Servo Motors and Amplifiers

Servo Comparison Chart

Description		MR-J4 Series	MR-JE Series
Input	Main AC Input Voltage	100/200/400 VAC	200 VAC
	Control AC Input Voltage	Same as above	Same as above
	AC100V Compatible	100~400W	-
	Single-Phase AC200V Compatible	700W or less	0.1-3KW
Output	Control Method	Sine-wave PWM control, Current control method	Sine-wave PWM control, Current control method
	Motor Capacity (Rotary Motor)	.05-55KW	0.1-3KW
Control	Main Control Function	Position, Speed, Torque Control Change mode	Position, Speed, Torque
	Frequency Response	2.5kHz	2.0kHz
	Automatic Tuning Function	Advanced One Touch Tuning	Advanced One Touch Tuning
	Vibration Suppression	Advanced Vibration Control II	Advanced Vibration Control II
	Disturbance Compensation	Advanced vibration suppression control II; Robust filter (vs. conventional low pass); Expanded machine resonance suppression filter (total five filters); Vibration tough drive for filter readjustment; With B system, optical fiber cabling dramatically strengthens noise immunity	-
	Built-In Positioning	Point Table,Program, Indexing Modes, Simple Cam Function, Encoder following (A-RJ)	Point Table, Program Mode, Simple Cam Function, Encoder following (A)
	Fully-Closed System	Standard	-
I/O	Maximum Frequency of Input Pulse Train (MR-J4XA)	4Mpps, Differential line driver	4Mpps, Differential line driver
		200kpps, Open Collector	200kpps, Open collector
	Number of Digital Inputs	(Min, max) (4, 10) depending on type	-
	Number of Digital Outputs	Max 5 Outputs (Depends on control mode)	-
	Sink/Source	Both available	Sink and source compatible
	Analog Input (A Type)	2ch	2ch
	Pulse Train Output (A Type)	Differential line driver, Z phase open-collector	Differential line driver, Z phase open-collector
	Interfacing To External Devices	USB (all models) / RS-422(A)	RS-422(A) / Modbus-RTU
Comm	Network	SSCNETIII/H, SSCNETIII, CC-Link IE Field , EtherCAT, EtherNet/IP, PROFINET	SSCNETIII/H

* Turn to page 238 for information regarding the new MR-J5 Series.

MR-J5 Servo Motors and Amplifiers

Description		MR-J5 Series
Input	Main AC Input Voltage	200/400 VAC
	Control AC Input Voltage	Same as above
	Single-Phase AC200V Compatible	700W or less
Output	Control Method	Sine-wave PWM control, Current Control Method
	Motor Capacity (Rotary Motor)	200VAC 0.05-7.0kW • 400VAC 600W to 3.5kW
Control	Main Control Function	Position, Speed, Torque Control Change mode
	Frequency Response	3.5kHz
	Automatic Tuning Function	Advanced One Touch Tuning/Quick Tuning
	Vibration Suppression	Advanced Vibration Control II
	Built-In Positioning	Point Table,Program, Indexing Modes, Simple Cam Function, Encoder following (A-RJ)
	Fully-Closed System	Standard
Comm	Network	CC-Link IE TSN, EtherCAT

MR-J5 Servo Motors and Amplifiers Overview

The MR-J5 provides the highest power, performance, and flexibility in the Mitsubishi Electric lineup and is available from 100W-3.5KW. Additional features include redictive maintenance and quick tuning functions. This next generation MR-J5 Series servo is powered by CC-Link IE TSN network. The MR-J5 is easily setup and sized with Motorizer software and MR-Configurator2 configuration software.

