

## SPECIFICATIONS

M/S

MODEL AC Servo Motor. MINAS A6 Series  
MSMF (23bit,Absolute)

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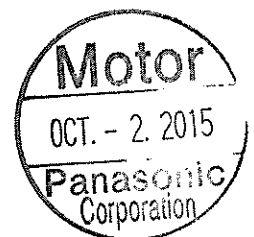




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## 1. Scope

This specification relates to the servo motor of an AC servo system manufactured and delivered by Motor Business Unit, Smart Factory Solutions Business Division, Automotive & Industrial Systems Company, Panasonic Corporation.

## 2. Applicable models, Specifications, Outside drawings.

Applicable model	Specification ( Oil seal )	Outside drawings
MSMF5AZL1□1	SR-DSV11720 19-2 (None) 19-3 (Exist)	SR-DSV1172001 (none of brake) SR-DSV1172002 (with brake)
MSMF011L1□1	19-4 (None) 19-5 (Exist)	↑
MSMF012L1□1	19-6 (None) 19-7 (Exist)	↑
MSMF021L1□1	19-8 (None) 19-9 (Exist)	SR-DSV1172003 (none of brake) SR-DSV1172004 (with brake)
MSMF022L1□1	19-10 (None) 19-11 (Exist)	↑
MSMF041L1□1	19-12 (None) 19-13 (Exist)	↑
MSMF042L1□1	19-14 (None) 19-15 (Exist)	↑
MSMF082L1□1	19-16 (None) 19-17 (Exist)	SR-DSV1172005 (none of brake) SR-DSV1172006 (with brake)
MSMF092L1□1	19-18 (None) 19-19 (Exist)	SR-DSV1172007 (none of brake) SR-DSV1172008 (with brake)

\*□ shows motor structure

Oil Seal	Brake	Shaft	
		Straight	With key and screw tap
None	None	A	S
	Exist	B	T
Exist	None	C	U
	Exist	D	V

## 3. Serial numbers (Production numbers)

The serial number of a motor nameplate means as follows:

Ex.: SER No. 15 09 0001  
Christian year Production month Serial number

## 4. Performance

(1) Heat resistance	Allowable ambient temperature (except for motor temperature rise) Operating 0 °C~+40 °C Storing: -20 °C~+65 °C (The maximum allowable temperature:80 °C, 72hours,normal humidity)
(2) Humidity resistance	Allowable ambient humidity 20~85 %RH (not to condense dew)
(3) Insulation resistance	20 MΩ or more when cool by DC500 V megger. (motor unit : between motor frame and motor lead wire)
(4) Dielectric strength	To withstand AC1500 V for 1 minute. (sensed current : 10 mA) (motor unit : between motor frame and motor lead wire) To withstand AC1000 V for 1 minute. (sensed current : 10 mA) (brake unit : between motor frame and brake lead wire)
(5) Allowable maximum rotating speed	120 % instantaneous of maximum speed. (100 % utility of maximum speed)
(6) Vibration resistance	49 m/s <sup>2</sup> or less X,Y,Z directions But when the motor doesn't operate, 24.5 m/s <sup>2</sup> or less.
(7) Impact resistance	98 m/s <sup>2</sup> in X,Y,Z directions ; 3 times each
(8) Dust-proof & Drip-proof	Equivalent of IP67 * (When specified cable assemblies connected. Except for cable end to the driver and shaft through sections. )
(9) Altitude	1000 m or less above sea level

\* IP67 is one of the designations that mean classification of degrees of protection defined by IEC60529 standard.  
It means that the test has been performed to check and the motor passed the test as a result.  
It does not guarantee to maintain the IP grade in the actual use.

## 5. Assembling precision

(1) In accordance with the outside drawings.

- The axial runout is measured in the lateral direction of the shaft.
- The flange surface squareness and spigot eccentricity are measured in the vertical direction of the shaft.

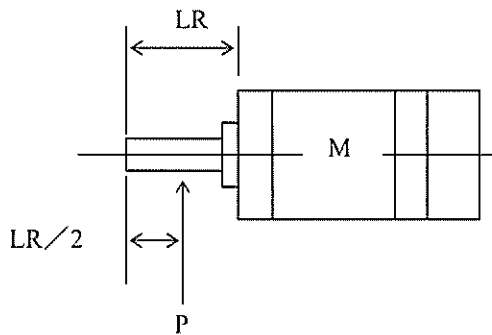
(2) End play (axial play) : 0.3 mm or less.

6. Shaft allowable load

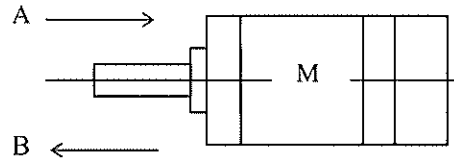
Unit : [N]

Motor	When assembling		When operating		
	Radial load	Thrust load		Radial load	Thrust load
		Direction A	Direction B		
MSMF5A MSMF01	147	88.0	117.6	68.6	58.8
MSMF02 MSMF04	392	147	196	245	98.0
MSMF08 MSMF09	686	294	392	392	147

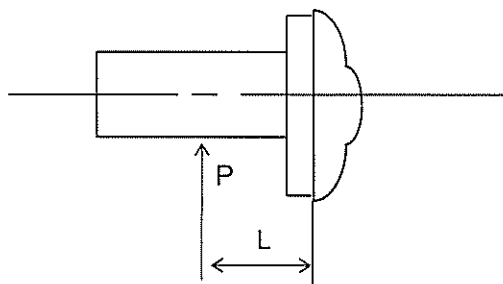
Radial load ( P ) position



Thrust load direction



When a load position is changed, calculate allowable radial load P by the following relational expression, using load position's distance L from the mounting flange surface, and set the load below a value resulting from such calculation.



Unit : P [ N ], L [ mm ]

Applicable models	Relational expression of load and load position
MSMF5A	$P = \frac{3533}{L+39}$
MSMF01	$P = \frac{4905}{L+59}$
MSMF02	$P = \frac{14945}{L+46}$
MSMF04	$P = \frac{19723}{L+66.5}$
MSMF08	$P = \frac{37044}{L+77}$
MSMF09	$P = \frac{43198}{L+92.7}$

## 7. Rotary encoder specification

Absolute encoder 23bit, Two-way communication

In accordance with the specification No.SX-DSV02998

Precautions for battery exchange in the case of absolute encoder

When you exchange the battery, please hold the main power of encoder in the

ON position (as supplying the encoder with 5 V) and exchange the battery.

Please notice that all data in the encoder would be disappeared if you exchange the battery with the main power of encoder being OFF.

## 8. Motor brake specification

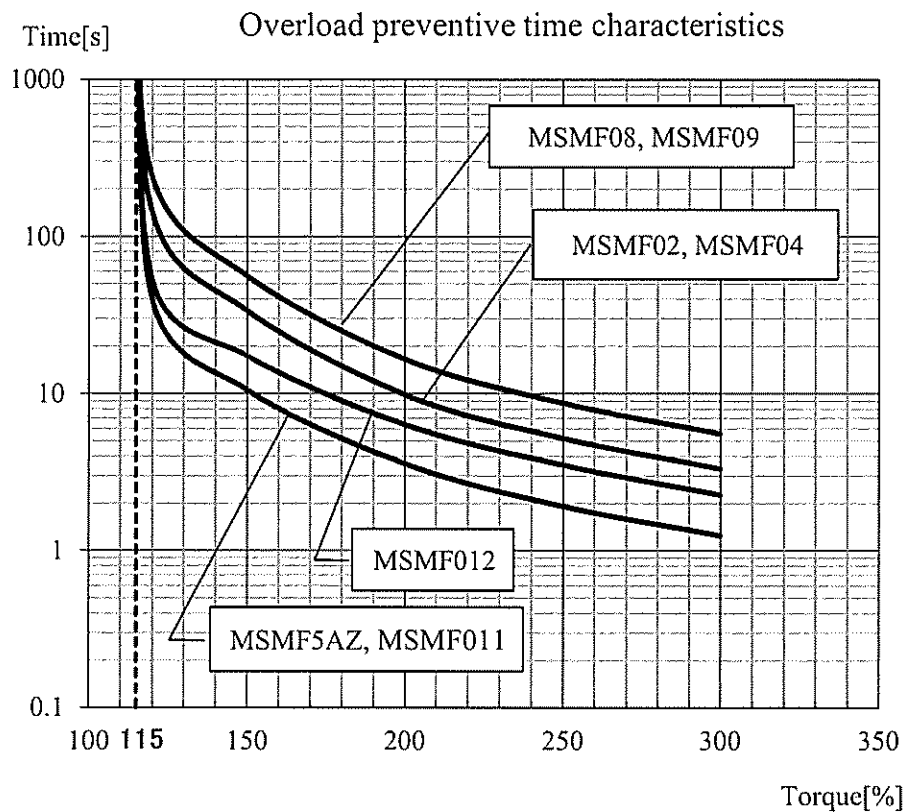
Items	Units	Applicable motor			
		MSMF5A MSMF01	MSMF02 MSMF04	MSMF08	MSMF09
Static friction torque	N·m	0.294 or more	1.27 or more	2.45 or more	3.80 or more
Rotary part inertia	$10^{-4}\text{kg}\cdot\text{m}^2$	0.002	0.018	0.075	←
Armature pull in time	ms	35 or less	50 or less	70 or less	←
Armature release time ※1	ms	20 or less	15 or less	20 or less	←
Release voltage	DC,V	1 or more	←	←	←
Excitation voltage	DC,V	24±1.2	←	←	24±2.4
Excitation current	DC,A	0.30	0.36	0.42	←
Allowable braking energy ; 1 time each	J	39.2	137	196	185
All allowable braking energy	J	$4.9\times 10^3$	$44.1\times 10^3$	$147\times 10^3$	$80.0\times 10^3$
Allowable angular acceleration	rad/s <sup>2</sup>	30000	←	←	←

(at 20 °C)

※1 By varistor (TND15G271K made by Nippon Chemi-Con Corporation.)

- (1) Rotary part inertia and Excitation current (at DC24 V) are representative characteristic values.
- (2) When the motor was forwarded, the brake's backlash is  $\pm 1.0^\circ$  or less.
- (3) Power supply for motor brake must be prepared by user side.  
(Either way of connection for polarity would be acceptable)
- (4) The above-mentioned all allowable braking energy shall be braking energy complying with the brake specification (braking energy capable of performing a suction motion in consideration of brake temperature increases).
- (5) The motor life with the repetitions of acceleration and deceleration at the above allowable angular acceleration : 10 million times.  
(The number of acceleration-deceleration cycles until brake's backlash changes rapidly)
- (6) The series connection of the protection parts such as fuses is recommended in the case of the use with varistor.

## 9. Time characteristics (our standard driver)



Please use the motor under conditions limiting effective torque within continuous duty zone of Speed – Torque characteristic.

About the Speed – Torque characteristic, please confirm each motor specification.

When anything other than our standard driver is used, be sure of setting its overload to the below time of the above.

As for the time characteristics of specific models, contact us to make an inquiry.



## 10. Compliance with safety standards

## (1) Compliance with UL and CSA standards

Applicable standards UL 1004-1, UL1004-6  
CSA 22.2, No. 100-04  
File No. E327868

## (2) Compliance with CE

Applicable standards EN 60034-1 : 2010  
EN 60034-5 : 2001+A1:2007  
TÜV SÜD Japan Ltd.  
Certificate No. B150622944285

## 11. Standard Life and Standard exchange time

## (1) Potential basic rated life of bearings (Calculated values)

90 % reliable fatigue life after dealing with its variation statistically, under the shaft allowable load, is 20000 hours or more under the continuous application of the rated load.

Be sure that there is no repetitive shaking operation or no oscillation, which may cause fretting phenomena, within 45 degrees of motor shaft rotating angle.

## (2) Life time of rotary encoder

The life of a rotary encoder complying with its specification (LED light intensity half-life) shall be 30000 hours or more under the continuous application of the rated load.

## (3) Life time of reduction gear.

The life of a reduction gear complying with its specification shall be 10,000 hours under the continuous application of rated load. (Basic rated life of the inside bearing of reduction gear)

## (4) Standard exchange time of oil seal (with oil seal)

5000 hours under the continuous application of rated load.

(It changes with environment or usage)

## 12. Regarding the guarantee period

## 12-1 Guarantee period

The guarantee period shall be 1 year after delivery, or 1.5 years after a production month.

However, the number of acceleration-deceleration cycles of a brake shall not exceed its life.

Even if consumable parts (oil seals) are excluded.

Guarantee period has not been expired yet, the following cases are excluded:

- (1) Defects are caused by misuse, repair or modification by yourselves.
- (2) Defects are caused by dropping after purchase, or damage during transportation.
- (3) Defects are caused by use under the condition exceeding the specification of products.
- (4) Defects are caused by fire, earthquake, lightning stroke, wind and flood damage, salt damage, abnormal voltage, other natural disasters, casualty.
- (5) When a failure is attributable to entry of water / grease / metal strip / other foreign object.



## 12-2 Coverage of guarantee

As for defects that may occur under our responsibility during the guarantee period, we only undertake to exchange defective sections of the equipment or to repair it. The guarantee covers the delivered unit of a product only. Therefore, we are not in a position to accept any claim of consequential damage resulting from the defects of delivered products.



# Safety precautions

## 13. Safety Precautions

■ The seriousness of injury or damage caused by using the product improperly without observing the indicated description is categorized using the signs below and the meaning is explained.

 <b>Danger</b>	The section with this sign contains items which are “assumed to cause imminently dangerous situation such as death or seriously injury if ignored.”
 <b>Caution</b>	The section with this sign contains items which are “assumed to cause injury or property damage only if ignored.”

■ The type of description to be observed is categorized with the signs below and the meaning is explained.

	This sign shows that the item is “prohibited” to perform.
	This sign shows that the item is a “compulsory” to be performed without fail.

## Danger



- (1) Be sure not use the product in a place where the product may come in contact with foreign matter such as liquid like grinding oil, oil mist, and file dust, nor in an atmosphere of corrosive gas (such as H<sub>2</sub>S, SO<sub>2</sub>, NO<sub>2</sub>, Cl<sub>2</sub>) or flammable gases, nor in a place near inflammable material.
- (2) Do not place inflammable material near a motor, a driver, or a regenerative resistance.
- (3) Do not drive the motor with external power.
- (4) Do not damage the cable nor place too much stress or heavy object on the cable. Do not pinch the cable.
- (5) Do not operate the product while the cable is dipped in oil or water.
- (6) Do not install the console near heating element such as a heater or a large-sized wire wound resistor.
- (7) Do not connect the motor to the commercial power source directly.
- (8) Do not use the product in a place where strong vibration or shock may be experienced.
- (9) Be sure not to touch the rotating part of the motor during operation.
- (10) Do not touch the keyway of the output shaft of the motor with bare hands.
- (11) Be sure not to insert your hand into the driver.
- (12) Do not touch the motor, the heat sink of the driver nor the surrounding equipments since they will be hot.
- (13) Do not perform wiring nor operate the product with wet hand.

# Safety precautions

## Danger



- (14) Be sure that the wiring task is performed by electrical engineer.
- (15) There is no protective device attached to the motor other than the specified ones. Please protect them with an overcurrent protective device, a ground-fault circuit interrupter, an overtemperature preventing device, an emergency stop device, and the like.
- (16) When starting operation of the driver after an earthquake, please make sure that there is no abnormality as to the installation condition of the driver and the motor and the safety of the machine before starting operation.
- (17) When relocating, wiring, or checking the driver, leave it for the period of time indicated on the main body or longer after switching off the power, and confirm that there is no danger of electric shock, and then perform the task.
- (18) To prevent causing fire or accident resulting in injury or death due to improper installation or mounting at the occurrence of earthquake, please install or mount the device securely.
- (19) In order to be able to stop operating the device immediately and to cut off the device from the power source, install an external emergency stop circuit.
- (20) Install the motor, the driver, and the surrounding devices on nonflammables such as metal.
- (21) Perform wiring correctly and securely. Insecure and incorrect wiring may be the cause of abnormal motor operation and its damage by fire.  
Also, please make sure that no electrical conducting material such as a scrap of electric wire get inside the driver at the time of performing installation and wiring task.
- (22) Connect the cables securely, and firmly insulate the current-carrying part with insulating material.
- (23) Be sure to install a no-fuse breaker to the power source.  
Also, make sure to connect the ground terminal or the ground lead to the ground.  
(In order to prevent electric shock and abnormal operation, the class D grounding  
(Grounding resistance: 100  $\Omega$  or lower) or higher is recommended.)

## Caution



- (24) When transferring the product, do not hold the cable or the shaft of the motor.
- (25) Do not adjust or modify the gain of the driver extremely, nor let the operation or movement of the machine be unstable.
- (26) After recovering from power failure, do not get close to the machine because there is a possibility that the machine restarts suddenly.  
Setting must be made to the machine so that safety for the worker is ensured when the machine restarted suddenly.
- (27) Do not apply strong shock to the shaft of the motor.
- (28) Do not apply strong shock to the product.
- (29) Be sure not to start or stop the motor with the electromagnetic contactor installed on the main power source side.
- (30) Do not switch on or off the main power supply of the driver frequently.
- (31) Since the brake built in the motor is used for maintenance, do not use it as a stopping device (braking) to ensure the safety of the machine.
- (32) Be careful not to drop or to topple over the product when transferring or performing installation task.
- (33) Do not climb on the motor or place heavy object on the motor.
- (34) Do not cover the louver on the driver nor insert foreign matter.
- (35) Do not use the product in an area exposed to direct sunlight. And when storing the product, avoid direct sunlight and keep the temperature and the humidity within the range specified for when the product is in use.
- (36) Never overhaul or modify the motor.  
Overhauling will be performed at our company or at the retailers approved by our company.



## Safety precautions



- (37) Use the motor and the driver in the combination specified by our company. Please confirm the performance and the safety at your company when the motor is used in combination with another driver.
- (38) Due to the trouble with the motor or the driver combined, the motor may be damaged by fire, or smoking or dusting might occur. Please consider these possibilities when they are to be used in a clean room or the like.
- (39) Perform proper installation which is in proportion to the output and the weight of the main body.
- (40) Keep the ambient temperature and humidity of the installed motor within the range of allowable temperature and humidity.
- (41) Observe the specified installation method and the orientation of the product.
- (42) Keep a space as specified between the driver and the inner surface of the control panel, or between the driver and the other devices when installing the product.
- (43) Use the eyebolt attached to motor only for transferring the motor, but not for transferring the equipment.
- (44) Install a relay used to break the circuit at the time of emergency stop in series with the relay used to control the brake.
- (45) Fix the motor at the time of test run, and confirm its movement after isolating it from the mechanical system, and then mount it on the machine.  
(The motor should rotate smoothly at 30 r/min or so by the driver driving.)
- (46) Confirm that the power source specification is normal.
- (47) When an error has occurred, remove the cause and ensure the safety first, and after releasing the error, restart the machine.
- (48) The brake built in the motor may not be maintained due to its life span, the mechanical structure, and so on. Please install a stopping device to ensure the safety on the machine side.
- (49) Do not place obstacles around the motor, the driver, and the surrounding devices in order to keep an adequate amount of ventilation.
- (50) Maintenance should be performed by the specialist.
- (51) If the product is not to be used for a long period of time, be sure to turn off the power.

Please be sure to read the instruction manual (the safety section) before use.

We have been putting maximum effort to ensure the quality of this product. But since the possibility of the occurrence of the product's abnormal behavior not in accordance with the setting still exists due to the unexpectedly strong exogenous noise (including radiation and the like), the application of static electricity, or the rare event such as abnormality in the input power source, the wiring, and the parts, we ask our customers to take measures against the occurrence of unexpected behavior to fully ensure the safety.

