sure rati	ing	IP65 (except rotating portion of output shaft and lead wire end)						
Ambient temperature			0 °C to 40 °C (free from freezing), Storage : –20 °C to 65 °C (Max.temperature guarantee 80 °C for 72 hours <nomal humidity="">)</nomal>						
	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	•		1000 m	or lower				
	Vibratio	on resistance		49 m/s²	or less				
Mass (kg), () rep	oresents l	holding brake type	0.4 (0.6)	0.5 (0.7)	0.96 (1.36)	1.5 (1.9)			

Brake specifications (This brake will be released when it is energized. Do not use this for braking the motor in motion.)									
Static friction torque (N · m)	0.29	1.27							
Engaging time (ms)	25	50							
Releasing time (ms) Note)4	20 (30) 15 (100)								
Exciting current (DC) (A)	0.26 0.36								
Releasing voltage	DC 1 V or more								
Exciting voltage	DV 24 V ±10 %								

Permissible	load		
	Radial load P-direction (N)	147	392
During assembly	Thrust load A-direction (N)	88	147
	Thrust load B-direction (N)	117	196
During operation	Radial load P-direction (N)	68	245
	Thrust load A-direction (N)	58	98
орогалоп	Thrust load B-direction (N)	58	98

For motor dimensions, refer to P.393, and for the driver, refer to P.388.

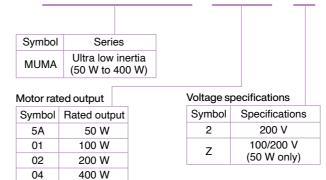
Note) Driver for $50\,\mathrm{W}$ and $100\,\mathrm{W}$ has a common power supply of single phase and 3-phase $200\,\mathrm{V}$.

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.

Model Designation

S e.g.) **M U** M



Design order 1: Standard

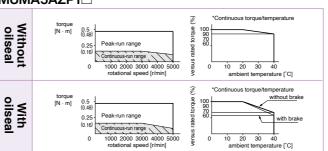
	aotaio				
	Shaft	Holding	brake	Oil s	eal
Symbol	Key-way, center tap	without	with	without	with
S	•	•		•	
T	•		•	•	

Rotary encoder specifications

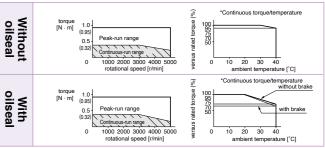
Symbol	Format	Pulse counts	Resolution	Wires
Р	Incremental	2500 P/r	10000	5

Torque Characteristics [at AC200 V of power voltage (Dotted line represents the torque at 10 % less supply voltage.)]

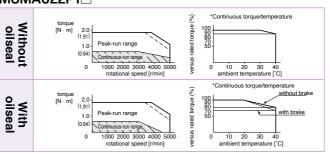
MUMA5AZP1□



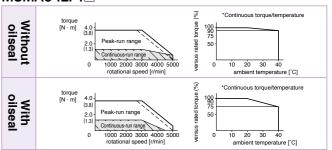


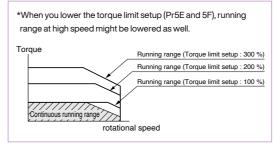


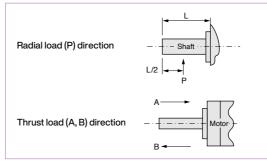
MUMA022P1



MUMA042P1







- 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)

[Unit: mm] Encoder Motor connector connector LE Brake connector (Key way dimensions) □LC 4-φLZ * 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 output		50 W	100 W	200 W	400 W	
Motor mode	otor model MUMA		5A□P1□	01□P1□	02□P1□	04□P1□
Rotary encoder specifications		2500 P/r Incremental	2500 P/r Incremental	2500 P/r Incremental	2500 P/r Incremental	
1.1	L L Without brake		75.5	92.5	96	123.5
LL		With brake	107	124	129	156.5
LR		24	24	30	30	
	S		8	8	11	14
LA LB LC			48	48	70	70
			22	22	50	50
LC LE			42	42	60	60
	LE		2	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	KH		3	3	4	5
RH			6.2	6.2	8.5	11
	TP		M3 × 6 (depth)	M3 × 6 (depth)	M4 × 8 (depth)	M5 x 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 spec	ifications		refer to Options	, P.401, P.402.	_

<Cautions>

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

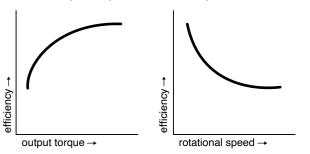
Read the Instruction Manual carefully and understand all precautions and remarks before using the products.

MINAS E Series Motors with Gear Reducer

Motor Types with Gear Reducer

Reduction	Мо	Type of		
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.



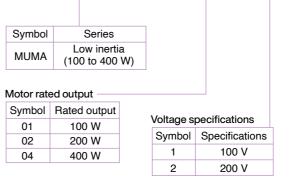
Model No. Designation

Rotary encoder specifications

Format

Symbol





			S
Pulse counts	Pulse counts	Wire	Г
2500 P/r	10000	5	Г

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

4

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 %
0	Rotational direction at output shaft (of reducer)	Same direction as the motor output shaft
Gear	Composition of gear	Planetary gear
reducer	Mounting method	klash 3 minutes or smaller (initial value) at output shaft of the reduction of gear Planetary gear fficiency 65 % to 85 % output shaft (of reducer) Same direction as the motor output shaft gear g method Flange mounting t of inertia of the load the motor shaft) e structure IP44 (at gear reducer) emperature 0 °C to 40 °C t humidity 85 %RH (free from condensation) or less resistance 49 m/s² or less (at motor frame)
	Permissible moment of inertia of the load	40 kinner og enrelleg tle en geten grennet ef in entir ef tle ensker
	(conversion to the motor shaft)	To times or smaller than rotor moment of inertia of the motor
	Protective structure	IP44 (at gear reducer)
	Ambient temperature	0 °C to 40 °C
	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

Table of Motor with Gear Reducer Specifications

	Motor		MUMA with gear reducer										
Model	Output	Reduction	Output	Rated	Max.	Rated	1	Moment (motor + reduce to motor			ass		Permissible thrust load
	•	ratio	•	speed	speed	torque	torque	w/o brake	w/ brake	w/o brake	w/ brake	radial load	trirust ioau
	(W)		(W)	(r/min)	(r/min)	(N·m)	(N·m)	J (× 10	⁴kg·m²)	(k	g)	(N)	(N)
MUMA01□P□1N		1/5	75	600	1000	1.18	3.72	0.072	0.076	1.05	1.25	490	245
MUMA01□P□2N	100	1/9	80	333	555	2.25	6.86	0.0663	0.0703	1.05	1.25	588	294
MUMA01□P□4N		1/25	80	120	200	6.27	19.0	0.0645	0.0685	2.20	2.40	1670	833
MUMA02□P□1N		1/5	170	600	1000	2.65	8.04	0.218	0.248	1.68	2.08	490	245
MUMA02□P□2N	200	1/9	132	333	555	3.72	11.3	0.368	0.398	2.66	3.06	1180	588
MUMA02□P□4N		1/25	140	120	200	11.1	33.3	0.388	0.418	2.66	3.06	1670	833
MUMA042P□1N		1/5	340	600	1000	5.39	16.2	0.533	0.563	3.2	3.6	980	490
MUMA042P□2N	400	1/9	332	333	555	9.51	28.5	0.438	0.468	3.2	3.6	1180	588
MUMA042P□4N	1	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		
	output	with gear reducer	Part No. of driver	with gear reducer	Part No. of driver	Part No. of driver		
	100 W	MUMA011P□□N	MKDET1110P	MUMA012P□□N	MKDET1505P	MKDET1505P		
2500 P/r	200 W	MUMA021P□□N	MLDET2110P	MUMA022P□□N	MKDET1310P	MLDET2210P		
Incremental	400 W			MUMA042P□□N	MLDET2510P	MLDET2510P		
		-	_	WUWAU42PUUN	MLDET2310P	WILDL 12310F		

For dimensions of driver, refer to P.388.

Torque Characteristics

Motors with Gear Reducer

E Series

For High Precision (MUMA Series 100 W to 400 W)

Supply voltage to driver	Reduction ratio Motor output	1/5	1/9	1/25
100 V	100 W	MUMA011P IN torque 4.0 Peak run range 2.0 Continuous run range MUMA011P□2N torque 8.0 [N·m] (6.86) Peak run range 4.0 Peak run range (2.25) Continuous run range 0 333 400 555 rotational speed [r/min]	MUMA011P 4N torque 20.0 [N·m] (19.0) Peak run range 10.0 (6.27) Continuous run range 0 100 120 200 rotational speed [r/min]	
100 V	200 W	MUMA021P IN torque [N·m] (8.04) Peak run range (2.65) Continuous run range (2.65) rotational speed [r/min]	MUMA021P 2N torque [N-m] 16.0 (11.3) 8.0 Peak run range 0 333 400 555 rotational speed [r/min]	MUMA021P 4N torque [N·m] 40.0 (33.3) 20.0 Peak run range (11.1) Continuous run range 0 100 120 200 rotational speed [r/min]
	100 W	MUMA012P 1N torque [N·m] 4.0 (3.72) Peak run range 2.0 (1.18) Continuous run range 0 500 600 1000 rotational speed [r/min]	MUMA012P 2N torque [N·m] 8.0 (6.86) Peak run range (2.25) Continuous run range 0 333 400 555 rotational speed [r/min]	MUMA012P 4N torque 20.0 [N·m] (19.0) Peak run range (6.27) Continuous run range 0 100 120 200 rotational speed [r/min]
200 V	200 W	MUMA022P 1N torque (8.04) Peak run range 4.0 Continuous run range 0 500 600 1000 rotational speed [r/min]	MUMA022P 2N torque [N·m] 16.0 (11.3) Reak run range (3.72) Continuous run range 0 333 400 555 rotational speed [r/min]	MUMA022P 4N torque [N·m] 40.0 (33.3) 20.0 Peak run range
	400 W	MUMA042P 1N torque [N·m] 20.0 (16.2) Peak run range (5.39) Continuous run range 0 500 600 1000 rotational speed [r/min]	MUMA042P \(\text{2N} \) torque \([\text{N-m}] \) 40.0 \(\text{Peak run range} \) (28.5) 20.0 \(\text{Peak run range} \) Continuous run range 0 \(333 400 555 \) rotational speed [r/min]	MUMA042P 4N torque 80.0 79.2) 40.0 Peak run range 40.0 Continuous run range 100 120 200 rotational speed [r/min]

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

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A6 Series

A6N Series

A6B Series
Special Order Product

E Series

MUMA series with Gear Reducer

[Unit: mm] (Detailed dimensions of shaft end) (LG) LR Encoder connecter Motor connector