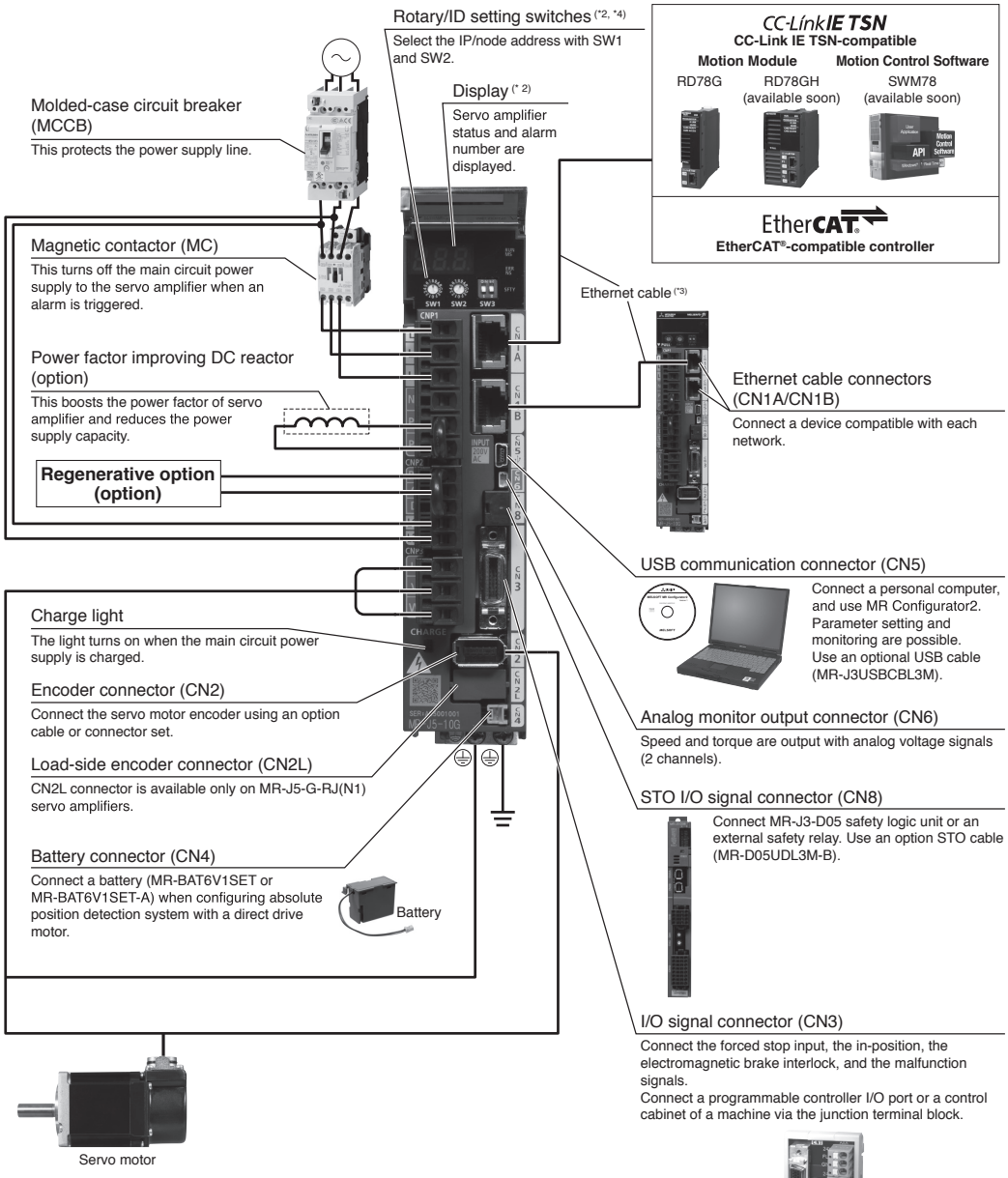
MR-J5 Amplifier Overview

X = Compatible
- = Not compatible

Servo Amplifiers		Number of Control Axes	Power Supply (*2)	Rated Output (kW) (*1)	Interface				Control Mode				Compatible Servo Motor Series								
					CC-Link IE TSN	EtherCAT® (*3)	Pulse Train	Analog Voltage	Position	Velocity/Speed	Torque	Fully Closed Loop Control	HK-KT	HK-ST	LM-H3	LM-F	LM-K2	LM-U2	TM-RG2M	TM-RU2M	TM-RFM
CC-Link IE TSN	MR-J5-G 	1 axis	200 VAC	0.1, 0.2, 0.4, 0.6, 0.75, 1, 2, 3.5, 5.0, 7.0	X	X	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
		1 axis	400 VAC	0.6, 1.0, 2.0, 3.5	X	X	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X
	MR-J5W2-G 	2 axis	200 VAC	0.2, 0.4, 0.75, 1	X	X	-	-	X	X	X	X	X	X	X	-	X	X	X	X	X
	MR-J5W3-G 	3 axes	200 VAC	0.2, 0.4	X	X	-	-	X	X	X	-	X	X	X	-	X	X	X	X	X
General-purpose interface	MR-J5-A 	1 axis	200 VAC	0.1, 0.2, 0.4, 0.6, 0.75, 1, 2, 3.5, 5.0, 7.0	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		1 axis	400 VAC	0.6, 1.0, 2.0, 3.5	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:
1. The value listed is the servo amplifier rated output. Refer to "Combinations of Servo Motors and Servo Amplifiers" for compatible servo motors.
2. 200 VAC servo amplifiers are compatible with DC power supply input as standard.
3. EtherCAT® is supported by MR-J5-G-N1/MR-J5W2-G-N1/MR-J5W3-G-N1 servo amplifiers.

MR-J5-G-RJ



1-Axis Servo Amplifier Selection
(Example Part No. = MR-J5-10-RJ)

MR-J5-□ G □ -□

Mitsubishi Electric AC servo amplifier MELSERVO-J5 Series

Symbol	Interface
G	Network compatible

Symbol	Rated Output [kW]
10	0.1
20	0.2
40	0.4
60	0.6
70	0.75
100	1
200	2
350	3.5
500	5
700	7

Symbol	Special Specifiction
None	CC-Link IE TSN-compatible standard
RJ	CC-Link IE TSN-compatible, Fully closed loop control four-wire type/load-side encoder A/B/Z-phase input compatible
RJN1	EtherCAT®-compatible, Fully closed loop control four-wire type/load-side encoder A/B/Z-phase input compatible

Symbol	Power Supply
None	3-phase 200 VAC or 1-phase 200 VAC or DC input
4	3-phase 400 VAC

Notes:
1. This section describes what each symbol in a model name indicates. Some combinations of symbols are not available.
2. For the restrictions and the servo amplifier software version compatible with each function, refer to "Restrictions" in this guide.

1-Axis Servo Amplifier Selection

(Example Part No. = MR-J5-10-RJ)

MR-J5-□A□-□

Mitsubishi Electric AC servo amplifier MELSERVO-J5 Series

Symbol	Interface
A	General-purpose

Symbol	Rated Output [kW]
10	0.1
20	0.2
40	0.4
60	0.6
70	0.75
100	1
200	2
200	3.5
500	5
700	7

Symbol	Special Specifiction
None	Standard
RJ	Fully closed loop control four-wire type/load-side encoder A/B/Z-phase input/high resolution analog input compatible
RJN1	EtherCAT®-compatible, fully closed loop control four-wire type/load-side encoder A/B/Z-phase input compatible, Safety sub-function

Symbol	Power Supply
None	3-phase 200 VAC or 1-phase 200 VAC or DC input
4	3-phase 400 VAC

Notes:
1. This section describes what each symbol in a model name indicates. Some combinations of symbols are not available.
2. For the restrictions and the servo amplifier software version compatible with each function, refer to "Restrictions" in this guide.

Multi-Axis Servo Amplifier Selection

(Example Part No. = MR-J5W2-22G-N1)

MR-J5W□-□G□-□

Mitsubishi Electric AC servo amplifier MELSERVO-J5 Series

Symbol	Special Specification
None	CC-Link IE TSN-compatible standard
N1	EtherCAT®-compatible standard

Symbol	Main Circuit Power Supply
None	3-phase 200 VAC, 1-phase 200 VAC, or DC input

Symbol	Interface
G	Network compatible

Symbol	Rated Output [kW]		
	A-Axis (*2)	B-Axis (*2)	C-Axis (*2)
22	0.2	0.2	-
44	0.4	0.4	-
77	0.75	0.75	-
1010	1	1	-
222	0.2	0.2	0.2
444	0.4	0.4	0.4

Symbol	Number of Axes
W2	2 axes
W3	3 axes

Notes:
1. This section describes what each symbol in a model name indicates. Some combinations of symbols are not available.
2. A-axis, B-axis, and C-axis indicate names of axes of the multi-axis servo amplifier. The C-axis is available for the 3-axis servo amplifier.