## 14. Other cautions

- (1) Do not store the product in a place where the product may come in contact with rain or waterdrop, or where poisonous gas or liquid is stored.
- (2) Store the product in a place where direct sunlight can be avoided and where the temperature and humidity are within the specified range.  
If the product has been stored for a long period of time (one and a half years or longer), consult with us.
- (3) Since excessive loading of the product may be the cause of load collapsing, follow the instructions indicated.
- (4) Please make the final decision at your company as to the specification of the completed product, compliance with laws and regulations, and its compatibility with the equipments and parts attached by your company in respects such as the structure, dimensions, service life, and characteristics.
- (5) In the case of an shaft with a key, it should be fixed not only with the key but also with a set of screws or the like, and a grease to prevent fretting should be applied to the joining section with the shaft of the motor.
- (6) When the specification of the device of your company is to be changed, please carefully consider the compatibility with our motor.
- (7) When the motor is to be operated without electrically connecting the shaft of the motor to the ground, depending on the actual equipment and the installing environment, problems such as the bearing sound will be louder may occur due to the occurrence of electrical corrosion at the motor bearing. So please confirm and verify the matter at your company.
- (8) Please confirm the strength of the shaft at your company.  
(There should be no load heavier than the allowable weight on the shaft during operation.)
- (9) An amount of grease (Albania No. 2: produced by Showa Shell Sekiyu) is applied to the end of the shaft of this motor. Please consider its influence to materials such as plastic.
- (10) If a seal is required when mounting a device of your company on the mounting surface of our motor, please address the matter at your company.
- (11) When discarding the battery, isolate the battery with a tape or the like, and discard it according to the regulations of the local government.
- (12) When discarding the motor, dispose it as an industrial waste.
- (13) Some of the parts or the like may be modified to improve the performance, but the improvement will be implemented within the range of satisfying the items in this specification.
- (14) The specification change of the motor shall be implemented with the specification delivered by our company or a document specified by your company. And when the functions or characteristics are affected, the specification will be changed after being verified and confirmed with a prototype.
- (15) When the specification is changed, the price may also be changed in some cases.
- (16) If there is an item other than the items described in this specification and needs to be specified, please notify us beforehand.
- (17) If malfunctioning has occurred, the matter shall be addressed by discussing the matter with both parties according to the items indicated in this specification.
- (18) This product was designed to be used with general industrial products or the like. It is not designed to be used with a device dealing with human life or as a device to be used in unusual circumstances such as nuclear power management, use with aerospace instruments, use in transportation, use with medical equipments, use with various types of safety devices, or use with a device for which high level of cleanliness is required.

## Reliability evaluation items

The contents of this evaluation only covers items used for the design verification of selective models at the initial development stage, and do not guarantee all items from regular production.

(Basic evaluation conditions)

Evaluation items	Evaluation conditions	Evaluation result
Vibration resistance / heat cycle test	20~3000 Hz 49 m/s <sup>2</sup> , with not more than 1.5 mm amplitude 8 hours each for X, Y and Z directions -30/+80 °C 1 cycle	No abnormality in outside appearance, structure and functions
Resonant point vibration endurance test	49 m/s <sup>2</sup> each for X, Y and Z directions Number of cycles : 10 million cycles	No abnormality in outside appearance, structure and functions
High temperature & high humidity electric conduction test	60 °C 95 %RH 72-hour	No abnormality in outside appearance, structure and functions
Heat shock resistance test	-20/+80 °C 50 cycles	No abnormality in outside appearance, structure and functions
Impact resistance test	490 m/s <sup>2</sup> with L flange mounted 3 cycles each for X, Y and Z directions 196 m/s <sup>2</sup> for items over 750 W	No abnormality in outside appearance, structure and functions
Rotor's high-speed rotation test	After 50 cycles of -20/80 °C, rotate a motor for 10 seconds at the speed of 12000 r/min at 100 °C. (As for items with the rated rotating speed of 3000r/min., use the speed of 15000 r/min.)	No abnormality in outside appearance, structure and functions
Burnout test	Apply the maximum current to let a motor burn out. (Situation where the overload is negated.)	No ignition Not more than specified amount of smoke

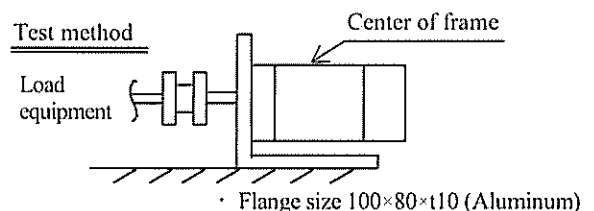
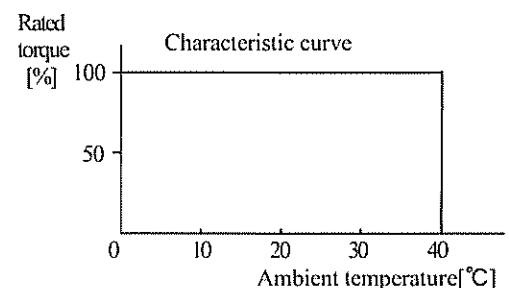
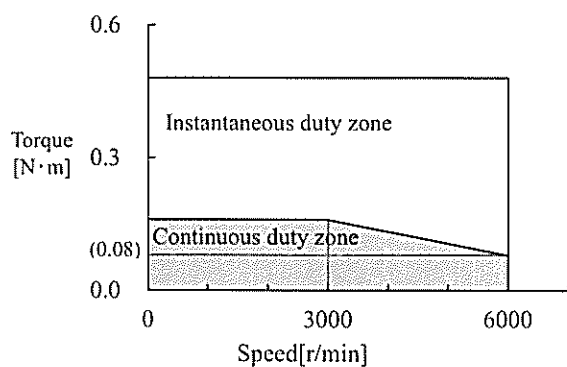
## Delivery inspection items

Inspection items	Inspection methods	Quantity
Outside appearance	Visual inspection	All
Dimensions	Slide gauge, Gauge	Sampling
Withstand voltage	Withstand voltage tester	All
Insulation resistance	Insulation resistance meter	All
Induced voltage constant	Automatic tester	All
Armature resistance	Ohm meter	All
Encoder test and driver combination test	Automatic tester	All
Brake static friction torque	Spring scale	All
Brake suction / release voltage	Voltmeter	All
Reduction gear	Hearing	All

## AC Servo Motor Specification

Motor model		MSMF5AZL1□1 (none of brake)	MSMF5AZL1□1 (with brake)	
Rated output	W	50	←	
Rating	%	100	←	
Number of poles		10	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	6000	←	
Rated torque	N·m	0.16	←	
Max. torque	N·m	0.48	←	
Rated current	A(rms)	(1.1)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.026	0.029	
Electrical time constant	ms	(1.0)	←	
Mechanical time constant	ms	1.38	1.53	
Power rate	kW/s	9.8	8.8	
Momentary max. current	A(o-p)	(4.7)	←	
Demagnetization current	A(o-p)	7.1	←	
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	5.6 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	11.9 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.16 $\pm$ 10 %	←	
	N·m/A(o-p)	0.11 $\pm$ 10 %	←	
Phase resistance	$\Omega$	4.41 $\pm$ 7 %	←	
Phase inductance	mH	(4.5)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.32	0.53	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	100/200	←	

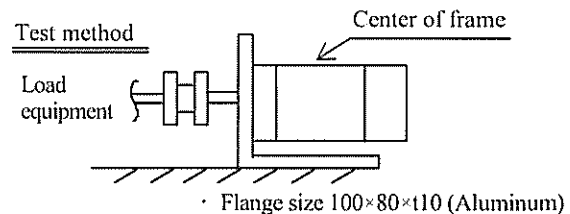
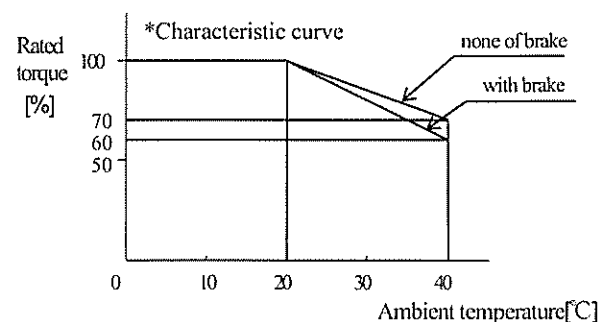
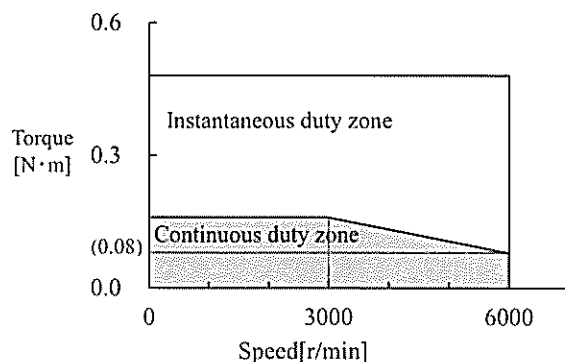
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
  - Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
  - Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
  - Speed - Torque characteristic (Representative value)
- Driver power supply voltage : at AC100/200 V



## AC Servo Motor Specification

Motor model		MSMF5AZL1□1 (none of brake)	MSMF5AZL1□1 (with brake)	
Rated output	W	50	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	0.16	←	
Max. torque	N·m	0.48	←	
Rated current	A(rms)	(1.1)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.026	0.029	
Electrical time constant	ms	(1.0)	←	
Mechanical time constant	ms	1.38	1.53	
Power rate	kW/s	9.8	8.8	
Momentary max. current	A(o-p)	(4.7)	←	
Demagnetization current	A(o-p)	7.1	←	
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	$5.6 \pm 10 \%$	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	$11.9 \pm 10 \%$	←	
Torque constant	N·m/A(rms)	$0.16 \pm 10 \%$	←	
	N·m/A(o-p)	$0.11 \pm 10 \%$	←	
Phase resistance	$\Omega$	$4.41 \pm 7 \%$	←	
Phase inductance	mH	(4.5)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.32	0.53	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	100/200	←	

- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
  - Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
  - Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
  - Speed - Torque characteristic (Representative value)
- Driver power supply voltage : at AC100/200 V





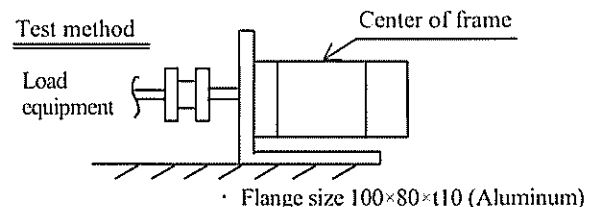
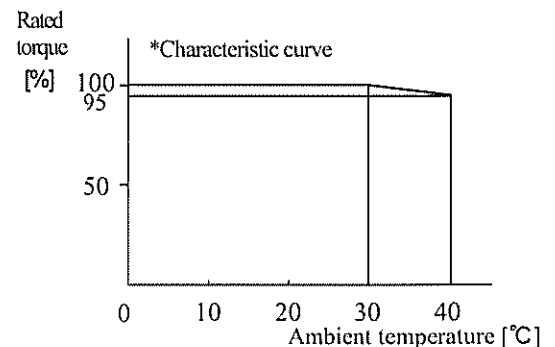
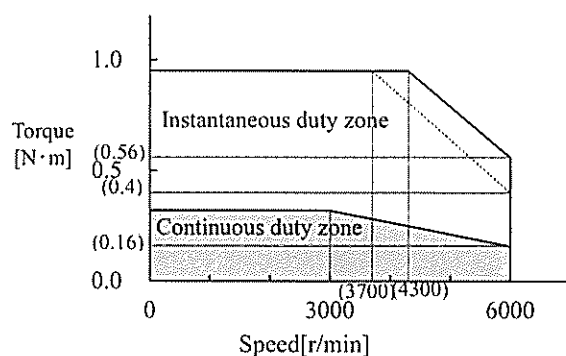
## AC Servo Motor Specification

Motor model		MSMF011L1□1 (none of brake)	MSMF011L1□1 (with brake)	
Rated output	W	100	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	0.32	←	
Max. torque	N·m	0.95	←	
Rated current	A(rms)	(1.6)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.048	0.051	
Electrical time constant	ms	(1.2)	←	
Mechanical time constant	ms	1.07	1.14	
Power rate	kW/s	21.3	20.1	
Momentary max. current	A(o-p)	(6.9)	←	
Demagnetization current	A(o-p)	10	←	
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	6.4 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	13.6 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.18 $\pm$ 10 %	←	
	N·m/A(o-p)	0.13 $\pm$ 10 %	←	
Phase resistance	$\Omega$	2.51 $\pm$ 7 %	←	
Phase inductance	mH	(3.1)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.47	0.68	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	100	←	

- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 90 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)

Driver power supply voltage : at AC100 V

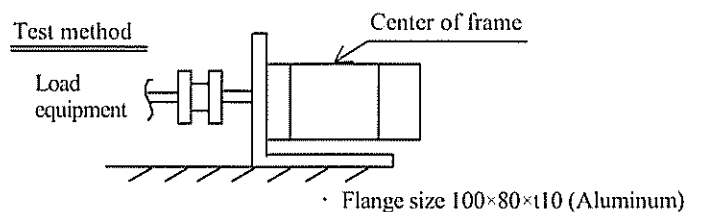
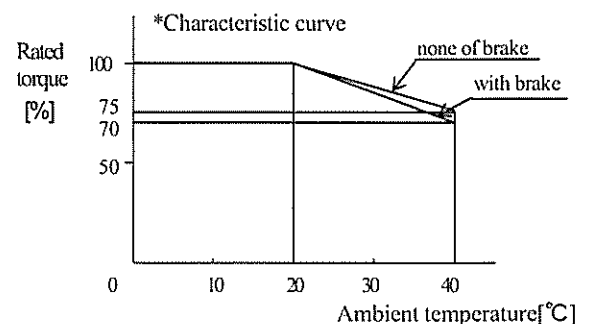
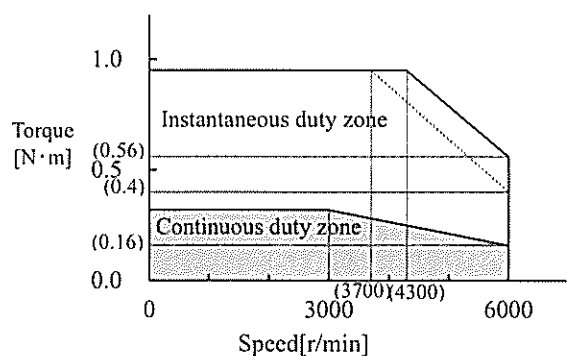
Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF011L1□1 (none of brake)	MSMF011L1□1 (with brake)	
Rated output	W	100	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	0.32	←	
Max. torque	N·m	0.95	←	
Rated current	A(rms)	(1.6)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.048	0.051	
Electrical time constant	ms	(1.2)	←	
Mechanical time constant	ms	1.07	1.14	
Power rate	kW/s	21.3	20.1	
Momentary max. current	A(o-p)	(6.9)	←	
Demagnetization current	A(o-p)	10	←	
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	6.4 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	13.6 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.18 $\pm$ 10 %	←	
	N·m/A(o-p)	0.13 $\pm$ 10 %	←	
Phase resistance	$\Omega$	2.51 $\pm$ 7 %	←	
Phase inductance	mH	(3.1)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.47	0.68	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	100	←	

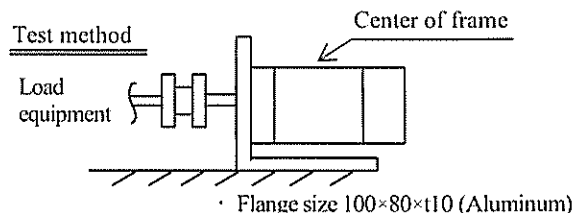
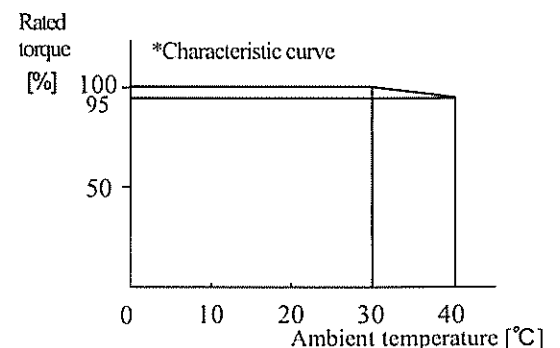
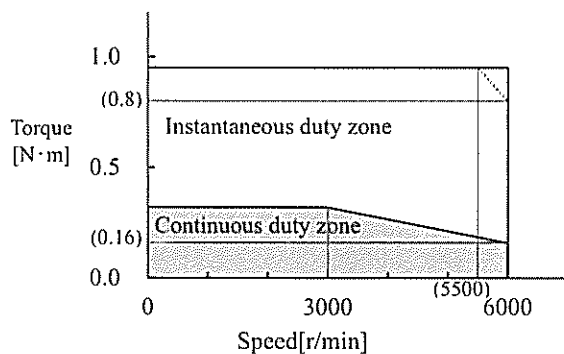
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 90 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic ( Representative value )  
Driver power supply voltage : at AC100 V  
Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF012L1□1 (none of brake)	MSMF012L1□1 (with brake)	
Rated output	W	100	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	0.32	←	
Max. torque	N·m	0.95	←	
Rated current	A(rms)	(1.1)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.048	0.051	
Electrical time constant	ms	(1.2)	←	
Mechanical time constant	ms	1.13	1.20	
Power rate	kW/s	21.3	20.1	
Momentary max. current	A(o-p)	(4.7)	←	
Demagnetization current	A(o-p)	7.1	←	
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	10.0 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	21.3 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.29 $\pm$ 10 %	←	
	N·m/A(o-p)	0.20 $\pm$ 10 %	←	
Phase resistance	$\Omega$	6.40 $\pm$ 7 %	←	
Phase inductance	mH	(7.8)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.47	0.68	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	200	←	

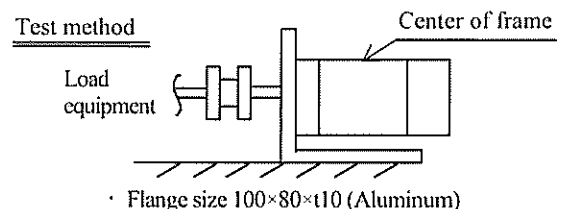
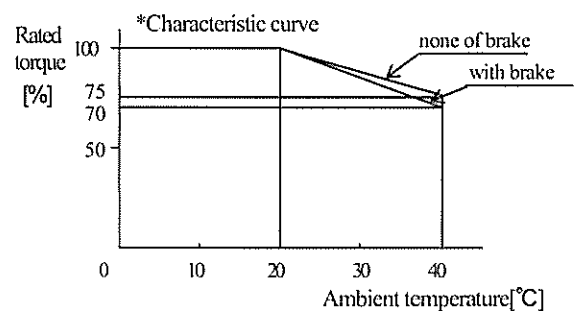
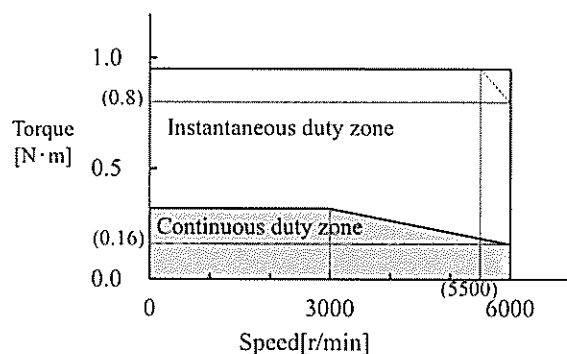
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 90 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
Driver power supply voltage : at AC200 V  
Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF012L1□1 (none of brake)	MSMF012L1□1 (with brake)	
Rated output	W	100	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	0.32	←	
Max. torque	N·m	0.95	←	
Rated current	A(rms)	(1.1)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.048	0.051	
Electrical time constant	ms	(1.2)	←	
Mechanical time constant	ms	1.13	1.20	
Power rate	kW/s	21.3	20.1	
Momentary max. current	A(o-p)	(4.7)	←	
Demagnetization current	A(o-p)	7.1	←	
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	10.0 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	21.3 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.29 $\pm$ 10 %	←	
	N·m/A(o-p)	0.20 $\pm$ 10 %	←	
Phase resistance	$\Omega$	6.40 $\pm$ 7 %	←	
Phase inductance	mH	(7.8)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.47	0.68	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	200	←	

