

AC SERVO SYSTEM

An excellent solution for an implementation of servo system



Allen-Bradley
OEMax

LISTEN.
THINK.
SOLVE.®

OEMax Full Digital AC SERVO System

The OEMax Full Digital AC Servo System supports high precision control with the high performance, highly functional servo. Its ultra miniaturized & ultra light weighted all-in-one type of design encompassing the source of electricity, you may implement the most optimal system in the world.



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OEMax Servo Drive

The OEMax servo drive can help you implement the most optimal solution that can provide flexible functions for various types of motion control environment.

OEMax Servo Drive



► High Performance servo drive CSD3

- Adopted a 32 bit DSP
- Uses a 17 bit encoder to improve the accuracy in determining the position
- Frequency response: 550Hz
- Improved the torque accuracy to +/- 2%
- Automatic detection of constants in relation to the motor
- Built-in operator is attached
- Provides the off/on-line auto tuning function
- Uses a PDA to implement the function of the digital operator
- Optical communication data transmission rate: 4.8Mbits/sec



► Full digital servo drive CSDJ

- Full digital type of AC drive using a high speed 32 bit DSP
- All-in-one type including speed, position and torque control
- Automatic measurement of load inertia ratio
- Provides the PC communication software tool
- Simple manipulation of the digital operator
- Simplified oscilloscope function
- Adjustment of the D/A output scale



► Mid & large Class Capacity servo drive CSDP

- Mid & large Class Capacity servo drive
- Suitable for motors with various sizes from 1.5KW to 5KW
- Reliable PWM control using the next generation IPM
- Adopted the high performance 32bit DSP(TMS320VC33)
- Implemented a speed measurement system to suppress the ripple during a low speed operation
- Speed response frequency: 400 Hz
- On line gain tuning function
- Can use a 17 bit serial encoder
- PC communication software (Win98, Win200, XP)
- Separable power supply
- Reliability guaranteed by the certification from the foreign standards (CE certification)

Model Designation

CSD3 Servo Drive

2 0 0 3 - C S D 3 - 0 1 B X 2

Rated output(W)	
A5	50W
01	100W
02	200W
04	400W
08	800W
10	1kW
15	1.5kW

Design procedure	
X2	Ver.2

Input power(V)	
B	220V

CSDJ/CSDP Servo Drive

2 0 0 3 - C S D J - 0 1 B X 2

Applicable model	
CSDJ	
CSDP	

Rated output(W)		
CSDJ	01	100W
	02	200W
	04	400W
	06	600W
	10	1kW
CSDP	15	1.5kW
	20	2kW
	30	3kW
	40	4kW
	50	5kW

Design procedure	
X2	Ver.2

Input power(V)	
B	220V

Model Designation

Servo Motor

2 0 0 4 - R S M Z - 0 1 B A 1 A N 3

Motor Type
RSMZ
RSMQ
RSMD
RSMH
RSMF
RSMS
RSMK
RSML
CSMT
CSMR

Rated output(W)	
A3	30W
A5	50W
01	100W
:	:
45	4.5kW
50	5kW

Input power(V)	
B	220V

Design procedure	
1	Ver.1

Shaft Specifications	
3	Key type

Option	Remarks
N	None RSMZ, RSMQ
B	Brake CSMT, CSMR
S	Oil Seal RSMD, RSMH, RSMF
T	Oil Seal, Brake RSMS, RSML

Encoder type	
B	2048 p/r
A	2500 p/r
M	10000 p/r
Q	17bit Abs.
R	17bit Inc.

Servo Drive Specification

CSD3 Series

Classification	Item		SPECIFICATION		
Basic Specification			CSD3 Series(400W or below)	CSD3 Series(1kw or above)	
	Power Supply*1	Main circuit power	Single phase 220V, +10~-15%, 50/60Hz	Triple phase 220V, +10~-15%, 50/60Hz	
		Control power	Single phase 220V, +10~-15%, 50/60Hz	Single phase 220V, +10~-15%, 50/60Hz	
	Control Method		SVPWM control using ASIPM		
	Encoder*2		2048/2500/10000 P/R (Incremental, Absolute Type), 131072 P/R (17bit Serial Incremental, Absolute Type)		
	Ambient temperature/humidity for use		0°C ~ +55°C /90% or below(no dews to be formed)		
	Ambient temperature/humidity for storage		-20°C ~ +80°C /90% or below(no dews to be formed)		
Vibration/Impact resistance		Vibration 0.5G/Impact 2G (1G gravity acceleration: 9.8m/sec ²)			
I/O Specification	Position	Output spec	Encoder phase output A,B,Z (MC3487 Line Driver)		
		Frequency division ratio	N/M (N, M ≤ 65535)		
	External input		7 allocated points: Servo On/Off, P control, forward/reverse rotation prevention, forward/reverse current limit, alarm reset, gain group shift, homing, control mode shift, pulse command ignored 1 fixed point: E-stop (Option)		
	External output		7 allocated points: During rotation, brake control, in-speed(speed control mode), in-position(position control mode), position proximity, torque/speed limit, servo alarm 5 fixed points: E-stop (Option): Servo alarm code(3 bit), z-pulse(open collector) servo alarm		
Protection function	Protection function		Overcurrent, overvoltage, overload, over speed, overheated IPM, low voltage, CPU malfunction, Encoder malfunction, communication failure, regeneration failure		
	Dynamic Brake		It operates while servo control off, alarm on(saved internally)		
	Regeneration*3		No regenerative resistance for motors with less than 200W, Possible to attach an external regenerative resistance to a motor with 400W or more		
Monitoring	D/A output		Position/speed/torque command and feedback, position error(max +/-10 V)		
	LED		Power on, charge(applicable to all models)		
	7. SEG LED		Monitoring of command, error, feedback and offset values for speed/torque/position/electrical angle/mechanical angle, load inertia ratio I/O status, Servo run, Servo alarm		
External communication		PC-SOFTWARE	All the functions of operator		
Speed Control	Speed input	Speed control range		1 : 5,000	
		Speed change	Load change	0~100%: 0.01% or below(at the rated speed)	
			Voltage change	220V, + 10~-15%, 50/60Hz : 0.01%	
			Temperature change	25±25°C : ±0.01% below(at the rated speed)	
	Frequency characteristics		550Hz (J _L = J _M)		
	Acceleration/deceleration constant setting		0 ~ 60 sec		
Speed/torque Input	Speed*4	Rated speed command	DC± 10V (Set to 6V at the rated speed when shipped out)		
		Input impedance	About 8.3M ohms		
		Circuit constant	About 35μs		
	Torque	Rated torque command	DC± 10V (Set to 3V at the rated speed when shipped out)		
Input impedance		About 8.3M ohms			
Position Control	Feed forward compensation		0~100%(resolution setting: 1%)		
	Input signal	Comm and Pulse	Types	Sign + pulse 90° phase difference 2 phase pulse(A phase + B phase), CCW Pulse + CW pulse	
			Pulse shape	Line Drive (+5V), Open Collector (+5V, +12V, +24V)	
			Pulse frequency	0 ~ 900 kpps:Line drive, 0 ~ 250 kpps: Open Collector	
			Control signal	Clear, inhibit(pulse shape)	
Mounting type		Base Mounted			
ETC		Torque control, position/speed mode, position/torque mode Torque/speed limit mode, position/multi stage speed mode, zero-clamp drive, soft-start/stop, speed setting, brake control, JOG drive, auto tuning, reverse driving			

Cautions

- ※ 1) Our servo motor includes a built-in DC power supply inside the amp(300V) and it does not require an additional DC power supply. (But it requires a separate DC 24V power supply to the external I/O.)
- ※ 2) It is not possible to generate a number of pulses exceeding the number of encoder pulse per each rotation of the motor.
- ※ 3) As the motor decelerates, regenerative energy is created. The regenerative energy that can be absorbed by the drive and the motor depends on the speed of motor's rotation and the load inertia.
- ※ 4) In case of speed control, it is possible to rotate in one direction due to the offset at the minimum speed.

Servo Drive Specification

CSDJ Series

Classification	Item	SPECIFICATION			
Basic Specification	Power Supply ^{*1}	CSDJ Series			
		CSDP Series			
		Single phase 220V, +10~-15%, 50/60Hz	Main circuit power	Main Circuit power: Triple phase 220V, +10~-15%, 50/60Hz	
			Control power	Control power: Single phase 220V, +10~-15%, 50/60Hz	
	Control Method	PWM control using IPM			
	Encoder ^{*2}	2048/2500/10000 P/R (general/simplified incremental, absolute encoder)			
	Ambient temperature/humidity for use	0°C ~ +55°C /90% or below(no dews to be formed)			
Ambient temperature/humidity for storage	-20°C ~ +80°C /90% or below(no dews to be formed)				
Vibration/impact resistance	< Vibration 0.5G/Impact 2G (1G gravity acceleration: 9.8m/sec ²)				
I/O Specification	Position	Output spec	Encoder phase output A,B,Z (MC3487 Line Driver)		
		Frequency division ratio ^{*3}	N/M (N, M ≤ 8192)		
	External input	Servo On/Off, P control, forward/reverse rotation prevention, forward/reverse current limit, alarm reset			
Protection function	External output	During rotation, brake control, servo alarm/code(3 bit), in-speed(speed control mode), in-position(position control mode), Z-pulse(open collector)			
	Protection function	Overcurrent, overvoltage, overload, over speed, low voltage, CPU malfunction, Encoder malfunction, communication failure, regeneration failure			
	Dynamic Break	It operates while servo control off, alarm on(saved internally)			
Monitoring	D/A output	Speed	±1V/Set-08 setting value[rpm](max ±10 V)		
		Torque	±1V/Set-08 setting value[%](max ±10 V)		
	External Display	LED	Power on, servo run, servo alarm(applicable to all models)		
External communication	PC-SOFTWARE	OPERATOR	Monitoring of command, error, feedback and offset values for speed/torque/position/electrical angle/mechanical angle, load inertia ratio I/O status .		
			All the functions of operator		
Speed Control	Speed input	Speed control range	1 : 3,000		
		Speed change ^{*5}	Load change	0~100%: 0.01% or below(at the rated speed)	
			Voltage change	220V +10,-15% 50/60Hz: 0.01%	
			Temperature change	25±25°C : ±0.01% or below(at the rated speed)	
		Frequency characteristics	250Hz (JL = Jm)		
	Acceleration/deceleration constant setting	0 ~ 60 sec			
	Speed/torque Input	Speed ^{*6}	Rated speed command	DC±10V (Set to 6V at the rated speed when shipped out)	
			Input impedance	About50k ohms	
			Circuit constant	About 35μs	
		Torque	Rated speed command	DC±10V (Set to 3V at the rated speed when shipped out)	
Circuit constant			About 35μs		
Position Control	Input signal	Command Pulse	Feed forward compensation	0~100%(resolution setting: 1%)	
			Types	Sign + pulse 90 phase difference 2 phase pulse(A phase + B phase), CCW Pulse + CW pulse	
			Pulse shape	Line Drive (+5V), Open Collector (+5V, +12V, +24V)	
			Pulse frequency	0~4500kpps; line drive, 0~200 kpps; open collector. If you need more than 500kpps, please submit your inquiry to us..	
			Control signal	Clear, (pulse shape)	
Mounting type		Base Mounted			
ETC		Torque control, position/speed mode, position/torque mode Torque/speed limit mode, position/multi stage speed mode, zero-clamp drive, soft-start/stop, speed setting, brake control, JOG drive, auto tuning, reverse driving			

Cautions

- ※ 1) Our servo motor includes a built-in DC power supply inside the amp(300V) and it does not require an additional DC power supply. (But it requires a separate DC 24V power supply to the external I/O.)
- ※ 2) To find out which type of encoder you can mount in the motor, please refer to the product manual.
- ※ 3) It is not possible to generate a number of pulses exceeding the number of encoder pulse per each rotation of the motor.
- ※ 4) As the motor decelerates, regenerative energy is created. The regenerative energy that can be absorbed by the drive and the motor depends on the speed of motor's rotation and the load inertia.
- ※ 5) The rate of change in the speed is defined as follows.

$$\text{Rate of change in speed} = \frac{\text{No load speed} - \text{Full load speed}}{\text{Rate speed}} \times 100 (\%)$$

☞ The motor speed is subject to change according to the change in the power amp's voltage that varies depending on the change in control power and temperature.

- ※ 6) In case of speed control, it is possible to rotate in one direction due to the offset at the minimum speed.
 (note) The max permissible load inertia for RSMD/F/S/H/K/L motors with less than 200W is up 30 times the inertia ratio, for those with less than 1kW, it is 15 times the inertia ratio. The max permissible load inertia for RSMD/F/S/H/K/L motors is up to 10 times the inertia ratio. Be careful not to exceed the maximum permissible load inertia ratio.