Amplifier Specifications

MR-J5-G_ (Network Compatible) Specifications

Servo Amplifier Model MR-J5-_(-(RJ)(N1))		10G	20G	40G	60G	70G	100G	200G	350G	500G	700G
Stocked Item		S	S	S	S	S	S	S	S	-	-
Output	Rated Voltage	3-phase 0 VAC to 240 VAC									
	Rated Current (A)	1.3	1.8	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0
Main Circuit Power Supply	Voltage/Frequency AC Input (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz					3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz (*7)		3-phase 200 VAC to 240 VAC, 50 Hz/60Hz		
	Voltage/Frequency DC Input (*8)	283 VDC to 340 VDC									
	Rated Current (A) (*6)	0.9	1.5	2.6	3.2	3.8	5.0	10.5	16.0	21.7	28.9
	Permissible Volt. Fluctuation AC Input	3-phase or 1-phase 170 VAC to 264 VAC					3-phase or 1-phase 170 VAC to 264 VAC (*7)		3-phase 170 VAC to 264 VAC		
	Permissible Volt. Fluctuation DC Input	241 VDC to 374 VDC									
	Permissible Frequency Fluctuation	±5% maximum									
Control Circuit Power Supply Input	Voltage/Frequency AC Input	1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz									
	Voltage/Frequency DC Input (*8)	283 VDC to 340 VDC									
	Rated Current (A)	0.2								0.3	
	Permissible Volt. Fluctuation AC Input	1-phase 170 VAC to 264 VAC									
	Permissible Volt. Fluctuation DC Input	241 VDC to 374 VDC (*8)									
	Permissible Frequency Fluctuation	±5% maximum									
	Power Consumption (W)	30									
Interface Power Supply		24 VDC ± 10 % (required current capacity: 0.3 A (including CN8 connector signals))									
Control Method		Sine-wave PWM control/current control method									
Permissible Regenerative Power of Built-in Regenerative Resistor (*2, *3) (W)		-	10			30		100		130	170
Dynamic Brake (*4)		Built-in (*4)									
CC-Link IE TSN (MR-J5-G(-RJ))	Communication Cycle (*10)	31.25 µs, 62.5 µs, 125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms									
	Authentication Class	Class B									
EtherCAT® (MR-J5-G-(RJ)(N1) Communication Cycle		125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms (*10)									
Communication Function USB		Connect a personal computer (MR Configurator2 compatible)									
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)									
Analog Monitor		2 channels									
Fully Closed Loop Control	MR-J5-G(-N1)	Two-wire type communication method									
	MR-J5-G-RJ(-N1)	Two-wire/four-wire type communication method									
Load-Side Encoder Interface	MR-J5-G(-N1)	Mitsubishi Electric high-speed serial communication									
	MR-J5-G-RJ(N1)	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal									
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, quick tuning, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function (including failure prediction), power monitoring function, lost motion compensation function, scale measurement function (*12), super trace control (*12)									
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection									
Safety Sub-Function		STO (IEC/EN 61800-5-2)									
Safety Performance	Compliance With Standards (*9)	MR-J5-G(-N1): EN ISO 13849-1:2015 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2 MR-J5-G-RJ(N1): EN ISO 13849-1:2015 Category 4 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2									
	Response Performance	8 ms or less (STO input OFF — energy shut-off)									
	Test Pulse Input (STO) (*5)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum									
	Mean Time to Dangerous Failure (MTTFd)	MTTFd ≥ 100 [years] (314a)									
	Diagnostic Coverage (DC)	MR-J5-G(-N1): DC = Medium, 97.6 [%] • MR-J5-G-RJ(N1): DC = Medium, 97.5 [%]									
	Probability of Dangerous Failure Per Hour (PFH)	MR-J5-G(-N1): PFH = 6.4×10^{-9} [1/h] MR-J5-G-RJ(N1): PFH = 1.3×10^{-9} [1/h]									
	Mission Time (T_M) (*13)	T_M = 20 [years]									
Structure (IP Rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (*42)	
Close Mounting	3-Phase Power Supply Input	Possible (*11)									
	1-Phase Power Supply Input	Possible (*11)					Not possible		-		
Environment	Ambient Temperature	Operation: 0 ˚C to 60 ˚C (non-freezing) Class 3K3 (IEC 60721-3-3) Transportation and Storage: -25 ˚C to 70 ˚C (non-freezing) Class 1K3 (IEC 60721-3-1)									
	Ambient Humidity	5 % RH to 95 % RH (non-condensing)									
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust									
	Altitude	Altitude: 2000 m or less. Refer to User's Manuals for altitude exceeding 1000 m									
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)									
Weight (kg)		0.8	0.8	0.8	1.0	1.4	1.4	2.2	2.2	3.7	6.2

Notes: For MR-J5 Amplifier notes, please go to page 371.

Amplifier Specifications

MR-J5-G_ (Network Compatible) Specifications (400 V) (*21)