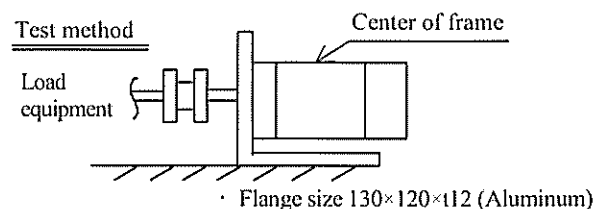
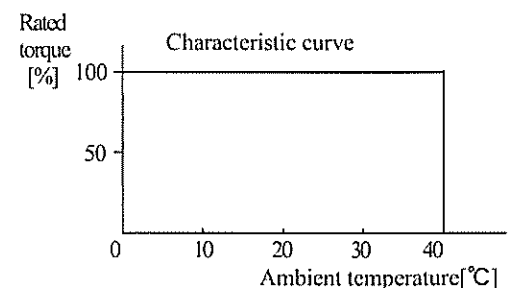
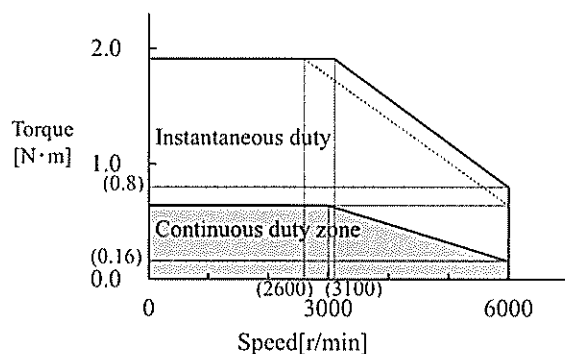
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 90 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
Driver power supply voltage : at AC200 V  
Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF021L1□1 (none of brake)	MSMF021L1□1 (with brake)	
Rated output	W	200	←	
Rating	%	100	←	
Number of poles		10	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	6000	←	
Rated torque	N·m	0.64	←	
Max. torque	N·m	1.91	←	
Rated current	A(rms)	(2.5)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.14	0.17	
Electrical time constant	ms	(4.5)	←	
Mechanical time constant	ms	0.71	0.86	
Power rate	kW/s	29.3	24.1	
Momentary max. current	A(o-p)	(10.6)	←	
Demagnetization current	A(o-p)	16		
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	9.0 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	19.1 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.26 $\pm$ 10 %	←	
	N·m/A(o-p)	0.18 $\pm$ 10 %	←	
Phase resistance	$\Omega$	1.11 $\pm$ 7 %	←	
Phase inductance	mH	(5.0)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.82	1.3	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	100	←	

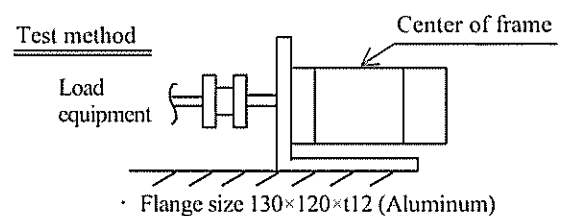
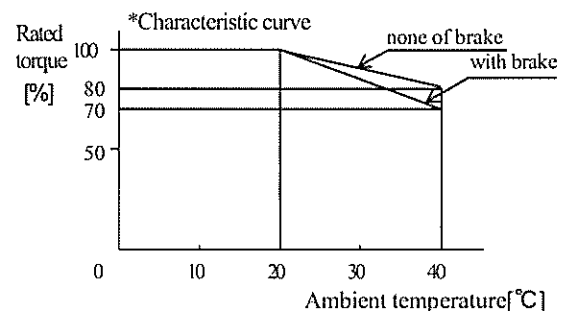
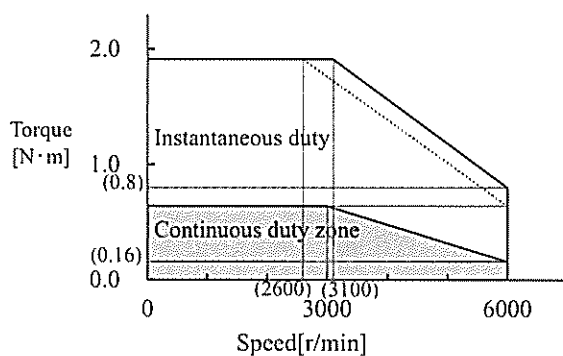
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value )  
Driver power supply voltage : at AC100 V  
Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF021L1□1 (none of brake)	MSMF021L1□1 (with brake)	
Rated output	W	200	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	0.64	←	
Max. torque	N·m	1.91	←	
Rated current	A(rms)	(2.5)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.14	0.17	
Electrical time constant	ms	(4.5)	←	
Mechanical time constant	ms	0.71	0.86	
Power rate	kW/s	29.3	24.1	
Momentary max. current	A(o-p)	(10.6)	←	
Demagnetization current	A(o-p)	16		
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	9.0 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	19.1 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.26 $\pm$ 10 %	←	
	N·m/A(o-p)	0.18 $\pm$ 10 %	←	
Phase resistance	$\Omega$	1.11 $\pm$ 7 %	←	
Phase inductance	mH	(5.0)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.82	1.3	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	100	←	

- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)
  - Driver power supply voltage : at AC100 V
  - Dotted line indicates fall of power supply Voltage by 10 %



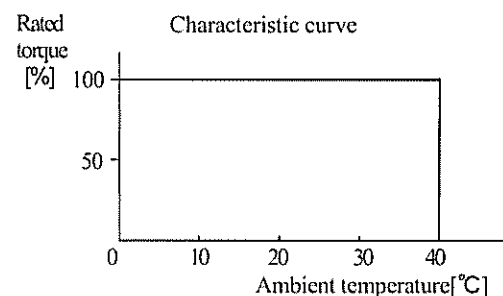
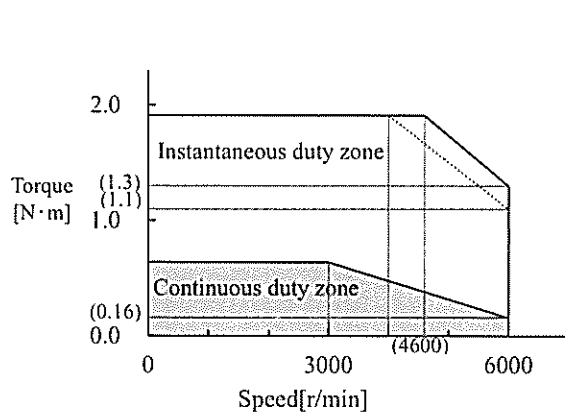
## AC Servo Motor Specification

Motor model		MSMF022L1□1 (none of brake)	MSMF022L1□1 (with brake)	
Rated output	W	200	←	
Rating	%	100	←	
Number of poles		10	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	6000	←	
Rated torque	N·m	0.64	←	
Max. torque	N·m	1.91	←	
Rated current	A(rms)	(1.5)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.14	0.17	
Electrical time constant	ms	(5.0)	←	
Mechanical time constant	ms	0.66	0.80	
Power rate	kW/s	29.3	24.1	
Momentary max. current	A(o-p)	(6.5)	←	
Demagnetization current	A(o-p)	10		
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	14.6 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	31.0 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.42 $\pm$ 10 %	←	
	N·m/A(o-p)	0.30 $\pm$ 10 %	←	
Phase resistance	$\Omega$	2.78 $\pm$ 7 %	←	
Phase inductance	mH	(13.9)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.82	1.3	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	200	←	

- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)

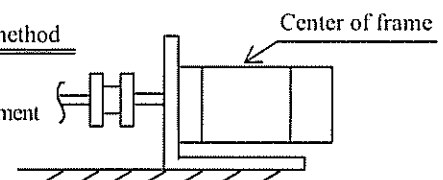
Driver power supply voltage : at AC200 V

Dotted line indicates fall of power supply Voltage by 10 %



## Test method

Load equipment

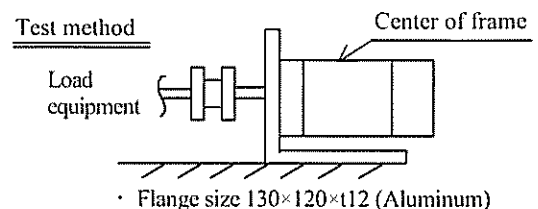
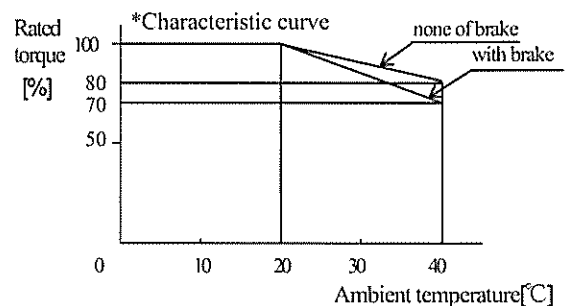
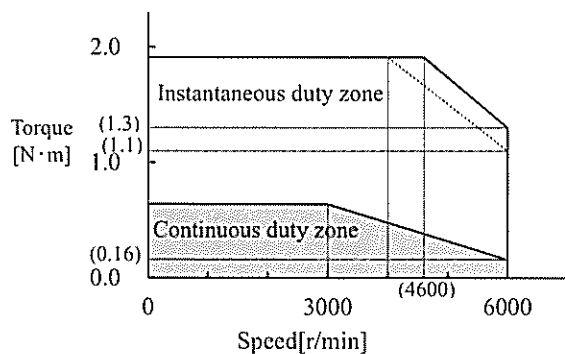


· Flange size 130×120×112 (Aluminum)

## AC Servo Motor Specification

Motor model		MSMF022L1□1 (none of brake)	MSMF022L1□1 (with brake)	
Rated output	W	200	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	0.64	←	
Max. torque	N·m	1.91	←	
Rated current	A(rms)	(1.5)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.14	0.17	
Electrical time constant	ms	(5.0)	←	
Mechanical time constant	ms	0.66	0.80	
Power rate	kW/s	29.3	24.1	
Momentary max. current	A(o-p)	(6.5)	←	
Demagnetization current	A(o-p)	10	←	
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	14.6 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	31.0 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.42 $\pm$ 10 %	←	
	N·m/A(o-p)	0.30 $\pm$ 10 %	←	
Phase resistance	$\Omega$	2.78 $\pm$ 7 %	←	
Phase inductance	mH	(13.9)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	0.82	1.3	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	200	←	

- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 75 °C or less.(When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
Driver power supply voltage : at AC200 V  
Dotted line indicates fall of power supply Voltage by 10 %

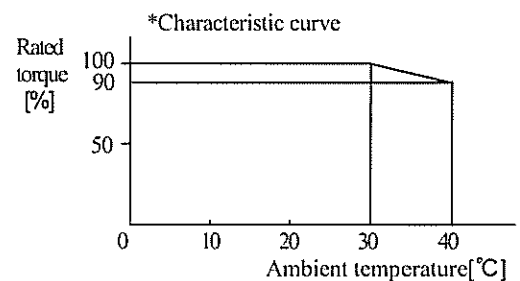
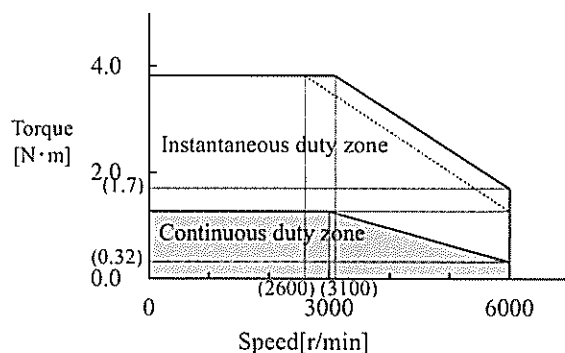




## AC Servo Motor Specification

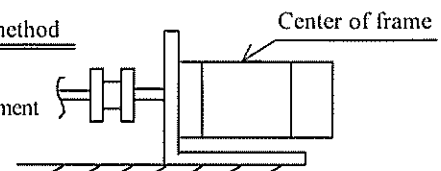
Motor model		MSMF041L1□1 (none of brake)	MSMF041L1□1 (with brake)	
Rated output	W	400	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	1.27	←	
Max. torque	N·m	3.82	←	
Rated current	A(rms)	(4.6)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.27	0.30	
Electrical time constant	ms	(5.3)	←	
Mechanical time constant	ms	0.54	0.60	
Power rate	kW/s	59.7	53.8	
Momentary max. current	A(o-p)	(19.5)	←	
Demagnetization current	A(o-p)	29	←	
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	$9.7 \pm 10 \%$	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	$20.6 \pm 10 \%$	←	
Torque constant	N·m/A(rms)	$0.28 \pm 10 \%$	←	
	N·m/A(o-p)	$0.20 \pm 10 \%$	←	
Phase resistance	$\Omega$	$0.525 \pm 7 \%$	←	
Phase inductance	mH	(2.8)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	1.2	1.7	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	100	←	

- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 85 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
Driver power supply voltage : at AC100 V  
Dotted line indicates fall of power supply Voltage by 10 %



## Test method

Load equipment

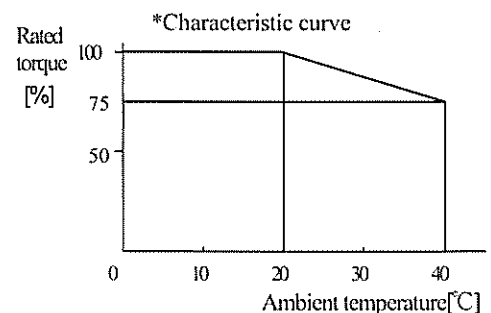
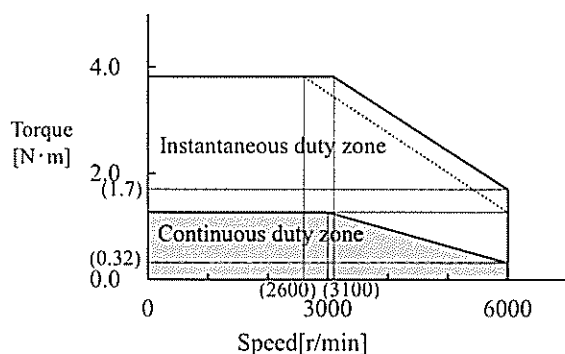


· Flange size 130×120×t12 (Aluminum)

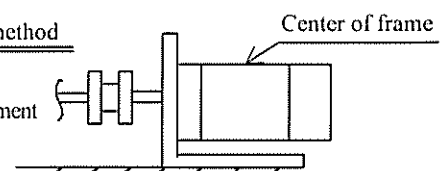
## AC Servo Motor Specification

Motor model		MSMF041L1□1 (none of brake)	MSMF041L1□1 (with brake)	
Rated output	W	400	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	1.27	←	
Max. torque	N·m	3.82	←	
Rated current	A(rms)	(4.6)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.27	0.30	
Electrical time constant	ms	(5.3)	←	
Mechanical time constant	ms	0.54	0.60	
Power rate	kW/s	59.7	53.8	
Momentary max. current	A(o-p)	(19.5)	←	
Demagnetization current	A(o-p)	29		
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	9.7 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	20.6 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.28 $\pm$ 10 %	←	
	N·m/A(o-p)	0.20 $\pm$ 10 %	←	
Phase resistance	$\Omega$	0.525 $\pm$ 7 %	←	
Phase inductance	mH	(2.8)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	1.2	1.7	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	100	←	

- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 85 °C or less.(When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
Driver power supply voltage : at AC100 V  
Dotted line indicates fall of power supply Voltage by 10 %



Test method

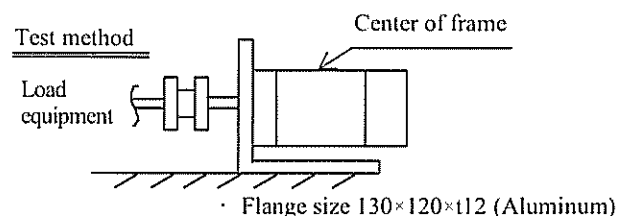
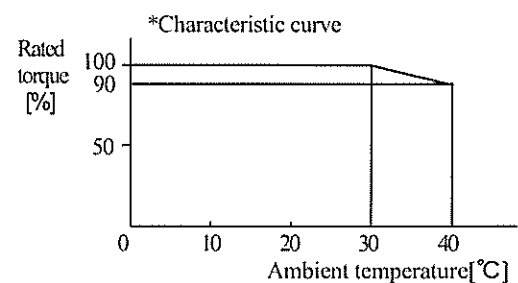
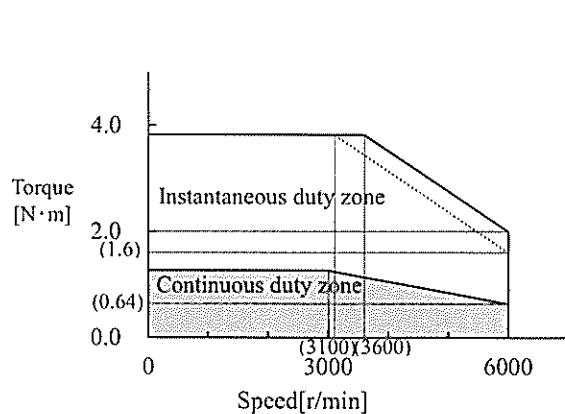
Load  
equipment

· Flange size 130×120×t12 (Aluminum)

## AC Servo Motor Specification

Motor model		MSMF042L1□1 (none of brake)	MSMF042L1□1 (with brake)	
Rated output	W	400	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	1.27	←	
Max. torque	N·m	3.82	←	
Rated current	A(rms)	(2.4)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.27	0.30	
Electrical time constant	ms	(5.6)	←	
Mechanical time constant	ms	0.51	0.57	
Power rate	kW/s	59.7	53.8	
Momentary max. current	A(o-p)	(10.2)	←	
Demagnetization current	A(o-p)	15		
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	18.3 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	38.8 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.52 $\pm$ 10 %	←	
	N·m/A(o-p)	0.37 $\pm$ 10 %	←	
Phase resistance	$\Omega$	1.74 $\pm$ 7 %	←	
Phase inductance	mH	(9.8)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	1.2	1.7	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	200	←	

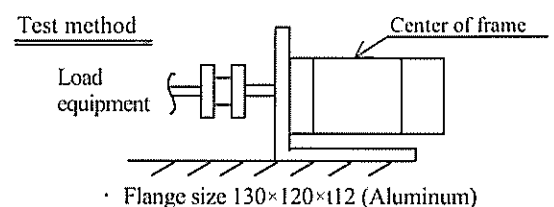
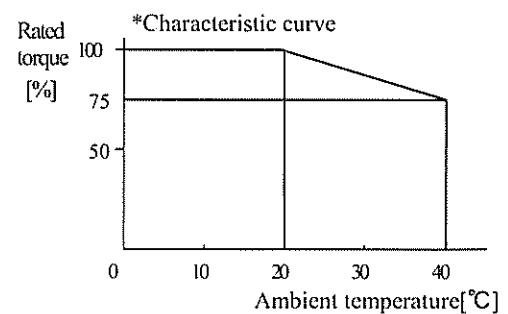
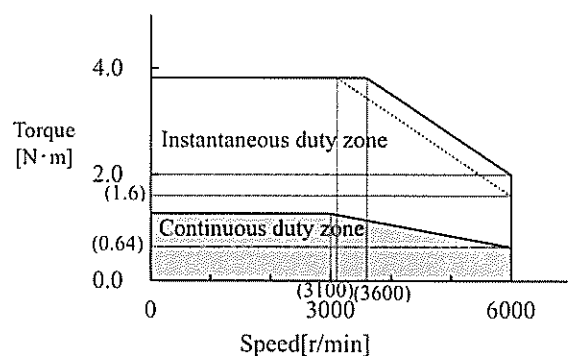
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 85 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
Driver power supply voltage : at AC200 V  
Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF042L1□1 (none of brake)	MSMF042L1□1 (with brake)	
Rated output	W	400	←	
Rating	%	(*100)	←	* refer to the
Number of poles		10	←	characteristic
Rated speed	r/min	3000	←	curve below
Max. speed	r/min	6000	←	
Rated torque	N·m	1.27	←	
Max. torque	N·m	3.82	←	
Rated current	A(rms)	(2.4)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.27	0.30	
Electrical time constant	ms	(5.6)	←	
Mechanical time constant	ms	0.51	0.57	
Power rate	kW/s	59.7	53.8	
Momentary max. current	A(o-p)	(10.2)	←	
Demagnetization current	A(o-p)	15	←	
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	18.3 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	38.8 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.52 $\pm$ 10 %	←	
	N·m/A(o-p)	0.37 $\pm$ 10 %	←	
Phase resistance	$\Omega$	1.74 $\pm$ 7 %	←	
Phase inductance	mH	(9.8)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	1.2	1.7	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	200	←	