Servo Drive Specification

CSDP Series

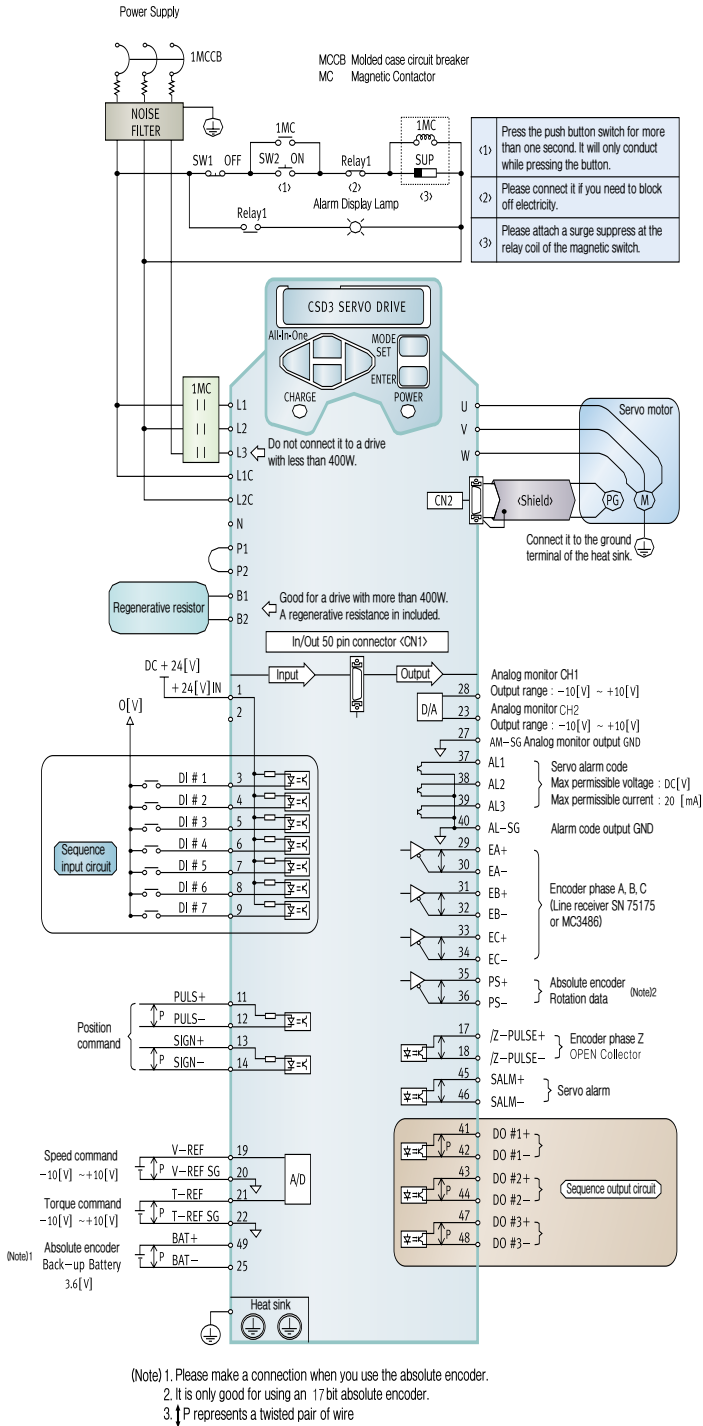
Classification	Item	SPECIFICATION
Basic Specification	Power Supply*1	Input voltage(Vrms) Triple phase 200~230V, +10~-15%, 50/60Hz Control voltage(Vrms) Single phase 200~230V, +10~-15%, 50/60Hz
	Control Method	PWM control using IPM
	Feedback Method*2	1000 / 2048 / 2500 / 10000 Inc Type, 17 bit Serial Inc/Abs type
	Ambient temperature/humidity for use	0 ~ 55°C / 90% RH or below
	Ambient temperature/humidity for storage	-25 ~ 80°C / 90% RH or below
	Mounting type	Base mounted type
Speed torque control performance*3	Speed control range	1:5000
	Rate of load change	Less than $\pm 0.01\%$ at the rated speed and load of 0 to 100%
	Rate of voltage change	0% at the rated speed and voltage of 220VAC
	Rate of temperature change	Less than 0.1% at the rated temperature and ambient temperature of 25°C
	Speed response frequency	400 Hz
	Degree of torque control	$\pm 2\%$
	Acceleration/deceleration Time	0 - 60sec
Position control performance	Feed forward	0 - 100%
	Width of position determination	0 - 250 pulse
Input signal for position control commands	Types of command pulses	CW+CCW, pulse row + sign row, Phase A+ phase B(phase difference of 90°)
	Types of input commands	Line Drive: Level to level voltage 2.8 ~ 3.7V
		Open collector: External voltage 24V, 12V, 5V
	Pulse frequency	Line Drive: Max 900kbpps Open collector: Max 250kpps
Control signal	Position error clearance input(set to one of input terminals)	
Input signal for speed, torque commands	Command voltage	$\pm 10\text{VDC}$ (14 bit A/D conversion)
	Input impedance	About 8.3M ohms
	Circuit constant	35 μs or below
Multi stage speed command input	Rotation direction	The function should be assigned to the input terminal.
	Speed selection	The function should be assigned to the input terminal.
signal	Position output pattern	Line drive output: Phase A,B,Z, absolute encoder data
		Open collector output: Phase Z
I/O signal	Input	Servo on, alarm reset, gain group shift, forward/reverse torque limit, forward/reverse rotation prevention, P/PI control shift, control mode shift, multi stage speed command, zero clamp, position command pulse ignored, absolute encoder data transmission
	Output	Position determination complete, position proximity, in-speed, rotation detection, torque limit detection, speed limit detection, brake control output, servo alarm detection
Dynamic brake		When the servo power is off, the alarm is on, or overtravel occurs(depending on the condition)
Regenerative resistance*4		Included in the drive
Protection function		Overcurrent, overvoltage, overload, over speed, low voltage, CPU malfunction, communication failure
Monitoring		Two channel D/A output for measuring errors in position/speed/torque command as well as feedback and position

Cautions

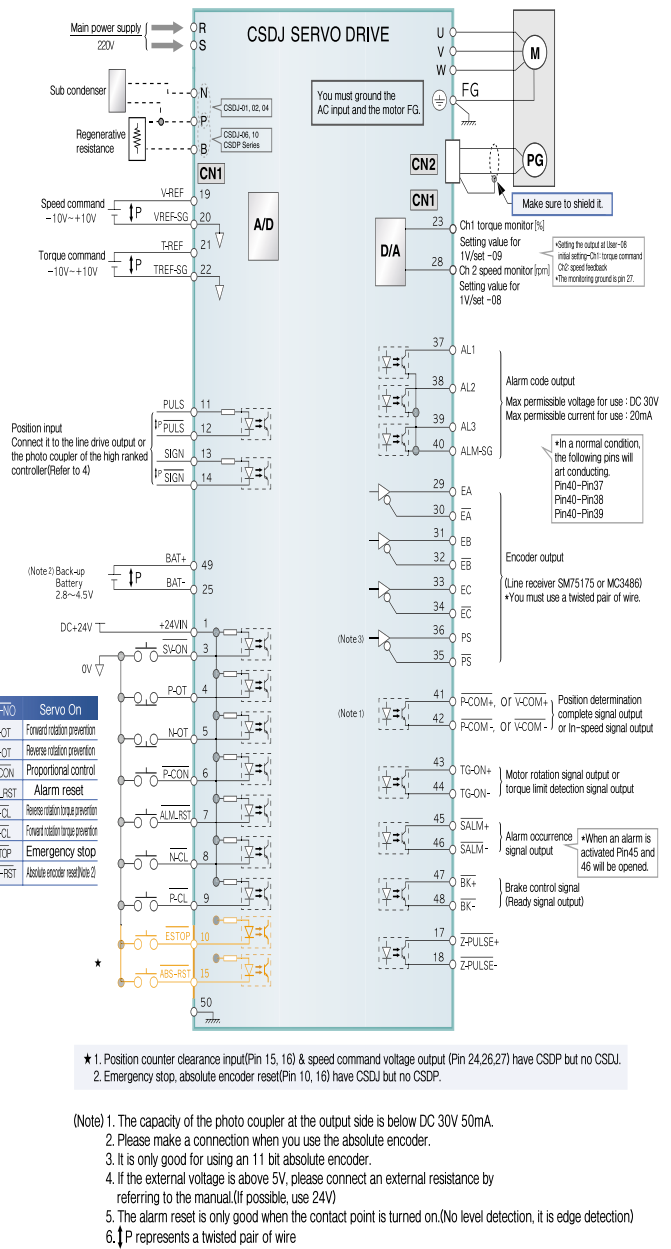
- ※ 1) Our servo motor includes a built-in DC power supply inside the amp(300V) and it does not require an additional DC power supply. (But it requires a separate DC 24V power supply to the external I/O.)
- ※ 2) It is not possible to generate a number of pulses exceeding the number of encoder pulse per each rotation of the motor.
- ※ 3) As the motor decelerates, regenerative energy is created. The regenerative energy that can be absorbed by the drive and the motor depends on the speed of motor's rotation and the load inertia.
- ※ 4) In case of speed control, it is possible to rotate in one direction due to the offset at the minimum speed.

Wiring Diagram

CSD3 Series

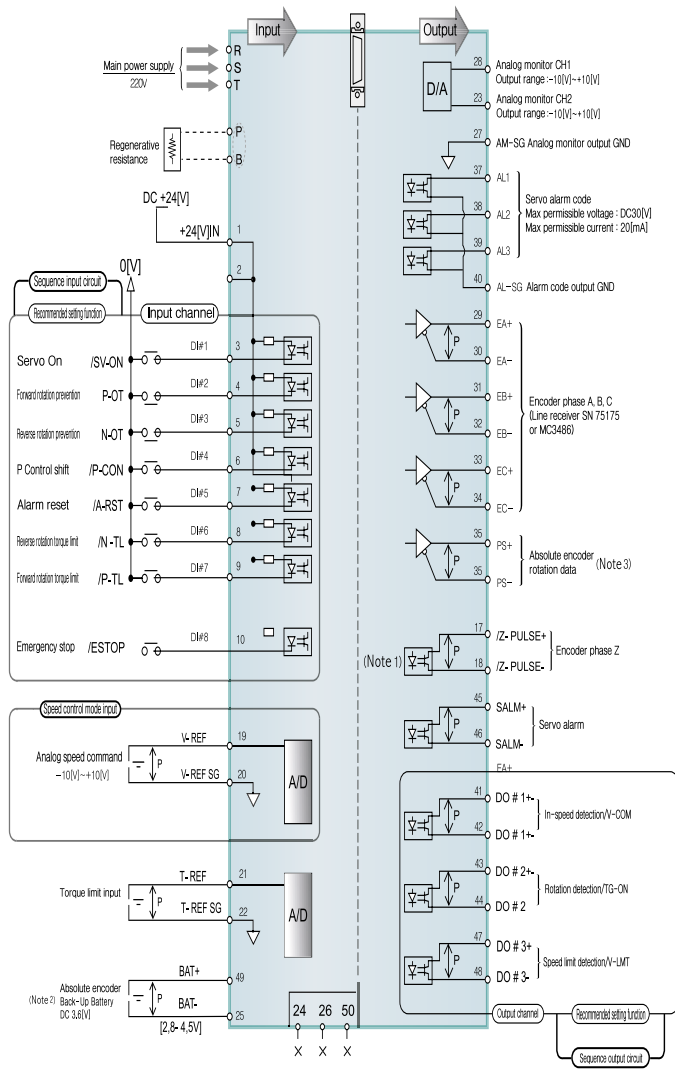


CSDJ Series



Wiring Diagram

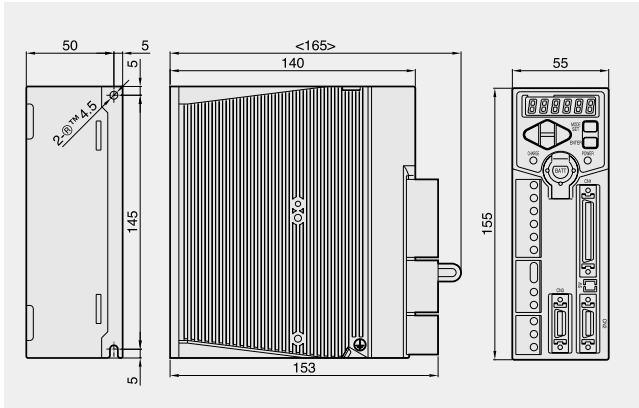
CSDP Series



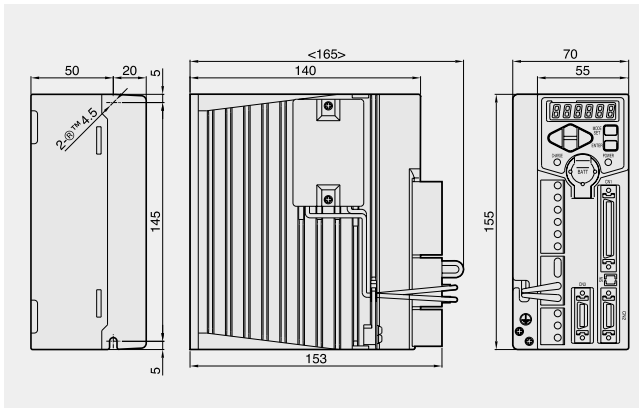
- (Note 1). The capacity of the photo coupler at the output side is below DC 30V 50mA.
 2. Please make a connection when you use the absolute encoder.
 3. It is only good for using an 11 bit absolute encoder.
 4. If the external voltage is above 5V, please connect an external resistance by referring to the manual.(If possible, use 24V)
 5. The alarm reset is only good when the contact point is turned on.(No level detection, it is edge detection)
 6. ↓P represents a twisted pair of wire

External Dimension

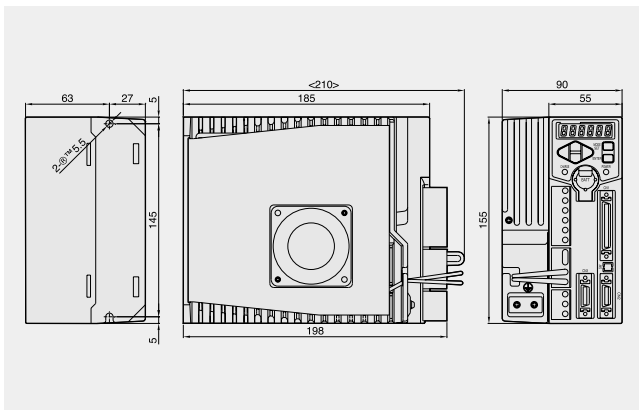
CSD3 Series



Model	Rated output	Voltage	Weight
CSD3-A5BX2	50W	1 ϕ 200~230V 50/60Hz	0.9kg
CSD3-01BX2	100W		
CSD3-02BX2	200W		



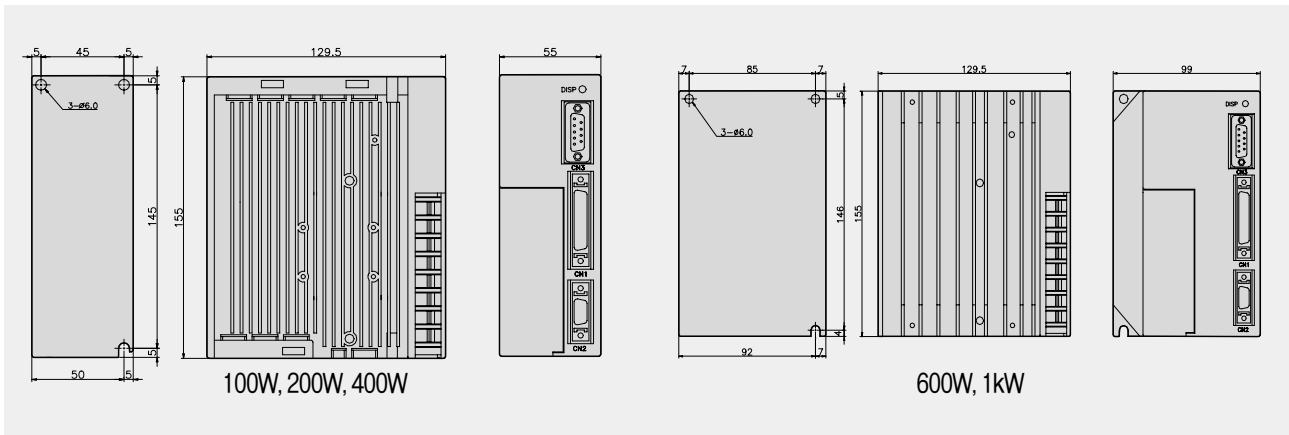
Model	Rated output	Voltage	Weight
CSD3-04BX2	400W	1 ϕ 200~230V 50/60Hz	1.2kg