Servo Amplifier Model MR-J5-_(-(RJ)(N1))		60G4	100G4	200G4	350G4
Stocked Item					
Output	Voltage	3-phase 0 VAC to 480 VAC			
	Rated Current (A)	1.6	2.8	5.5	8.6
Main Circuit Power Supply Input	Voltage/Frequency AC Input (*1)	3-phase 380 VAC to 480 VAC, 50 Hz/60 Hz			
	Rated Current (A)	1.4	2.5	5.1	7.9
	Permissible Volt. Fluctuation AC Input	3-phase 323 VAC to 528 VAC			
	Permissible Frequency Fluctuation	±5 % maximum			
Control Circuit Power Supply Input	Voltage/Frequency AC Input	1-phase 380 VAC to 480 VAC, 50 Hz/60 Hz			
	Rated Current (A)	0.1			
	Permissible Volt. Fluctuation AC Input	1-phase 323 VAC to 528 VAC			
	Permissible Frequency Fluctuation	±5% maximum			
	Power Consumption (W)	30			
Interface Power Supply		24 VDC ± 10 % (required current capacity: 0.3 A (including CN8 connector signals))			
Control Method		Sine-wave PWM control/current control method			
Permissible Regenerative Power of Built-in Regenerative Resistor (*2, *3) (W)		15	15	100	120
Dynamic Brake (*4)		Built-in (*4)			
CC-Link IE TSN (MR-J5-G4(-RJ))	Communication Cycle (*10, 12, 20)	31.25 µs, 62.5 µs, 125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms			
	Certified Class	Class B			
EtherCAT® (MR-J5-G4-(RJ)(N1) Comm Cycle (*10, 12)		125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms			
Communication Function USB		Connect a personal computer (MR Configurator2 compatible)			
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)			
Analog Monitor		2 channels			
Fully Closed Loop Control	MR-J5-G4(-N1)	Two-wire type communication method			
	MR-J5-G4RJ(N1)	Two-wire/four-wire type communication method			
Load-Side Encoder Interface	MR-J5-G4(-N1)	Mitsubishi Electric high-speed serial communication			
	MR-J5-G4-RJ(N1)	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal			
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, quick tuning, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function (including failure prediction), power monitoring function, lost motion compensation function, scale measurement function (*12), super trace control, continuous operation to torque control mode (*12, *22)			
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection			
Safety Sub-Function, Safety Performance		Refer to "Safety Sub-Functions" in the User Manual			
Structure (IP Rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)	
Close Mounting		Not possible			
Weight (kg)		1.6	1.6	2.2	2.3

Notes: For MR-J5 Amplifier notes, please go to page 371.

MR-J5W2-G(-N1) (2-Axis, Network Compatible) Specifications

Servo Amplifier Model MR-J5W2-_(-N1)		22G	44G	77G	1010G
Stocked Item		S	S	S	S
Output	Rated Voltage	3-phase 0 VAC to 240 VAC			
	Rated Current (Each Axis) (A)	1.8	2.8	5.8	6.0
Main Circuit Power Supply Input	Voltage/Frequency AC Input (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz			3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz
	Voltage/Frequency DC Input (*1, *14)	283 VDC to 340 VDC			
	Rated Current (A) (*6)	2.9	5.2	7.5	9.8
	Permissible Volt. Fluctuation AC Input	3-phase or 1-phase 170 VAC to 264 VAC			3-phase 170 VAC to 264 VAC
	Permissible Volt. Fluctuation DC Input	241 VDC to 374 VDC			
	Permissible Frequency Fluctuation	±5 % maximum			
Control Circuit Power Supply Input	Voltage/Frequency AC Input	1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz			
	Voltage/Frequency DC Input (*14)	283 VDC to 340 VDC			
	Rated Current (A)	0.4			
	Permissible Volt. Fluctuation AC Input	1-phase 170 VAC to 264 VAC			
	Permissible Volt. Fluctuation DC Input	241 DC to 374 VDC			
	Permissible Frequency Fluctuation	±5% maximum			
	Power Consumption (W)	55			
Interface Power Supply		24 VDC ± 10 % (required current capacity: 0.35 A (including CN8 connector signals))			
Control Method		Sine-wave PWM control/current control method			
Permissible Regenerative Power of Built-in Regenerative Resistor (*2, *3) (W)		20		100	
Dynamic Brake (*4)		Built-in			
CC-Link IE TSN (MR-J5W2-G) Communication Cycle		62.5 µs, 125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms (*10)			
CC-Link IE TSN (MR-J5W2-G) Authentication Class		Class B (*10)			
EtherCAT® (MR-J5W2-G-N1) Communication Cycle		250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms (*10)			
Communication Function USB		Connect a personal computer (MR Configurator2 compatible)			
Encoder Output Pulse		Compatible (A/B-phase pulse) (*15)			
Analog Monitor		2 channels			
Fully Closed Loop Control (*15)		Two-wire type communication method			
Load-Side Encoder Interface (*16)		Mitsubishi Electric high-speed serial communication			
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, quick tuning, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function (including failure prediction), power monitoring function, lost motion compensation function, scale measurement function (*12), super trace control (*12)			
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection			
Safety Sub-Function (*18)		STO (IEC/EN 61800-5-2) (*17)			
Safety Performance	Compliance With Standards (*9)	EN ISO 13849-1:2015 Category 4 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2			
	Response Performance	8 ms or less (STO input OFF — energy shut-off)			
	Test Pulse Input (STO) (*5)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum			
	Mean Time to Dangerous Failure (MTTFd)	MTTFd ≥ 100 years (314a)			
	Diagnostic Coverage (DC)	DC = Medium, 97.6 (%)			
	Probability of Dangerous Failure per Hour (PFH)	PFH = 1.3×10^{-9} [1/h]			
	Mission time (T_M) (*13)	T_M = 20 [years]			
Structure (IP Rating)		Natural cooling, open (IP20)	Force cooling, open (IP20)		
Close Mounting		Possible (*11)			
Environment	Ambient Temperature	Operation: 0 ˚C to 60 ˚C (non-freezing) Class 3K3 (IEC 60721-3-3) Transportation and Storage: -25 ˚C to 70 ˚C (non-freezing) Class 1K3 (IEC 60721-3-1)			
	Ambient Humidity	5 % RH to 95 % RH (non-condensing)			
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust			
	Altitude	Altitude: 2000 m or less. Refer to User's Manuals for altitude exceeding 1000 m			
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)			
Weight (kg)		1.5	1.5	1.9	1.9

Notes: For MR-J5 Amplifier notes, please go to page 371.