2500 P/r Encoder

																Į.	Jnit: mm]
Model	Motor output	Reduction ratio	L	LL	LR	LQ	LC	LB	LA	S	LH	LZ	LK	(LG)	LE	Key way B×H×LD	Т
MUMA01□P□1N		1/5	192	92.5													
WOWAOTLI LIT		173	223.5	124	32 20	20	52	50	. 60	60 12	2 10	M5 (Depth: 12)	18	67.5		4×4×16	2.5
MUMA01□P□2N	100 W	1/9	192	92.5	52	20	32	30	00	12	10		10			4,4,10	2.5
WOWNOT BY BEIN	100 00	173	223.5	124													
MUMA01□P□4N		1/25	234.5	92.5	50	30	78	70	90	19	17	M6	26	92	3	6×6×22	3.5
WOW/OTE E		1723	266	124	30	30 30	,,,	70	30	13	17	(Depth: 20)	20	32	٥	UNUNZZ	3.3
MUMA02□P□1N		1/5	200.5	96	32 2	2 20	52	50	60	12	2 10	M5 (Depth: 12)	18	72.5		4×4×16	2.5
WOWN TOZET ENT			233.5	129	- 02					12				72.5		44410	2.5
MUMA02 P 2N	200 W	1/9	235.5	96					0 90	0 19				89.5			
WOWN TOZET ELET	200 W		268.5	129										00.0			
MUMA02□P□4N		1/25	246	96										100			
WOWN TOZET ENT		1720	279	129	50	30	78	70			17	M6	26	100		6x6x22	3.5
MUMA042P⊡1N		1/5	263	123.5	50	00	/0	/ 0	30	10	l ''	(Depth: 20)	20			UNUNEE	3.5
WOWN TO TELL			296	156.5										89.5			
MUMA042P□2N	400 W	1/9	263	123.5										09.5			
INIONII IOTZI IIZIV	400 W 179 296 156.5																
MUMA042P□4N			288.5	123.5	61	40	98	90	115 24	24 18	o M8	35	104	5	8×7×30	4	
WICWIAUTEI LITI		1/25	321.5	156.5	01	40	90			24	24 16	8 (Depth: 20)	ან	104	5	5 8×/×3	0x1x30

Upper column: without brake I ower column with brake

Setup Support Software "PANATERM" for MINAS series AC Servo Motor & Driver

Part No. DV0P4460 (Japanese/English version)

The PANATERM assists users in setting parameters, monitoring control conditions, setup support, and analyzing mechanical operation data on the PC screen, when installed in a commercially available personal computer, and connected to the MINAS A4 series, E series through the RS232 serial interface.



Basic Function

Parameter setup

Setup Support Software

- 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

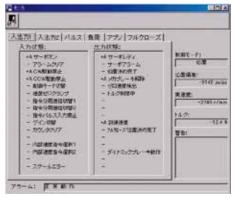
[Personal computer] • CPU : Pentium 100MHz or more • Memory : 16 MB or more (32 MB recommended)

- · 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

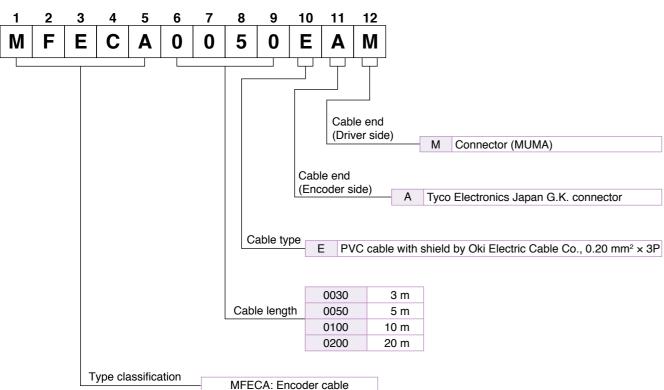
13 #1989837469 14 #156/22/16/09/8 15 ##2/--{*24/2-F* シューナフィラーナフィン機関 で成えーラックイ・化算を、ます、単位まれらしてす。 大き「記念する」とでは食を乗りり、一切性が多く、また観念を発力をつなります。 たた、また、過ぎい・金剛・エヤング、ご用をしてみ。

Parameter

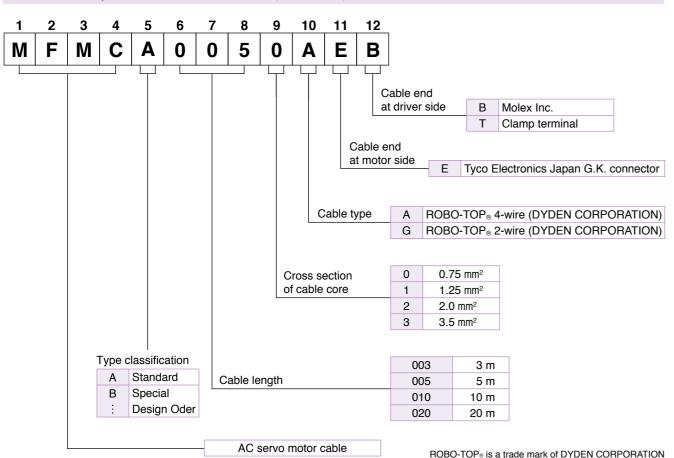


Monitor

Graphic waveform display



Motor Cable, Brake Cable For available optional items, please refer to P.400.



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)

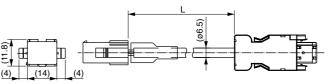
Part No. DV0P39200

- 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

[Unit: mm]

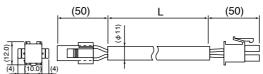


Title	Part No.	Manufacturer	L (m)	Part No.
Connector (Driver side)	3E206-0100KV	Sumitomo 3M	3	MFECA0030EAM
Shell kit	3E306-3200-008	or equivalent	5	MFECA0050EAM
Connector	172160-1	Tugo Floatronico	10	MFECA0100EAM
Connector Pin	170365-1	Tyco Electronics	20	MFECA0200EAM
Cable	0.20 mm ² × 3P	Oki Electric Cable Co., Ltd.		

Motor Cable (ROBO-TOP. 105 °C 600 V.DP)

ROBO-TOP® is a trade mark of DYDEN CORPORATION

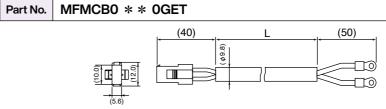




Title	Part No.	Manufacturer	L (m)	Part No.
Connector	172159-1	Tugo Floatronico	3	MFMCA0030AEB
Connector Pin	170362-1, 170366-1	Tyco Electronics	5	MFMCA0050AEB
Connector	5557-06R-210	Molex Inc	10	MFMCA0100AEB
Connector Pin	5556T	Molex Inc	20	MFMCA0200AEB
Cable	ROBO-TOP 600 V 0.75 mm ²	Daiden Co.,Ltd.		

Brake Cable (ROBO-TOP_® 105 °C 600V . DP)

ROBO-TOP_® is a trade mark of DYDEN CORPORATION



Title	Part No.	Manufacturer	L (m)	Part No.
Connector	172157-1	Tugo Floatronico	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

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A6 Series

[Unit: mm]

[Unit: mm]

Part No. DV0P2870

<Cautions>

Parts composition Title

Connector (10 pins)

Connector pin

Parts composition Title

Connector (Driver side)

Shell kit

Connector (6 pins)

Connector pin Connector (4 pins)

Connector pin

Connector (6 pins)

Connector pin

<Remarks>

Options

Connector Kit for Power Supply Connection

Pin configuration of connector CN X1

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)

checking the stamped pin numbers on the connector itself.

Connector Kit

Number

6

1. The above pin disposition is shown when viewed from the terminal inserting direction. Make a correct wiring by

Number

6

4

This option is required when you make your own encoder cable and motor cable. (Brake cable is required for brake.)

Manufacturer

Molex Inc.

Part No.

57026-5000 57027-5000

Manufacturer

Sumitomo 3M

or equivalent

Tyco Electronics

Tyco Electronics

Molex Inc.

Recommended manual crimping tool (to be prepared by customer)

Note

For connector, CN X1

(10 pins)

Cable material

UL1007

UL1015

Note

For connector, CN X4

(6 pins)

For junction to encoder cable

(6 pins)

For junction to motor power cable

(4 pins)

For connector, CN X3

(6 pins)

Part No.

5557-10R-210

5556PBTL

We may use parts equivalent to the above for shell and connector cover.

Part No.

3E206-0100 KV

3E306-3200-008

172160-1

170365-1

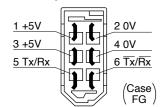
172159-1

170366-1

5557-06R-210

5556PBTL

Pin configuration of connector CN X4 plug



Recommended manual crimping tool (to be prepared by customer)

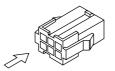
•	• • • •	,		
Title	Part No.	Manufacturer	Cable material	
For encoder cable junction	755330-1	Type Floatronics		
For motor power cable junction	755331-1	Tyco Electronics	_	
For Connector CN X3	57026-5000	Molex Inc.	UL1007	
For Connector CN A3	57027-5000	Molex Inc.	UL1015	

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- 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.

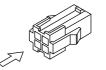
Pin configuration of encoder cable junction

,]	
1	2	3	-
NC	TX/RX	TX/RX	- 1
4	5	6	i
+5V	0V	FG	1

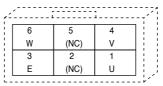


Pin configuration of motor power cable junction





Pin configuration of mating connector to CN X3 connector





<Cautions>

- 1. The above pin configuration is shown when viewed from the terminal inserting direction. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Refer to P.386 for wiring and connection.

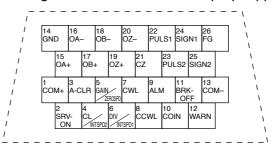
Connector Kit for Interface

Part No. DV0P0770

Parts composition

Title	Part No.	Number	Manufacturer	Note
Connector	10126-3000PE	1	Sumitomo 3M	For connector, CN X5
Connector cover	10326-52A0-008	1	or equivalent	(26 pins)

Pin configuration of connector CN X5 (26 pins) (viewed from the soldering side)



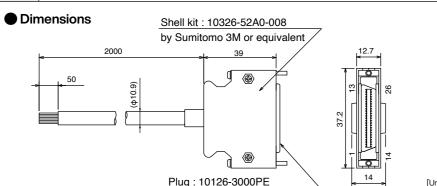
<Cautions>

- 1. Make a correct wiring by checking the stamped pin numbers on the connector itself.
- 2. Refer to P.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



Wiring table

Title of signal Color or cable Pin No. Title of signal Color or cable Pin No. Title of signal Color or cable COM+ Pink (Black 1) Orange (Red 1) 10 COIN 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) CL/INTSPD2 COM-Gray (Red 2) 22 PULS₁ Gray (Red 3) 4 Gray (Black 1) 13 PULS2 5 GAIN/ZEROSPD White (Red 1) 14 GND Gray (Black 2) 23 Gray (Black 3) DIV/INTSPD1 White (Black 1) 15 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 Yellow (Red 2) 26 FG Orange (Black 3) 9 18 OB-Yellow (Black 2) ALMPink (Red 1)

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.

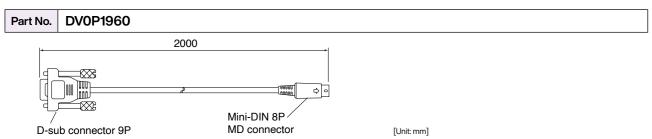
<Caution>

Cable pin No. 26 is not connected to the connector shell (housing) or shielded wire (net wire).

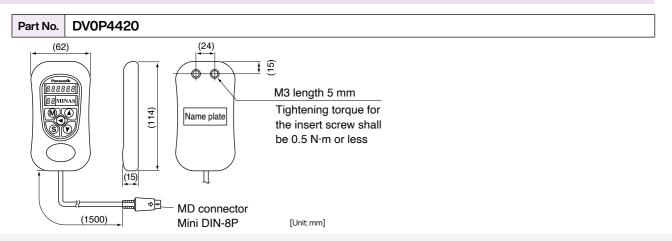
Pin No. 26 of the Driver is connected to the shell (housing) of the connector.