Model	Rated output	Voltage	Weight
CSD3-08BX2	800W	1 ϕ 200~230V 50/60Hz	2.1kg
CSD3-10BX2	1kW		
CSD3-15BX2	1.5kW		

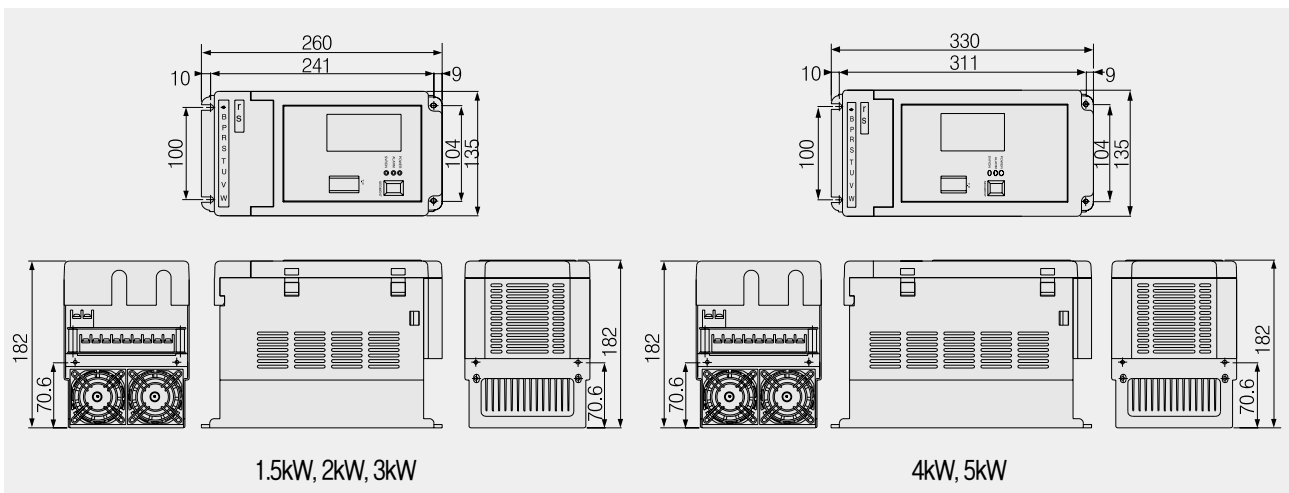
External Dimension

CSDJ Series



Model	Rated output	Voltage	Weight
CSDJ-01BX2	100W	1 ϕ 200~230V 50/60Hz	0.9kg
CSDJ-02BX2	200W		
CSDJ-04BX2	400W		
CSDJ-06BX2	600W		1.2kg
CSDJ-10BX2	1kW		

CSDP Series



Model	Rated output	Voltage	Weight
CSDP-15BX2	1.5kW	3 ϕ 200~230V 50/60Hz	4.98kg
CSDP-20BX2	2kW		
CSDP-30BX2	3kW		
CSDP-40BX2	4kW		6.14kg
CSDP-50BX2	5kW		

Combination of Motors and Controllers

Controller type	Driving Motors(W)								
	CSM CSMT	CSMR/CSMQ RSMQ	RSMZ	RSMD	RSMH	RSMF	RSMS	RSMK	RSML
CSD3-A5BX2	50	–	50	–	–	–	–	–	–
CSD3-01BX2	100	100	100	–	–	–	–	–	–
CSD3-02BX2	200	200	200	–	–	–	–	–	–
CSD3-04BX2	400	400	400	–	–	400	–	300	300
CSD3-10BX2	600, 800, 950	–	600 750 950	750 1k	500 1k	750	1k	600 900	600 900
CSD3-15BX2	–	–	–	1.5k	1.5k	1.5k	1.5k	1.2k	1.2k

Controller type	Driving Motors(W)								
	CSMT	RSMZ	CSMR RSMQ	RSMD	RSMH	RSMF	RSMS	RSMK	RSML
CSDJ-01BX2	30,50,100	30,50,100	100	–	–	–	–	–	–
CSDJ-02BX2	200	200	200	–	–	–	–	–	–
CSDJ-04BX2	400	400	400	–	–	–	–	300	300
CSDJ-06BX2	600	600	–	–	500	400	–	600	600
CSDJ-10BX2	600,800,100	750,950	–	750,1000	1000	750	1000	900	900

Controller type	Driving Motors(kW)					
	RSMD	RSMH	RSMF	RSMS	RSMK	RSML
CSDP-15BX2	1.0	1.0	–	1.0	0.9	0.9
	1.5	1.5	1.5	1.5	1.2	1.2
CSDP-20BX2	2.0	2.0	–	2.0	2.0	2.0
CSDP-30BX2	2.5	–	2.5	2.5	–	–
	3.0	3.0	–	3.0	3.0	3.0
CSDP-40BX2	3.5	–	3.5	3.5	–	–
	4.0	4.0	–	4.0	–	–
CSDP-50BX2	4.5	5.0	4.5	4.5	4.5	4.5
	5.0	–	–	5.0	–	–

OEMax Servo Motor

Motor classifications

	Motor series	Rated output	Rated/ Maximum speed [r/min]	Type
RSMZ		30W ~ 600W	3000/5000	Cylinder
		750W	3000/4500	
		950W	3000/3500	
RSMQ		100W ~ 400W	3000/5000	Pan Cake
RSM D		0.75kW ~ 5kW	2000/3000	Cylinder
RSMH		0.5kW ~ 5kW	2000/3000	Cylinder
RSM S		1.0kW ~ 3.5kW	3000/5000	Cylinder
		4.0kW ~ 5.0kW	3000/4500	
RSMF		0.4kW ~ 4.5kW	2000/3000	Pan Cake
RSMK		0.3kW ~ 6.0kW	1000/2000	Cylinder
RSML		0.3kW ~ 6.0kW	1000/2000	Cylinder
CSMT		30W ~ 1kW	3000/5000	Cylinder
CSMR		100W ~ 400W	3000/5000	Pan Cake

Encoder			Protection degree	Features	Application examples
2500p/r Incremental	10000p/r Incremental	17bit serial Abs./Inc			
0		0	IP 65	Ultra low inertia	Belt drives, Robots, Mounters, Inseters, XY tables
0		0			
0		0			
0		0	IP 65	Low inertia	Robots, XY tables, Mounters, Sewing machines, Food processing machines
0		0	IP 65	Middle inertia	Conveyor machines, Robots, XY tables
0		0	IP 65	Ultra high inertia	High frequency positioning equipments
0		0	IP 65	Low inertia	Machine tools, Winding machines, Press feeders, Woodworking machines
0		0	IP 65	Middle inertia	Robots, Food processing machines
0	0	0	IP 65	Middle inertia	Machine tools, Transfer machines, Woodworking machines
0	0	0	IP 65	High inertia	Machine tools, Transfer machines, Woodworking machines, Spring forming machines
2,048p/r Incremental		0	IP 65	Ultra low inertia	Machine tools, Transfer machines, Woodworking machines
2,048p/r Incremental		0	IP 65	Low inertia	Machine tools, Transfer machines, Woodworking machines, Spring forming machines

RSMZ Motor Series

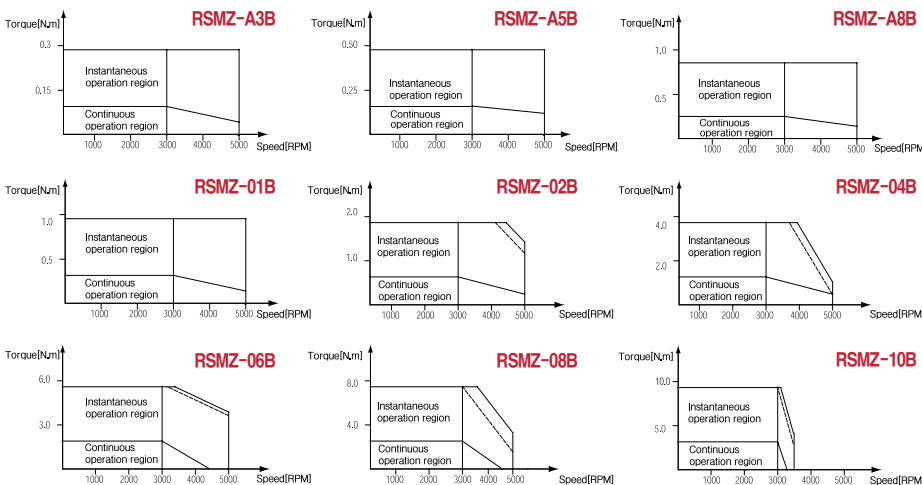
Specifications

Item	Unit	RSMZ-								
		A3B	A5B	A8B	01B	02B	04B	06B	08B	10B
Flange Size	mm	40	40	40	40	60	60	80	80	80
Rated output	W	30	50	80	100	200	400	600	750	950
Rating	%	100								
Rated rotation speed	r/min	3000								
Max rotation speed	r/min	5000							4500	3500
Rated torque	N · m	0.095	0.16	0.255	0.32	0.64	1.3	1.91	2.4	3.0
	kgf · cm	0.97	1.62	2.60	3.24	6.5	13	19.49	24.3	30.9
Max instantaneous torque	N · m	0.28	0.48	0.76	0.95	1.91	3.8	5.73	7.1	9.1
	kgf · cm	2.9	4.9	7.8	9.7	19.5	39	58.47	73	92.6
Rated current	A(rms)	1.0	1.0	1.0	1.0	1.6	2.5	4.1	4.3	4.3
Rotor inertia 2500P/R Inc./17bit Abs.	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.021/0.015	0.030/0.024	0.039/0.034	0.059/0.054	0.19/0.18	0.34/0.33	0.93	1.20	1.47
	gf · cm · sec ²	0.021/0.015	0.031/0.024	0.040/0.035	0.060/0.055	0.19/0.18	0.35/0.34	0.95	1.22	1.5
Rotor inertia(Brake) 2500P/R Inc./17bit Abs.	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	0.025/0.019	0.034/0.029	0.049/0.046	0.061/0.056	0.21/0.20	0.36/0.35	1.05	1.32	1.49
	gf · cm · sec ²	0.026/0.019	0.035/0.030	0.050/0.047	0.062/0.057	0.21/0.20	0.37/0.36	1.07	1.35	1.52
Electrical constant	ms	0.6	0.67	0.96	0.88	3.4	3.5	7.3	7.4	7.6
Mechanical constant 2500P/R Inc./17bit Abs.	ms	2.74/1.9	1.58/1.3	0.85/0.74	0.90/0.82	0.84/0.79	0.59/0.57	0.4/0.39	0.44	0.33
	ms(Brake)	3.27/2.5	1.80/1.5	1.07/1.0	0.93/0.85	0.92/0.88	0.63/0.61	0.45/0.44	0.50	0.34
Power rating 2500P/R Inc./17bit Abs.	kW/s	4.4/6.2	8.7/10.9	17.0/19.5	17.7/19.4	21.8/23.0	48.7/50.2	39.2/39.7	48.3	62.2
	kW/s(Brake)	3.7/4.9	7.7/8.9	13.6/14.4	17.1/18.7	19.7/20.7	46.0/47.4	34.7/35.1	43.9	61.4
Max instantaneous current	A(I-P)	4.30	4.30	4.3	4.30	6.89	10.5	17.4	18.3	18.3
Insulation class		B								
Vibration class		V-15								
Paint color		Black								
Mass	kg	0.32	0.39	0.5	0.66	1.0	1.7	2.9	3.5	4.1
	kg(Brake)	0.54	0.63	0.77	0.93	1.5	2.3	3.5	4.3	4.9
Driving power supply voltage	V _{AC}	200/220								

Cautionary Items

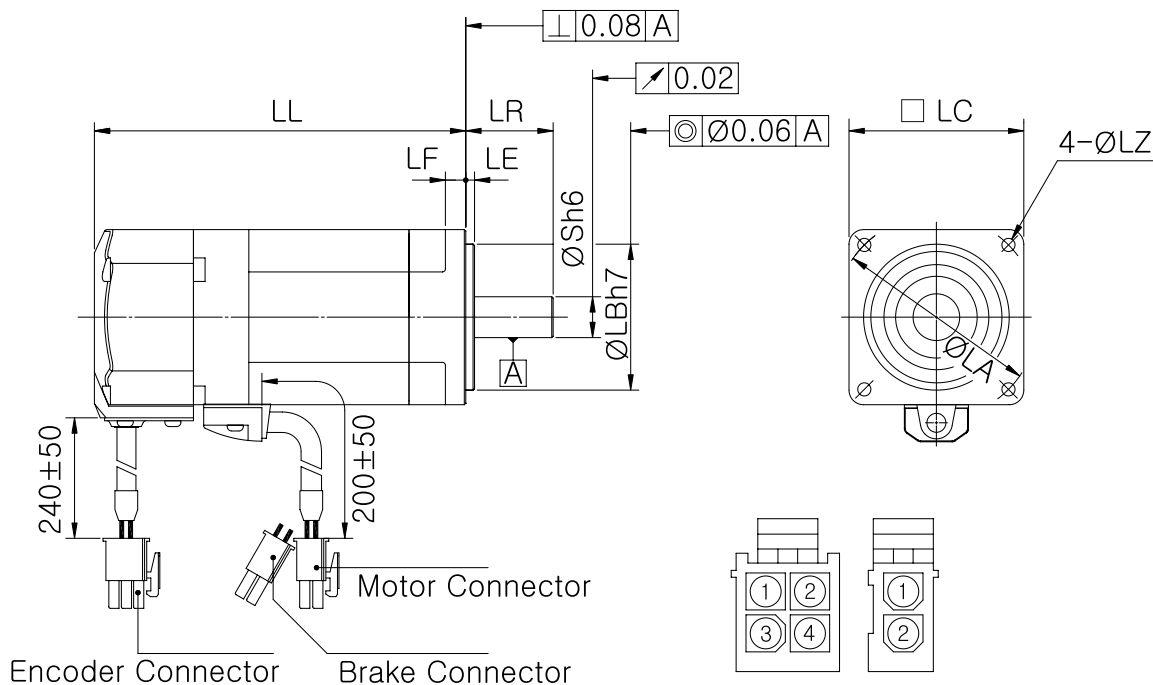
1. The above characteristics are obtained from ideal sinusoids. (typical value at 20 degrees).
2. For IP65 (if the outgoing line is faced downward, excluding the connector part)
3. Temperature measured at the center of the motor frame should be below 65 degrees in celcius. (at 40 degrees in celcius)