MR-J5W3-G(-N1) (3-Axis, Network Compatible) Specifications

Servo Amplifier Model MR-J5W2-_(-N1)		222G	444G
Stocked Item		S	S
Output	Rated Voltage	3-phase 0 VAC to 240 VAC	
	Rated Current (Each Axis) (A)	1.8	2.8
Main Circuit Power Supply Input	Voltage/Frequency AC Input (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz	
	Voltage/Frequency DC Input (*1, *14)	283 V DC to 340 V DC	
	Rated Current (A) (*6)	4.3	7.8
	Permissible Volt. Fluctuation AC Input	3-phase or 1-phase 170 VAC to 264 VAC	
	Permissible Volt. Fluctuation DC Input	241 VDC to 374 VDC	
	Permissible Frequency Fluctuation	±5 % maximum	
Control Circuit Power Supply Input	Voltage/Frequency AC Input	1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz	
	Voltage/Frequency DC Input (*14)	283 VDC to 340 VDC	
	Rated Current (A)	0.4	
	Permissible Volt. Fluctuation AC Input	1-phase 170 VAC to 264 VAC	
	Permissible Volt. Fluctuation DC Input	241 DC to 374 V DC	
	Permissible Frequency Fluctuation	±5% maximum	
	Power Consumption (W)	55	
Interface Power Supply		24 V DC ± 10 % (required current capacity: 0.45 A (including CN8 connector signals))	
Control Method		Sine-wave PWM control/current control method	
Permissible Regenerative Power of Built-in Regenerative Resistor (*2, *3) (W)		30	
Dynamic Brake (*4)		Built-in	
CC-Link IE TSN (MR-J5W3-G) Communication Cycle		125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms (*10)	
CC-Link IE TSN (MR-J5W3-G) Authentication Class		Class B	
EtherCAT® (MR-J5W3-G-N1) Communication Cycle		250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms (*5)	
Communication Function USB		Connect a personal computer (MR Configurator2 compatible)	
Encoder Output Pulse	MR-J5W3-G	Compatible only with A-axis and B-axis (A/B-phase pulse) (*15)	
	MR-J5W3-G-N1	Not compatible	
Analog Monitor		2 channels	
Fully Closed Loop Control		Not available	
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, quick tuning, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function (including failure prediction), power monitoring function, lost motion compensation function, super trace control (*12)	
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection	
Safety Sub-Function (*18)		STO (IEC/EN 61800-5-2) (*17)	
Safety Performance	Compliance With Standards (*9)	EN ISO 13849-1:2015 Category 4 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2	
	Response Performance	8 ms or less (STO input OFF — energy shut-off)	
	Test Pulse Input (STO) (*5)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum	
	Mean Time to Dangerous Failure (MTTFd)	MTTFd ≥ 100 years (314a)	
	Diagnostic Coverage (DC)	DC = Medium, 97.5(%)	
	Probability of Dangerous Failure Per Hour (PFH)	PFH = 1.3×10^{-9} [1/h]	
	Mission time (T_M) (*3)	T_M = 20 [years]	
Structure (IP Rating)		Force cooling, open (IP20)	
Close Mounting		Possible (*11)	
Environment	Ambient Temperature	Operation: 0 ˚C to 60 ˚C (non-freezing) Class 3K3 (IEC 60721-3-3) Transportation and Storage: -25 ˚C to 70 ˚C (non-freezing) Class 1K3 (IEC 60721-3-1)	
	Ambient Humidity	5 % RH to 95 % RH (non-condensing)	
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude	Altitude: 2000 m or less. Refer to User's Manuals for altitude exceeding 1000 m	
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Weight (kg)		1.8	1.8

Notes: For MR-J5 Amplifier notes, please go to page 371.

MR-J5-A_ (General-Purpose Interface) Specifications

Servo Amplifier Model MR-J5-_(-RJ)		10A	20A	40A	60A	70A	100A	200A	350A	500A	700A
Stocked Item		S	S	S	S	S	S	S	S	-	-
Output	Rated Voltage	3-phase 0 VAC to 240 VAC									
	Rated Current (A)	1.3	1.8	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0
Main Circuit Power Supply	Voltage/Frequency AC Input (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz					3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz (*7)		3-phase 200 VAC to 240 VAC, 50 Hz/60Hz		
	Voltage/Frequency DC Input (*8)	283 VDC to 340 VDC									
	Rated Current (A) (*6)	0.9	1.5	2.6	3.2	3.8	5.0	10.5	16.0	21.7	28.9
	Permissible Volt. Fluctuation AC Input	3-phase or 1-phase 170 VAC to 264 VAC					3-phase or 1-phase 170 VAC to 264 VAC (*7)		3-phase 170 VAC to 264 VAC		
	Permissible Volt. Fluctuation DC Input	241 VDC to 374 VDC									
	Permissible Frequency Fluctuation	±5% maximum									
Control Circuit Power Supply Input	Voltage/Frequency AC Input	1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz									
	Voltage/Frequency DC Input (*8)	283 VDC to 340 VDC									
	Rated Current (A)	0.2								0.3	
	Permissible Volt. Fluctuation AC Input	1-phase 170 VAC to 264 VAC									
	Permissible Volt. Fluctuation DC Input	241 VDC to 374 VDC (*8)									
	Permissible Frequency Fluctuation	±5% maximum									
	Power Consumption (W)	30									
Interface Power Supply		24 V DC ± 10 % (required current capacity: 0.5 A (including CN8 connector signals))									
Control Method		Sine-wave PWM control/current control method									
Permissible Regenerative Power of Built-in Regenerative Resistor (*2, *3) (W)		-	10			30		100		130	170
Dynamic Brake (*4)		Built-in									
Communication Function USB		Connect a personal computer (MR Configurator2 compatible)									
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)									
Analog Monitor		2 channels									
Position Control Mode	Maximum Input Pulse Frequency	4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open collector)									
	Positioning Feedback Pulse	Encoder resolution: 26 bits									
	Command Pulse Multiplying Factor	Electronic gear A/B multiple, A: 1 to 2147483647, B: 1 to 2147483647, 1/10 < A/B < 64000									
	In-position Range Setting	0 pulse to ±16777215 pulses (command pulse unit)									
	Error Excessive	±3 rotations									
	Torque limit	Set by servo parameters or external analog input (0 VDC to +10 VDC/maximum torque)									
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000									
	Analog Speed Command Input	0 VDC to ±10 VDC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)									
	Speed Fluctuation Rate	±0.01 % maximum (load fluctuation: 0 % to 100 %), 0 % (power fluctuation: ±10 %) ±0.2 % maximum (ambient temperature: 25 °C ±10 °C) only when using analog speed command									
	Torque Limit	Set by servo parameters or external analog input (0 VDC to +10 VDC/maximum torque)									
Fully Closed Loop Control (*11)	MR-J5-A	Two-wire type communication method									
	MR-J5-A-RJ	Two-wire/four-wire type communication method									
Load-Side Encoder Interface	MR-J5-A	Mitsubishi Electric high-speed serial communication									
	MR-J5-A-RJ	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal									
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, quick tuning, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function (including failure prediction), power monitoring function, lost motion compensation function, super trace control (*12)									
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection									
Safety Sub-Function		STO (IEC/EN 61800-5-2)									
Safety Performance	Compliance With Standards (*9)	EN ISO 13849-1:2015 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2									
	Response Performance	8 ms or less (STO input OFF — energy shut-off)									
	Test Pulse Input (STO) (*5)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum									
	Mean Time to Dangerous Failure (MTTFd)	MTTFd ≥ 100 [years] (314a)									
	Diagnostic Coverage (DC)	DC = Medium, 97.6 [%]									
	Probability of Dangerous Failure per Hour (PFH)	PFH = 6.4×10^{-9} [1/h]									
	Mission Time (T_M) (*13)	T_M = 20 [years]									
Structure (IP Rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (*19)	
Close Mounting	3-Phase Power Supply Input	Possible (*11)									
	1-Phase Power Supply Input	Possible (*11)					Not possible		-		
Environment	Ambient Temperature	Operation: 0 °C to 60 °C (non-freezing) Class 3K3 (IEC 60721-3-3) Transportation and Storage: -25 °C to 70 °C (non-freezing) Class 1K3 (IEC 60721-3-1)									
	Ambient Humidity	5 % RH to 95 % RH (non-condensing)									
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust									
	Altitude	Altitude: 2000 m or less. Refer to User's Manuals for altitude exceeding 1000 m									
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)									
Weight (kg)		0.8	0.8	0.8	1.0	1.4	1.4	2.2	2.2	3.7	6.2