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)



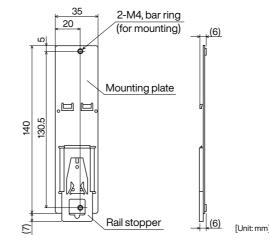
Console



DIN Rail Mounting Unit

Part No. DV0P3811

Dimensions

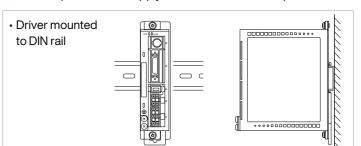


<Notes>

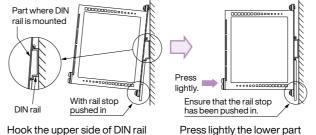
2 mounting screws (M4 X L8, Pan head) are attached. Rail stopper can be extended to max. 10 mm.

<Cautions>

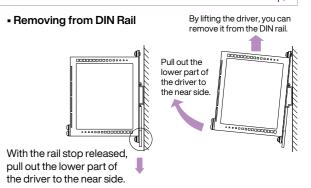
Please read carefully operation manual before using this product. In addition, please do not apply excessive stress to the product.



How to Install



Press lightly the lower part of the main body of driver.



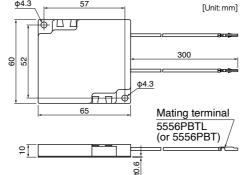
External Regenerative Resistor

mounting part on the DIN rail.

			Specifi		
Part No.	Manufacturer's Part No.	Resistance Rated power		Activation temperature of built-in fuse	Note (Input Power of drive)
		Ω	W	°C	
DV0P2890	45M03	50	10	137 ⁺³ ₋₂	Single phase, 100 V
DV0P2891	45M03	100	10	137 ⁺³ ₋₂	Single/3-phase, 200 V

Manufactured by Iwaki Musen Kenkyuusho Co., Ltd.

Dimensions



<Caution of when using external regeneration resistor>

Since it becomes high temperature, external regeneration resistor must be installed according to the contents shown below.

- · Attach to incombustibles, such as metal.
- · Install in the place which cannot touch directly by covering with incombustibles etc.
- · Do not install near the combustibles.

Although the thermal cutoff is built in external regeneration resistor, the skin temperature of regeneration resistor may become high exceeding the operating temperature of thermal cutoff by the time the thermal cutoff operates in driver failure.

The thermal cutoff is for preventing ignition of the regeneration resistor in driver failure, and is not for controlling the skin temperature of resistor.

<Remarks>

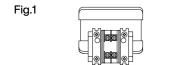
Thermal fuse is installed for safety.

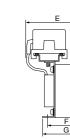
The thermal fuse may blow due to heat dissipating condition, working temperature, supply voltage or load fluctuation.

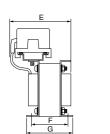
Make it sure that the surface temperature of the resistor may not exceed 100 °C at the worst running conditions with the machine, which brings large regeneration (such case as high supply voltage, load inertia is large or deceleration time is short) Please carry out air cooling if needed.

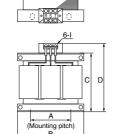
Reactor

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	,
	3-phase, 200 V	400 W	DV0P220	2



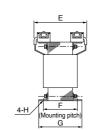




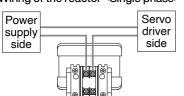


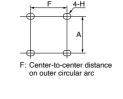
Reactor/ Surge Absorber for Motor Brake

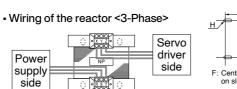
Fig.2

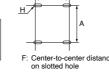


· Wiring of the reactor <Single phase>









[Unit: mm]

	Part No.	А	В	С	D	E(Max)	F	G	н	I	Inductance (mH)	Rated current (A)
Fig. 1	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.	pan 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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A6B Series
Special Order Product

A6 Series

A6N Series

MEMO

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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).

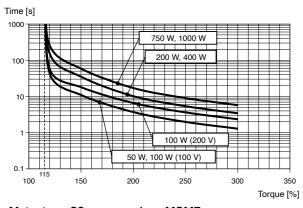
- (1) Use the driver in an environment of Pollution Degree 2 or 1 prescribed in IEC60664-1. (e.g. Install in the control box with IP54 enclosure.)
- (2) Make sure to install a circuit breaker or fuse which are UL recognized (Listed (9) marked) between the power supply and the noise filter.
 - For rated 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.

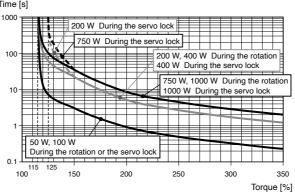
Set up the peak permissible current with Pr0.13 (Setup of 1st torque limit) and Pr5.22 (Setup 2nd torque limit).

Overload protection time characteristics

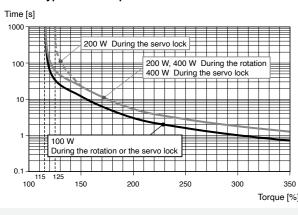
• Motor type: 80 mm sq. or less MSMF

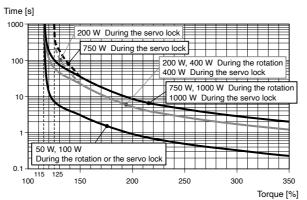


• Motor type: 80 mm sq. or less MHMF

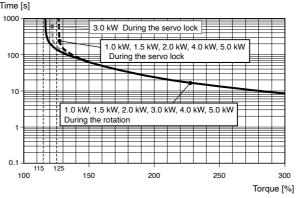


Motor type: 80 mm sq. or less MQMF

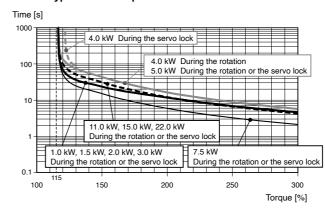




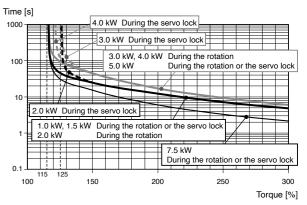
Motor type: 100 mm sq. or more MSMF



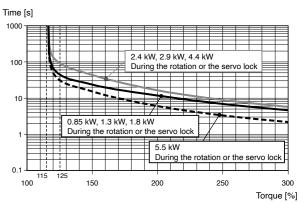
Motor type: 100 mm sq. or more MDMF



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	_

: International Electrotechnical Commission

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.

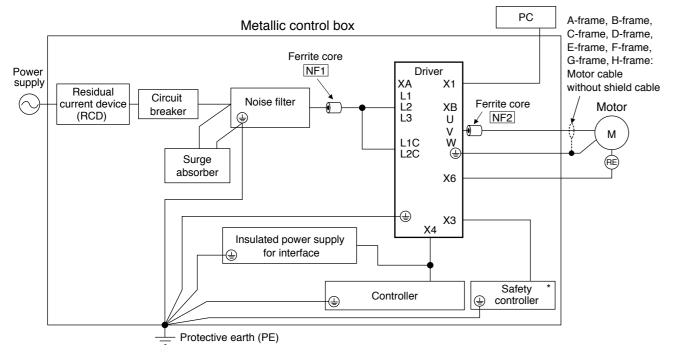
Pursuant to the directive 2004/108/EC, article 9(2)

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 $^{+10}_{-15}\%$ 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.

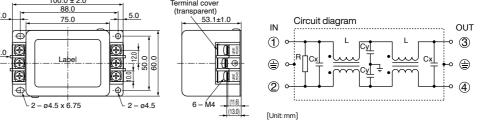
The branch circuit should be protected in accordance with NEC and the applicable local regulations in your area.

Noise Filter

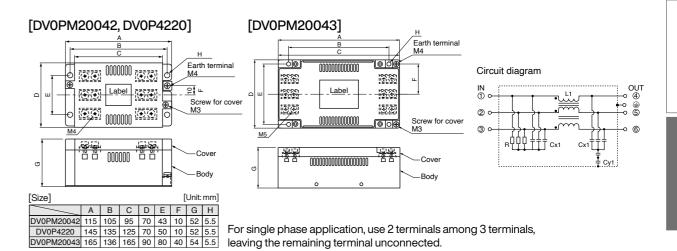
When you install one noise filter at the power supply for multi-axes application, contact the manufacturer of the noise filter. If noise margin is required, connect 2 filters in series to emphasize effectiveness.

Options

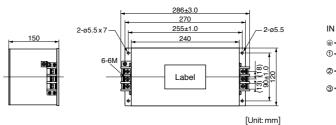
Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
DV0P4170	Single phase 100 V, 200 V	SUP-EK5-ER-6	A-frame and B-frame	Okaya Electric Ind.
7.0 88.0 7.0 75.0	Terminal cover (transparent) 53.1±1.0	Circuit diagram	_: OUT	

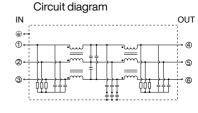


Option part No.	Voltage specifications for driver	Manufacturer's part No.	Applicable driver (frame)	Manufacturer
	3-phase 200 V		A-frame and B-frame	
DV0PM20042	Single phase 100 V, 200 V 3-phase 200 V	3SUP-HU10-ER-6	C-frame	Okaya Electric Ind.
DV0P4220	Single/3-phase 200 V	3SUP-HU30-ER-6	D-frame	
DV0PM20043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



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.





<Remarks>

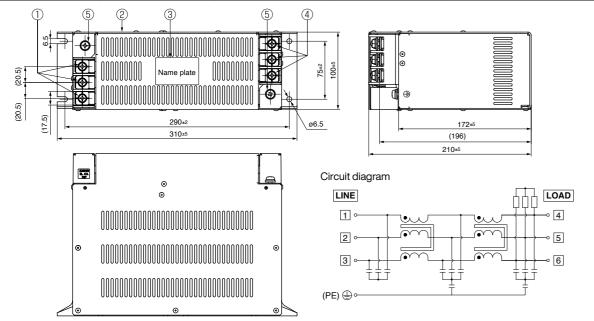
- Select a noise filter of capacity that exceeds the capacity of the power source (also check for load condition).
- · For detailed specification of the filter, contact the manufacturer.

^{*} A6SE, A6SG, A6NE, A6BE is not provided with X3 terminal.

Noise Filter

Recommended components

Part No.	Voltage specifications for driver	Rated current (A)	Applicable driver (frame)	Manufacturer
HF3080C-SZA	2 nhono 200 V	80	G	SOSHIN ELECTRIC COLTD.
HF3100C-SZA	3-phase 200 V	100	Н	SOSHIN ELECTRIC CO.,LTD.