Speed-Torque curves



RSMZ Motor Series

External Dimension & Connector Specifications



Specifications of motor/brake connector

Brake	Standard		With brake	
Part no.	AMP/ 172167-1		AMP/ 172167-1 AMP/ 172165-1	
Pin spec.	Pin no.	Signal	Pin no.	Signal
	1	U	1	U
	2	V	2	V
	3	W	3	W
	4	FG	4	FG
			1	BR
		2	BR	

Series		RSMZ																	
Model		A3		A5		A8		01		02		04		06		08		10	
		ABS	INC	ABS	INC	ABS	INC	ABS	INC	ABS	INC	ABS	INC	ABS	INC	ABS	INC	ABS	INC
LL	Standard	73.5	60	81.5	68	101.5	88	111.5	98	98	84.5	127.5	114	128	115	146	133	164	151
	With brake	104.5	92	112.5	100	132.5	120	142.5	130	131	117	160.5	146.5	163.5	150	181.5	168	199	186
	LR		25		25		25		25		30		30		35		35		35
	S		7		8		8		8		11		14		16		19		19
	LA		45		45		45		45		70		70		90		90		90
	LB		30		30		30		30		50		50		70		70		70
	LC		40		40		40		40		60		60		80		80		80
	LE		3		3		3		3		3		3		3		3		3
	LF		6		6		6		6		7		7		8		8		8
	LZ		3.6		3.6		3.6		3.6		5.5		5.5		6.6		6.6		6.6

RSMQ Motor Series

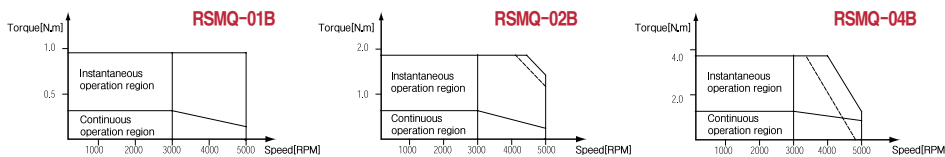
Specifications

Item	Unit	RSMQ-		
		01B	02B	04B
Flange Size	mm	60	80	80
Rated output	kW	100	200	400
Rating	%	100		
Rated rotation speed	r/min	3000		
Max rotation speed	r/min	5000		
Rated torque	N · m	0.32	0.64	1.3
	kgf · cm	3.24	6.5	13
Max instantaneous torque	N · m	0.95	1.91	3.82
	kgf · cm	9.7	19.5	39
Rated current	A _(rms)	1.0	1.6	2.5
Rotor inertia 2500P/R Inc./17bit Abs.	$\times 10^{-4}$ kg · m ²	0.11/0.10	0.36/0.35	0.62/0.61
	gf · cm · sec ²	0.11/0.10	0.37/0.36	0.63/0.62
Rotor inertia(Brake) 2500P/R Inc./17bit Abs.	$\times 10^{-4}$ kg · m ²	0.14/0.13	0.49/0.48	0.74/0.74
	gf · cm · sec ²	0.14/0.13	0.50/0.49	0.76/0.76
Electrical constant	ms	2.9	5.6	6.6
Mechanical constant 2500P/R Inc./17bit Abs.	ms	1.35/1.22	0.87/0.85	0.62/0.61
	ms(Brake)	1.71/1.56	1.17/1.15	0.74/0.74
Power rating 2500P/R Inc./17bit Abs.	kW/s	9.4/10.3	11.5/11.8	26.7/27.2
	kW/s(Brake)	7.4/8.04	8.5/8.6	22.4/22.4
Max instantaneous current	A _(I-P)	4.30	6.9	10.49
Insulation class		B		
Vibration class		V-15		
Paint color		Black		
Mass	kg	0.78	1.5	2.1
	kg(Brake)	1.2	2.3	3.0
Driving power supply voltage	V _{AC}	200/220		

Cautionary Items

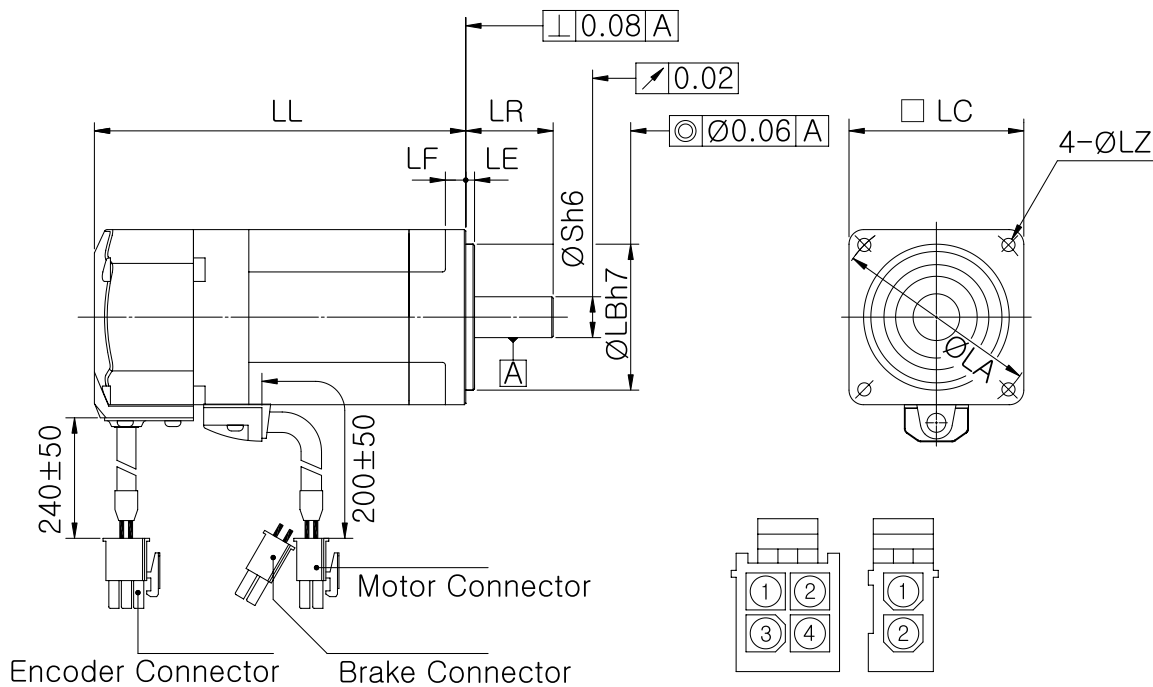
1. The above characteristics are obtained from ideal sinusoids. (typical value at 20 degrees).
2. For IP65(if the outgoing line is faced downward, excluding the connector part)
3. Temperature measured at the center of the motor frame should be below 65 degrees in celcius.(at 40 degrees in celcius)

Speed-Torque curves



RSMQ Motor Series

External Dimension & Connector Specifications



Specifications of motor/brake connector

Brake	Standard		With brake	
Part no.	AMP/ 172167-1		AMP/ 172167-1 AMP/ 172165-1	
Pin spec.	Pin no.	Signal	Pin no.	Signal
	1	U	1	U
	2	V	2	V
	3	W	3	W
	4	FG	4	FG
			1	BR
		2	BR	

Series		RSMQ					
Model		01		02		04	
		ABS	INC	ABS	INC	ABS	INC
LL	Standard	85.5	72	96	83	111	98
	With brake	118.5	104.5	131.5	118	146.5	133
LR		25		30		30	
S		8		11		14	
LA		70		90		90	
LB		50		70		70	
LC		60		80		80	
LE		3		3		3	
LF		7		8		8	
LZ		5.5		6.6		6.6	

RSMD Motor Series

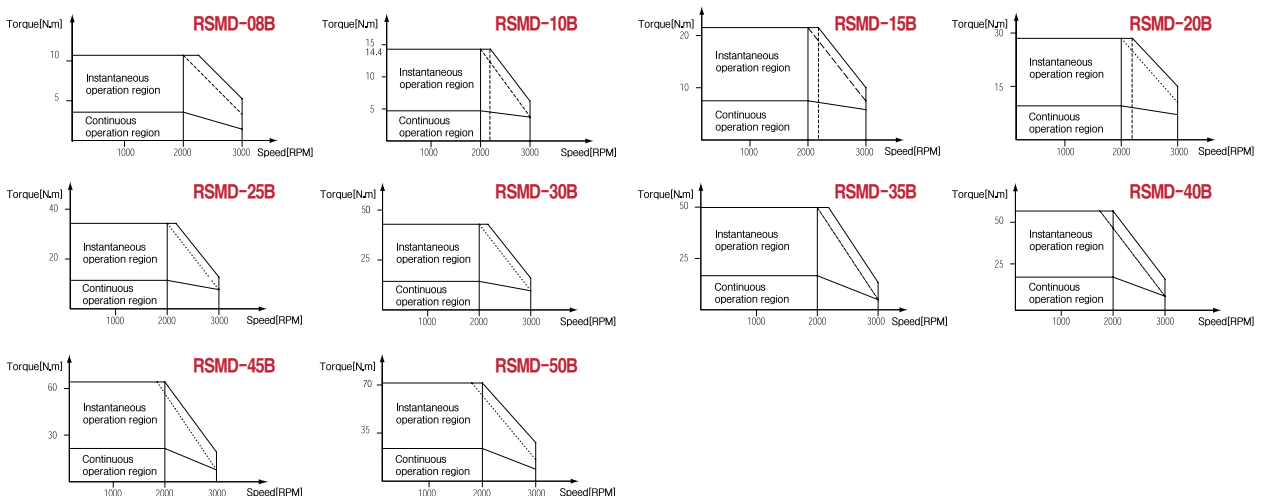
Specifications

Item	Unit	RSMD-									
		08B	10B	15B	20B	25B	30B	35B	40B	45B	50B
Flange Size	mm	120	130	130	130	130	130	180	180	180	180
Rated output	kW	0.75	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
Rating	%	100									
Rated rotation speed	r/min	2000									
Max rotation speed	r/min	3000									
Rated torque	N · m	3.58	4.77	7.15	9.55	11.9	14.3	16.7	19.1	21.5	23.9
	kgf · cm	36.5	48.6	72.9	97.4	121	146	170.4	195	219	244
Max instantaneous torque	N · m	10.85	14.4	21.5	28.5	35.5	42.9	50.0	56.4	64.3	71.4
	kgf · cm	110.7	147	219.2	292	363	437	510.2	576	657	729
Rated current	A _(rms)	5.0	5.8	9.4	12.3	14	17.8	19.6	23.4	26.2	28.0
Rotator inertia	× 10 ⁻⁴ kg · m ²	2.67	4.82	7.0	9.3	11.5	13.8	31.49	33.5	37.7	45.5
	gf · cm · sec ²	2.72	4.92	7.1	9.5	11.7	14.1	32.13	34.2	38.5	46.4
Rotator inertia (Brake)	× 10 ⁻⁴ kg · m ²	3.12	6.1	8.3	10.5	12.8	15.0	36.19	38.7	42.9	50.7
	gf · cm · sec ²	3.18	6.2	8.5	10.7	13.1	15.3	36.93	39.5	43.8	51.7
Electrical constant	ms	15.76	18	22	21	21	20	28.27	28.0	30	32
Mechanical constant	ms	0.56	0.62	0.59	0.53	0.50	0.48	0.84	0.83	0.8	0.74
	ms(Brake)	0.65	0.78	0.697	0.60	0.56	0.52	0.97	0.96	0.9	0.83
Power rating	kW/s	49.1	48.8	74.6	100.0	124.9	151.2	90.66	111	124.8	128.3
	kW/s(Brake)	41.94	38.6	62.9	88.6	112.2	139.4	78.9	96	109.6	115.2
Max instantaneous current	A _(I-P)	21.2	24	40	52	60	76	79.3	100	111	120
Insulation class		F									
Vibration class		V-15									
Paint color		Black									
Mass	kg	4.8	6.8	8.5	10.6	12.8	14.6	16.2	19.75	21.5	25.0
	kg(Brake)	6.1	8.7	10.1	12.5	14.7	16.5	18.7	23.25	25	28.5
Driving power supply voltage	V _{AC}	200/220									

Cautionary Items

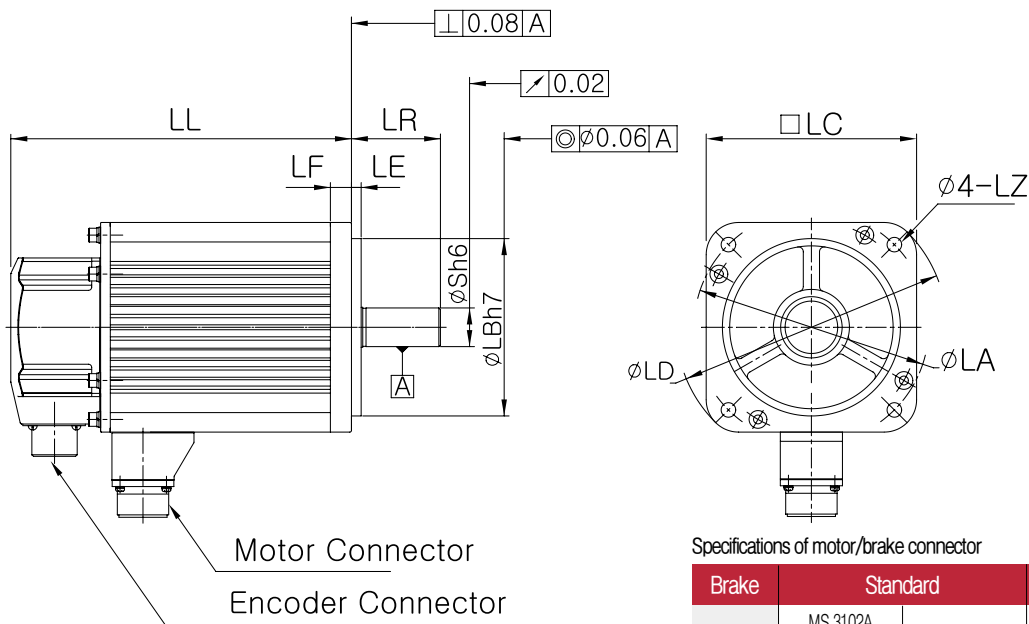
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2. For IP65 (if the outgoing line is faced downward, excluding the connector part)
3. Temperature measured at the center of the motor frame should be below 65 degrees in celcius. (at 40 degrees in celcius)