Notes: For MR-J5 Amplifier notes, please go to page 268.

MR-J5-A_ (General-Purpose Interface) Specifications (400 V) (*21)

Servo Amplifier Model MR-J5-_(-RJ)		60A4	100A4	200A4	350A4
Stocked Item					
Output	Voltage	3-phase 0 VAC to 480 VAC			
	Rated Current (A)	1.6	2.8	5.5	8.6
Main Circuit Power Supply	Voltage/Frequency AC Input (*1)	3-phase 380 VAC to 480 VAC, 50 Hz/60 Hz			
	Rated Current (A)	1.4	2.5	5.1	7.9
	Permissible Volt. Fluctuation AC Input	3-phase 323 VAC to 528 VAC			
	Permissible Frequency Fluctuation	±5% maximum			
Control Circuit Power Supply Input	Voltage/Frequency AC Input	1-phase 380 VAC to 480 VAC, 50 Hz/60 Hz			
	Rated Current (A)	0.1			
	Permissible Volt. Fluctuation AC Input	1-phase 323 VAC to 528 VAC			
	Permissible Frequency Fluctuation	±5% maximum			
	Power Consumption (W)	30			
Interface Power Supply		24 VDC ± 10 % (required current capacity: 0.5 A (including CN8 connector signals))			
Control Method		Sine-wave PWM control/current control method			
Permissible Regenerative Power of Built-in Regenerative Resistor (*2, *3) (W)		15	15	100	120
Dynamic Brake (*4)		Built-in			
Communication Function	USB	Connect a personal computer (MR Configurator2 compatible)			
	RS-422/RS-485	1:n communication (up to 32 axes)			
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)			
Analog Monitor		2 channels			
Position Control Mode	Maximum Input Pulse Frequency	4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open collector)			
	Positioning Feedback Pulse	Encoder resolution: 26 bits			
	Command Pulse Multiplying Factor	Electronic gear A/B multiple, A: 1 to 2147483647, B: 1 to 2147483647, 1/10 < A/B < 64000			
	In-position Range Setting	0 pulse to ±16777215 pulses (command pulse unit)			
	Error Excessive	±3 rotations			
	Torque Limit	Set by servo parameters or external analog input (0 VDC to +10 VDC/maximum torque)			
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000			
	Analog Speed Command Input	0 VDC to ±10 VDC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)			
	Speed Fluctuation Rate	±0.01 % maximum (load fluctuation: 0 % to 100 %), 0 % (power fluctuation: ±10 %) ±0.2 % maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command			
	Torque Limit	Set by servo parameters or external analog input (0 VDC to +10 VDC/maximum torque)			
Torque Control Mode	Analog Torque Command Input	0 VDC to ±8 VDC/maximum torque (input impedance: 10 kΩ to 12 kΩ)			
	Speed Limit	Set by servo parameters or external analog input (0 V DC to ± 10 V DC/rated speed)			
Fully Closed Loop Control	MR-J5-A4	Two-wire type communication method			
	MR-J5-A4-RJ	Two-wire/four-wire type communication method			
Load-Side Encoder Interface	MR-J5-A4	Mitsubishi Electric high-speed serial communication			
	MR-J5-A4-RJ	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal			
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, quick tuning, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function (including failure prediction), power monitoring function, lost motion compensation function, super trace control			
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection			
Safety Sub-Function, Safety Performance		Refer to "Safety Sub-Functions" in the User's Manual			
Structure (IP Rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)	
Close Mounting		Not possible			
Weight (kg)		1.6	1.6	2.2	2.3

Notes: For MR-J5 Amplifier notes, please go to page 371.

Amplifier Notes:

1. Rated output and speed of a rotary servo motor and a direct drive motor; and continuous thrust and maximum speed of a linear servo motor are applicable when the servo amplifier is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our drive system sizing software Motorizer.
3. Refer to "Regenerative Option" in this guide for the permissible regenerative power [W] when a regenerative option is used.
4. When using the dynamic brake, refer to "MR-J5 User's Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
5. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
6. This value is applicable when a 3-phase power supply is used.
7. When a 1-phase 200 VAC to 240 VAC power supply is used, use the servo amplifiers at 75 % or less of the effective load ratio.
8. For a connection example of power supply circuit with DC input, refer to "MR-J5 User's Manual".
9. The safety level depends on whether or not STO input diagnosis is performed by TOFB output. Refer to "MR-J5 User's Manual" for details.
10. The command communication cycle depends on the controller specifications and the number of slaves connected.
11. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use the servo amplifiers at 75 % or less of the effective load ratio.
12. For the restrictions and the servo amplifier software version compatible with this function, refer to "Restrictions" in this catalog.
13. The performance of special proof tests within the mission time of the product is regarded as not necessary. For example, on IEC 61800-5-2:2016, the diagnostic interval is suggested as at least one test per three months for SIL3, PL e / category 3.
14. For a connection example of power supply circuit with DC input, refer to "MR-J5 User's Manual".
15. A/B-phase pulses are not outputted at a communication cycle of 62.5 µs.
16. Not compatible with pulse train interface (A/B/Z-phase differential output type).
17. STO is common for all axes.
18. The safety sub-function is supported by MR-J5W_ manufactured in November 2019 or later.
19. The connector part is excluded.
20. A communication speed of 1 Gbps/100 Mbps can be selected. When 100 Mbps is selected, the minimum communication cycle is 500 µs.
21. For the environment and the compliance with global standards and regulations for the servo amplifiers, refer to "Environment" and "Compliance with Global Standards and Regulations" in "MELSERVO-J5 catalog (L(NA)03179ENG)".
22. The continuous operation to torque control mode is not available with MR-J5-G4-(RJ)N1.