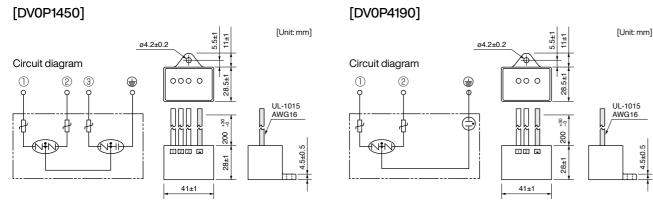
<Remarks>

- 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	С Ц	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		Motor cable					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

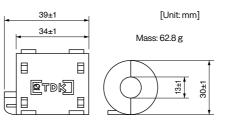
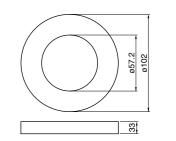
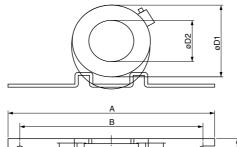


Fig.3: T400-61D (Recommended components) 1 pieces



[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 Voltage Directives/UK			
		UL61800-5-1 CSA22.2 No.14	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				
and	IEC61000-4-3	Radio Frequency Electromagnetic Field Immunity Test	Conforms to references			
	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				

- C : International Electrotechnical Commission : Europaischen Normer
- MC: Electromagnetic Compatibility : Underwriters Laboratories
- SA: Canadian Standards Association

ursuant to at the directive 2004/108/EC, ticle 9(2)

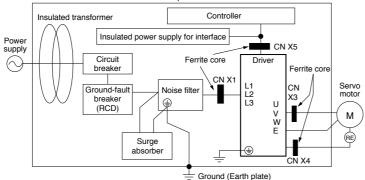
Composition of Peripheral Components

<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. Control panel

Installation Environment

Use Minas driver in environment of Pollution Degree 1 or 2 prescribed in IEC-60664-1 (e.g. Install the driver in control panel with IP54 protection structure.)



Power Supply

100 V system	Single phase, 100 V $^{+10~\%}_{-15~\%}$ to 115 V $^{+10~\%}_{-15~\%}$	50 Hz/60 Hz
200 V system	Single phase, 200 V $^{+10~\%}_{-15~\%}$ to 240 V $^{+10~\%}_{-15~\%}$	50 Hz/60 Hz
200 V system	3-phase, 200 V $^{+10~\%}_{-15~\%}$ to 240 V $^{+10~\%}_{-15~\%}$	50 Hz/60 Hz

- (1) Use the power supply under an environment of Overvoltage Category II specified in IEC60664-1.
- (2) For a interface power supply, use the insulated one with 12 VDC to 24 VDC which conforms to CE Marking or EN Standards (EN60950).

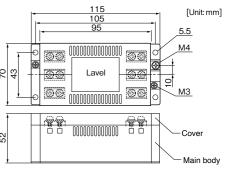
Circuit Breaker

Connect a circuit breaker which conforms to IEC standards and is UL recognized (UL Listed, (1) 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	Okaya Electric Industries Co.



Conformance to

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
0, ,,,,,	04.2±	0.2	[Unit: mm]	Q: !! !!	ø4.2±	0.2	[Unit: mm]
Circuit diagr	am ③ ⊕	0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	UL-1015	Circuit diag	ram (a)	0 0 0 28.5±1	UL-1015
		200-00-00-00-00-00-00-00-00-00-00-00-00-	4.5.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.6.			28±1	004 004 004 004 004 004 004 004 004 004
		41±1	Ī			41±1	Ť

<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.	Manufacture
DV0P1460	ZCAT3035-1330	4	TDK Corp.
39±1			[Unit: mm]
34±1	Ma	ass : 62.	8 g
ETOK			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 ((1)). 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.



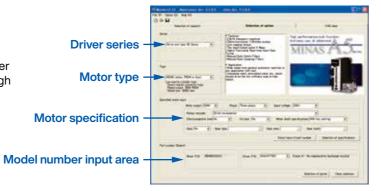
Option Selection Software for AC Servo Motor

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.



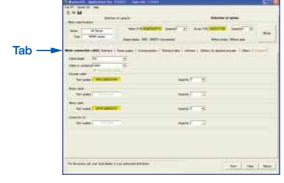
2. Entry of model number

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 3: Derived unit with

proper name

Table1: Basic unit

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

Table 4: Unit combined

with SI unit

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

Other derived unit

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	$1N = 1 \text{ kg·m/s}^2$
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	1Wb=1V·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	٥
Plane angle	minute	,
	second	п
Volume	liter	I, L
Weight	ton	t

Table 5: Prefix

Multiples powered	Pre	efix	
to unit	Name	Symbol	
10 ¹⁸	exa	E	
10 ¹⁵	peta	Р	
10 ¹²	tera	Т	
10 ⁹	giga	G	
10 ⁶	mega	M	
10 ³	kilo	k	
10 ²	hecto	h	
10	deca	da	
10 ⁻¹	deci	d	
10 ⁻²	centi	С	
10 ⁻³	milli	m	
10 ⁻⁶	micro	μ	
10 ⁻⁹	nano	n	
10 ⁻¹²	pico	р	
10 ⁻¹⁵	femto	f	
10 ⁻¹⁸	atto	a	

The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper state The proper	Quantity	Symbol of conventional unit	Symbol of SI unit and compatible unit	Conversion value
Frequency	Length	μ (micron)	μm	1μ=1μm (micrometer)
Frequency	Acceleration	Gal	m/s ²	1 Gal = 10 ⁻² m/s ²
Revolving speed, Number of revolutions		G	m/s ²	1G = 9.80665 m/s ²
Weight Mass	Frequency	c/s, c	Hz	1c/s=Hz
Mass - kg Same value Weight flow rate kg/s - kg/s Same value Specific weight kg/m² - kg/m² Same value Density - kg/m² Same value Specific volume m²/kgf n³/kg Same value Load kgf N 1 kgf = 9.80665 N Force kgf N 1 kgf = 9.80665 N Moment of force kgf/m² N 1 kgf = 9.80665 N Pressure kgf/cm² Pa, bar (10 kgf/cm² 1 kgf/cm² = 9.80665 x 10² Pa at (Engineering atmospheric pressure) Pa 1 at = 9.80665 x 10² Pa 1 atm = 1.01325 x 10² Pa atm (Atmospheric pressure) Pa 1 atm = 1.01325 x 10² Pa 1 mmHg 1 mmHg 9.80665 x 10² Pa atm (Atmospheric pressure) Pa 1 kgf/m² = 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.80665 x 10² Pa 9.	Revolving speed, Number of revolutions	rpm	s ⁻¹ or min ⁻¹ , r/min	1 rpm = 1 min ⁻¹
Mass - kg Weight flow rate - kg/s Specific weight kg/m³ - Density - kg/m³ Specific volume m³/kgf m³/kg Load kgf N Force kgf N kgf N 1kgf=9.80665 N Force kgf N dyn N 1dy=9.80665 N Moment of force kgf.m N*m kgf.m N*m 1kgf.m=9.80665 N Pressure kgf.m N*m 1kgf.m=9.80665 N Pressure kgf.m² Pa,bar (**or kgf.cm²²) 1kgf.m²=9.80665 N Pa 1 kgf.m²=9.80665 x 10² Pa 1.4 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2 my 1.2	Weight	kgf	_	Sama valua
Mass flow rate	Mass	-	kg	Same value
Mass flow rate -	Weight flow rate	kgf/s	-	Samo valuo
Density Specific volume m³/kgf m³/kg Same value	Mass flow rate	-	kg/s) Same value
Density	Specific weight	kgf/m ³	-	Same value
Load kgf N	Density	-	kg/m ³	Same value
Force kgf N 1kgf = 9.80665 N 1dyn = 10-5 N 1 dyn = 10-5 N 1 kgf·m = 9.806 N·m 1 kgf·m = 9.806 N·m 1 kgf·m = 9.806 N·m 1 kgf·m = 9.80665 x 10^4 Pa = 0.980665 x 10^4 Pa = 1 atm = 1.01325 x 10^5 Pa = 1 atm = 1.01325 x 10^5 Pa = 1 atm = 1.01325 x 10^5 Pa = 1 atm = 1.01325 x 10^5 Pa = 1 atm = 1.01325 x 10^5 Pa = 1 atm = 1.01325 x 10^5 Pa = 0.980665 x 10^5 Pa = 0.980	Specific volume	m³/kgf	m³/kg	Same value
Moment of force kgf-m N 1dyn = 10^-5 N 1kgf-m = 9.806 N·m 1kgf-m = 9.806 N·m 1kgf-m = 9.80665 × 10^4 Pa	Load	kgf	N	1kgf = 9.80665 N
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atm (Atmospheric pressure)				= 0.980665 bar
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mmHg		atm (Atmospheric pressure)	Pa	1 atm = 1.01325 x 10 ⁵ Pa
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Stress kgf/mm² Pa or N/m² 1kgf/mm² = 9.80665 x 10 ⁶ Pa		mmHg	Pa or mmHg (2)	1 mmHg = 133.322 Pa
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Regf/cm² Pa or N/m² 1 kgf/cm² = 9.80665 x 10 ⁴ Pa	Stress	kgf/mm²	Pa or N/m ²	1 kgf/mm ² = 9.80665 x 10 ⁶ Pa
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Thermodynamic temperature K K (kelvin) 1K=1K Temperature interval deg K (3) 1 deg = 1K Amount of heat cal J 1 cal = 4.18605 J	Viscosity	PP	Pa·s	1P = 0.1Pa·s
Temperature interval deg K (3) 1 deg = 1 K Amount of heat cal J 1 cal = 4.18605 J	Kinetic viscosity	St	mm²/s	10 ⁻² St = 1 mm ² /s
Amount of heat cal J 1 cal = 4.18605 J	Thermodynamic temperature	K	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⁾ 1cal/°C = 4.18605 J/K	Heat capacity	cal/°C	J/K ⁽³⁾	1 cal/°C = 4.18605 J/K
Specific heat, Specific heat capacity $cal/(kgf \cdot ^{\circ}C)$ $cal/(kgf \cdot K)^{(3)}$ $1 cal/(kgf \cdot ^{\circ}C) = 4.18605 \text{ J/}(kg \cdot K)$	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	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)	Specific entropy	cal/ (kgf·K)	J/(kg·K)	1 cal/ (kgf·K) = 4.18605 J/ (kg·K)
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Specific internal energy (Specific enthalpy) cal/kgf J/kg 1 cal/kgf = 4.18605 J/kg	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	cal/h	W	1 kcal/h = 1.16279 W
Heat flux density $cal/(h \cdot m^2)$ W/m^2 $1 kcal/(h \cdot m^2) = 1.16279 W/m^2$	Heat flux density	cal/ (h·m²)	W/m ²	1 kcal/ (h·m²) = 1.16279 W/m²
Thermal conductivity cal/ $(h \cdot m \cdot ^{\circ}C)$ W/ $(m \cdot K)^{(3)}$ 1 kcal/ $(h \cdot m \cdot ^{\circ}C)$ = 1.16279 W/ $(m \cdot K)$	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)		1 kcal/ (h·m²·°C) = 1.16279 W/ (m²·K)
Intensity of magnetic field Oe A/m $1 \text{ Oe} = 10^3 / (4\pi) \text{ A/m}$	•			1 1 1
Magnetic flux Mx Wb (weber) 1 Mx = 10 ⁻⁸ Wb				
Magnetic flux density Gs_*G T (tesla) $1Gs = 10^{-4}T$	-		, ,	1 Gs = 10 ⁻⁴ T

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.

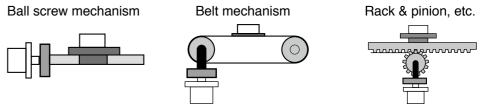
(3) "°C" can be substituted for "K".