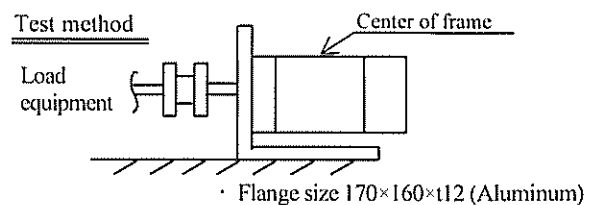
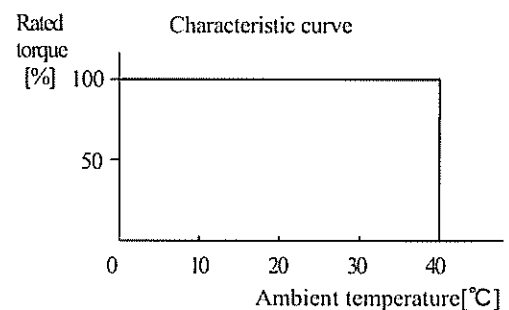
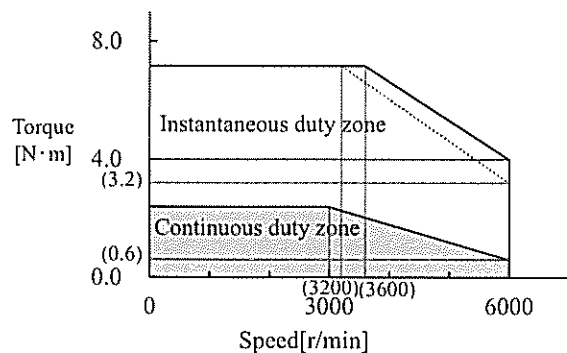
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 85 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)
  - Driver power supply voltage : at AC200 V
  - Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF082L1□1 (none of brake)	MSMF082L1□1 (with brake)	
Rated output	W	750	←	
Rating	%	100	←	
Number of poles		10	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	6000	←	
Rated torque	N·m	2.39	←	
Max. torque	N·m	7.16	←	
Rated current	A(rms)	(4.1)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.96	1.06	
Electrical time constant	ms	(9.0)	←	
Mechanical time constant	ms	0.47	0.51	
Power rate	kW/s	59.5	53.9	
Momentary max. current	A(o-p)	(17.4)	←	
Demagnetization current	A(o-p)	26	←	
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	20.7±10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	43.8±10 %	←	
Torque constant	N·m/A(rms)	0.59±10 %	←	
	N·m/A(o-p)	0.42±10 %	←	
Phase resistance	$\Omega$	0.568±7 %	←	
Phase inductance	mH	(5.1)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	2.3	3.1	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	200	←	

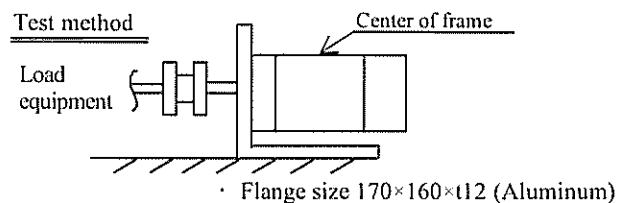
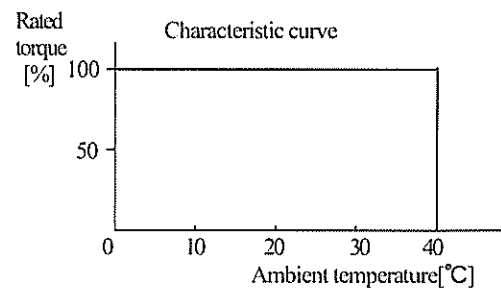
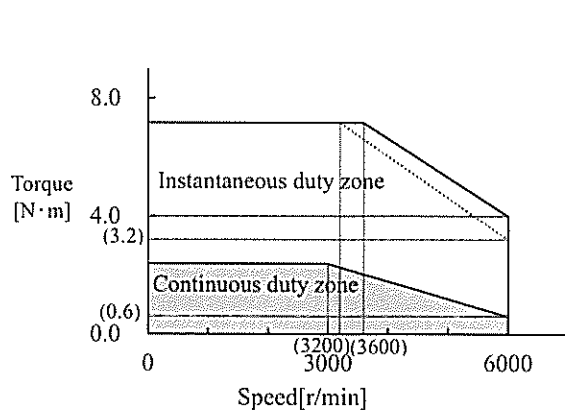
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
 Driver power supply voltage : at AC200 V  
 Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF082L1□1 (none of brake)	MSMF082L1□1 (with brake)	
Rated output	W	750	←	
Rating	%	100	←	
Number of poles		10	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	6000	←	
Rated torque	N·m	2.39	←	
Max. torque	N·m	7.16	←	
Rated current	A(rms)	(4.1)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.96	1.06	
Electrical time constant	ms	(9.0)	←	
Mechanical time constant	ms	0.47	0.51	
Power rate	kW/s	59.5	53.9	
Momentary max. current	A(o-p)	(17.4)	←	
Demagnetization current	A(o-p)	26	←	
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	20.7±10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	43.8±10 %	←	
Torque constant	N·m/A(rms)	0.59±10 %	←	
	N·m/A(o-p)	0.42±10 %	←	
Phase resistance	$\Omega$	0.568±7 %	←	
Phase inductance	mH	(5.1)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	2.3	3.1	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	200	←	

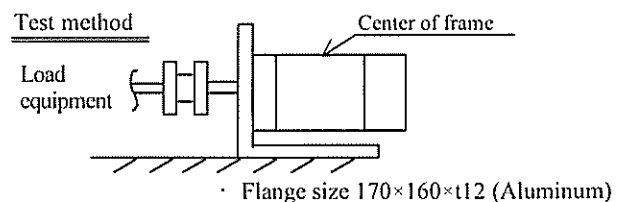
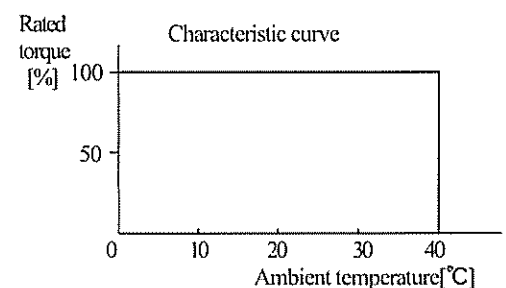
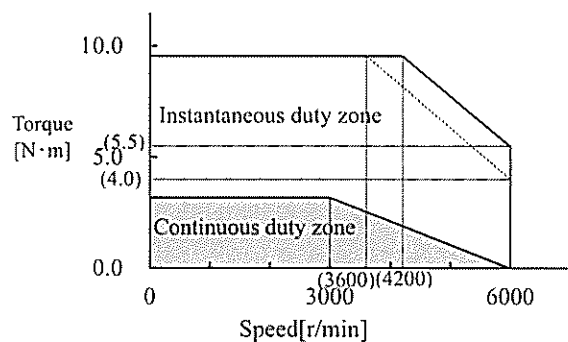
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
 Driver power supply voltage : at AC200 V  
 Dotted line indicates fall of power supply Voltage by 10 %



## AC Servo Motor Specification

Motor model		MSMF092L1□1 (none of brake)	MSMF092L1□1 (with brake)	
Rated output	kW	1.0	←	
Rating	%	100	←	
Number of poles		10	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	6000	←	
Rated torque	N·m	3.18	←	
Max. torque	N·m	9.55	←	
Rated current	A(rms)	(5.7)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	1.26	1.36	
Electrical time constant	ms	(9.5)	←	
Mechanical time constant	ms	0.42	0.45	
Power rate	kW/s	80.3	74.4	
Momentary max. current	A(o-p)	(24.2)	←	
Demagnetization current	A(o-p)	36	←	
Voltage constant per phase	$\times 10^{-3} \text{V}(\text{rms})/\text{min}^{-1}$	20.6 $\pm$ 10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V}(\text{o-p})/\text{min}^{-1}$	43.7 $\pm$ 10 %	←	
Torque constant	N·m/A(rms)	0.59 $\pm$ 10 %	←	
	N·m/A(o-p)	0.42 $\pm$ 10 %	←	
Phase resistance	$\Omega$	0.390 $\pm$ 7 %	←	
Phase inductance	mH	(3.7)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	2.8	3.6	
Structure		Totally-enclosed self-cooled type	←	none of oil seal
Supply voltage	V AC	200	←	

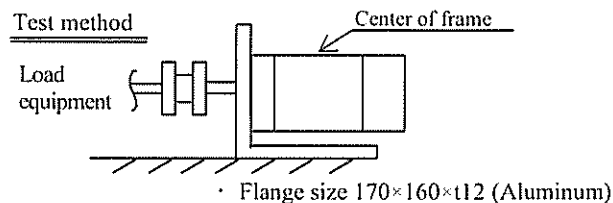
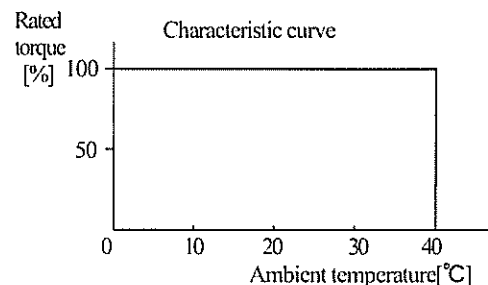
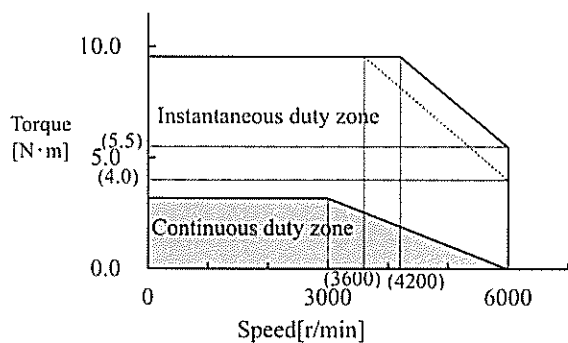
- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
 Driver power supply voltage : at AC200 V  
 Dotted line indicates fall of power supply Voltage by 10 %



AC Servo Motor Specification

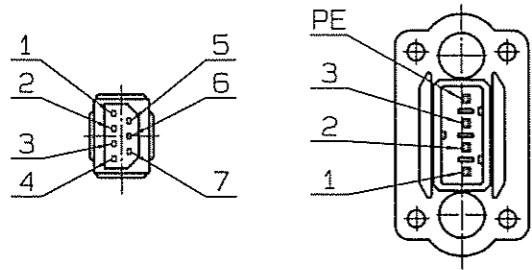
Motor model		MSMF092L1□1 (none of brake)	MSMF092L1□1 (with brake)	
Rated output	kW	1.0	←	
Rating	%	100	←	
Number of poles		10	←	
Rated speed	r/min	3000	←	
Max. speed	r/min	6000	←	
Rated torque	N·m	3.18	←	
Max. torque	N·m	9.55	←	
Rated current	A(rms)	(5.7)	←	
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	1.26	1.36	
Electrical time constant	ms	(9.5)	←	
Mechanical time constant	ms	0.42	0.45	
Power rate	kW/s	80.3	74.4	
Momentary max. current	A(o-p)	(24.2)	←	
Demagnetization current	A(o-p)	36	←	
Voltage constant per phase	$\times 10^{-3} \text{V(rms)/min}^{-1}$	20.6±10 %	←	
Excitation voltage constant	$\times 10^{-3} \text{V(o-p)/min}^{-1}$	43.7±10 %	←	
Torque constant	N·m/A(rms)	0.59±10 %	←	
	N·m/A(o-p)	0.42±10 %	←	
Phase resistance	$\Omega$	0.390±7 %	←	
Phase inductance	mH	(3.7)	←	* Center Value
Thermal class		155(F)	←	
Vibration class		V-15	←	
Paint color		None of paint	←	Plastic part :Dark gray
Mass	kg	2.8	3.6	
Structure		Totally-enclosed self-cooled type	←	with oil seal
Supply voltage	V AC	200	←	

- This specification is guaranteed after combining and adjusting with the driver. (Representative value at 20 °C)
- Rated torque is the result that have been considered dispersions of motor specification under our measurement method.
- Set the temperature of center of frame to 75 °C or less. (When ambient temperature is 40 °C)
- Speed - Torque characteristic (Representative value)  
 Driver power supply voltage : at AC200 V  
 Dotted line indicates fall of power supply Voltage by 10 %





Connector pin assignment

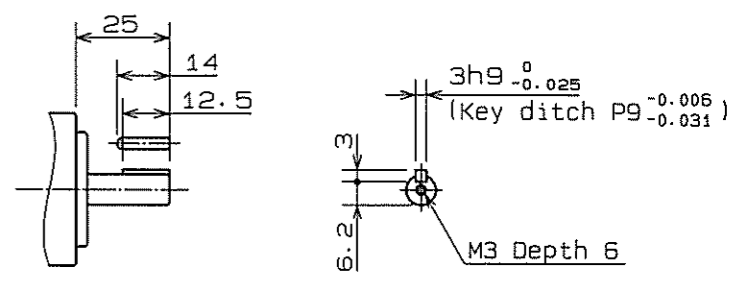
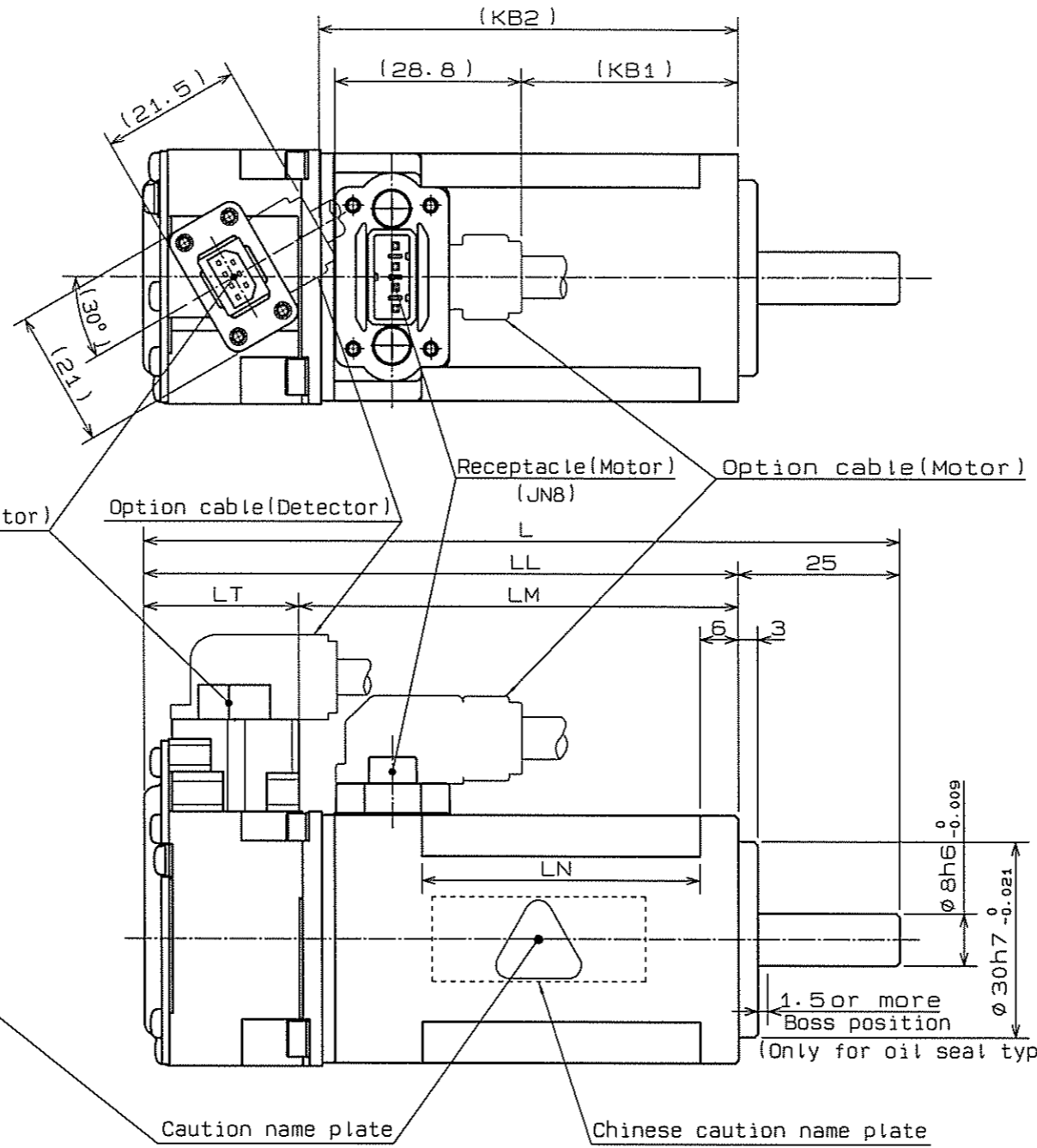


Detector: JN6CR07PM2(JAE)  
(Absolute)

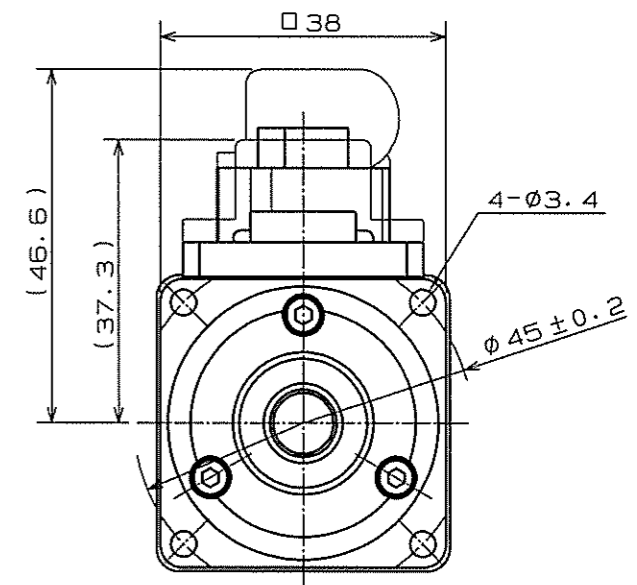
Pin No.	Signal
1	FG(SHIELD)
2	BAT -
3	E0V
4	PS(SD)
5	BAT +
6	E5V
7	PS(SD)

Motor: JN8AT04NJ1(JAE)

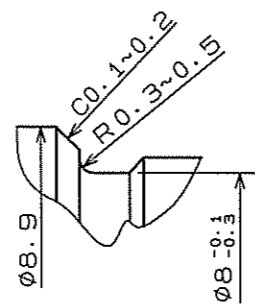
Pin No.	Signal
1	U
2	V
3	W
PE	E



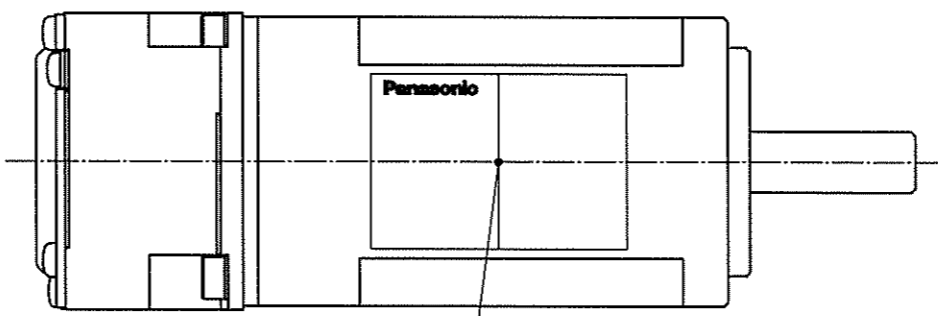
With key and tap



Chinese caution name plate    Caution name plate    Caution name plate    Chinese caution name plate