X = Available
- = Not Available

MR-J5 Rotary Servo Motor Overview

Rotary Servo Motor Series (*4)		Rated Speed (Maximum Speed) [r/min] (*2)	Rated Output [kW] (*1)	With Electromagnetic Brake (B)	IP Rating (*3)	Replaceable Series	Features	Application Examples
Small Capacity	**HK-KT Series** 	3000 (6700)	0.05, 0.1, 0.15, 0.2, 0.4, 0.6, 0.75, 1.0, 1.5, 2.0 0.4, 0.6, 0.75, 1.0, 1.5, 2.0	X	IP67	HG-KR	Low inertia Batteryless absolute position encoder Product line includes flat type Connects using single connector Geared motor option Functional safety option	• Belt drives • Robots • Mounters • X-Y tables • Semiconductor manufacturing systems • Battery manufacturing systems
Medium Capacity	**HK-ST Series** 	2000 (4000)	0.5, 1.0, 1.75, 2.0, 3.0, 3.5, 5.0, 7.0 0.5, 1.0, 1.75, 2.0, 3.0, 3.5, 5, 7.0	X	IP67	HG-SR	Medium inertia Batteryless absolute position encoder Geared motor option Functional safety option	• Material handling systems • Robots • X-Y tables • Battery manufacturing systems

Notes:
1. For 400 V.
2. The speed varies by the model type. Refer to "Rotary Servo Motors Specifications" for details.
3. The shaft-through portion is excluded.
4. Contact your local sales office for geared servo motors.

Servo Motor Selection 200V/100V (Example Part No. = HG-KR053BG1)
Not all options available for every motor.

H K - □ □ □ □ □ □ □ □ □

Symbol	Structure
None	Standard
U	Flat type
A	Long type (Small flange type)

Symbol	Symbol	Motor Type
None	W	HK-KT_W HK-ST_W
4	W	HK-KT_W HK-ST_W
None	None	HK-KT_ HK-ST_

Symbol	Rated Speed [r/min]
2	2000
3	3000

Symbol	Rated Output [kW]
05	0.05
1	0.1
1M	0.15
2	0.2
4	0.4
5	0.5
6	0.6
7M	0.75
10	1.0
15	1.5
17	1.75
20	2.0
30	3.0
35	3.5
50	5.0
70	7.0

Symbol	Inertia/Capacity
HK-KT	Low inertia, small capacity
HK-ST	Medium inertia, medium capacity

Symbol	Shaft Shape
None	Standard (Straight shaft)(*3)
D	D-cut shaft
L	L-cut shaft
K	Key shaft (with key)
N	Key shaft (without key)

Symbol	Oil Seal (*1)
None	None
J	Installed (*4)

Symbol	Electromagnetic Brake
None	None
B	Installed

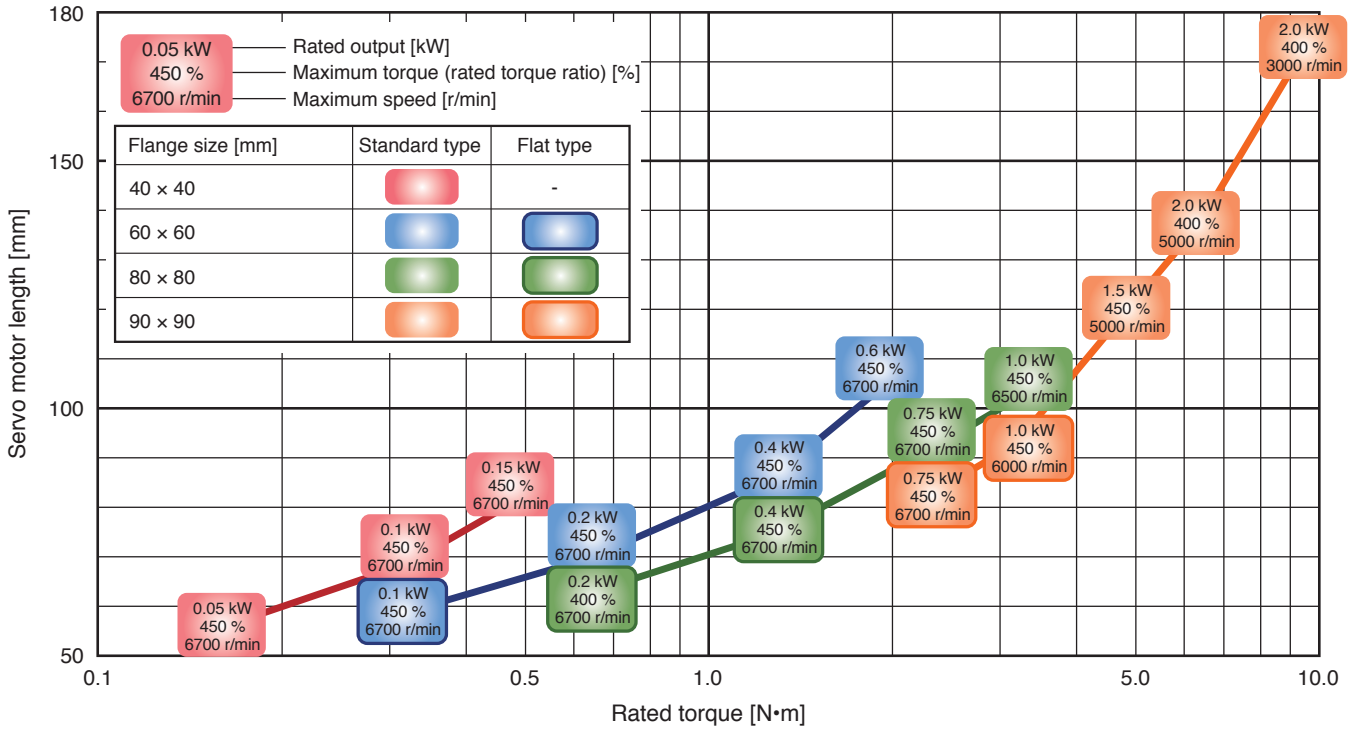
Notes:
1. The dimensions are the same regardless of whether or not an oil seal is installed.
2. This section describes what each symbol in a model name indicates. Some combinations of symbols are not available.
3. The standard HK-ST G1/G1H servo motors have a keyed shaft (with a key).
4. A geared servo motor with an oil seal installed is not available.
5. The dimensions of the servo motors with functional safety are the same as those for the standard servo motors.