Flow of Motor Selection

1. Definition of mechanism to be driven by motor.

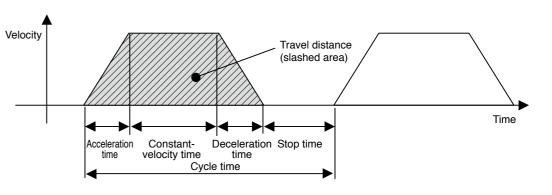
Define details of individual mechanical components (ball screw length, lead and pulley diameters, etc.)

<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

 $\mathsf{Tf} = \frac{\mathsf{P}}{2\pi\,\eta}\;(\mu\mathsf{g}\mathsf{W}\!+\!\mathsf{F})$

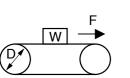
W: Weight [kg] P:Lead[m]

 η : Mechanical efficiency μ : Coefficient of friction

F: External force [N]

g: Acceleration of gravity 9.8[m/s²]

Belt mechanism



Traveling torque

 $\mathsf{Tf} = \frac{\mathsf{D}}{2\pi\,\eta}\;(\mu\mathsf{g}\mathsf{W}\!+\!\mathsf{F})$

W: Weight [kg] P: Pulley diameter [m] η : Mechanical efficiency 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	$J = J_B + \frac{W \cdot P^2}{4\pi^2} [kg \cdot m^2]$ $W : \text{Weight } [kg]$ $P : \text{Lead}$ $JB : J \text{ of ball screw}$

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 $\rho = 7.9 \times 10^3 \, [kg/m^3]$

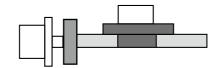
Aluminum ρ =2.8 x 10³ [kg/m³]

Brass ρ =8.5 x 10³ [kg/m³]

To Drive Ball Screw Mechanism

1. Example of motor selection for driving ball screw mechanism

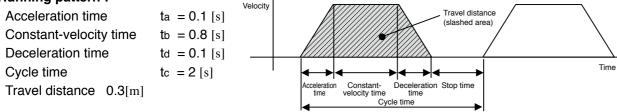
Workpiece weight WA = 10 [kg]Ball screw length BL = 0.5 [m]Ball screw diameter BD = 0.02 [m]Ball screw lead BP = 0.02 [m]Ball screw efficiency $B\eta = 0.9$



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
$$BW = \rho \times \pi \times \left(\frac{BD}{2}\right)^2 \times BL = 7.9 \times 10^3 \times \pi \times \left(\frac{0.02}{2}\right)^2 \times 0.5$$
$$= 1.24 \text{ [kg]}$$

4. Load inertia
$$J_L = J_C + J_B = J_C + \frac{1}{8}BW \times BD^2 + \frac{WA \cdot BP^2}{4\pi^2}$$

$$= 0.00001 + (1.24 \times 0.02^2) / 8 + 10 \times 0.02^2 / 4\pi^2$$

$$= 1.73 \times 10^{-4} \, [\, \mathrm{kg} \cdot \mathrm{m}^2\,]$$

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]

$$N = 0.334 \ / \ 0.02 = 16.7 \ [{\rm r/s}] \\ = 16.7 \ \times \ 60 = 1002 \ [{\rm r/min}] \ < \ 3000 \ [{\rm r/min}] \ \ (Rated \ velocity \ of \ MSMF \ 200 \ W \ motor)$$

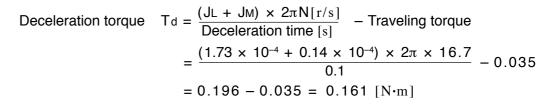
9. Calculation of torque

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
$$T_a = \frac{(\text{JL} + \text{JM}) \times 2\pi \text{N}[\text{r/s}]}{\text{Acceleration time [s]}} + \text{Traveling torque}$$

$$= \frac{(1.73 \times 10^{-4} + 0.14 \times 10^{-4}) \times 2\pi \times 16.7}{0.1} + 0.035$$

$$= 0.196 + 0.035 = 0.231 \ [\text{N·m}]$$



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)

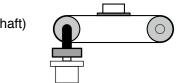
> Pulley diameter PD = 0.05[m]

Pulley weight WP= 0.5[kg] (Use manufacturer-specified catalog value, or calculation value.)

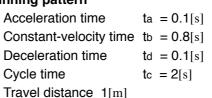
Mechanical efficiency $B_{\eta} = 0.8$

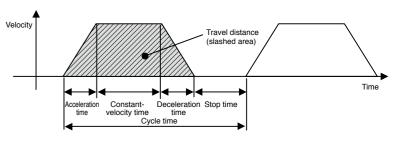
Coupling inertia Jc = 0 (Direct connection to motor shaft)

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")

Request for motor selection I: Ball screw drive

Request Sheet for Motor Selection

6. Calculation of maximum velocity (Vmax)

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

$$0.9 \times Vmax = 1$$

 $Vmax = 1 / 0.9 = 1.111[m/s]$

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
$$T_a = \frac{(JL + JM)\,\times\,2\pi N[\,r/s\,]}{Acceleration\,time[\,s\,]} + Traveling\,torque$$

$$= \frac{(15.6\,\times\,10^{-4} + 0.96\,\times\,10^{-4})\,\times\,2\pi\,\times\,7.08}{0.1} + 0.061$$

$$= 0.736 + 0.061 = 0.797[\,N\cdot m\,]$$
Deceleration torque
$$T_d = \frac{(JL + JM)\,\times\,2\pi N[\,r/s\,]}{Deceleration\,time[\,s\,]} - Traveling\,torque$$

$$= \frac{(15.6\,\times\,10^{-4} + 0.96\,\times\,10^{-4})\,\times\,2\pi\,\times\,7.08}{0.1} - 0.061$$

$$= 0.736 - 0.061 = 0.675[\,N\cdot m\,]$$

9. Verification of maximum torque

 $Ta = 0.797[N \cdot m] < 7.1[N \cdot m]$ (Maximum torque of MSMF 750 W motor) Acceleration torque

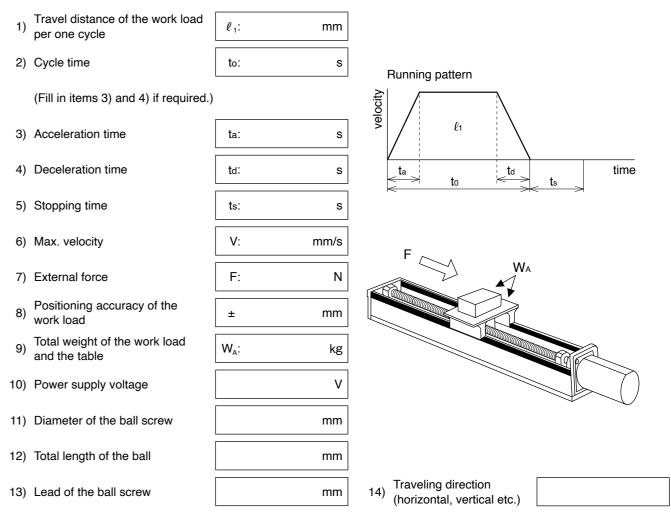
10. Verification of effective torque

Trms =
$$\sqrt{\frac{Ta^2 \times ta + Tf^2 \times tb + Td^2 \times td}{tc}}$$

= $\sqrt{\frac{0.797^2 \times 0.1 + 0.061^2 \times 0.8 + 0.675^2 \times 0.1}{2}}$
= 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.

1. Driven mechanism and running data



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

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

mm/s

Ν

mm

kg

٧

kg

mm

kg

1)	Travel distance of the work load per one cycle
2)	Cycle time

ℓ ₁ :	mm	15
	1	

15) Diameter of the pulley

s 16) Weight of the pulley

	IVIOTO	ir side	Ball Screw
er of the pulley	D ₁ :	mm	D ₂ :

 mm

kg

(Fill in items 3) and 4) if required.)

3) Acceleration time	ta:	s

td:

(or item 17) and 18))

17) Width of the pulley	L1:	n
	1	

4) Deceleration time

ts:	s

19) Weight of the belt

18) Material of the pulley

٧	V _M :	kg

kg W₂:

6) Max. velocity

7) External force

5) Stopping time

V:		mm/s
Ī	F:	N

8) Positioning accuracy of the work load

Total weight of the work load and the table	W _A :	kg

10) Power supply voltage

11) Diameter of the ball	screw	m	ır

12) Total length of the ball screw

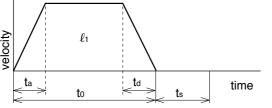
13) Lead of the ball screw	mm

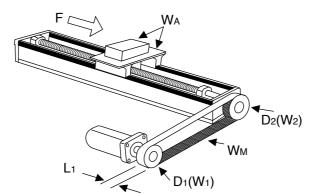
14) Traveling direction (horizontal, vertical etc.)



mm

mm





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

1	
	Company name :
	Department/Section :
	Name :
	Address:
	Tel:
	Fax:
	E-mail address:

1. Driven mechanism and running data

Travel distance of the work load per one cycle	ℓ₁:	mm
Cycle time	to:	S

(Fill in items 3) and 4) if required.)

Acceleration time	ta:	
Deceleration time	td:	5

V:

F:

W_M:

D₁:

 W_1 :

5) Stopping time

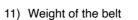
3)

Max. velocity		

7)	External force		
	Positioning accuracy of the		

9)	Total weight of the work load	





10\	Diameter	of the	driving	nullay

13)	Total	weight	of the	pulley
-----	-------	--------	--------	--------

Running	pattern
---------	---------

Volcolity		ℓ_1			
	< ta >	t o	t d →	t s	time

	₩ □ F	
L ₁		
)
	W ₁	

(or item 14) and 15))

y

15)	Material	of the	pulley

16)	Traveling direction
	(horizontal, vertical etc

Width of the pulley	L ₁ :	mm

15)	Material	of the	pulley
10)	Matorial	01 1110	puncy

6)	Traveling direction	
0)	(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:

1. Driven mechanism and running data		
Travel distance of the work load per one cycle	ℓ_1 :	mm

2) Cycle time	to:	•
2) Cycle time	to:	S

(Fill in items 3) and 4) if required.)

3) Acceleration time

4) Deceleration time

5) Stopping time

6) Max. velocity

ℓ_1 :	mm	16) Dia

to:	s

s	17) \	Weight of the	pu

Request Sheet for Motor Selection

Request for motor selection $I\!V$: Timing pulley + Belt drive

16) Diameter of the pulley	D ₃ :
17) Weight of the pulley	W _a :

ta:	s
td:	s

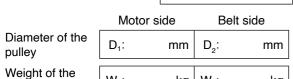
Į		
-		
	ts:	s

V:	mm/s

7) External force	F:	N
8) Positioning accuracy of the work load	±	mm

9) load	W _A :	kg
10) Power supply voltage		V

11)	Weight of motor side belt	W _M :	kg



13)	pulley	W ₁ :	kg	W ₂ :	kg

(or item 14) and 15))

dth of the It	L1:	mm
aterial of the	1	

(or it	em	18)	and	19))

18) Width of the pulley

19) Material of the pulley

20) Weight of the belt

L2:	mm

D₄:

kg

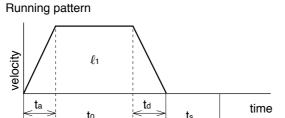
kg W₄:

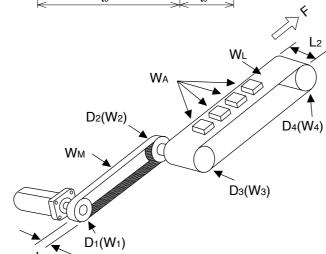
mm |

21) Traveli (horizo

ing direction	
ontal, vertical etc.)	