Speed-Torque curves



RSMD Motor Series

External Dimension & Connector Specifications



Specifications of motor/brake connector

Brake	Standard		With brake		
Part no.	MS 3102A 20-4P MS 3102A 22-22P		MS 3102A 20-18P	MS 3102A 24-11P	
Pin spec.	Pin no.	Signal	Pin no.	Signal	
	A	U	G	A	BR
	B	V	H	B	BR
	C	W	A	C	
	D	FG	F	D	U
			I	E	V
			B	F	W
			E	G	FG
Outlines	MS 3102A 20-4P, 22-22P		MS 3102A 20-18P	MS 3102A 24-11P	

Motor connector (MS 3102A)

Series	RSMD	
Model	08~25	30~50
Standard	20~4P	22~22P
With brake	20~18P	24~11P

Series	RSMD										
Model	08	10	15	20	25	30	35	40	45	50	
LL	Standard	144.5	158	183	208	233	258	198	203	213	233
	With brake	169.5	183	208	233	258	283	223	228	238	258
LR	55	55	55	55	65	65	65	65	70	70	
S	19	22	22	22	24	24	28	28	35	35	
LA	130/145	145	145	145	145	145	200	200	200	200	
LB	110	110	110	110	110	110	114.3	114.3	114.3	114.3	
LC	120	130	130	130	130	130	180	180	180	180	
LD	162	165	165	165	165	165	230	230	230	230	
LE	3	6	6	6	6	6	3.2	3.2	3.2	3.2	
LF	12	12	12	12	12	12	18	18	18	18	
LZ	9	9	9	9	9	9	13.5	13.5	13.5	13.5	

RSMH Motor Series

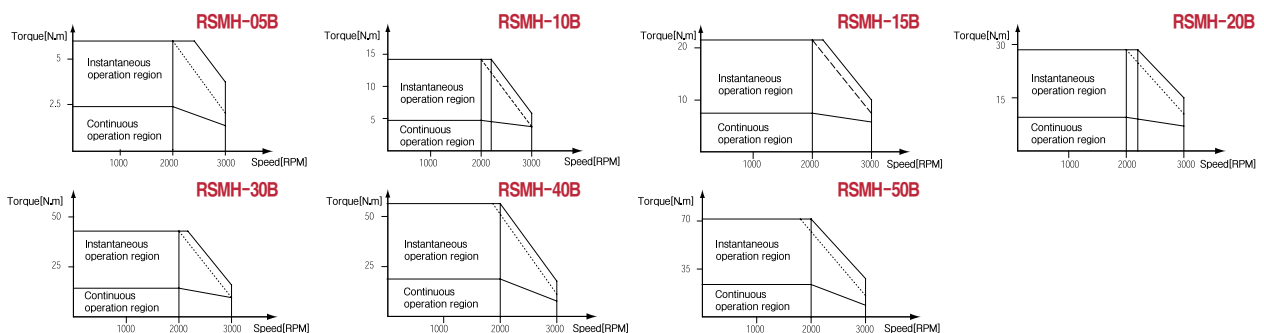
Specifications

Item	Unit	RSMH-						
		05B	10B	15B	20B	30B	40B	50B
Flange Size	mm	130	130	130	180	180	180	180
Rated output	kW	0.5	1.0	1.5	2.0	3.0	4.0	5.0
Rating	%	100						
Rated rotation speed	r/min	2000						
Max rotation speed	r/min	3000						
Rated torque	N · m	2.39	4.77	7.15	9.55	14.32	19.1	23.87
	kgf · cm	24.4	48.6	72.9	97.4	146	195	243
Max instantaneous torque	N · m	6.0	14.4	21.5	28.5	42.9	56.4	71.4
	kgf · cm	61	147	219.2	291	437	576	729
Rated current	A(rms)	3.2	5.6	9.4	12.3	17.8	23.4	28.0
Rotor inertia	$\times 10^{-4}$ kg · m ²	14.0	26.0	42.9	62.0	94.1	120.0	170.0
	gf · cm · sec ²	14.3	26.5	43.8	63.3	96	122.4	173.5
Rotor inertia (Brake)	$\times 10^{-4}$ kg · m ²	15.2	27.2	44.1	67.9	100.0	126.0	176.0
	gf · cm · sec ²	15.5	27.80	45	69.3	102	128.60	179.6
Electrical constant	ms	17	18	22	26	26	30	31
Mechanical constant	ms	4.8	3.4	3.5	2.5	2.9	2.6	2.6
	ms(Brake)	5.2	3.6	3.6	2.7	3.1	2.7	2.7
Power rating	kW/s	4.1	8.9	12.2	15.0	22.2	31.1	34.1
	kW/s(Brake)	3.8	8.5	11.8	13.7	20.9	29.6	32.9
Max instantaneous current	A(O-P)	11.5	23.8	40	51.9	75.8	100	120
Insulation class		F						
Vibration class		V-15						
Paint color		Black						
Mass	kg	5.3	8.5	10	16	18.2	22	26.7
	kg(Brake)	6.9	9.5	11.6	19.5	21.7	25.5	30.2
Driving power supply voltage	V _{AC}	200/220						

Cautionary Items

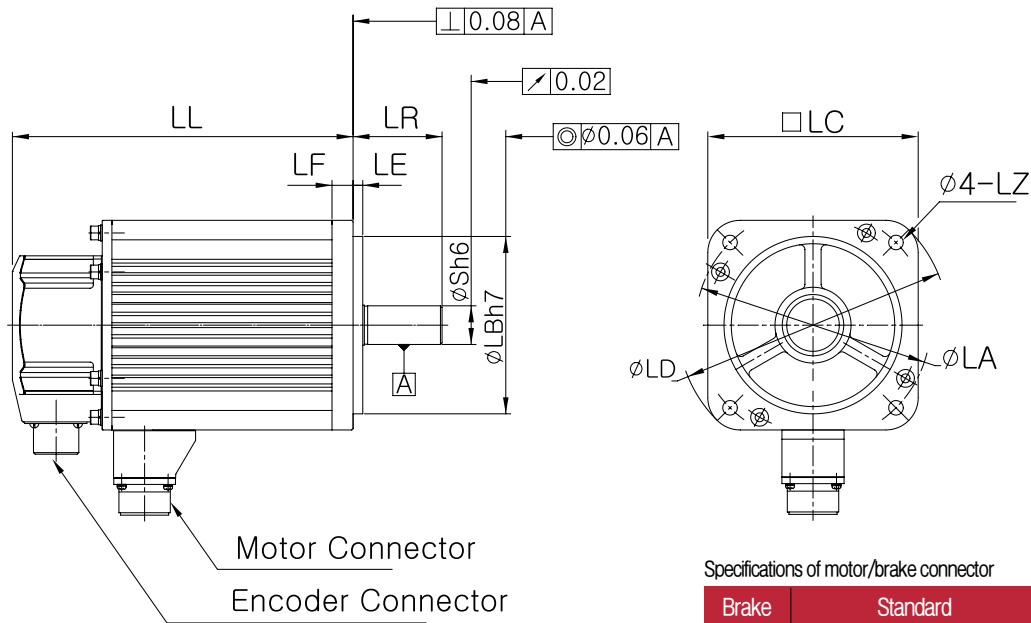
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3. Temperature measured at the center of the motor frame should be below 65 degrees in celcius. (at 40 degrees in celcius)

Speed-Torque curves



RSMH Motor Series

External Dimension & Connector Specifications



Specifications of motor/brake connector

Brake	Standard		With brake	
Part no.	MS 3102A 20-4P MS 3102A 22-22P		MS 3102A 20-18P	MS 3102A 24-11P
Pin spec.	Pin no.	Signal	Pin no.	Signal
	A	U	G	A
	B	V	H	B
	C	W	A	C
	D	FG	F	D
			I	E
			B	F
			E	G
Outlines	MS 3102A 20-4P, 22-22P		MS 3102A 20-18P	MS 3102A 24-11P

Motor connector (MS 3102A)

Series	RSMH	
Model	05-15	20-50
Standard	20-4P	22-22P
With brake	20-18P	24-11P

Series	RSMH							
Model	05	10	15	20	30	40	50	
LL	Standard	158.0	183.0	208.0	200.0	215.0	230.0	260.0
	With brake	183.0	208.0	233.0	225.0	240.0	255.0	285.0
LR	70.0	70.0	70.0	80.0	80.0	80.0	80.0	
S	22.0	22.0	22.0	35.0	35.0	35.0	35.0	
LA	145.0	145.0	145.0	200.0	200.0	200.0	200.0	
LB	110.0	110.0	110.0	114.3	114.3	114.3	114.3	
LC	130.0	130.0	130.0	180.0	180.0	180.0	180.0	
LD	165.0	165.0	165.0	230.0	230.0	230.0	230.0	
LE	6.0	6.0	6.0	3.2	3.2	3.2	3.2	
LF	12.0	12.0	12.0	18.0	18.0	18.0	18.0	
LZ	9.0	9.0	9.0	13.5	13.5	13.5	13.5	

RSMS Motor Series

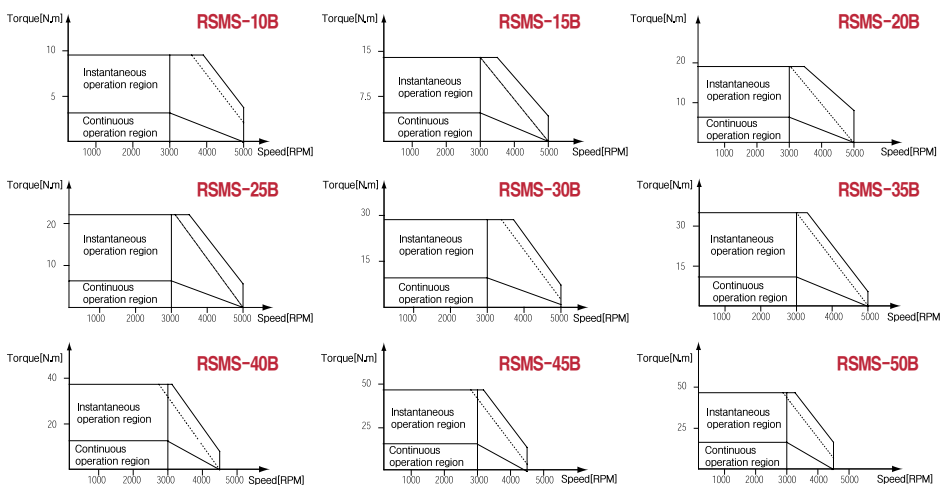
Specifications

Item	Unit	RSMS-									
		10B	15B	20B	25B	30B	35B	40B	45B	50B	
Flange Size	mm	100	100	100	100	120	120	130	130	130	
Rated output	kW	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	
Rating	%	100									
Rated rotation speed	r/min	3000									
Max rotation speed	r/min	5000					4500				
Rated torque	N · m	3.18	4.77	6.37	7.96	9.54	11.14	12.7	14.3	15.9	
	kgf · cm	32.45	48.7	65.0	81.2	97.35	113.7	130	146	162	
Max instantaneous torque	N · m	9.5	14.5	19.24	23.8	28.59	33.3	37.9	42.9	47.6	
	kgf · cm	96.94	148.0	196.3	242.9	291.7	339.8	387	438	486	
Rated current	A _(rms)	7.2	9.4	13.0	15.9	20	21.6	24.7	29.0	28.5	
Rotator inertia	$\times 10^{-4}$ kg · m ²	2.06	2.39	3.04	3.78	5.99	6.93	12.4	13.6	16.0	
	gf · cm · sec ²	2.1	2.44	3.10	3.86	6.11	7.07	12.7	13.9	16.3	
Rotator inertia (Brake)	$\times 10^{-4}$ kg · m ²	2.5	2.84	3.49	4.23	6.44	7.38	13.7	14.9	17.3	
	gf · cm · sec ²	2.55	2.90	3.56	4.32	6.57	7.53	14.0	15.2	17.7	
Electrical constant	ms	9.19	10.49	11.17	11.10	16.35	20.20	20	25.7	20	
Mechanical constant	ms	0.87	0.54	0.53	0.52	0.42	0.38	0.58	0.45	0.48	
	ms(Brake)	1.05	0.64	0.60	0.59	0.44	0.41	0.64	0.49	0.52	
Power rating	kW/s	50.08	97.21	136.29	171.16	155.1	183	134	154	161	
	kW/s(Brake)	41.3	81.81	118.72	152.95	144.3	172	121	140	149	
Max instantaneous current	A _(O-P)	29.7	40.02	56	68.01	79.6	86.25	105	118	120	
Insulation class		F									
Vibration class		V-15									
Paint color		Black									
Mass	kg	4.5	5.1	6.5	7.5	9.3	10.9	12.9	15.1	17.3	
	kg(Brake)	5.1	6.4	7.8	8.8	10.6	12.2	14.8	17.0	19.2	
Driving power supply voltage	V _{AC}	200/220									

Cautionary Items

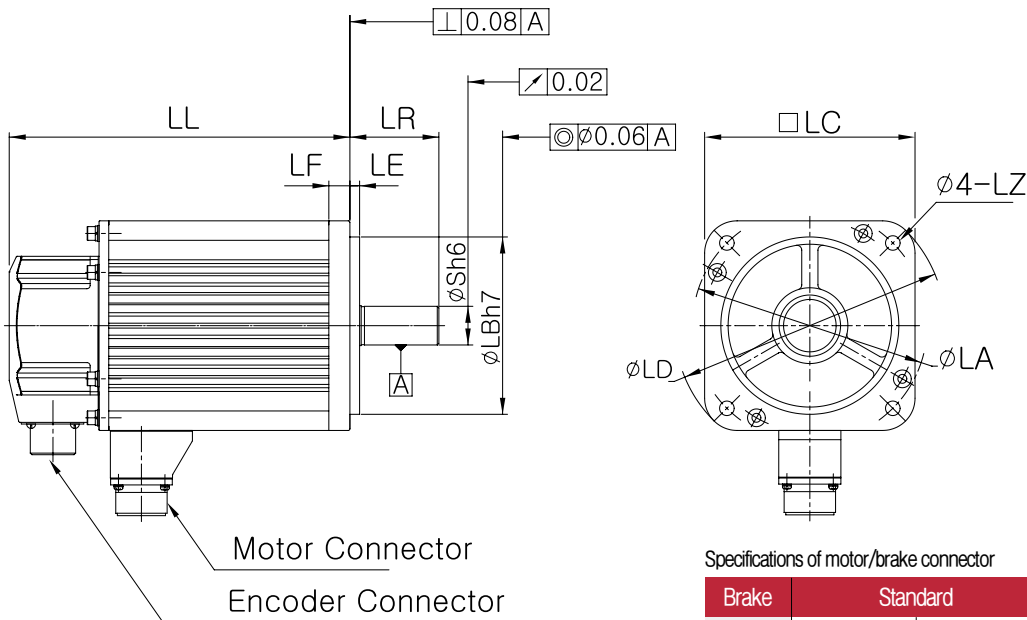
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2. For IP65 (if the outgoing line is faced downward, excluding the connector part)
3. Temperature measured at the center of the motor frame should be below 65 degrees in celcius. (at 40 degrees in celcius)