Detail of shaft step part  
(S=Free)



Name plate

Model	Rated Speed (r/min)	Output (W)	L	LL	LM	LT	LN	KB1	KB2
MSMF5AZL101	3000	50	97	72	48	24	23	13.5	44.8
MSMF01DL101	↑	100	117	92	68	1	43	33.5	64.8

NOTES

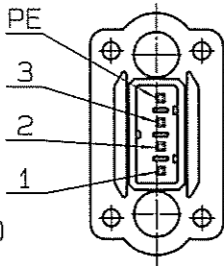
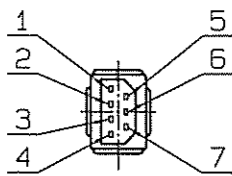
- The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)  
 · Shaft end runout: 0.015 (shaft exit middle)  
 · Squareness of flange face to shaft: 0.04 (Ø45)  
 · Eccentricity of flange fitting outside diameter to shaft: 0.03 (middle of spigot)
- For flange mounting bolts, use hexagonal socket head bolts.
- The tightening torque of the option cable becomes the following.  
 · Motor(JN8) : 0.09 N·m  
 · Encoder(JN6) : 0.20 N·m

TRADE  
CLASS E-W  
SVM

Scale	Panasonic Corporation				Agreement	Model
1 : 1	3rd Angle System				Unit:mm	MSMF□□□L101 □38
Designed	Drawn	Checked	Checked	Checked	Name	OUTLINE DRAWING(WITHOUT BRAKE)
OKUNO	MATSUO	KIRA		MATSUSHITA	No.	SR-DSV1172001
2015/09/10	2015/09/10	2015/09/10		2015/09/10		

Do NOT scale the drawings. Instead rely on the dimensions and their definitions

Connector pin assignment

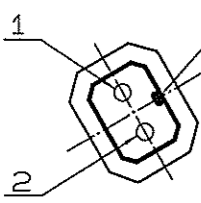


Detector: JN6CR07PM2(JAE)  
(Absolute)

Pin No.	Signal
1	FG(SHIELD)
2	BAT -
3	E0V
4	PS(SD)
5	BAT +
6	E5V
7	PS(SD)

Motor: JN8AT04NJ1(JAE)

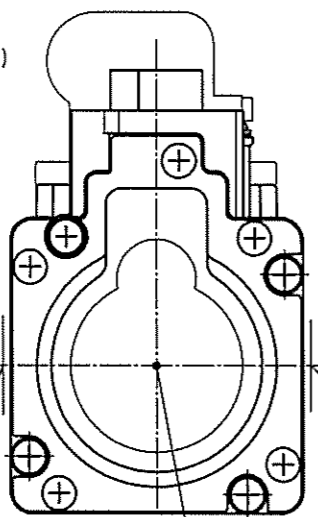
Pin No.	Signal
1	U
2	V
3	W
PE	E



Boss(Output shaft side) (JN6)

brake: JN4AT02PJM-R(JAE)

Pin No.	Signal
1	brake
2	brake

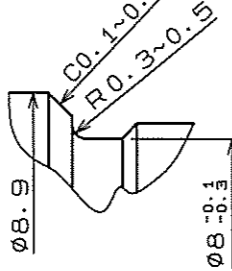


Chinese caution name plate

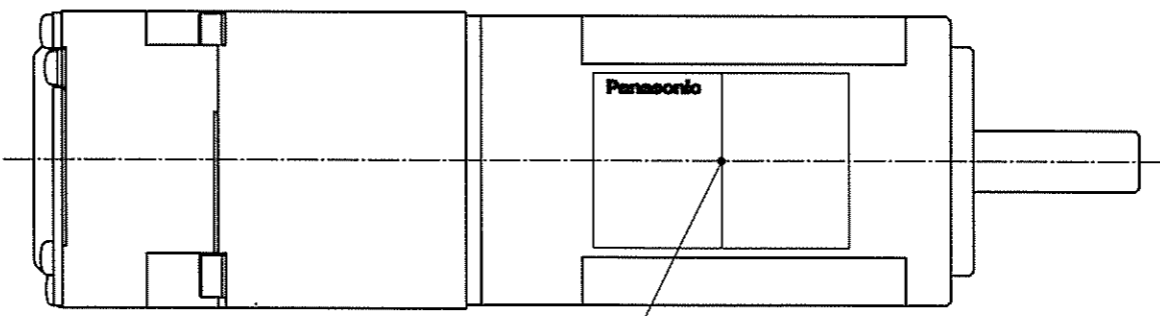
Caution name plate

Caution name plate

Chinese caution name plate

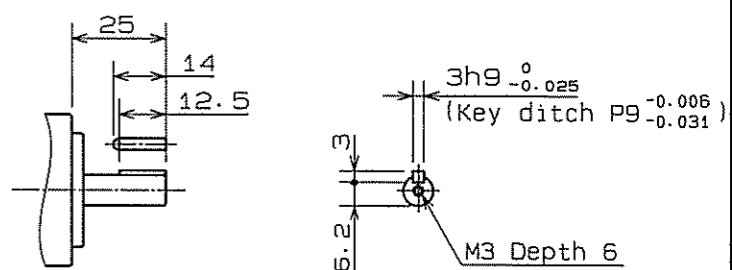


Detail of shaft step part (S=Free)

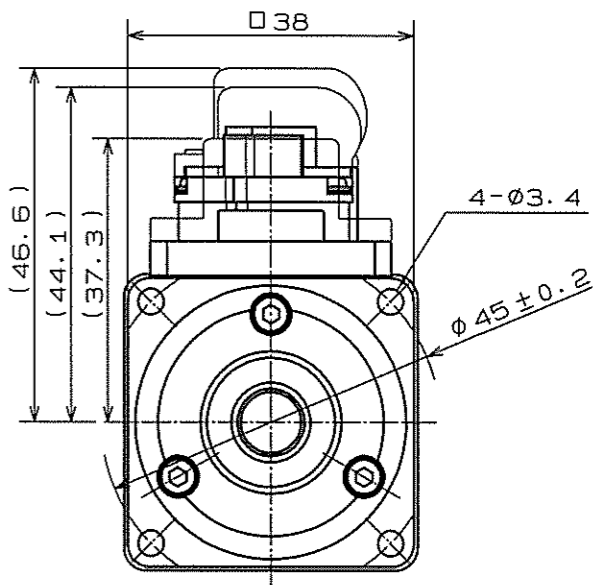


Name plate

Model	Rated Speed (r/min)	Output (W)	L	LL	LM	LT	LN	KB1	KB2	KB3
M5MF5AZL101	3000	50	127	102	78	24	23	13.5	44.8	74.8
M5MF01DL101	↑	100	147	122	98	↑	43	33.5	64.8	94.8



With key and tap



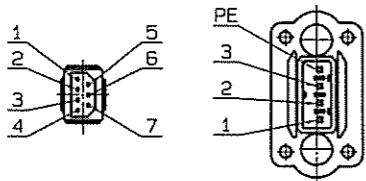
NOTES

- The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)
  - Shaft end runout: 0.015 (shaft exit middle)
  - Squareness of flange face to shaft: 0.04 (Ø45)
  - Eccentricity of flange fitting outside diameter to shaft: 0.03 (middle of spigot)
- For flange mounting bolts, use hexagonal socket head bolts.
- The tightening torque of the option cable becomes the following.
  - Motor(JN8) : 0.09 N·m
  - Encoder(JN6) : 0.20 N·m
  - brake(JN4) : 0.20 N·m

Scale	Panasonic Corporation				Agreement	Model
1 : 1	3rd Angle System				Unit:mm	M5MF000L101 38
Designed	Drawn	Checked	Checked	Checked	Name	OUTLINE DRAWING(WITH BRAKE)
OKUNO	MATSUO	KIRA		MATSUSHITA	No.	SR-DSV1172002
2015/09/10	2015/09/10	2015/09/10		2015/09/10		

TRACE  
CLASS E-W  
SVM

Connector pin assignment

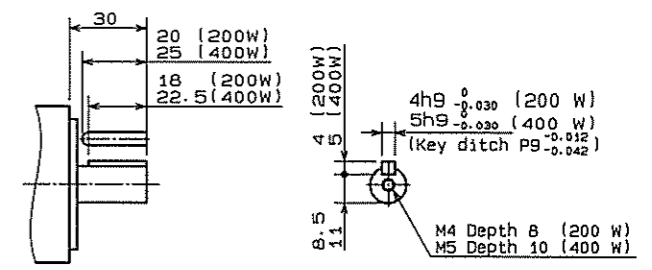
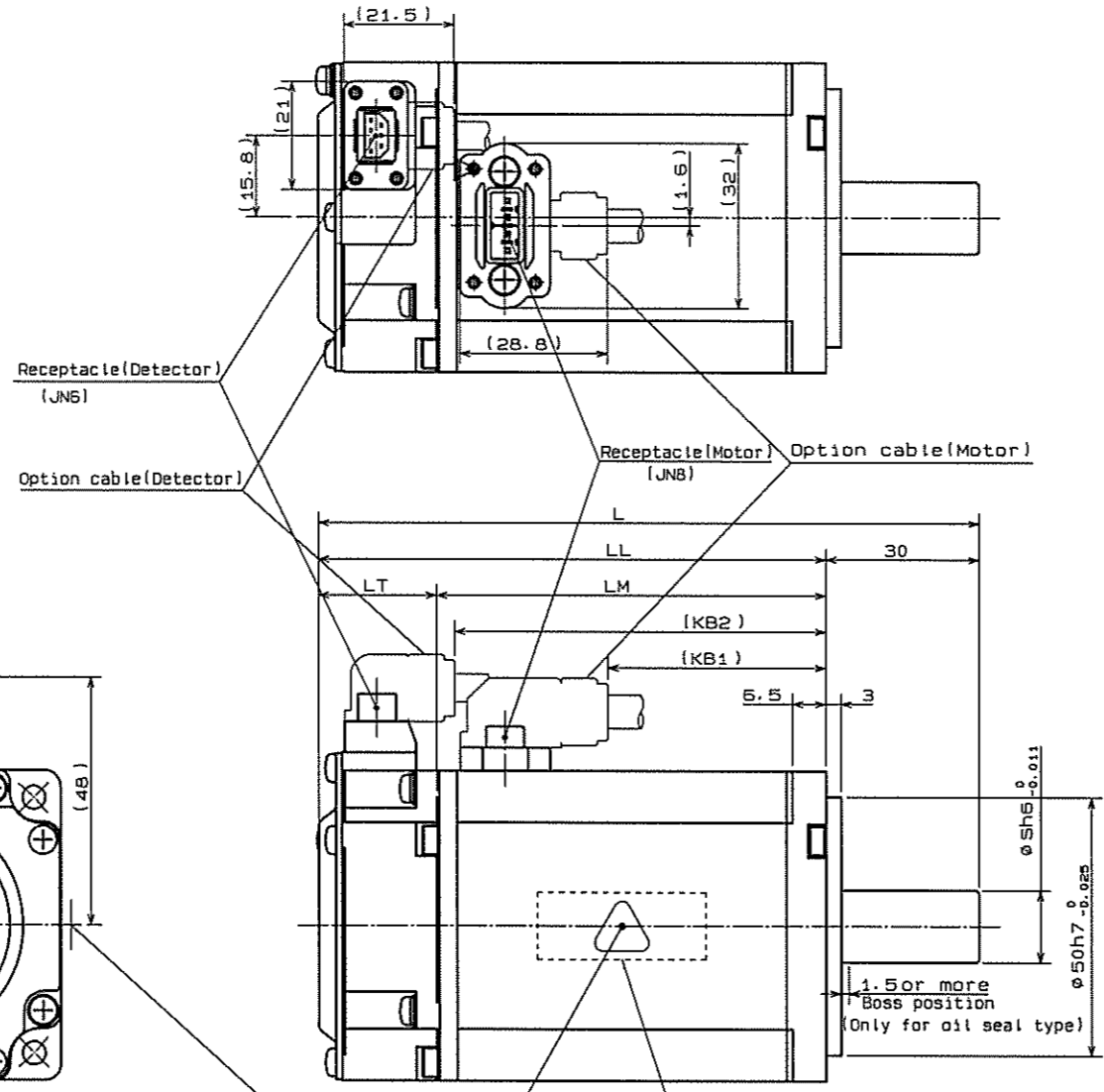


Detector: JN5CR07PM2(JAE)  
(Absolute)

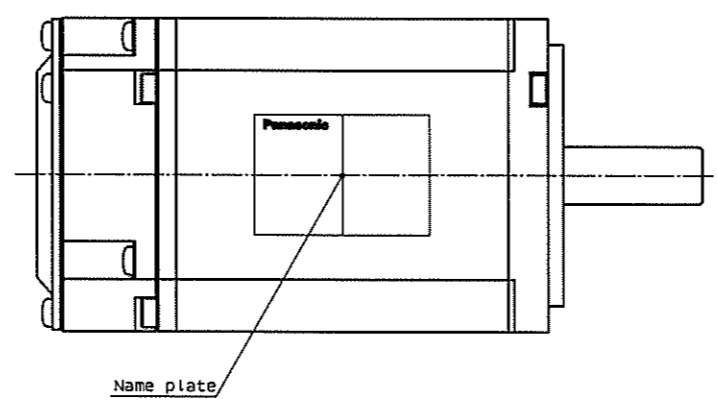
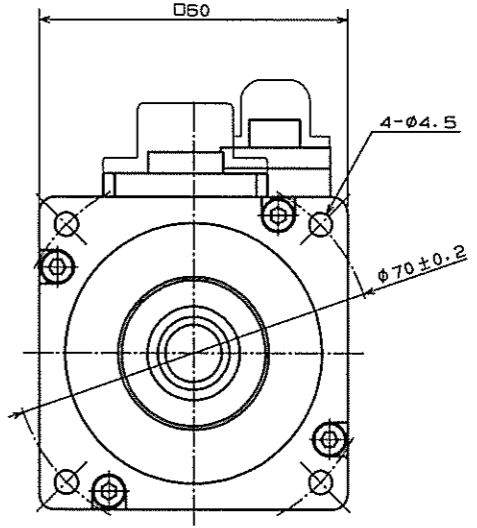
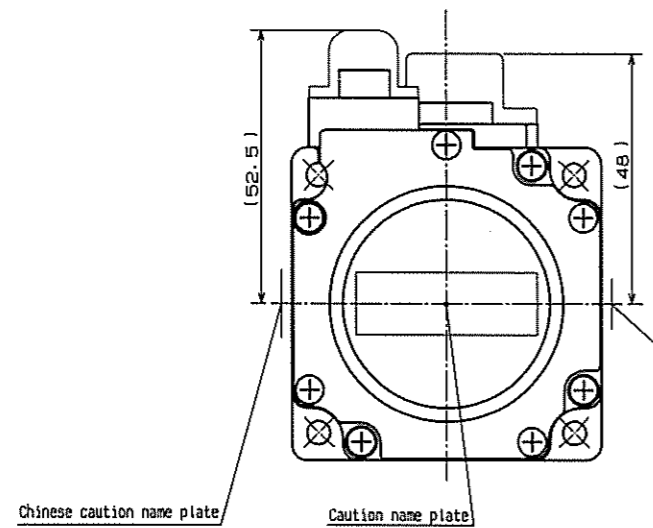
Pin No.	Signal
1	FG(SHIELD)
2	BAT -
3	EDV
4	PS(SD)
5	BAT +
6	ESV
7	PS(SD)

Motor: JN8AT04NJ1(JAE)

Pin No.	Signal
1	U
2	V
3	W
PE	F



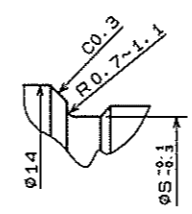
With key and tap



Model	Rated Speed (r/min)	Output (W)	L	LL	LM	S	LT	KB1	KB2
MSMF02DL101	3000	200	109.5	79.5	56.5	11	23	23.1	53
MSMF04DL101	↑	400	129	99	76	14	↑	42.6	72.5

NOTES

- The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)  
 · Shaft end runout: 0.015 (shaft exit middle)  
 · Squareness of flange face to shaft: 0.04 ( $\phi 70$ )  
 · Eccentricity of flange fitting outside diameter to shaft: 0.03 (middle of spigot)
- For flange mounting bolts, use hexagonal socket head bolts.
- The tightening torque of the option cable becomes the following.  
 · Motor (JN8): 0.09 N·m  
 · Encoder (JN5): 0.20 N·m