 W_L :





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 running data				
1)	Travel distance of the work load per one cycle	d ₁ :	deg	14
2)	Cycle time	to:	S	
	(Fill in items 3) and 4) if requi	red.)		
3)	Acceleration time	ta:	S	15
4)	Deceleration time	td:	s	
5)	Stopping time	ts:	s	
6)	Max. rotational speed of the	v:	dea/s	

table			
(or)	V:	r/s	

7)	Positioning accuracy of the work load	±	deg
8)	Weight of one work load	W _A :	kg
9)	Driving radius of the center of gravity of the work	R ₁ :	mm

0)	Diameter of the table	D₁:	mm

11)	Mass of the table	W ₁ :
12)	Diameter of the table support	T ₁ :

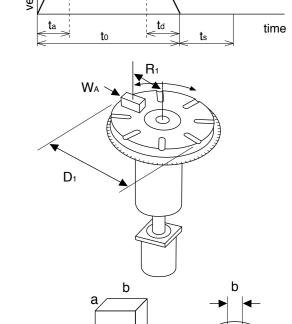
13)	Power supply voltage	

Dimensions of the work load

Prism		Cylinder	
a:	mm	a:	mm
b:	mm	b:	mm
c:	mm	c:	mm
	1		

5) Number of

	c:	mm	c:	mm
mber of work loads				pcs
Running pattern				



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

 $\mathsf{m}\mathsf{m}$

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	d.:	4
,	load per one cycle	'	

1) load per one cycle	d ₁ :	deg
2) Cycle time	to:	s

Fill ir	items 3)	and 4)	if require	d.)

3) Acceleration time	ta:	s
4) Deceleration time	td:	s
5) Stopping time	ts:	s

6)	Max. rotational speed of the table	v:	de
	(or)	V:	

7) Positioning accuracy of the work load ± de

8)	Weight of one work load	W _A :	kg
9)	Driving radius of the center of gravity of the work	R ₁ :	mm

10) Diameter of the table	D ₁ :	mm
ļ		

11) Mass of the table	W ₁ :	kg
12) Diameter of the table support	T ₁ :	mm

13) Power supply voltage	V

		(Prism)		(Cylinder)
14) Dimension of the work load	a:	mm	a:	mm
	b:	mm	b:	mm
	=			
	c:	mm	c:	mm
15) Number of work lo	ads			pcs

	Moto	or side	Turnt	table side
16) Diameter of the pulley	D ₂ :	mm	D ₃ :	mm
17) Weight of the pulley	W ₂ :	kg	W ₃ :	kg

(or item 18) and 19))

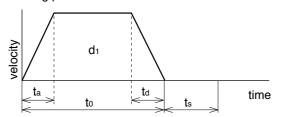
20) Weight of the belt

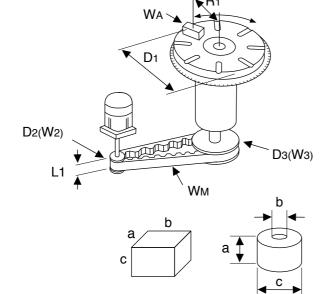
18) Width of the pulley	L
18) Width of the pulley	

19) Material of the pulley

W _M :	kg

Running pattern





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

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

Request Sheet for Motor Selection

Request for motor selection VII: Roller feed drive

1. Driven mechanism and running data

1)	Travel distance of the work load per one cycle	ℓ₁: mm		
2)	Cycle time	to: s	Running pattern	
	(Fill in items 3) and 4) if required.)		Atjooley let	
3)	Acceleration time	ta: s	ta td	time
4)	Deceleration time	td: s	to	ts
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	W.· 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:

1. Driven mechanism and running data

1)	Travel distance of the work load
1)	per one cycle

mm

2) Cycle time

to: s

(Fill in items 3) and 4) if required.)

3) Acceleration time

4) Deceleration time

ta: td:

ts:

F:

 W_A :

 W_3 :

5) Stopping time 6) Max. velocity

work load

V: mm/s

Ν

mm

kg

kg

7) External force

Positioning accuracy of the

9) Total weight of the work load

٧

11) Diameter of the pinion

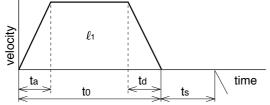
10) Power supply voltage

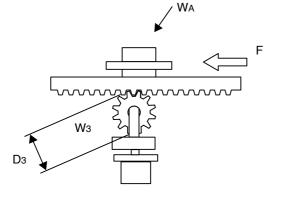
D₃: mm

12) Mass of the pinion

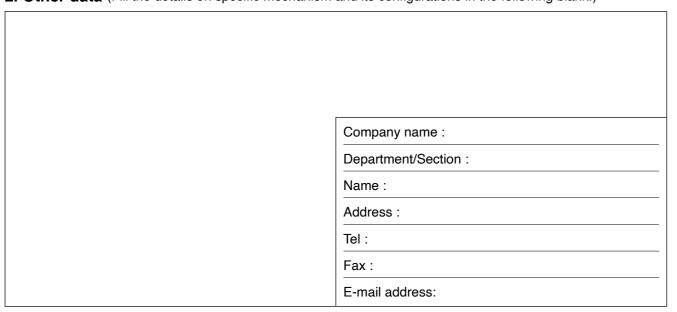
Traveling direction (horizontal, vertical, etc.)







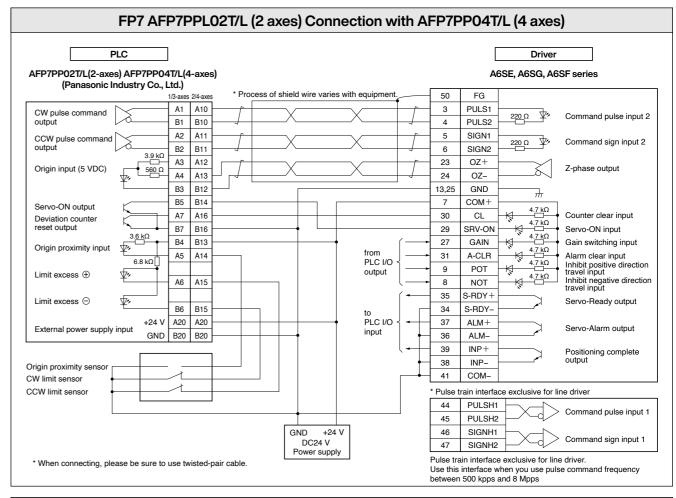
2. Other data (Fill the details on specific mechanism and its configurations in the following blank.)

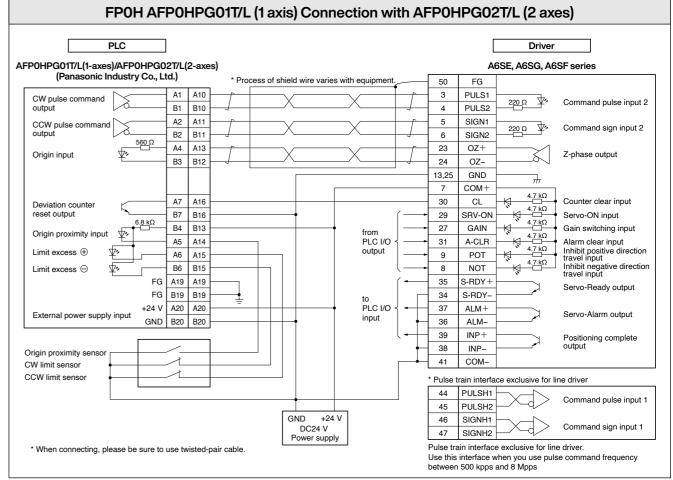


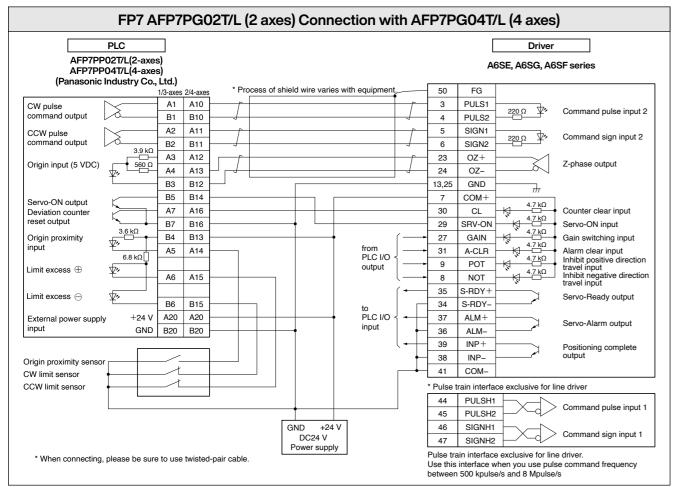
Connection Between Driver and Controller