Speed-Torque curves



RSMS Motor Series

External Dimension & Connector Specifications



Specifications of motor/brake connector

Brake	Standard		With brake		
Part no.	MS 3102A 20-4P MS 3102A 22-22P		MS 3102A 20-18P	MS 3102A 24-11P	
Pin spec.	Pin no.	Signal	Pin no.	Signal	
	A	U	G	A	BR
	B	V	H	B	BR
	C	W	A	C	
	D	FG	F	D	U
			I	E	V
			B	F	W
			E	G	FG
			D	H	FG
Outlines	MS 3102A 20-4P, 22-22P		MS 3102A 20-18P	MS 3102A 24-11P	

Motor connector (MS 3102A)

Series	RSMS	
Model	10~25	30~50
Standard	20~4P	22~22P
With brake	20~18P	24~11P

Series		RSMS								
Model		10	15	20	25	30	35	40	45	50
LL	Standard	162.5	187.5	210.5	235.5	214.5	234.5	248	268	288
	With brake	182.5	207.5	230.5	255.5	239.5	259.5	273	293	313
LR		55	55	55	55	55	55	65	65	65
S		19	19	19	19	22	22	24	24	24
LA		115	115	115	115	130/145	130/145	145	145	145
LB		95	95	95	95	110	110	110	110	110
LC		100	100	100	100	120	120	130	130	130
LD		135	135	135	135	162	162	165	165	165
LE		3	3	3	3	3	3	6	6	6
LF		10	10	10	10	12	12	12	12	12
LZ		9	9	9	9	9	9	9	9	9

RSMF Motor Series

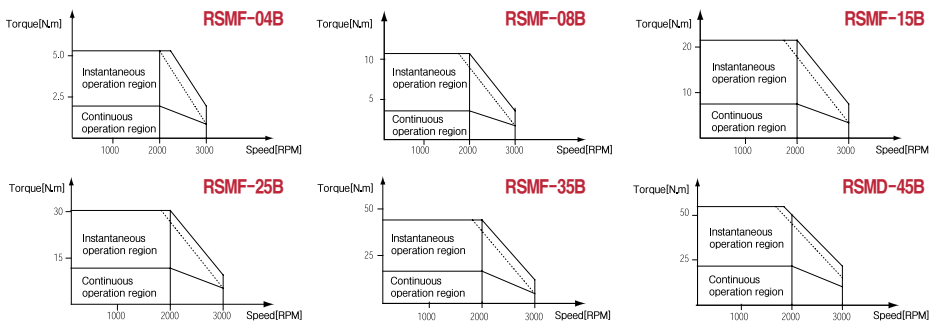
Specifications

Item	Unit	RSMF-					
		04B	08B	15B	25B	35B	45B
Flange Size	mm	130	180	180	220	220	220
Rated output	kW	0.4	0.75	1.5	2.5	3.5	4.5
Rating	%	100					
Rated rotation speed	r/min	2000					
Max rotation speed	r/min	3000					
Rated torque	N · m	1.91	3.58	7.16	11.9	16.7	21.5
	kgf · cm	19.5	36.5	73.0	121	170	219
Max instantaneous torque	N · m	5.3	10.7	21.5	30.4	44.1	54.9
	kgf · cm	54	109	219	310	450	560
Rated current	A(rms)	2.8	5.0	9.5	13.4	20.0	23.5
Rotor inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	2.13	9.6	18.0	33.7	42.6	58.7
	gf · cm · sec ²	2.17	9.8	18.4	34.4	43.5	59.9
Rotor inertia (Brake)	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	3.42	14.8	23.2	45.3	54.3	70.3
	gf · cm · sec ²	3.49	15.1	23.7	46.2	55.4	71.7
Electrical constant	ms	14	21	25	35	41	41
Mechanical constant	ms	1.1	2.1	1.4	1.2	1.0	0.8
	ms(Brake)	1.8	3.2	1.8	1.6	1.3	1.0
Power rating	kW/s	17.5	13.6	29.0	42.6	66.5	80.1
	kW/s(Brake)	10.9	8.8	22.5	31.7	52.2	66.9
Max instantaneous current	A(O-P)	11.9	21.2	40.3	56.9	84	99.7
Insulation class		F					
Vibration class		V-15					
Paint color		Black					
Mass	kg	4.7	8.6	11.0	14.8	15.5	19.9
	kg(Brake)	6.7	10.6	14.0	17.5	19.2	24.3
Driving power supply voltage	V _{AC}	200/220					

Cautionary Items

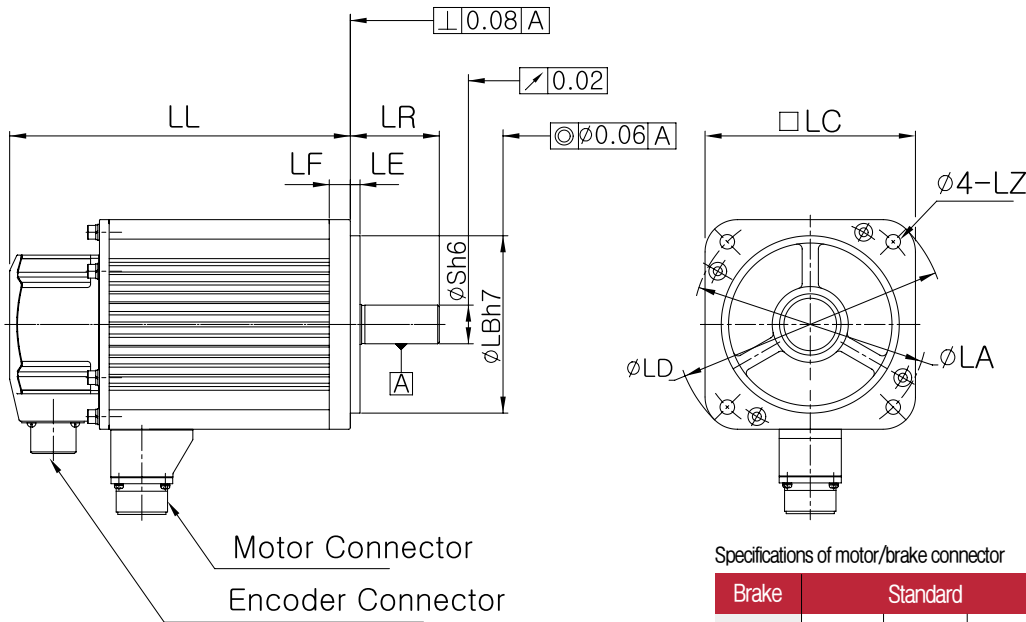
1. The above characteristics are obtained from ideal sinusoids. (typical value at 20 degrees).
2. For IP65(if the outgoing line is faced downward, excluding the connector part)
3. Temperature measured at the center of the motor frame should be below 65 degrees in celcius.(at 40 degrees in celcius)

Speed-Torque curves



RSMF Motor Series

External Dimension & Connector Specifications



Specifications of motor/brake connector

Brake	Standard			With brake		
Part no.	MS 3102A 20-18P	MS 3102A 24-11P		MS 3102A 20-18P	MS 3102A 24-11P	
Pin spec.	Pin no.		Signal	Pin no.		Signal
	G	A		G	A	BR
	H	B		H	B	BR
	A	C		A	C	
	F	D	U	F	D	U
	I	E	V	I	E	V
	B	F	W	B	F	W
	E	G	FG	E	G	FG
	D	H	FG	D	H	FG
C	I		C	I		
Outlines	MS 3102A 20-18P	MS 3102A 24-11P		MS 3102A 20-18P	MS 3102A 24-11P	

Motor connector (MS 3102A)

Series	RSMF	
Model	04~15	25~45
Standard	20~18P	24~11P
With brake	20~18P	24~11P

Series		RSMF					
Model		04	08	15	25	35	45
LL	Standard	128.0	135	155	146.0	155.0	171.0
	With brake	153.0	160	180	177.0	186.0	202.0
LR		55.0	55.0	65.0	65.0	65.0	70.0
S		19.0	22.0	35.0	35.0	35.0	35.0
LA		145.0	200.0	200.0	235.0 / 250	235.0 / 250	235.0 / 250
LB		110.0	114.3	114.3	200.0	200.0	200.0
LC		130.0	180.0	180.0	220.0	220.0	220.0
LD		165.0	230.0	230.0	268.0	268.0	268.0
LE		6.0	3.2	3.2	4.0	4.0	4.0
LF		12.0	18.0	18.0	16.0	16.0	16.0
LZ		9.0	13.5	13.5	13.5	13.5	13.5

RSMK Motor Series

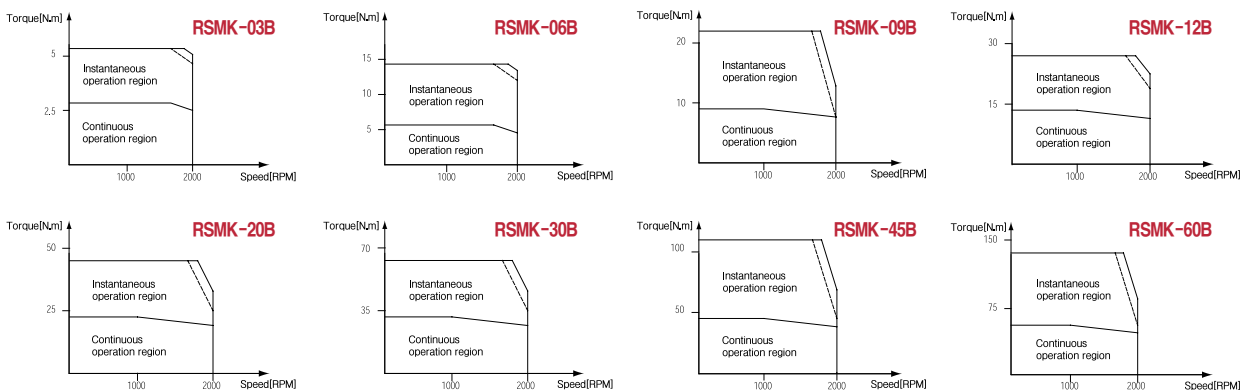
Specifications

Item	Unit	RSMK-							
		03B	06B	09B	12B	20B	30B	45B	60B
Flange Size	mm	130	130	130	180	180	180	180	180
Rated output	kW	0.3	0.6	0.9	1.2	2.0	3.0	4.5	6.0
Rating	%	100							
Rated rotation speed	r/min	1000							
Max rotation speed	r/min	2000							
Rated torque	N · m	2.84	5.7	8.62	11.5	19.1	28.4	42.9	57.2
	kgf · cm	29	58.2	88	117	198	290	437	583
Max instantaneous torque	N · m	6.3	14.4	19.3	28	44	63.7	107	129
	kgf · cm	64.3	146.9	197	286	449	650	1091	1315
Rated current	A _(rms)	3.5	6.2	7.6	11.6	18.5	24.0	33.0	47.0
Rotator inertia	$\times 10^{-4}$ kg · m ²	2.64	4.9	7.0	30.4	35.5	55.7	80.9	99
	gf · cm · sec ²	2.7	5.0	7.1	31.0	36.2	56.8	82.6	101
Rotator inertia (Brake)	$\times 10^{-4}$ kg · m ²	3.84	6.2	8.3	36.2	41.4	61.7	86.9	108
	gf · cm · sec ²	3.92	6.3	8.5	36.9	42.2	63.0	88.7	110
Electrical constant	ms	12.7	21	24	31	31	34.48	42	45
Mechanical constant	ms	1.25	0.65	0.53	0.94	0.85	0.78	0.71	0.63
	ms(Brake)	1.81	0.82	0.63	1.12	1.0	0.86	0.77	0.68
Power rating	kW/s	31.2	67	108	44	104	148	232	337
	kW/s(Brake)	21.4	53	91	37	89	133	216	309
Max instantaneous current	A _(O-P)	11	22	24	40.0	60	80.0	118	155
Insulation class		F							
Vibration class		V-15							
Paint color		Black							
Mass	kg	4.8	6.2	8.6	15.5	17.5	25	34	41
	kg(Brake)	6.3	8	10.1	19.0	21.0	29	39.5	47
Driving power supply voltage	V _{AC}	200/220							

Cautionary Items

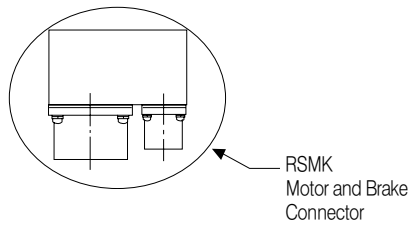
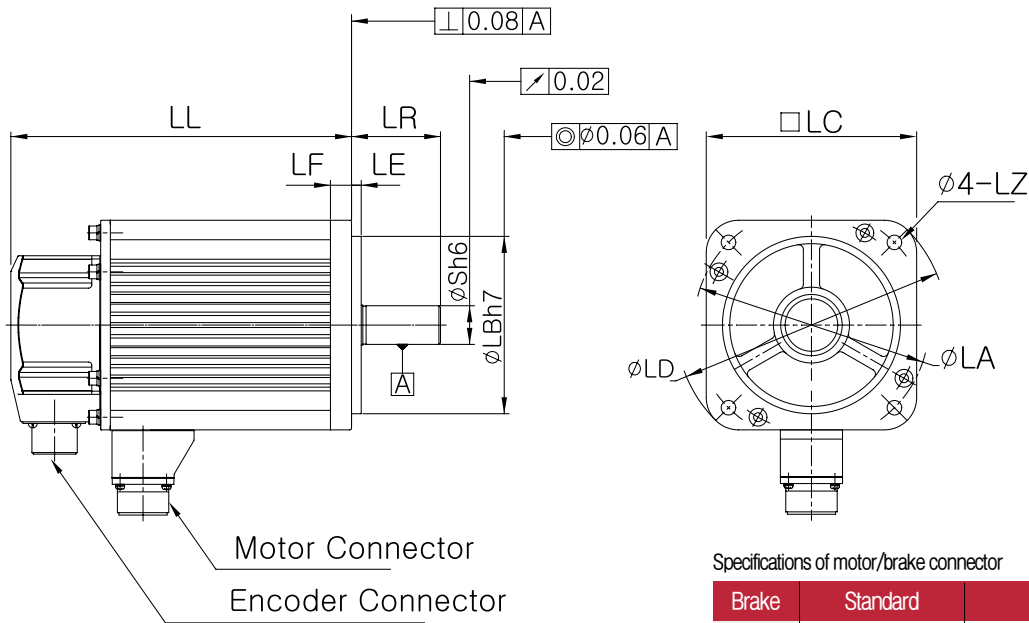
1. The above characteristics are obtained from ideal sinusoids. (typical value at 20 degrees).
2. For IP65 (if the outgoing line is faced downward, excluding the connector part)
3. Temperature measured at the center of the motor frame should be below 65 degrees in celcius. (at 40 degrees in celcius)