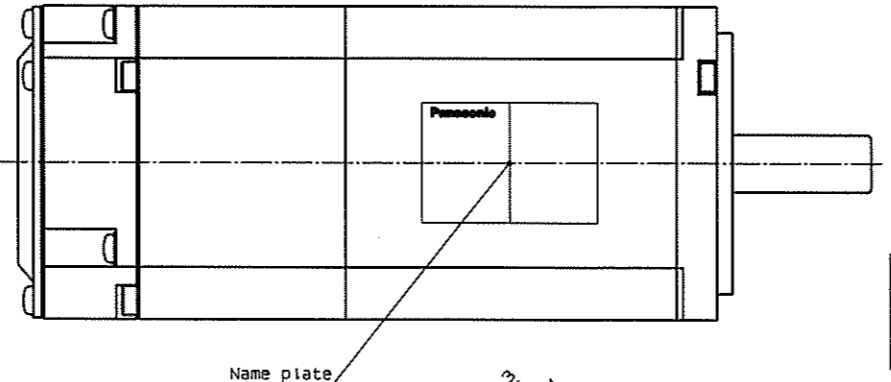
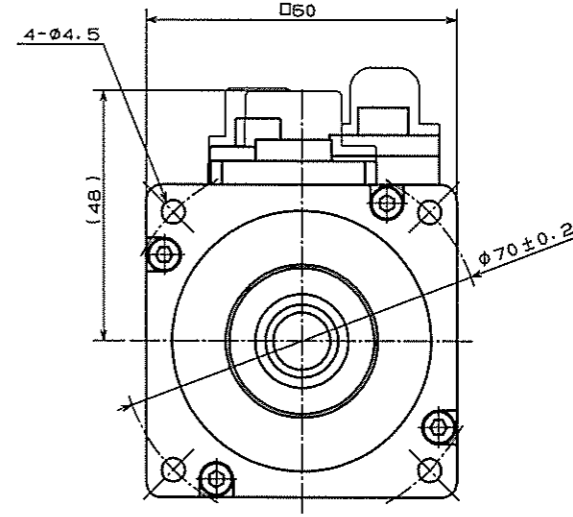
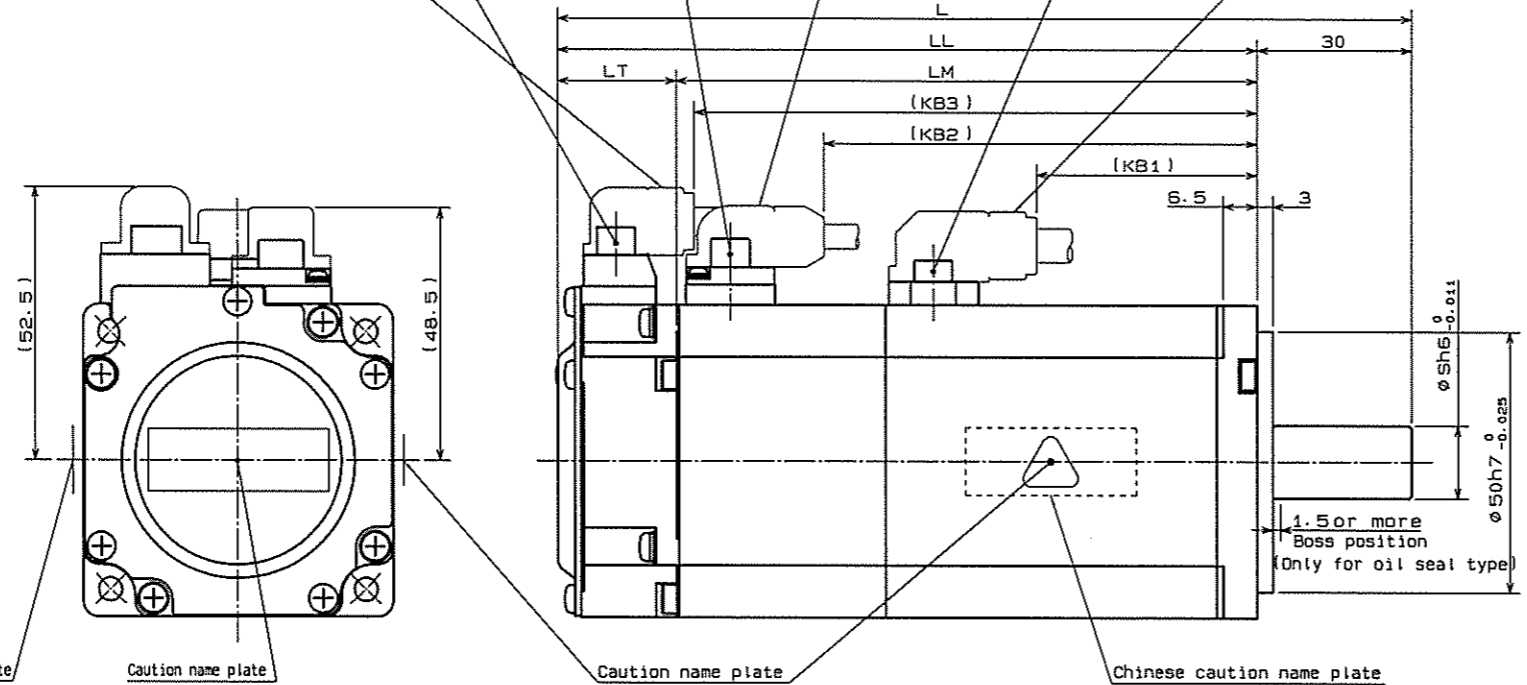
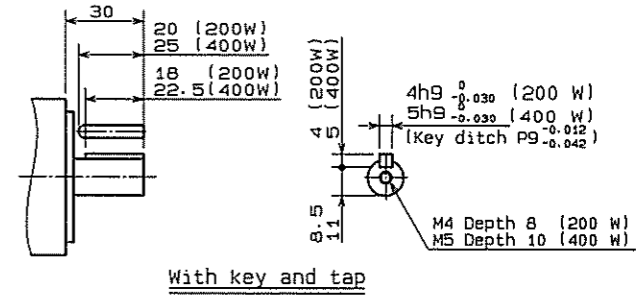
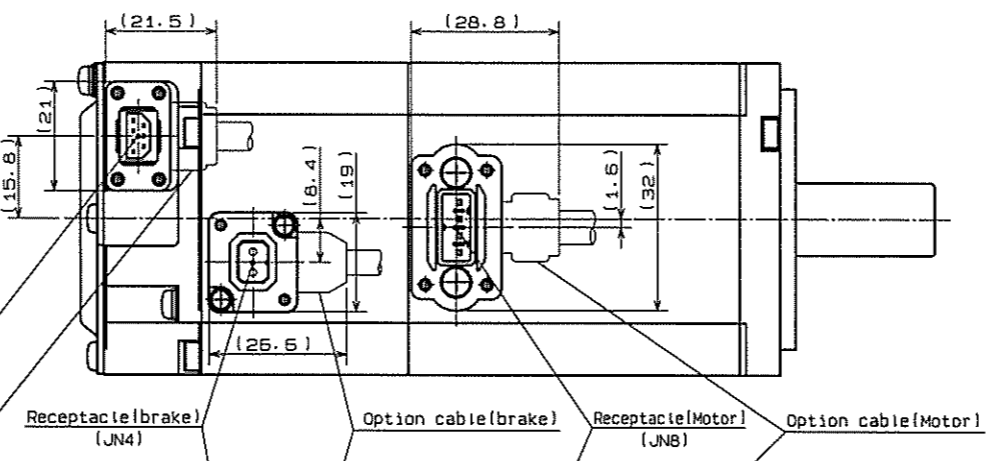
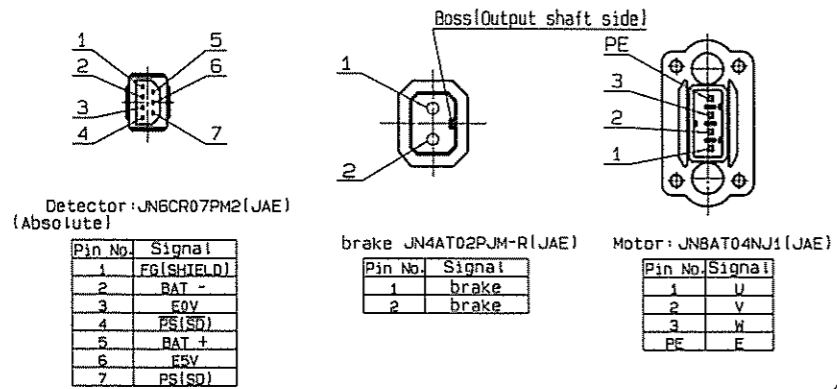
Detail of shaft step part (S=Free)  
[400 W motor with oil seal don't have shaft step.]

Scale	Panasonic Corporation	Agreement	Model
1 : 1	3rd Angle System	Unit:mm	MSMF00DL101 060
Designed	Drawn	Checked	Checked
OKUNO	WATSUO	KIRA	WATSUSHITA
2015/09/10	2015/09/10	2015/09/10	2015/09/10
Name			OUTLINE DRAWING(WITHOUT BRAKE)
No.			SR-DSV1172003

Do NOT scale the drawings. Instead rely on the dimensions and their definitions.

SR-DSV1172004

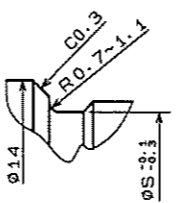
Connector pin assignment



Model	Rated Speed (r/min)	Output (W)	L	LL	LM	S	LT	KB1	KB2	KB3
MSMF02DL101	3000	200	146	116	93	11	23	23.1	64.7	89.5
MSMF04DL101	1	400	165.5	135.5	112.5	14	1	42.6	83.9	109

NOTES

- The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)  
 · Shaft end runout: 0.015 (shaft exit middle)  
 · Squariness of flange face to shaft: 0.04 (φ70)  
 · Eccentricity of flange fitting outside diameter to shaft: 0.03 (middle of spigot)
- For flange mounting bolts, use hexagonal socket head bolts.
- The tightening torque of the option cable becomes the following.  
 · Motor (JN8): 0.09 N·m  
 · Encoder (JN6): 0.20 N·m  
 · Brake (JN4): 0.20 N·m



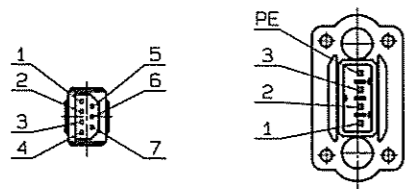
Detail of shaft step part (S=Free)  
 [400 W motor with oil seal don't have shaft step.]

Scale	Panasonic Corporation				Agreement	Model	MSMF00DL101 □60
1 : 1	3rd Angle System Unit:mm					Name	OUTLINE DRAWING (WITH BRAKE)
Designed	Drawn	Checked	Checked	Checked	No.	SR-DSV1172004	
OKUNO	WATSUO	KIRA		WATSUSHITA			
2015/09/10	2015/09/10	2015/09/10		2015/09/10			

REVISION CLASS TRACE E-W

Do NOT scale the drawings. Instead rely on the dimensions and their definitions.

Connector pin assignment

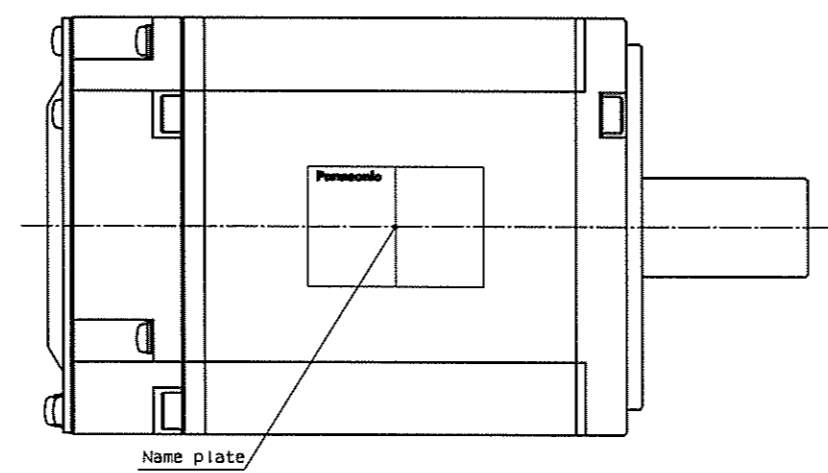
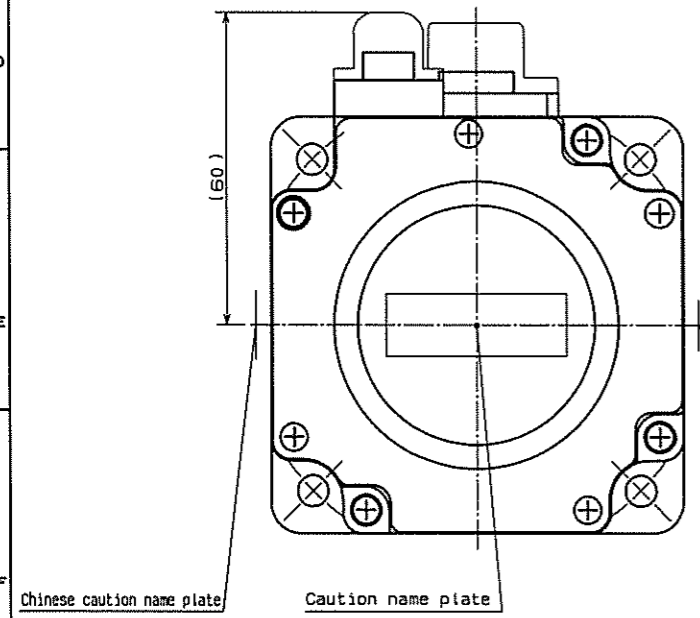
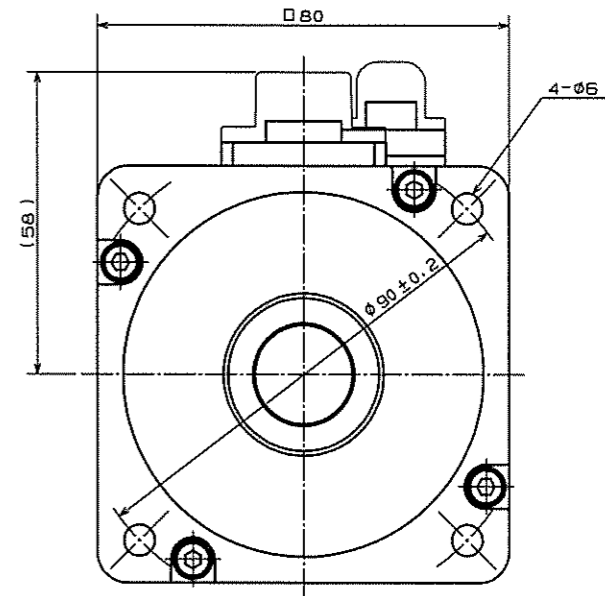
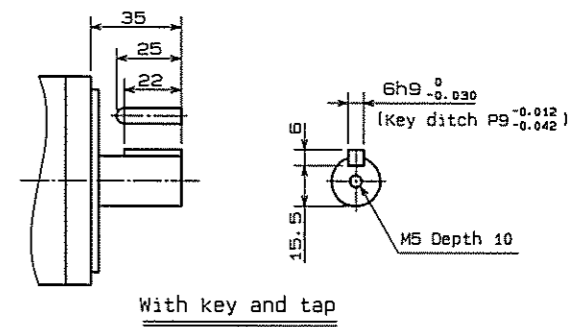
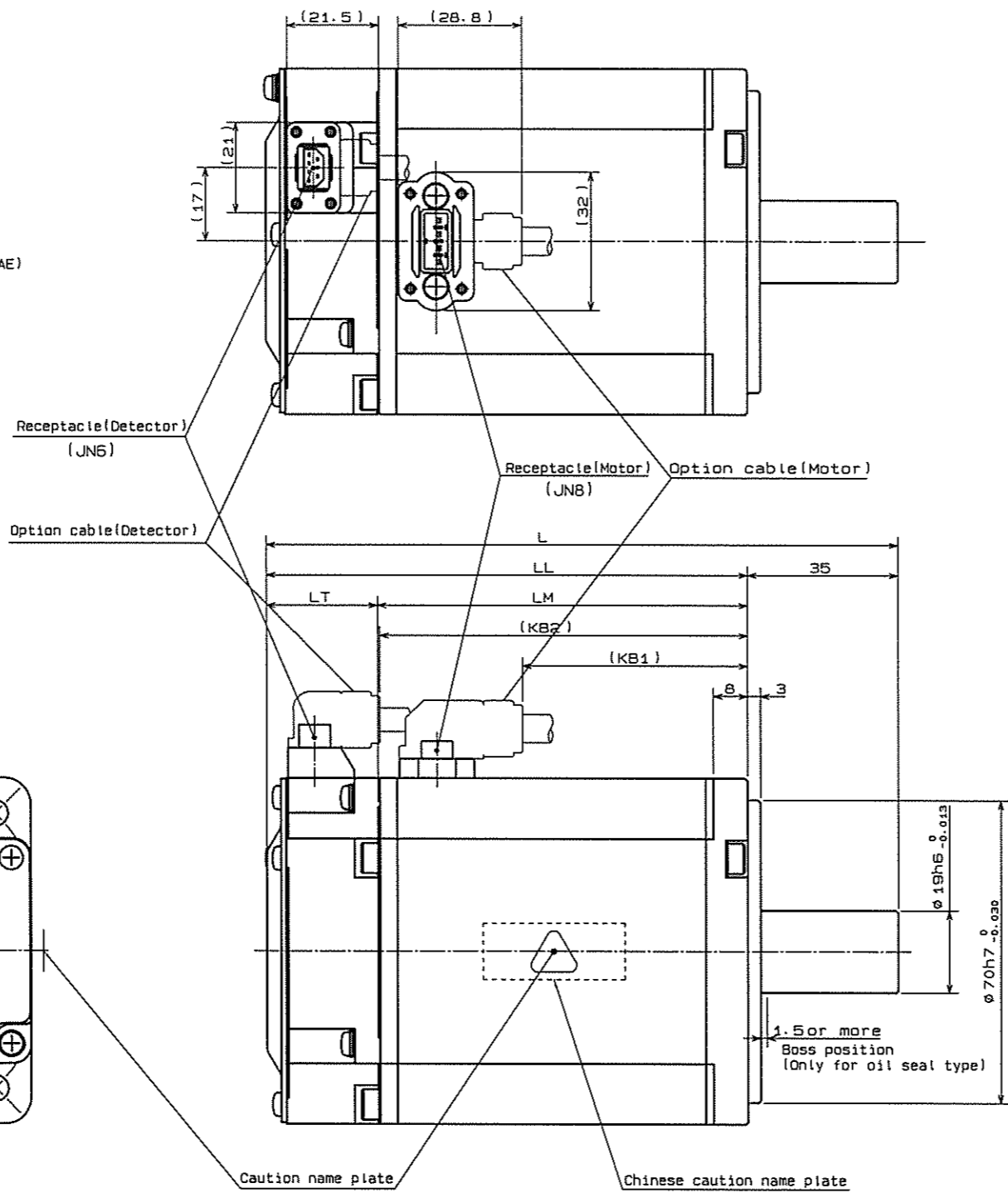


Detector: JN6CR07PM2(JAE)  
(Absolute)

Pin No.	Signal
1	FG(SHIELD)
2	BAT -
3	EOV
4	PS(SD)
5	BAT +
6	ESV
7	PS(SD)

Motor: JN8AT04NJ1(JAE)