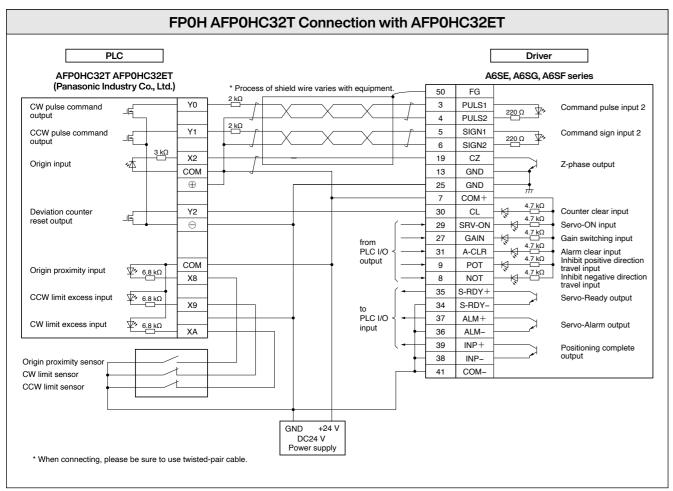
A6 Series

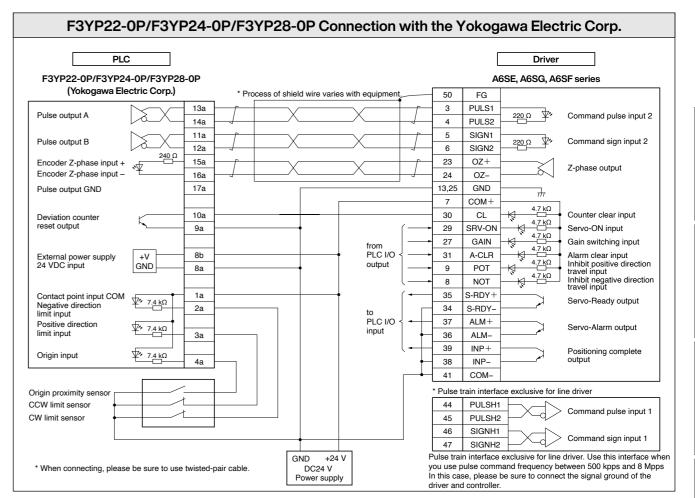
A6B Series

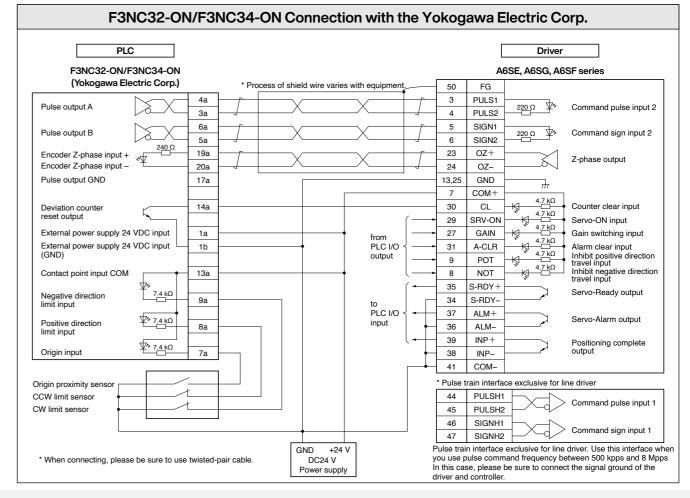


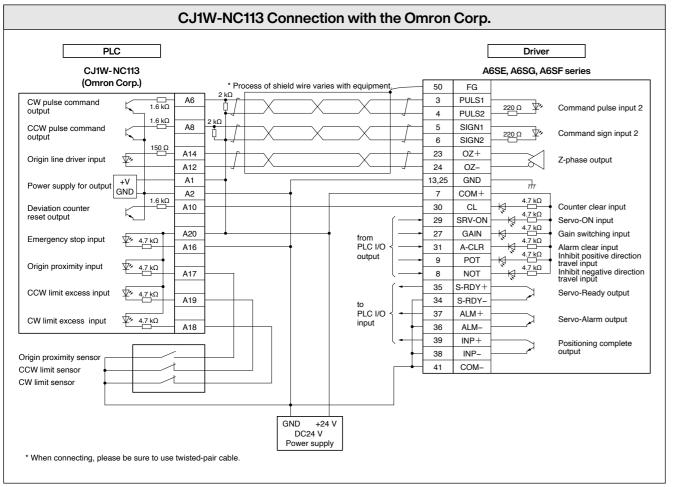


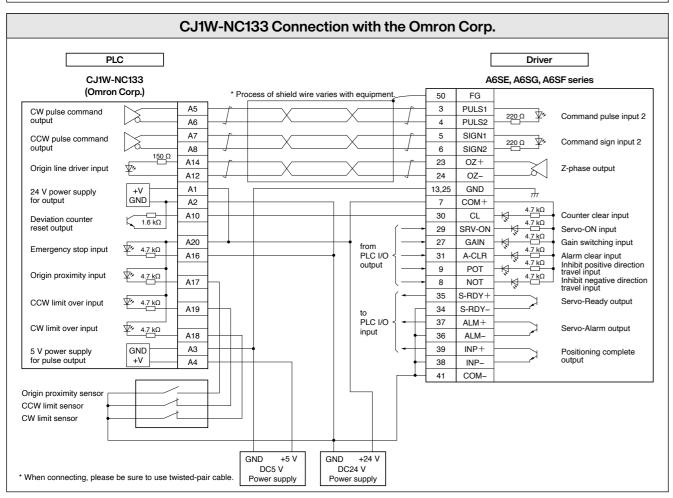


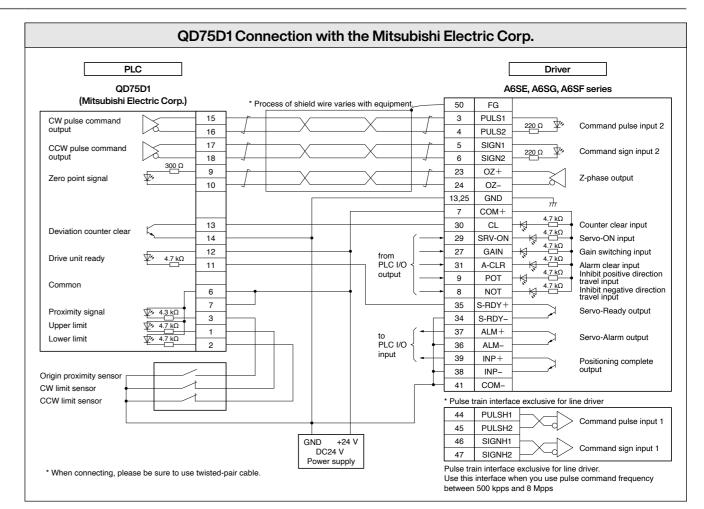


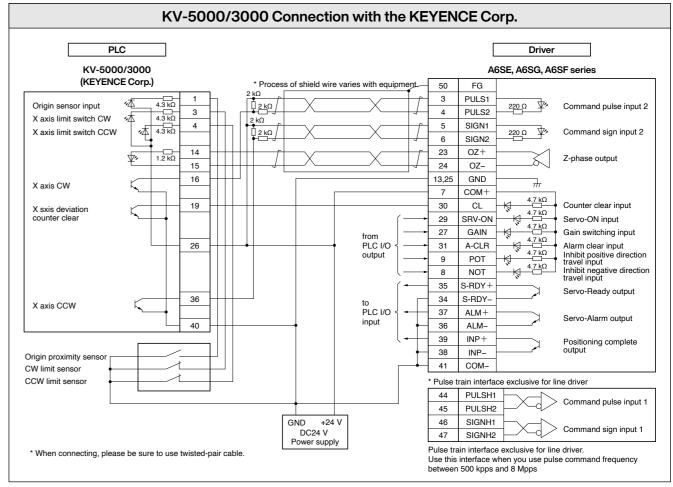












50-pin → 50-pin

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 XX series	Position/velocity control	DV0P4120	P.440
(36-pin)	Torque control	DV0P4121	F.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	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.

		DV0P4130			DV0P4131			
Pin No. on Old Model	Pin No. on Current Model	Signal Name	Symbol	Pin No. on Current Model	Signal Name	Symbol		
1	8	CW over-travel inhibit input	CWL	8	CW over-travel inhibit input	CWL		
2	9	CCW over-travel inhibit input	CCWL	9	CCW over-travel inhibit input	CCWL		
3	3	Command pulse input 2	PULS1	NC				
4	4	Command pulse input 2	PULS2	NC				
5	5	Command pulse sign input 2	SIGN1	NC				
6	6	Command pulse sign input 2	SIGN2	NC				
7	7	Power supply for control signal (+)	COM+	7	Power supply for control signal (+)	COM+		
8	NC			NC				
9	NC			NC				
10	NC			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	_ p.mat suppli		NC	2 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000			
21	21	A-phase output	OA+	21	A-phase output	OA+		
22	22	A-phase output	OA-	22	A-phase output	OA-		
23	23	Z-phase output	OZ+	23	Z-phase output	OZ+		
24	24	Z-phase output	OZ-	24	Z-phase output Z-phase output	OZ-		
			FG			FG		
25	50	Frame ground		50	Frame ground			
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	0 01:	ORW ON	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		1		
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-		
10	1 -3	Frame ground	FG	50	Frame ground	FG		

*	"NC"	is	no	connect.	
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Pin No.	DV0P4132					
on Old Model	Pin No. on Current Model	Signal Name	Symbol			
1	8	CW over-travel inhibit input	CWL			
2	9	CCW over-travel inhibit input	CCWL			
3	NC					
4	NC					
5	NC					
6	NC					
7	7	Power supply for control signal (+)	COM+			
8	NC					
9	NC					
10	NC					
11	11	External brake release signal	BRK-OFF+			
12	12	Zero-speed detection output signal	ZSP			
13	13	Torque in-limit signal output	TLC			
14	NC	0: 1	OND			
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	0.000	000/00/			
29	29	Servo-ON input	SRV-ON			
30	NC		4.01.0			
31	31	Alarm clear input	A-CLR			
32	32	Control mode switching input	C-MODE			
33	NC					
34	NC	0 0 0	0.000			
35	35	Servo-Ready output	S-RDY+			
36	NC	0 41	10.04			
37	37	Servo-Alarm output	ALM+			
38	NC	Chood arrival autout	AT ODEED			
39	39	Speed arrival output	AT-SPEED+			
40	40 10	Torque in-limit signal output	BRK-OFF-			
	34	External brake release signal (-)	AT-SPEED-			
41	36	Speed arrival output (–) Servo-Alarm output (–)	ALM-			
41	38	,	S-RDY-			
		Servo-Ready output (–)	COM-			
42	41	Power supply for control signal (–) Torque monitor output	IM			
42	42		SP			
		Speed monitor output				
44	25	Signal ground	GND			
45	25	Signal ground	GND			
46	25 NC	Signal ground	GND			
47		R phase output	OP.			
48	48	B-phase output	OB+			
49	49 50	B-phase output	OB-			
50	50	Frame ground	FG			

^{* &}quot;NC" is no connect.

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34

SRV-ON

A-CLR

POT

NOT

S-RDY+

S-RDY-

GAIN 🙀

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Driver

4.7 kΩ

4.7 kΩ

4.7 kΩ

4.7 kΩ

Servo-ON input

Alarm clear input

Inhibit positive direction travel input Inhibit negative direction travel input

Servo-Ready output

FP7 AFP7PG02T/L (2 axes) Connection with AFP7PG04T/L (4 axes)