Speed-Torque curves



RSMK Motor Series

External Dimension & Connector Specifications



Specifications of motor/brake connector

Brake	Standard		Brake		
Part no.	MS 3102A 20-4P	MS 3102A 22-22P	MS 3102A 20-18P	MS 3102A 24-11P	MS 3102A 14-2P 32-17P
Pin spec.	Pin no.	Signal	Pin no.		Signal
	A	U	G	A	BR
	B	V	H	B	BR
	C	W	A	C	
	D	FG	F	D	U
			I	E	V
			B	F	W
			E	G	FG
		D	H	FG	
		C	I		
Outlines	MS 3102A 20-4P,22-22P,32-17P	MS 3102A 20-18P	MS 3102A 24-11P	MS 3102A 32-17P, 14-2P	

Motor connector (MS 3102A)

Series	RSMK		
Model	03-09	12-45	60
Standard	20-4P	22-22P	32-17P
With brake	20-18P	24-11P	32-17P,14-2P

Series	RSMK								
Model	03	06	09	12	20	30	45	60	
LL	Standard	133	158	183	183	203	243	309.2	364.2
	With brake	158	183	208	208	228	268	334.2	389.2
LR	70	70	70	80	80	80	113	113	
S	22	22	22	35	35	35	42	42	
LA	145	145	145	200	200	200	200	200	
LB	110	110	110	114.3	114.3	114.3	114.3	114.3	
LC	130	130	130	180	180	180	180	180	
LD	165	165	165	230	230	230	230	230	
LE	6	6	6	3.2	3.2	3.2	3.2	3.2	
LF	12	12	12	18	18	18	20	20	
LZ	9	9	9	13.5	13.5	13.5	13.5	13.5	

RSML Motor Series

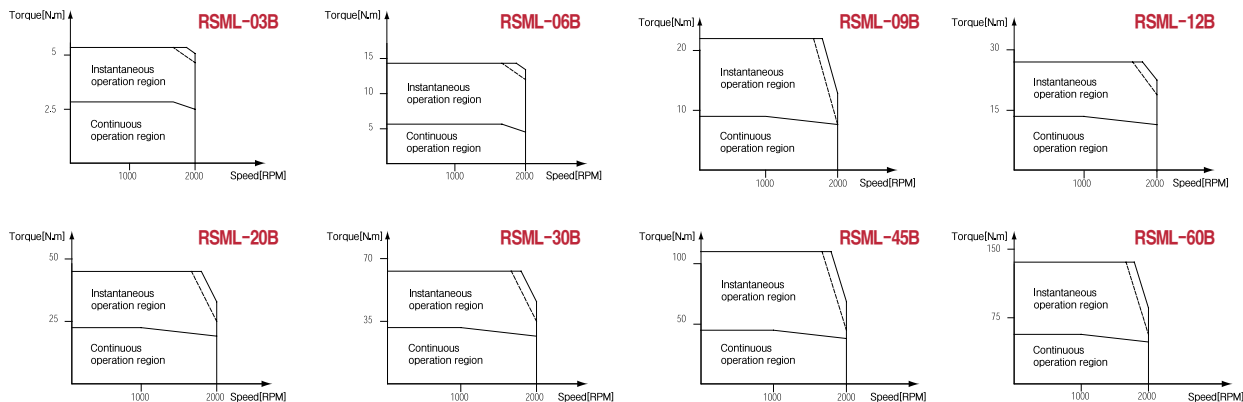
Specifications

Item	Unit	RSML-							
		03B	06B	09B	12B	20B	30B	45B	60B
Flange Size	mm	130	130	130	180	180	180	180	180
Rated output	W	0.3	0.6	0.9	1.2	2.0	3.0	4.5	6.0
Rating	%	100							
Rated rotation speed	r/min	1000							
Max rotation speed	r/min	2000							
Rated torque	N · m	2.84	5.7	8.62	11.5	19.1	28.4	42.9	57.2
	kgf · cm	29	58.2	88	117	198	290	437	583
Max instantaneous torque	N · m	6.3	14.4	19.3	28	44	63.7	107	129
	kgf · cm	64.3	146.9	197	286	449	650	1091	1315
Rated current	A _(rms)	3.5	6.2	7.6	11.6	18.5	24.0	33.0	47.0
Rotator inertia	$\times 10^{-4}$ kg · m ²	14.5	23.7	39.7	63.3	96.1	131.1	200.6	250.0
	gf · cm · sec ²	14.7	24.2	40.5	64.5	97.9	133.6	204.5	255.1
Rotator inertia (Brake)	$\times 10^{-4}$ kg · m ²	15.7	25.0	40.8	69.1	102.0	137.1	206.6	256.0
	gf · cm · sec ²	16	25.5	41.6	70.4	103.9	139.8	210.6	261.2
Electrical constant	ms	12.7	21	24	31	31	34.5	42	45
Mechanical constant	ms	6.85	3.14	3.0	1.95	2.3	1.77	1.77	1.58
	ms(Brake)	7.42	3.31	3.1	2.13	2.5	1.85	1.82	1.62
Power rating	KW/s	5.7	14	19.1	21.3	38.8	63.9	94	133
	KW/s(Brake)	5.3	13.3	18.6	19.5	36.5	61.1	91	130
Max instantaneous current	A _(I-P)	11	21.0	24	40.0	60	80.0	118	155
Insulation class		F							
Vibration class		V-15							
Paint color		Black							
Mass	kg	6.0	8.0	10.2	16.8	19.4	27.2	37.5	45
	kg(Brake)	7.5	9.6	11.7	20.3	22.9	31.2	43	51
Driving power supply voltage	V _{AC}	200/220							

Cautionary Items

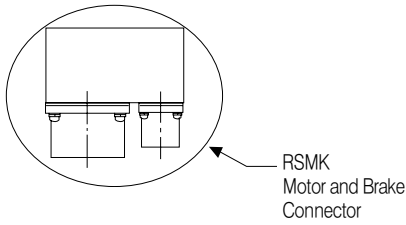
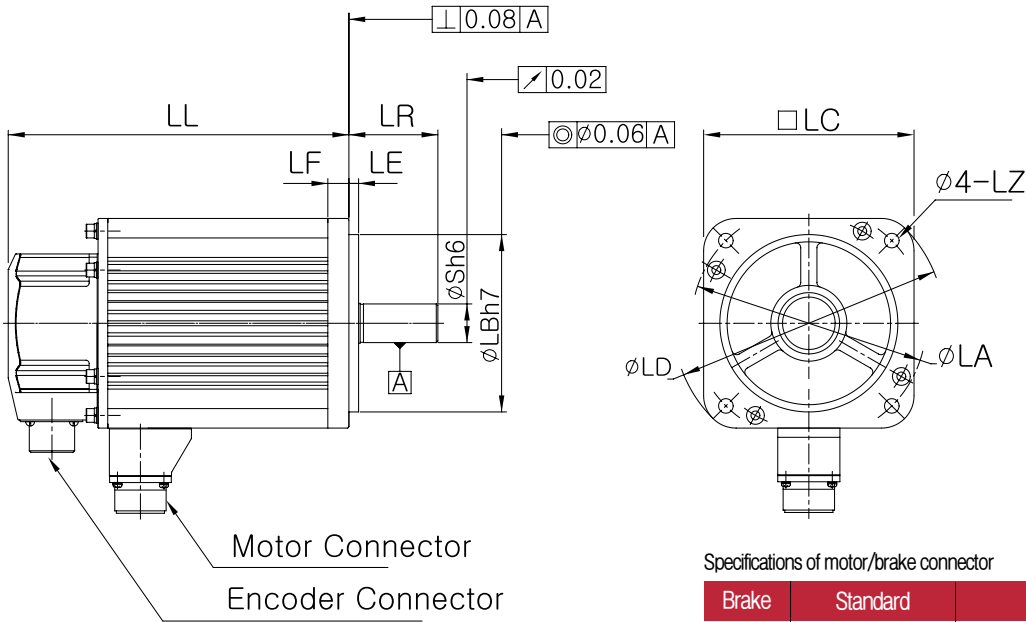
1. The above characteristics are obtained from ideal sinusoids. (typical value at 20 degrees).
2. For IP65(if the outgoing line is faced downward, excluding the connector part)
3. Temperature measured at the center of the motor frame should be below 65 degrees in celcius.(at 40 degrees in celcius)

Speed-Torque curves



RSML Motor Series

External Dimension & Connector Specifications



Specifications of motor/brake connector

Brake	Standard		Brake		
Part no.	MS 3102A 20-4P MS 3102A 22-22P MS 3102A 32-17P		MS 3102A 20-18P	MS 3102A 24-11P	MS 3102A 14-2P 32-17P
Pin spec.	Pin no.	Signal	Pin no.		Signal
	A	U	G	A	BR
	B	V	H	B	BR
	C	W	A	C	
	D	FG	F	D	U
			I	E	V
			B	F	W
			E	G	FG
			D	H	FG
Outlines	MS 3102A 20-4P,22-22P,32-17P		MS 3102A 20-18P	MS 3102A 24-11P	MS 3102A 32-17P, 14-2P

Motor connector (MS 3102A)

Series	RSML		
Model	03-09	12-45	60
Standard	20-4P	22-22P	32-17P
With brake	20-18P	24-11P	32-17P,14-2P

Series		RSML							
Model		03	06	09	12	20	30	45	60
LL	Standard	158	183	208	207	227	267	334.6	389.6
	With brake	183	208	233	232	252	292	359.6	414.6
LR		55	55	55	80	80	80	113	113
S		22	22	22	35	35	35	42	42
LA		145	145	145	200	200	200	200	200
LB		110	110	110	114.3	114.3	114.3	114.3	114.3
LC		130	130	130	180	180	180	180	180
LD		165	165	165	230	230	230	230	230
LE		6	6	6	3.2	3.2	3.2	3.2	3.2
LF		12	12	12	18	18	18	20	20
LZ		9	9	9	13.5	13.5	13.5	13.5	13.5

CSMT Motor Series

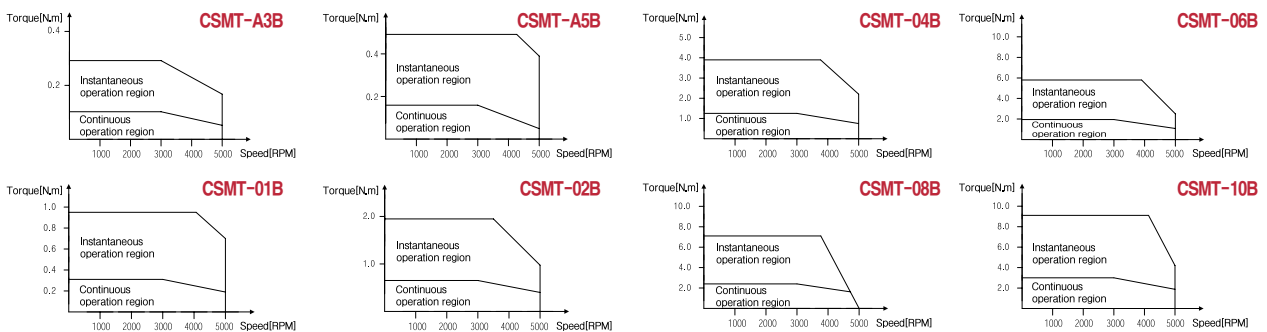
Specifications

Item	Unit	CSMT-								
		A3B	A5B	01B	02B	04B	06B	08B	10B	
Flange Size	mm	40	40	40	60	60	80	80	86	
Rated output	W	30	50	100	200	400	600	800	1000	
Rating	%	100								
Rated rotation speed	r/min	3000								
Max rotation speed	r/min	5000								
Rated torque	N · m	0.095	1.62	3.25	6.5	13	19.5	24.4	30.9	
	kgf · cm	0.97	0.159	0.318	0.64	1.27	1.91	2.39	3.0	
Max instantaneous torque	N · m	2.9	4.9	9.7	19.5	39	58.5	73	92.6	
	kgf · cm	0.29	0.48	0.95	1.91	3.82	5.73	7.16	9.1	
Rated current	A _(rms)	0.3	0.6	1.1	1.7	3.3	4.4	5.0	5.4	
Max instantaneous current	A _(rms)	0.9	1.5	3.0	4.9	3.2	9.6	14.1	15.3	
Rotor inertia	gf · cm · sec ²	0.01	0.02	0.03	0.18	0.34	1.00	1.10	1.56	
	× 10 ⁻⁴ kg · m ²	0.01	0.02	0.03	0.18	0.34	0.98	1.08	1.53	
Rotor inertia (Brake)	gf · cm · sec ²	0.04	0.05	0.06	0.28	0.44	1.24	1.34	1.66	
	× 10 ⁻⁴ kg · m ²	0.04	0.05	0.06	0.28	0.44	1.22	1.32	1.63	
Electrical constant	ms	1.1	0.9	0.6	0.9	0.7	0.6			
Mechanical constant	ms	0.8	1.1	1.6	3.2	3.5	6.0	4.8	5.6	
Power rating	kW/s	9.2	12.9	34.5	23.0	48.7	37.3	51.3	56.4	
Shaft friction torque	kgf · cm MAX	0.2		0.4		0.8		1.5		
Shaft direction torque	mm MAX	0.2							0.5	
Allowable thrust weight	kgf MAX	4	4	4	7	7	10			
Allowable radial weight	kgf MAX	8			20		35			
Paint color		Black								
Mass	Kg	0.3	0.4	0.5	0.9	1.3	2.2	2.5	3.7	
Driving power supply voltage	VAC	220								

Cautionary Items

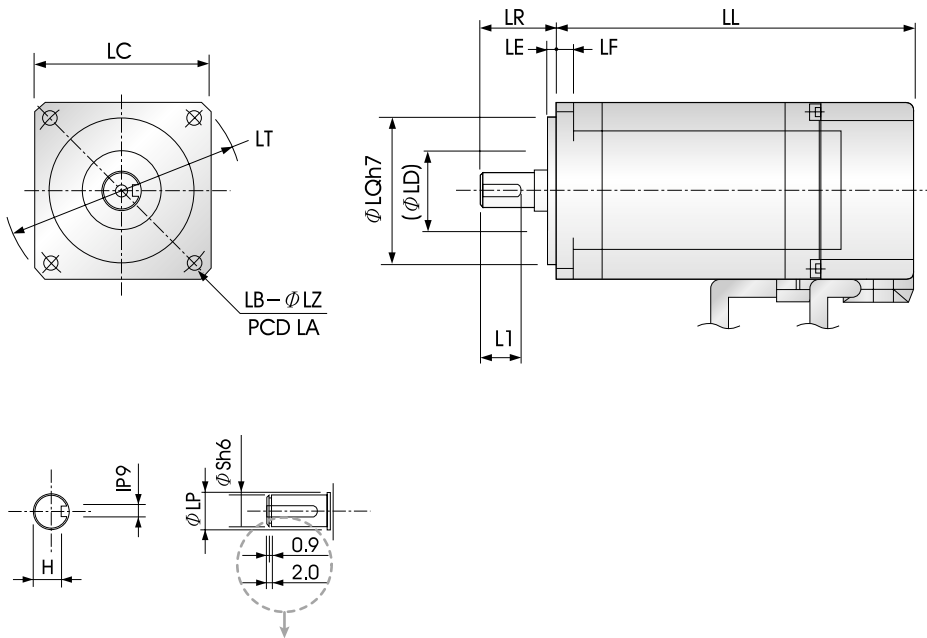
1. If you wish to use the rated torque, you need to attach a 200x200x6(mm) aluminum heat sink to the motor. Temperature should be 40 degrees in Celsius.
2. Every measurement value was obtained at 20 degrees in Celsius.
3. Each value is a value obtained by combining it to the driver.
4. If you use a brake, then the inertia weight is likely to increase.