Pin No.	Signal
1	U
2	V
3	W
PE	F



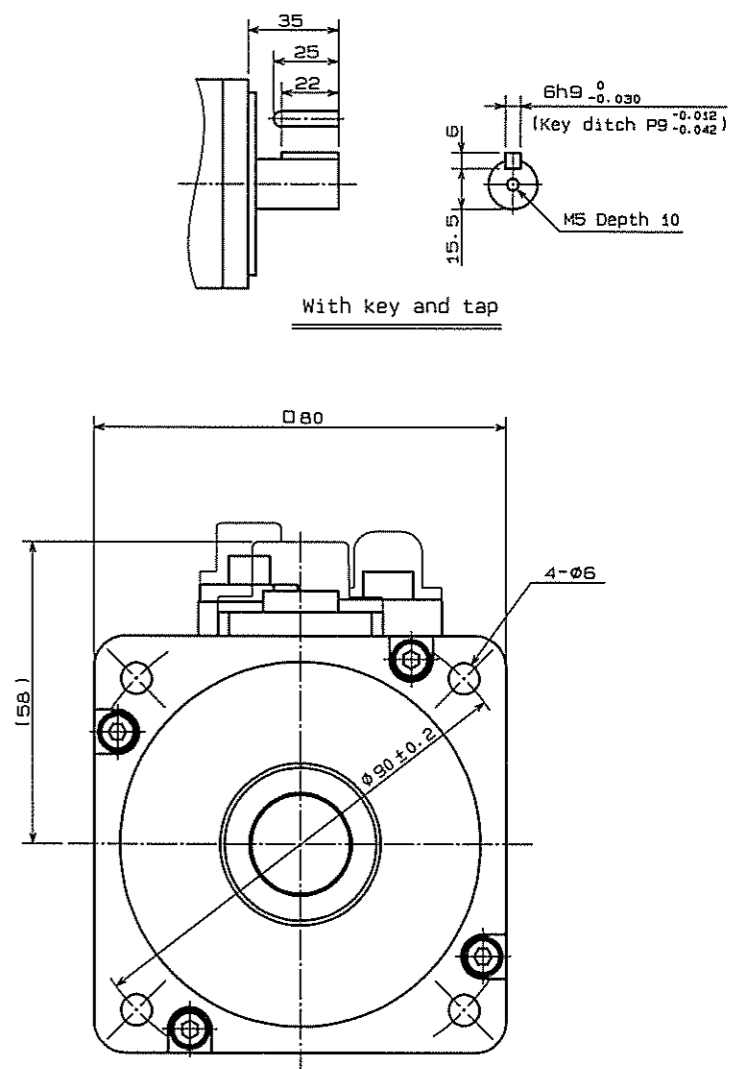
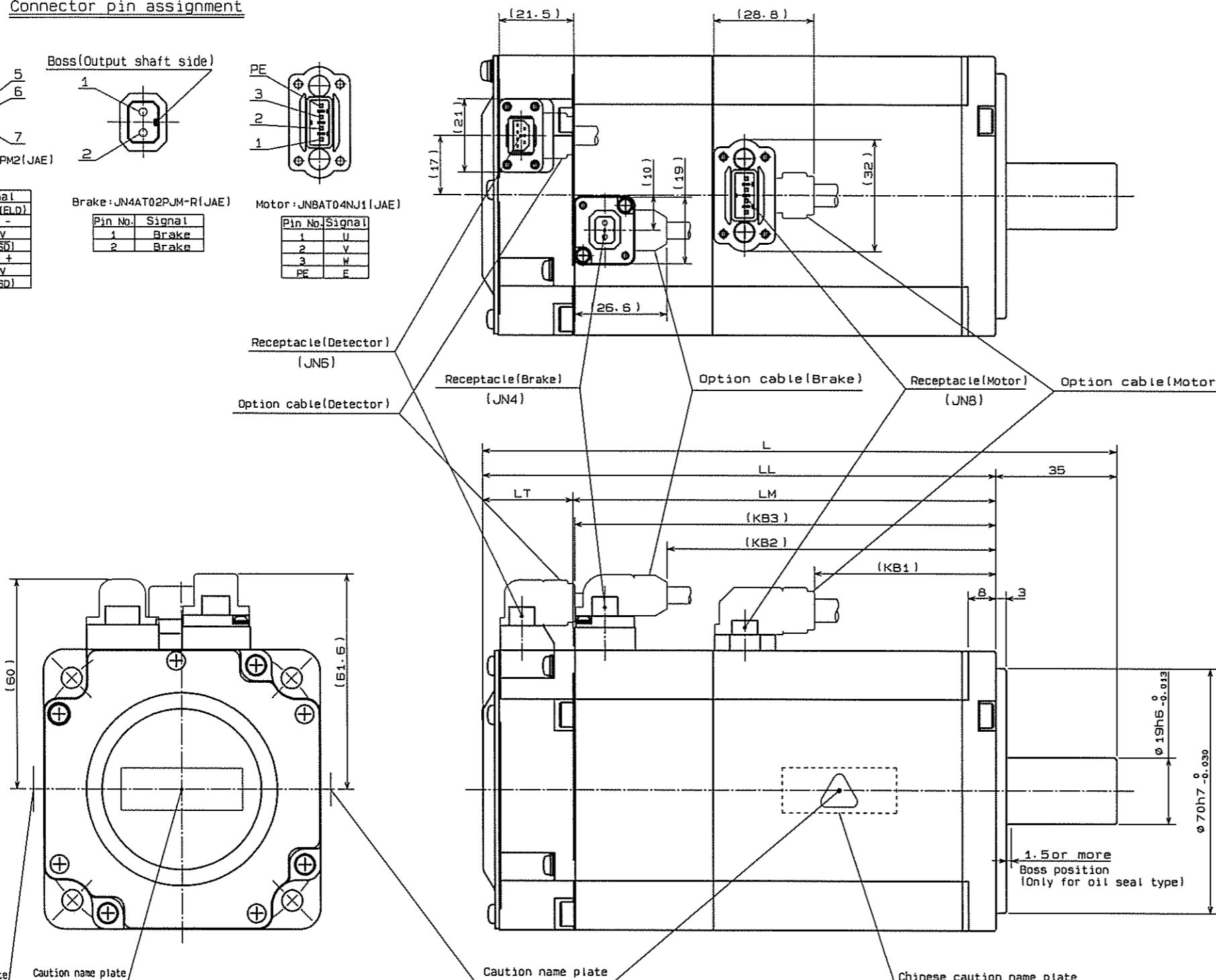
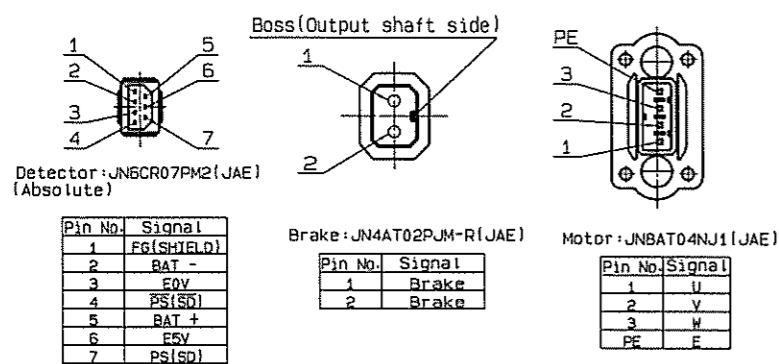
- NOTES
- The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)  
 ·Shaft end runout: 0.015 (shaft exit middle)  
 ·Squareness of flange face to shaft: 0.04 (φ90)  
 ·Eccentricity of flange fitting outside diameter to shaft: 0.03 (middle of spigot)
  - For flange mounting bolts, use hexagonal socket head bolts.
  - The tightening torque of the option cable becomes the following.  
 ·Motor(JN11) : 0.09 N·m  
 ·Encoder(JN6) : 0.20 N·m

Model	Rated Speed (r/min)	Output (W)	L	LL	LM	LT	KB1	KB2
MSMF082L1Q1	3000	750	147.2	112.2	86.2	26	52.4	85.7

Scale	Panasonic Corporation	Agreement	Model
1 : 1	3rd Angle System Unit:mm		MSMF082L1Q1 □80
Designed	Drawn	Checked	Checked
OKUNO	MATSUO	KIRA	MATSUSHITA
2015/09/10	2015/09/10	2015/09/10	2015/09/10
Name			OUTLINE DRAWING(WITHOUT BRAKE)
No.			SR-DSV1172005

REVISION CLASS E-W TRACE

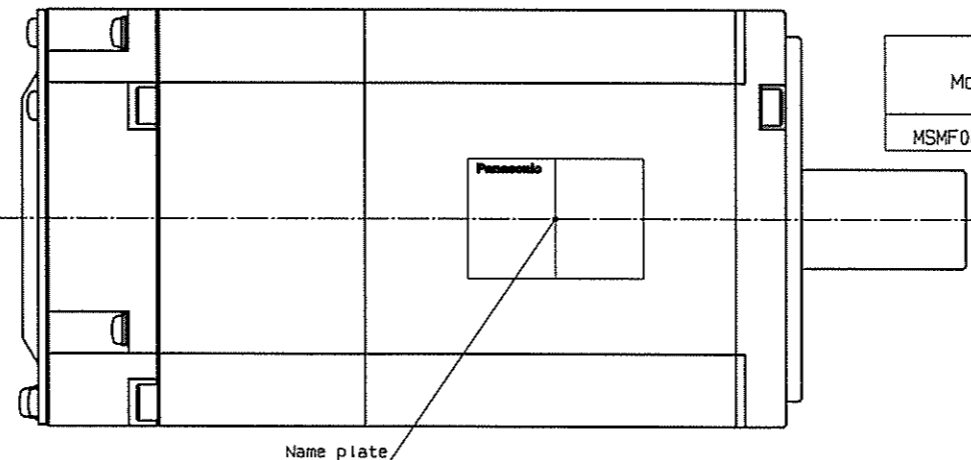
Connector pin assignment



Chinese caution name plate, Caution name plate, Chinese caution name plate

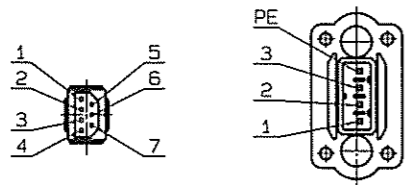
Model	Rated Speed (r/min)	Output (W)	L	LL	LM	LT	KB1	KB2	KB3
MSMF082L1D1	3000	750	183.2	148.2	122.2	26	52.4	94.8	121.7

- NOTES
- The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)  
 · Shaft end runout: 0.015 (shaft exit middle)  
 · Squareness of flange face to shaft: 0.04 (φ90)  
 · Eccentricity of flange fitting outside diameter to shaft: 0.03 (middle of spigot)
  - For flange mounting bolts, use hexagonal socket head bolts.
  - The tightening torque of the option cable becomes the following.  
 · Motor (JN8) : 0.09 N·m  
 · Encoder (JN6) : 0.20 N·m  
 · Brake (JN4) : 0.20 N·m



Scale	Panasonic Corporation				Agreement	Model	MSMF082L1□1 □80
1 : 1	3rd Angle System Unit:mm					Name	OUTLINE DRAWING (WITH BRAKE)
Designed	Drawn	Checked	Checked	Checked		No.	SR-DSV1172006
OKUNO	MATSUO	KIRA		MATSUSHITA			
2015/09/10	2015/09/10	2015/09/10		2015/09/10			

Connector pin assignment

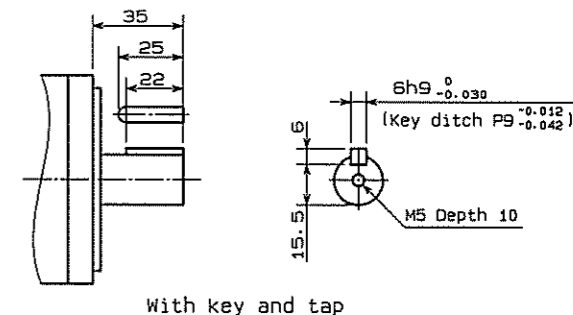
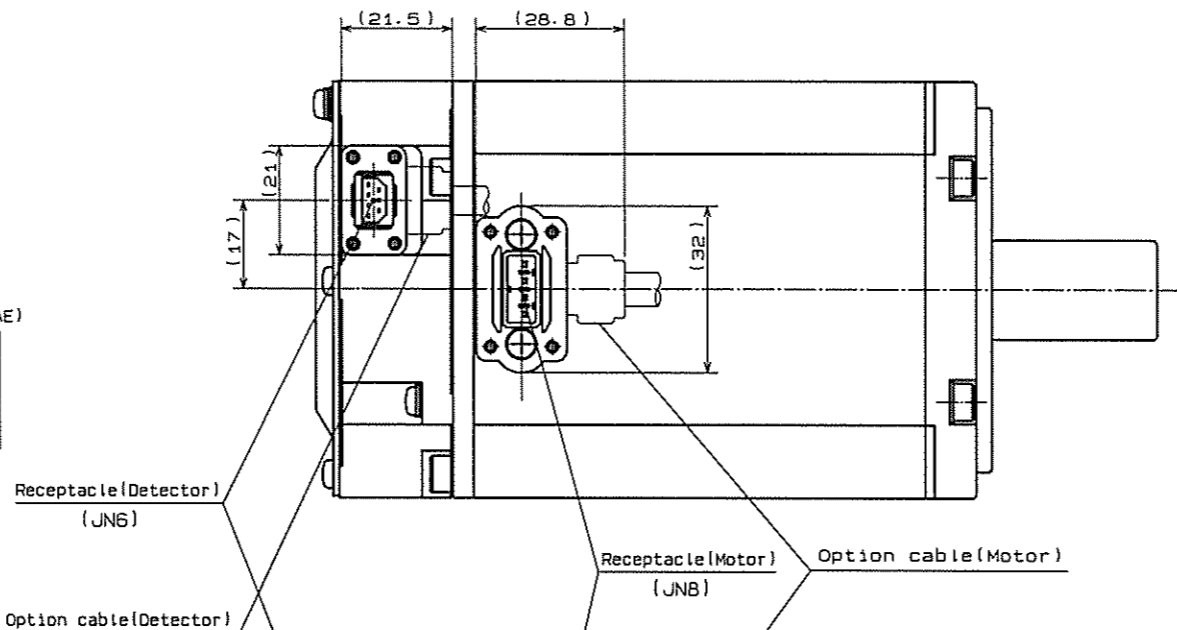


Detector: JN6CR07PM2(JAE)  
(Absolute)

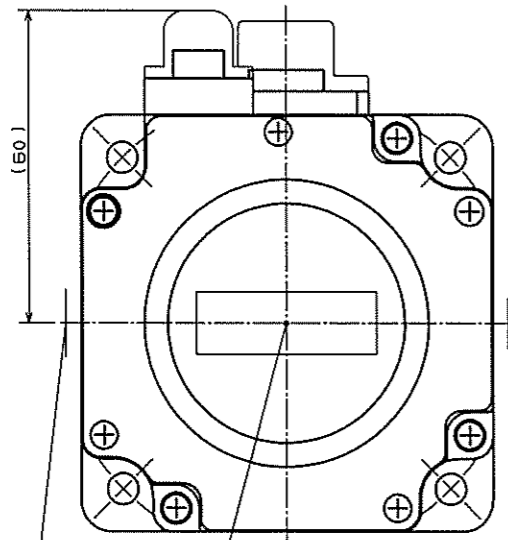
Pin No.	Signal
1	FG(SHIELD)
2	BAT -
3	E0V
4	PS(SD)
5	BAT +
6	E5V
7	PS(SD)

Motor: JN8AT04NJ1(JAE)

Pin No.	Signal
1	U
2	V
3	W
PE	E

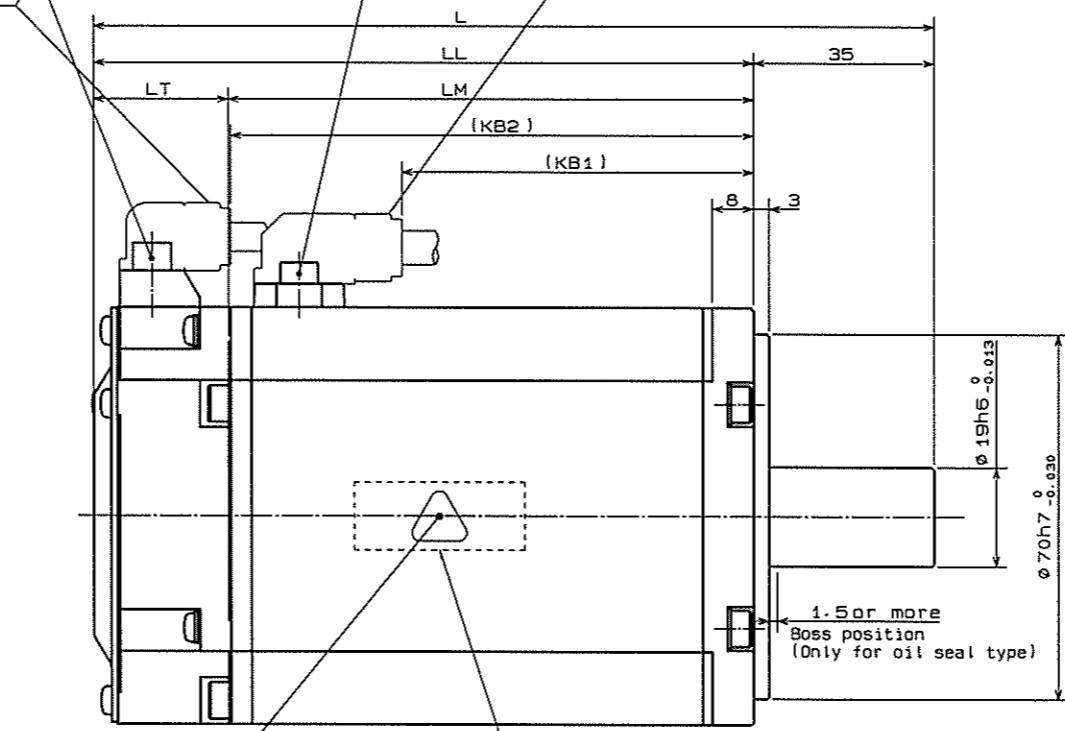


With key and tap



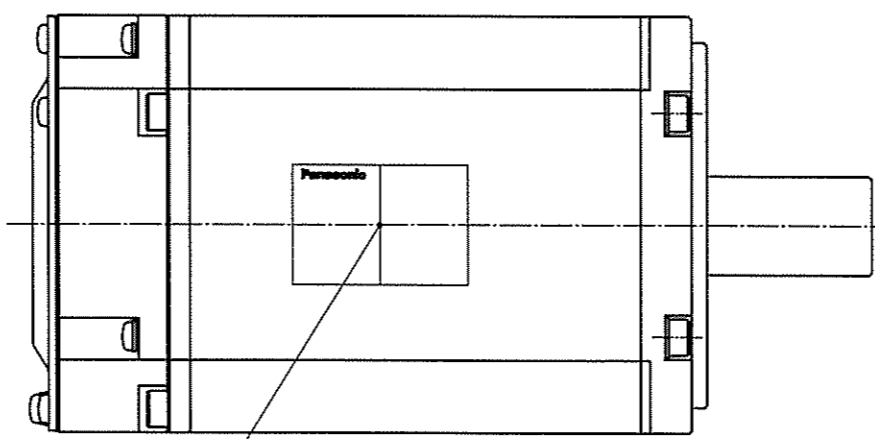
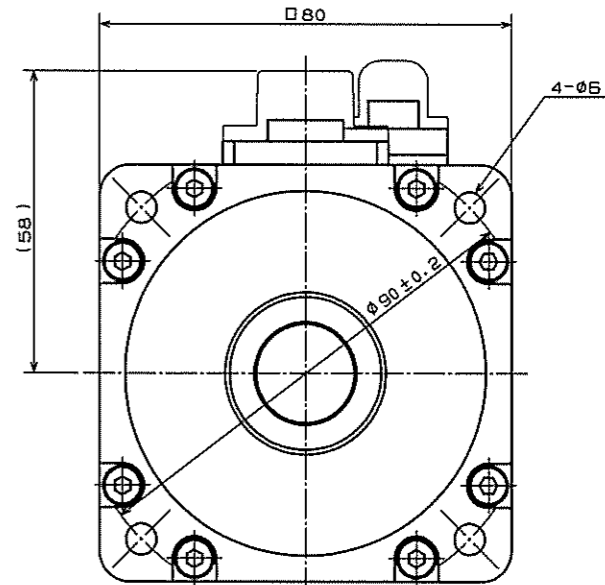
Chinese caution name plate

Caution name plate



Caution name plate

Chinese caution name plate



Name plate

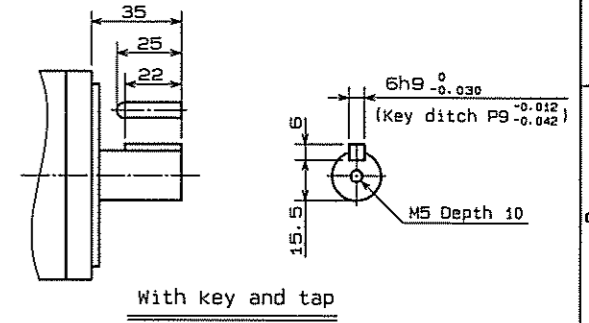
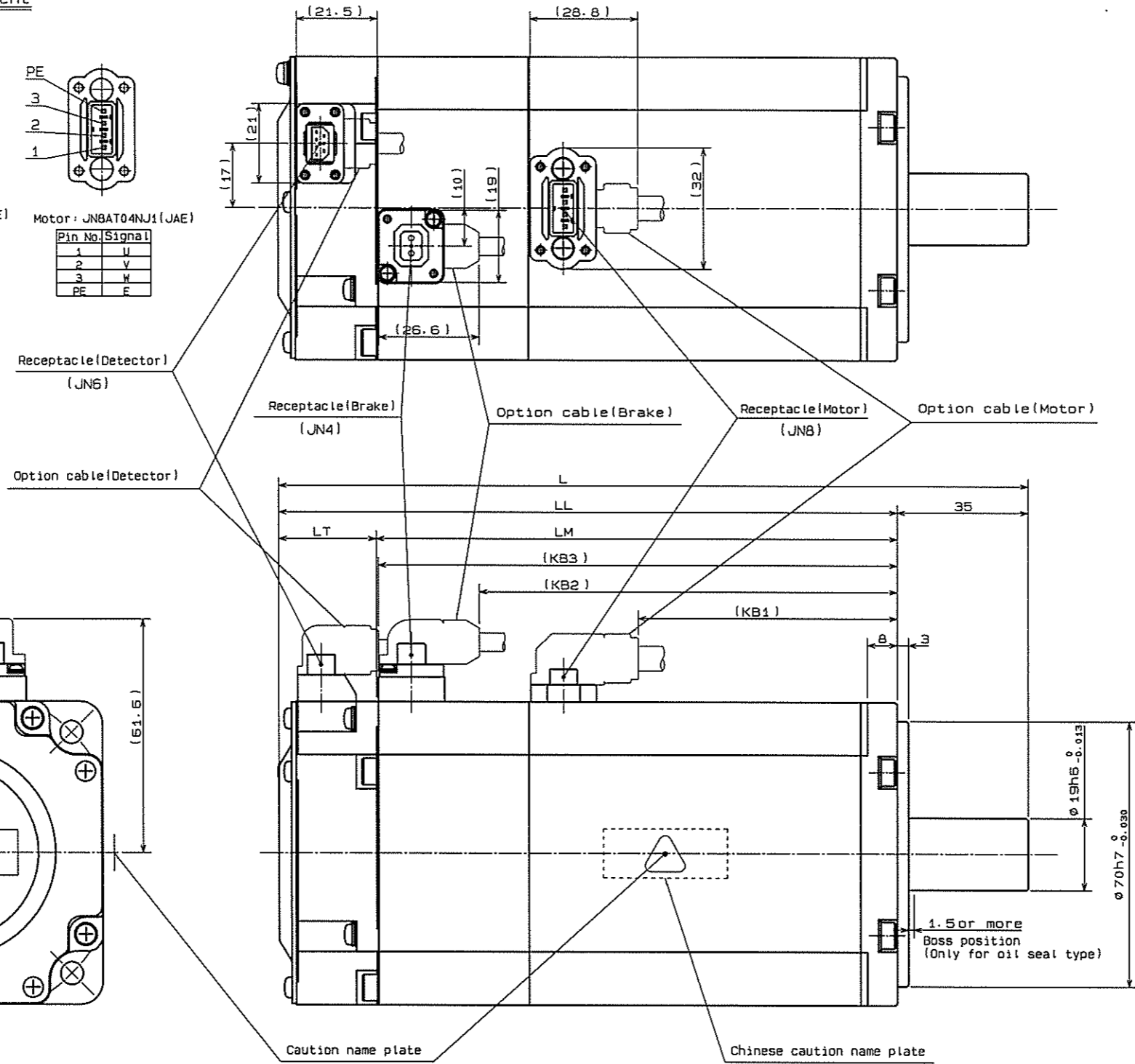
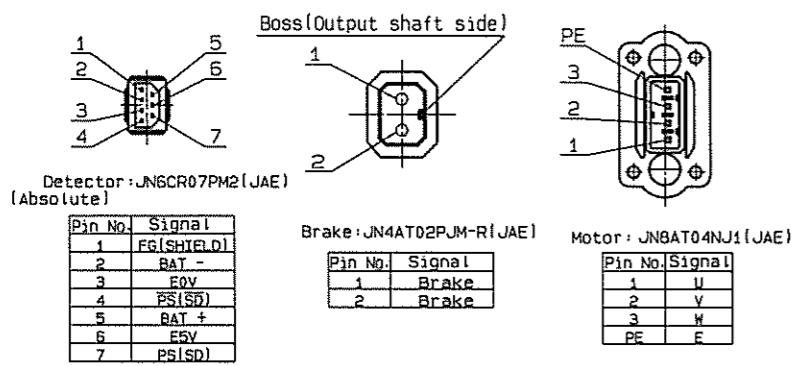
NOTES