PLC

3.6 kΩ

6.8 kΩ

* When connecting, please be sure to use twisted-pair cable

B7 B16

B4 B13

A5 A14

A6 A15

B6 B15

CW pulse

CCW pulse

command output

command output

Servo-ON output

Deviation counter

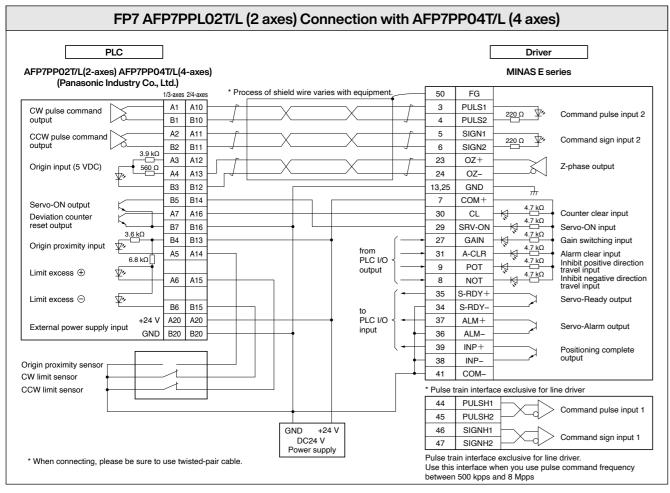
Origin proximity

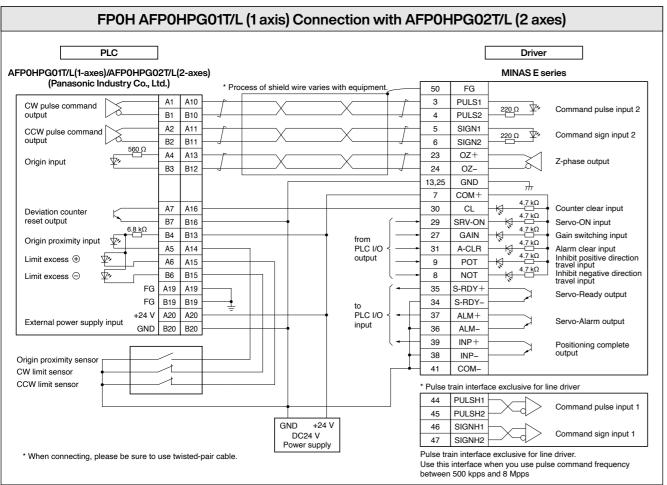
Limit excess

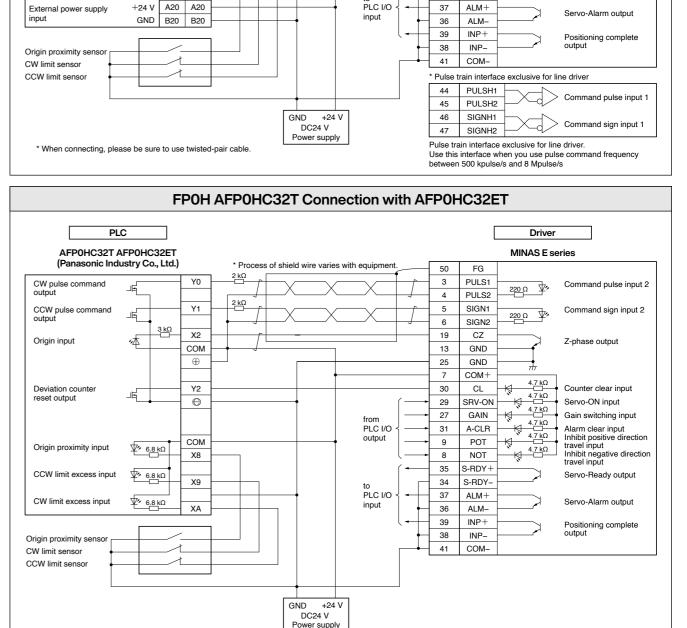
Limit excess ⊖

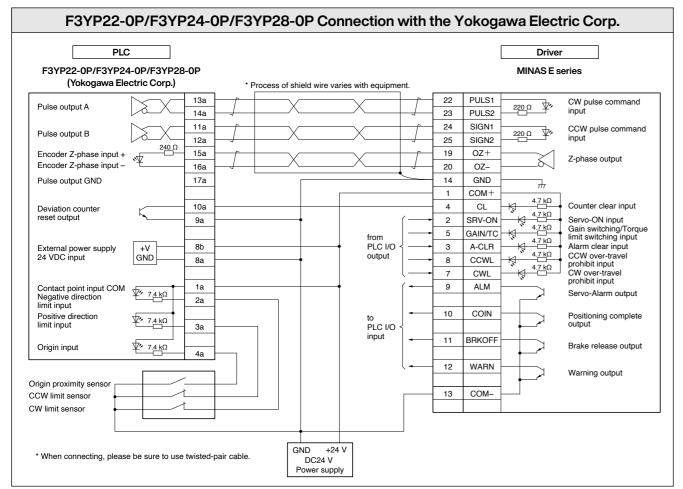
reset output

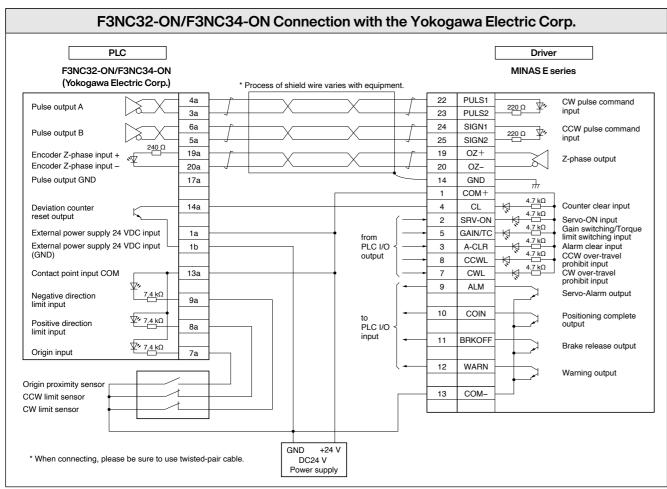
Origin input (5 VDC)

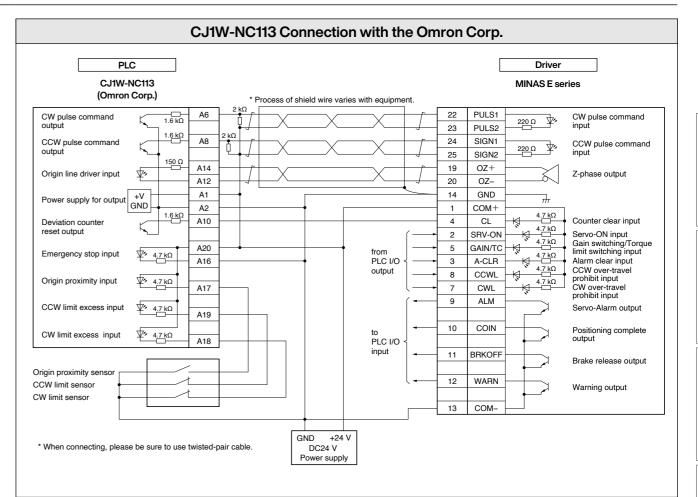


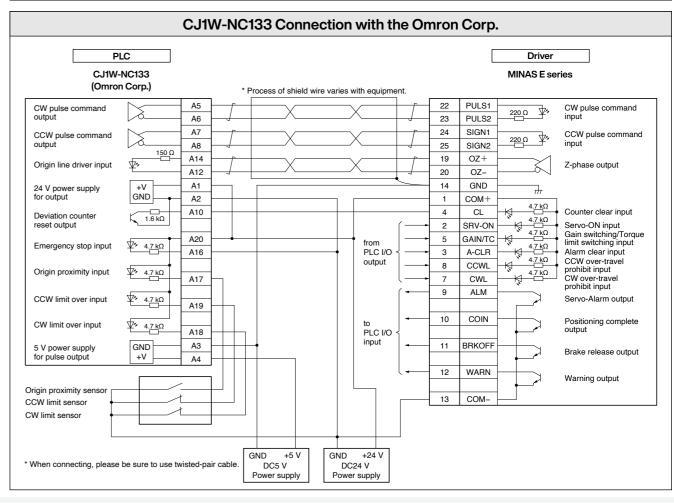












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MSMF092L1A1	MSMF 1000 W 200 V Motor	72
MSMF092L1A2	MSMF 1000 W 200 V Motor	72
MSMF092L1A2M	MSMF 1000 W 200 V Motor	216
MSMF092L1B1	MSMF 1000 W 200 V Motor	72
MSMF092L1B2	MSMF 1000 W 200 V Motor	72
MSMF092L1B2M	MSMF 1000 W 200 V Motor	216
MSMF092L1C1	MSMF 1000 W 200 V Motor	72
MSMF092L1C2	MSMF 1000 W 200 V Motor	72
MSMF092L1C2M	MSMF 1000 W 200 V Motor	216
MSMF092L1D1	MSMF 1000 W 200 V Motor	72
MSMF092L1D2	MSMF 1000 W 200 V Motor	72
MSMF092L1D2M	MSMF 1000 W 200 V Motor	216
MSMF092L1S1	MSMF 1000 W 200 V Motor	72
MSMF092L1S2	MSMF 1000 W 200 V Motor	72
MSMF092L1S2M	MSMF 1000 W 200 V Motor	216
MSMF092L1T1	MSMF 1000 W 200 V Motor	72
MSMF092L1T2	MSMF 1000 W 200 V Motor	72
MSMF092L1T2M	MSMF 1000 W 200 V Motor	216
MSMF092L1U1	MSMF 1000 W 200 V Motor	72
MSMF092L1U2	MSMF 1000 W 200 V Motor	72
MSMF092L1U2M	MSMF 1000 W 200 V Motor	216
MSMF092L1V1	MSMF 1000 W 200 V Motor	72
MSMF092L1V2	MSMF 1000 W 200 V Motor	72
MSMF092L1V2M	MSMF 1000 W 200 V Motor	216
MSMF102L1C5	MSMF 1.0 kW 200 V Motor	73
MSMF102L1C6	MSMF 1.0 kW 200 V Motor	73
MSMF102L1C6M	MSMF 1.0 kW 200 V Motor	217
MSMF102L1C7	MSMF 1.0 kW 200 V Motor	73
MSMF102L1C8	MSMF 1.0 kW 200 V Motor	73
MSMF102L1C8M	MSMF 1.0 kW 200 V Motor	217
MSMF102L1D5	MSMF 1.0 kW 200 V Motor	73
MSMF102L1D6	MSMF 1.0 kW 200 V Motor	73
MSMF102L1D6M	MSMF 1.0 kW 200 V Motor	217
MSMF102L1D7	MSMF 1.0 kW 200 V Motor	73
MSMF102L1D8	MSMF 1.0 kW 200 V Motor	73
MSMF102L1D8M	MSMF 1.0 kW 200 V Motor	217
MSMF102L1G5	MSMF 1.0 kW 200 V Motor	73
MSMF102L1G6	MSMF 1.0 kW 200 V Motor	73
MSMF102L1G6M	MSMF 1.0 kW 200 V Motor	217
MSMF102L1G7	MSMF 1.0 kW 200 V Motor	73
MSMF102L1G8	MSMF 1.0 kW 200 V Motor	73
MSMF102L1G8M	MSMF 1.0 kW 200 V Motor	217
MSMF102L1H5	MSMF 1.0 kW 200 V Motor	73
MSMF102L1H6	MSMF 1.0 kW 200 V Motor	73
	I IVICIVII I.O INVV AUGU V IVIULUI	13

Part No.	MSMF (Low inertia)					
MSMF102L1H7	,		Page			
MSMF162L1GBM MSMF15 kW 200 V Motor 74	MSMF102L1H7	MSMF 1.0 kW 200 V Motor				
MSMF152LICS	MSMF102L1H8		73			
MSMF162LIC6						
MSMF152LIC6M MSMF15 kW 200 V Motor 74						
MSMF152LIC7 MSMF15 kW 200 V Motor 74 MSMF152LIC8M MSMF15 kW 200 V Motor 74 MSMF152LICBM MSMF15 kW 200 V Motor 74 MSMF152LIDB MSMF15 kW 200 V Motor 74 MSMF152LIDBM MSMF15 kW 200 V Motor 74 MSMF152LIGB MSMF15 kW 200 V Motor 74						
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MSMF152LID6M MSMF15 kW 200 V Motor 74 MSMF152LID8 MSMF15 kW 200 V Motor 74 MSMF152LID8M MSMF15 kW 200 V Motor 74 MSMF152LID8M MSMF15 kW 200 V Motor 74 MSMF152LIG6 MSMF15 kW 200 V Motor 74 MSMF152LIG6M MSMF15 kW 200 V Motor 74 MSMF152LIG6M MSMF15 kW 200 V Motor 74 MSMF152LIG8M MSMF15 kW 200 V Motor 74 MSMF152LIH6 MSMF15 kW 200 V Motor 74 MSMF152LIH6 MSMF15 kW 200 V Motor 74 MSMF152LIH6 MSMF15 kW 200 V Motor 74 MSMF152LIH8 MSMF15 kW 200 V Motor 74 MSMF20LIC6 MSMF20 kW 200 V Motor 75 MSMF20LIC6 MSMF20 kW 200 V Motor 75 MSMF20LIC7 MSMF20 kW 200 V Motor 75						
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MSMF302L1H6M						
	MSMF302L1H6M	MSMF 3.0 kW 200 V Motor	220			

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Sales Office

[Panasonic Industry Co., Ltd. Sales Office of Motors]

(November 01, 2022)

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