Speed-Torque curves



CSMT Motor Series

External Dimension



*Only valid for 100W or lower.

Motor type		CSMT Series							
Rated Output(W)		30	50	100	200	400	600	800	950
LL	Brake (No)	53.5	59.5	73.5	76.1	98.1	99.7	108.7	144.2
	Brake (Yes)	89.1	95.1	109.1	110.7	132.7	136.3	145.3	167.2
LR			25		30		35		35
S			8		12		16		16
LA			46		70		90		100
LB			2		4		4		4
LC			40		60		80		86
LD			20		27		34		34
LE			2.5		3		3		3
LF			5		6		8		8
LZ			4.5		5.5		6.5		6.6
LH			4.5		7		7		7
LP			9		14		20		20
LQ			30		50		70		80
LT			55		80		105		112
L1			17		18		23		23
H			6.2		9.5		13.0		13.0
I			3		4		5		5

CSMR Motor Series

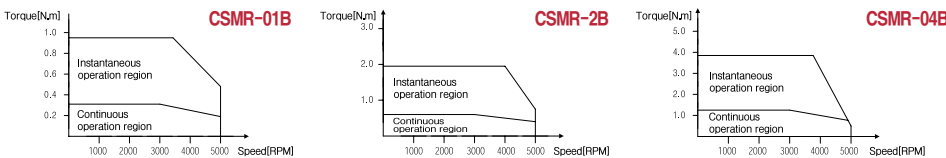
Specifications

Item	Unit	CSMR-		
		01B	02B	04B
Flange Size	mm	60	80	80
Rated output	W	100	200	400
Rating	%	100		
Rated rotation speed	r/min	3000		
Max rotation speed	r/min	5000		
Rated torque	N · m	3.25	6.5	13.0
	kgf · cm	0.318	0.64	1.27
Max instantaneous torque	N · m	9.7	19.5	39
	kgf · cm	0.95	1.91	3.82
Rated current	A(rms)	0.9	1.5	2.7
Max instantaneous current	A(rms)	2.5	4.2	7.8
Rotator inertia	gf · cm · sec ²	0.09	0.30	0.57
	× 10 ⁻⁴ kg · m ²	0.09	0.30	0.56
Rotator inertia (Brake)	gf · cm · sec ²	0.19	0.53	0.80
	× 10 ⁻⁴ kg · m ²	0.19	0.53	0.79
Electrical constant	ms	1.2	1.0	0.6
Mechanical constant	ms	2.5	3.2	4.8
Power rating	kW/s	11.5	13.8	29.1
Shaft friction torque	kgf · cm MAX	0.2	0.6	0.6
Shaft direction torque	mm MAX	0.2	0.2	0.2
Allowable thrust weight	kgf MAX	4	7	7
Allowable radial weight	kgf MAX	8	20	20
Paint color		Black		
Mass	Kg	0.6	1.1	1.6
Driving power supply voltage	VAC	220		

Cautionary Items

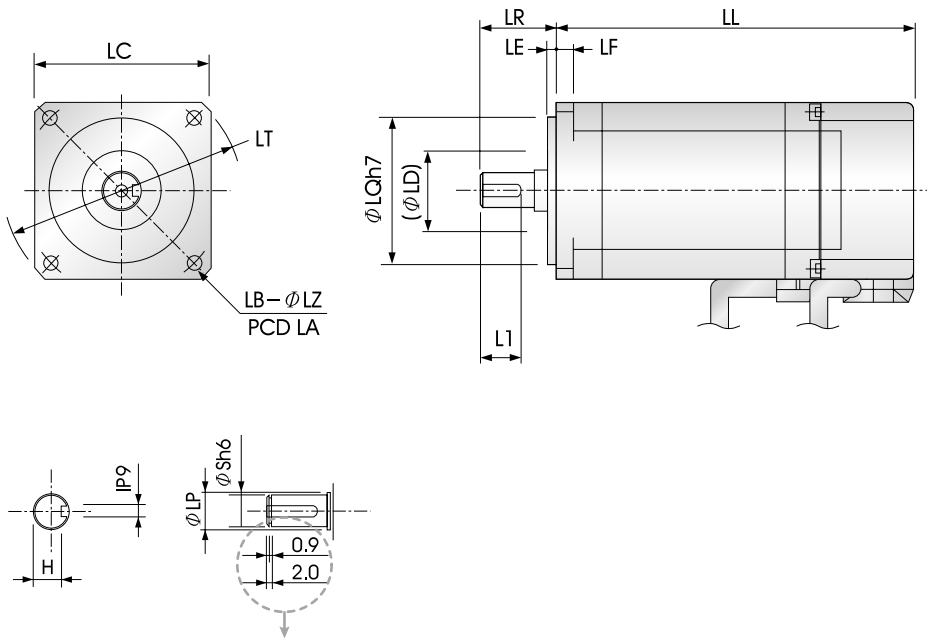
1. If you wish to use the rated torque, you need to attach a 200×200×6(mm) aluminum heat sink to the motor. Temperature should be 40 degrees in Celsius.
2. Every measurement value was obtained at 20 degrees in Celsius.
3. Each value is a value obtained by combining it to the driver.
4. If you use a brake, then the inertia weight is likely to increase.

Speed-Torque curves



CSMR Motor Series

External Dimension



*Only valid for 100W or lower.

Motor type		CSMR Series		
Rated Output(W)		100	200	400
LL	Brake (No)	62.5	64.3	76.3
	Brake (Yes)	86.5	95.3	107.3
LR		30	30	
S		12	12	
LA		70	90	
LB		4	4	
LC		60	80	
LD		27	27	
LE		3	3	
LF		6	8	
LZ		5.5	6.6	
LH		7	7	
LP		14	14	
LQ		50	70	
LT		80	105	
L1		18	18	
H		9.5	9.5	
I		4	4	

Option

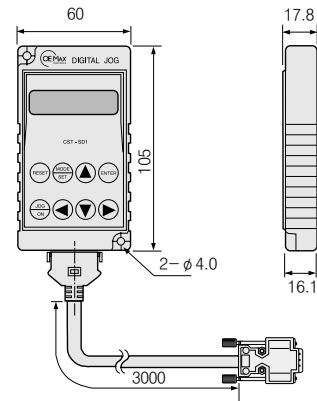
■ Model Name

– CST–SDC: CSDJ, CSDP Series Operator

■ Specification

Item	SPEC
Key Pad	8 Key
Display	7–segment LED×6
Serial Interface	RS–232C
Power Supply	DC 5V(Servo drive uses a built–in power supply)
Exterior(mm)	60×105×17.8(w×H×D)
Weight	75g(excluding the cable)
Cable length	3m

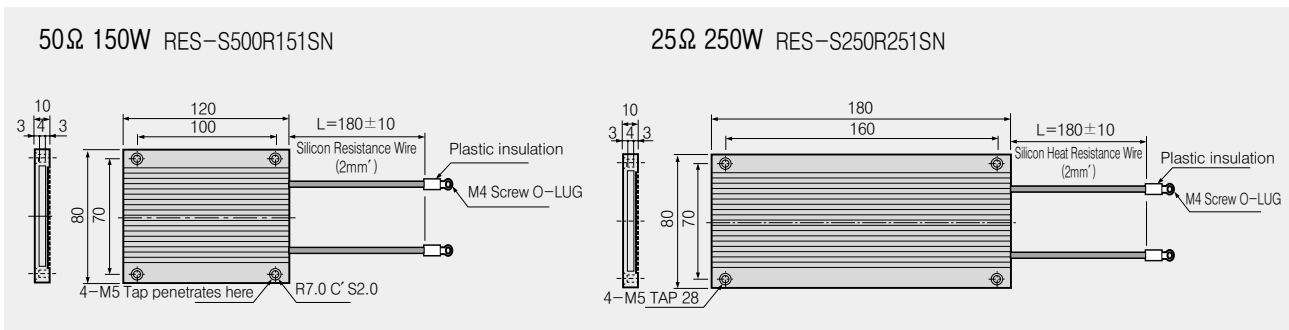
Manipulating and checking operation & parameter, auto tuning



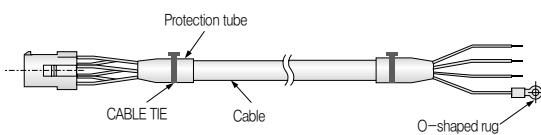
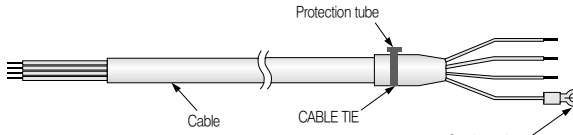
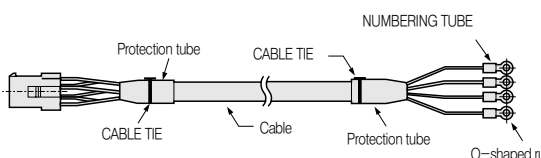
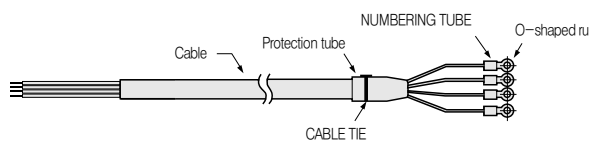
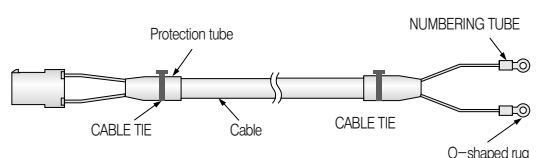
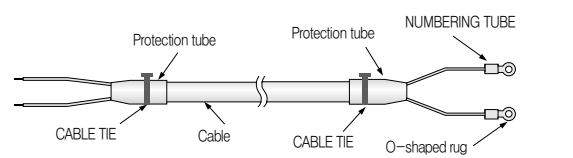
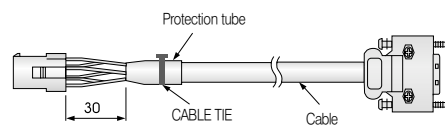
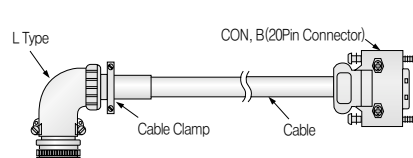
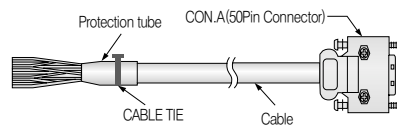
■ Model Name

– Regenerative resistance

■ Specification



Option

	Small capacity(CSMT/R,RSMZ/Q Motor)	Middle & Large Capacity(RSMD/H/F/S/K/L Motor)
Power Cable	 <p>Protection tube CABLE TIE Cable O-shaped rug</p> <p>For CSD3 : 2005-POW - SL ___ PO10H</p> <p>Cable length 03, 05, 10, 15, 20m</p>	 <p>Protection tube CABLE TIE Cable O-shaped rug</p> <p>For CSD3 : 2005-POW - SH ___ P015H</p> <p>Cable length 03, 05, 10, 15, 20m</p> <p>Motor capacity</p>
	 <p>Protection tube CABLE TIE Cable Protection tube NUMBERING TUBE O-shaped rug</p> <p>CSDJ/P : 2005-POW - SL ___ PO10A</p> <p>Cable length 03, 05, 10, 15, 20m</p>	 <p>Protection tube CABLE TIE Cable Protection tube NUMBERING TUBE O-shaped rug</p> <p>CSDJ/P : 2005-POW - SH ___ P ___ A</p> <p>Cable length 03, 05, 10, 15, 20m</p> <p>Motor capacity 015 : 1.5kW or below 035 : 3.5kW or below 050 : 5.5kW or below</p>
Brake Cable	 <p>Protection tube CABLE TIE Cable CABLE TIE NUMBERING TUBE O-shaped rug</p> <p>2005-BRK - SL ___ BRAKA</p> <p>Cable length 03, 05, 10, 15, 20m</p>	 <p>Protection tube CABLE TIE Cable CABLE TIE NUMBERING TUBE O-shaped rug</p> <p>2005-BRK - SH ___ BRAK</p> <p>Cable length 03, 05, 10, 15, 20m</p>
	 <p>Protection tube CABLE TIE Cable</p> <p>2005-ENC - SL ___ E ___ SA</p> <p>Cable length 03, 05, 10, 15, 20m</p> <p>Applicable motors CH : 17 Bit serial encoder cable CN : CSMT/MR(9 wire) CK : RSM Series(9 wire)</p>	 <p>L Type CON. B(20Pin Connector) Cable Clamp Cable</p> <p>2005-ENC - SH ___ E ___ LA</p> <p>Cable length 03, 05, 10, 15, 20m</p> <p>Applicable motors SN : 15 wire(CSMK) CH : 17bit Serial encoder cable CK : RSM Series(9 wire)</p>
I/O Cable	 <p>Protection tube CABLE TIE Cable CON.A(50Pin Connector)</p> <p>2005-IOC - SH ___ U50CA</p> <p>Cable length 03, 05, 10, 15, 20m</p>	

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