- The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)  
 · Shaft end runout: 0.015 (shaft exit middle)  
 · Squareness of flange face to shaft: 0.04 ( $\phi 90$ )  
 · Eccentricity of flange fitting outside diameter to shaft: 0.03 (middle of spigot)
- For flange mounting bolts, use hexagonal socket head bolts.
- The tightening torque of the option cable becomes the following.  
 · Motor(JN8): 0.09 N·m  
 · Encoder(JN6): 0.20 N·m

Model	Rated Speed (r/min)	Output (W)	L	LL	LM	LT	KB1	KB2
MSMF092L101	3000	1000	162.2	127.2	101.2	26	67.4	100.7

Scale	Panasonic Corporation	Agreement	Model
1 : 1	3rd Angle System	Unit:mm	MSMF092L101 $\phi 80$
Designed	Drawn	Checked	Checked
OKANO	OKANO	KIRA	MATSUSHITA
2015/09/10	2015/09/10	2015/09/10	2015/09/10
Name			OUTLINE DRAWING (WITHOUT BRAKE)
No.			SR-DSV1172007

Connector pin assignment



Chinese caution name plate

Caution name plate

Caution name plate

Chinese caution name plate

NOTES

- The assembling precision conforms to the Japan Machine Tool Association Standard (MAS402-1981). (TIR value)  
 · Shaft end runout: 0.015 (shaft exit middle)  
 · Squareness of flange face to shaft: 0.04 (φ90)  
 · Eccentricity of flange fitting outside diameter to shaft: 0.03 (middle of spigot)
- For flange mounting bolts, use hexagonal socket head bolts.
- The tightening torque of the option cable becomes the following.  
 · Motor (JN8) : 0.09 N·m  
 · Encoder (JN6) : 0.20 N·m  
 · Brake (JN4) : 0.20 N·m

Name plate

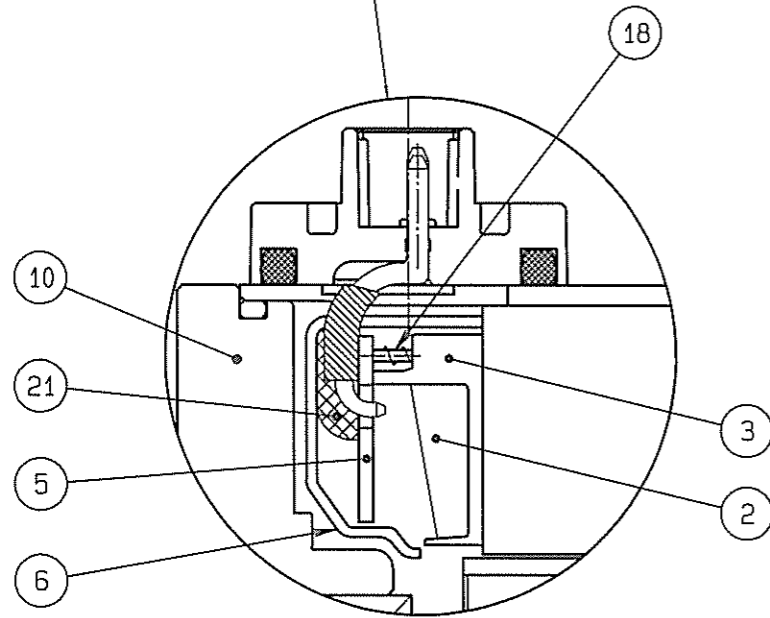
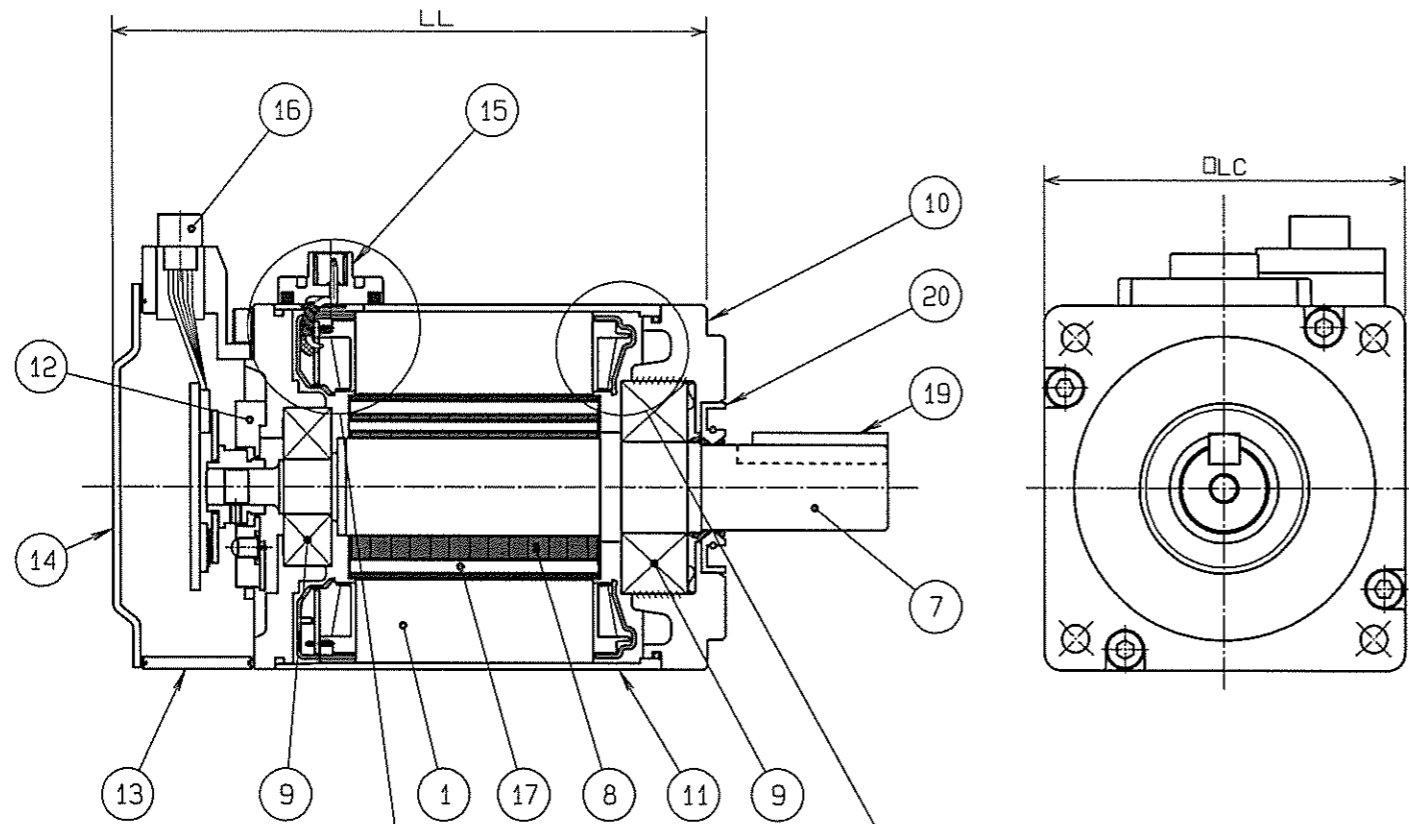
Model	Rated Speed (r/min)	Output (W)	L	LL	LM	LT	KB1	KB2	KB3
MSMF092L101	3000	1000	198.2	163.2	137.2	26	67.4	109.8	136.7

Scale	Panasonic Corporation				Agreement	Model	MSMF092L101 □80
1 : 1	3rd Angle System				Unit:mm	Name	OUTLINE DRAWING (WITH BRAKE)
Designed	Drawn	Checked	Checked	Checked	No.	SR-DSV1172008	
OKUNO	MATSUO	KIRA		MATSUSHITA			
2015/09/10	2015/09/10	2015/09/10		2015/09/10			

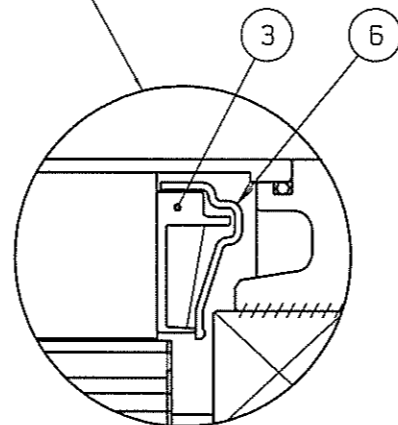




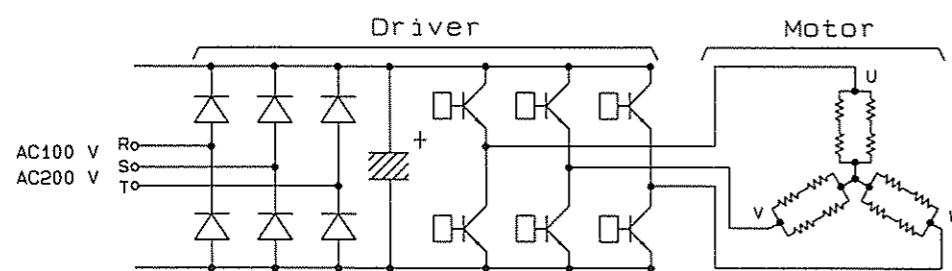
Do NOT scale the drawings.  
Instead rely on the dimensions  
and their definitions



Detail of connector connection part



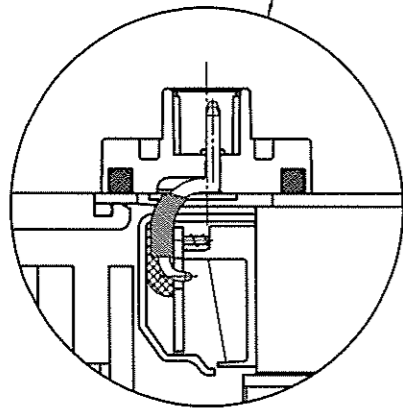
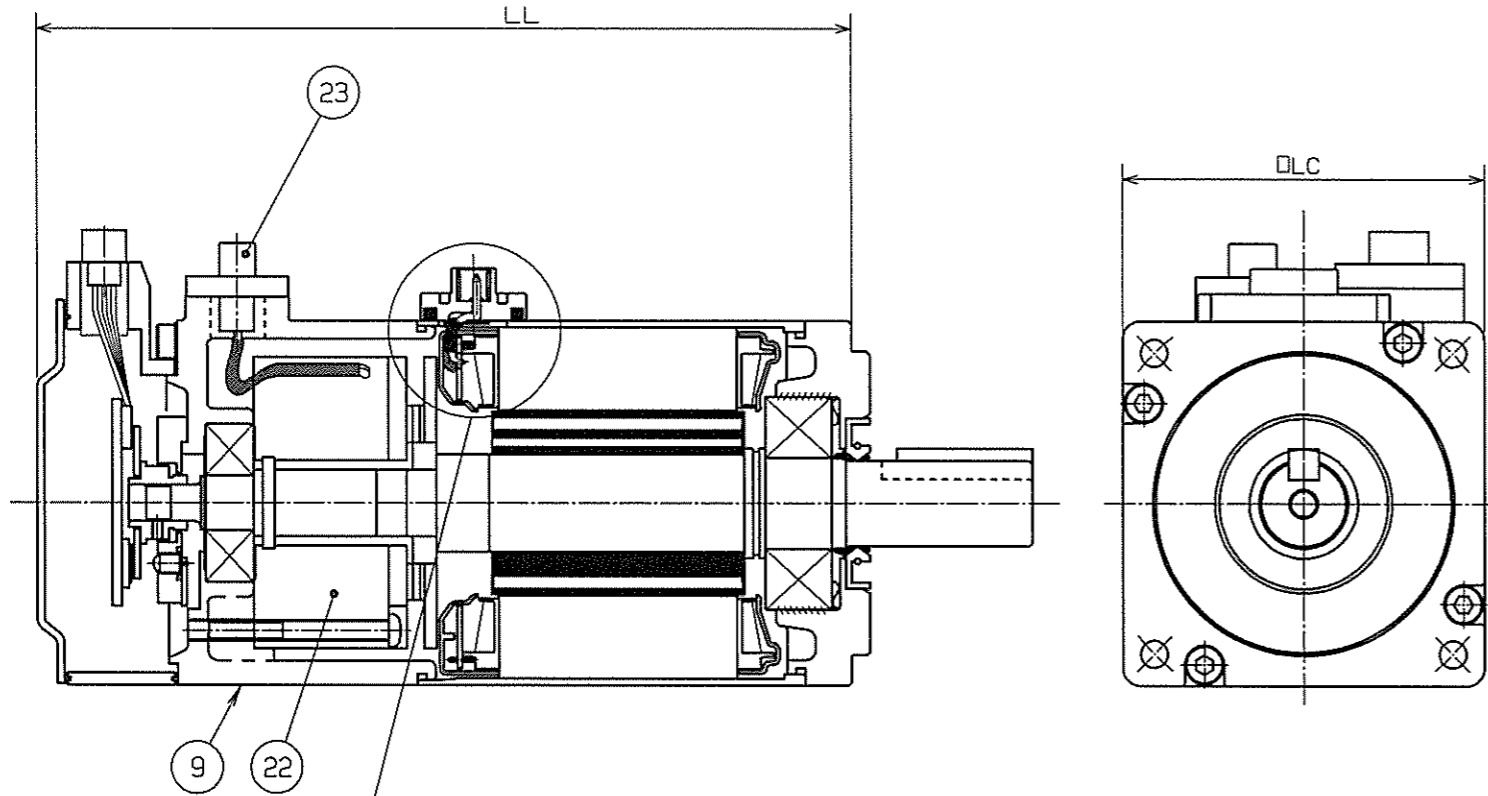
Detail of output shaft side coil end part



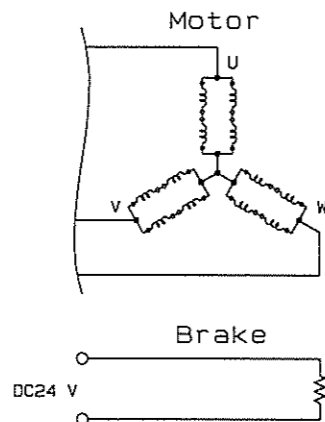
Model	LC	LL
MSMF5AZL101	38	72
MSMF010L101	38	92
MSMF020L101	60	79.5
MSMF040L101	60	99
MSMF082L101	80	112.2
MSMF092L101	80	127.2

21	Potting	Epoxy resin	
20	Oil seal	Nitrile rubber	1
19	Key	S45C	1
18	Pin	Phosphor copper	24
17	Permanent magnet	Rare earth magnet	
16	Detector connector	JN6CR07PM2(JAE) or equivalent model	1
15	Motor connector	JN8AT04NJ1(JAE) or equivalent model	1
14	RE cover B	SPCC	1
13	RE cover A	6 Polyamide	
12	Detector	23BIT	1
11	Frame	Aluminium	1
10	End bracket	Aluminium	2
9	Ball bearing	Bearing steels	2
8	Rotor core	Electrical steel	
7	Motor shaft	S45C, SCM435	1
6	Insulating cap	Polyethylene terephthalate	1
5	Printing circuit board	Composite	1
4	Slot insulator	Polyester film	
3	End insulator	Polyethylene terephthalate	24
2	Winding	Polyester enameled copper wire	
1	Stator core	Electrical steel	
No.	Name	Material	Qt.

Scale	Panasonic Corporation		Agreement	Model	MSMF□□□L101
	3rd Angle System		Unit:mm		
Designed	Drawn	Checked	Checked	Name	STRUCTURE SECTION VIEW DRAWING (WITHOUT BRAKE)
OKUNO	MATSUO	KIRA	MATSUSHITA		
2015/09/10	2015/09/10	2015/09/10	2015/09/10	No.	SR-DSV1172009



Detail of connector connection part



Model	LC	LL
MSMF5AZL101	38	102
MSMF01DL101	38	122
MSMF02DL101	60	116
MSMF04DL101	60	135.5
MSMF082L101	80	148.2
MSMF092L101	80	163.2

23	Brake connector	JN4AT02JM-R(JAE) or equivalent model	1
22	Brake	Non excited actuating type brake	1
21	Potting	Silocon	
20	Oil seal	Nitrile rubber	1
19	Key	S45C	1
18	Pin	Phosphor copper	24
17	Permanent magnet	Rare earth magnet	
16	Detector connector	JN6CR07PM2(JAE) or equivalent model	1
15	Motor connector	JN8AT04NJ1(JAE) or equivalent model	1
14	RE cover B	SPCC	1
13	RE cover A	6 Polyamide	1
12	Detector	23BIT	1
11	Frame	Aluminium	1
10	End bracket	Aluminium	2
9	Ball bearing	Bearing steels	2
8	Rotor core	Electrical steel	
7	Motor shaft	S45C, SCM435	1
6	Insulating cap	Polyethylene terephthalate	1
5	Printing circuit board	Composite	1
4	Slot insulator	Polyester film	
3	End insulator	Polyethylene terephthalate	24
2	Winding	Polyester enameled copper wire	
1	Stator core	Electrical steel	
No.	Name	Material	Qt.

Scale	Panasonic Corporation			Agreement	Model	MSMF□□□L1□1
	③ 3rd Angle System			Unit:mm		
Designed	Drawn	Checked	Checked	Checked	Name	STRUCTURE SECTION VIEWDRAWING (WITH BRAKE)
OKUNO	MATSUO	KIRA		MATSUSHITA	No.	SR-DSV1172010
2015/09/10	2015/09/10	2015/09/10		2015/09/10		