Stocked Motors

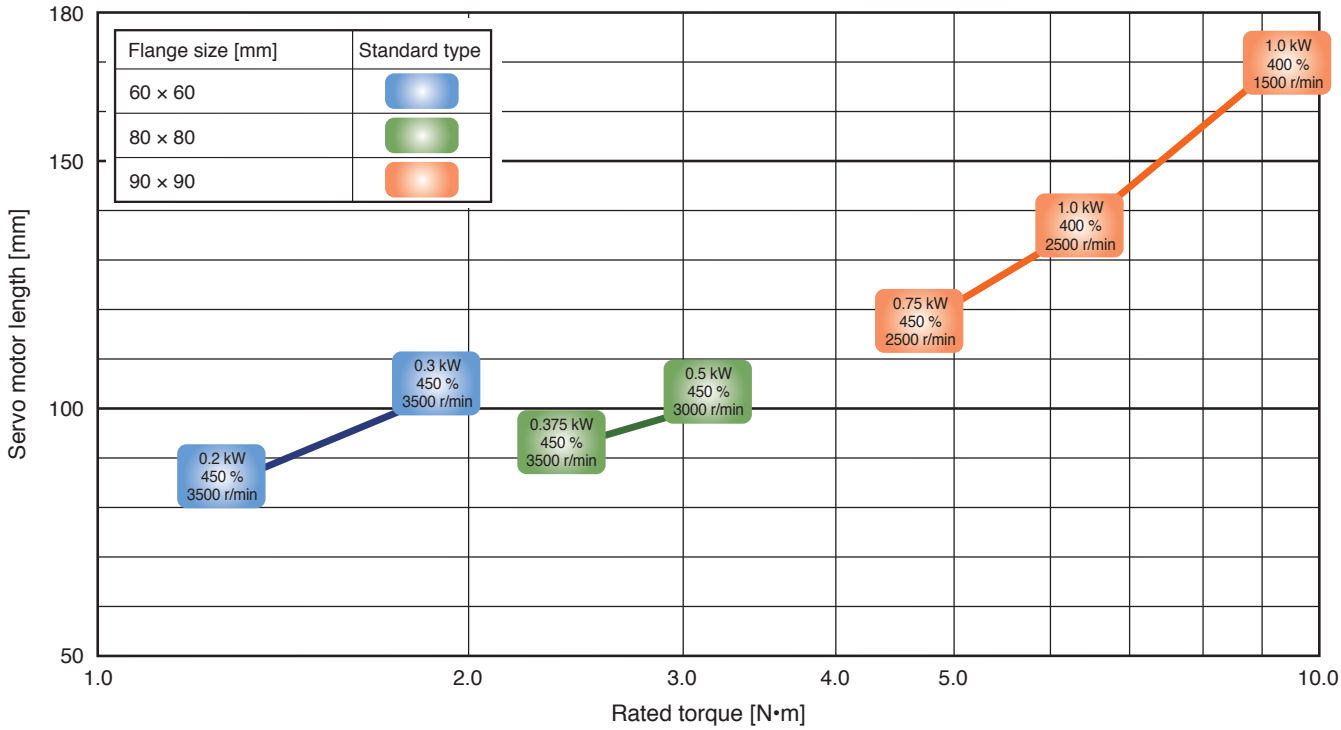
Model Number
HK-KT053WK
HK-KT13WK
HK-KT1M3WK
HK-KT13UWK
HK-KT23WK
HK-KT43WK
HK-KT63WK
HK-KT23UWK
HK-KT43UWK
HK-KT7M3WK
HK-KT103WK
HK-KT7M3UWK
HK-KT103UWK
HK-KT153WK
HK-KT203WK
HK-KT053WBK
HK-KT13WBK
HK-KT1M3WBK
HK-KT13UWBK
HK-KT23WBK
HK-KT43WBK
HK-KT63WBK
HK-KT23UWBK
HK-KT43UWBK
HK-KT7M3WBK
HK-KT103WBK
HK-KT7M3UWBK
HK-KT103UWBK
HK-KT153WBK
HK-KT203WBK
HK-KT202WK
HK-KT202WBK
HK-KT434WK
HK-KT634WK
HK-KT7M34WK
HK-KT1034WK
HK-KT1534WK
HK-KT2034WK
HK-KT434WBK
HK-KT634WBK
HK-KT7M34WBK
HK-KT1034WBK
HK-KT1534WBK
HK-KT2034WBK
HK-KT2024WK
HK-KT2024WBK

Model Number
HK-ST52WK
HK-ST102WK
HK-ST172WK
HK-ST202AWK
HK-ST302WK
HK-ST202WK
HK-ST52WBK
HK-ST102WBK
HK-ST172WBK
HK-ST202AWBK
HK-ST302WBK
HK-ST202WBK
HK-ST524WK
HK-ST1024WK
HK-ST1724WK
HK-ST2024AWK
HK-ST3024WK
HK-ST2024WK
HK-ST524WBK
HK-ST1024WBK
HK-ST1724WBK
HK-ST2024AWBK
HK-ST3024WBK

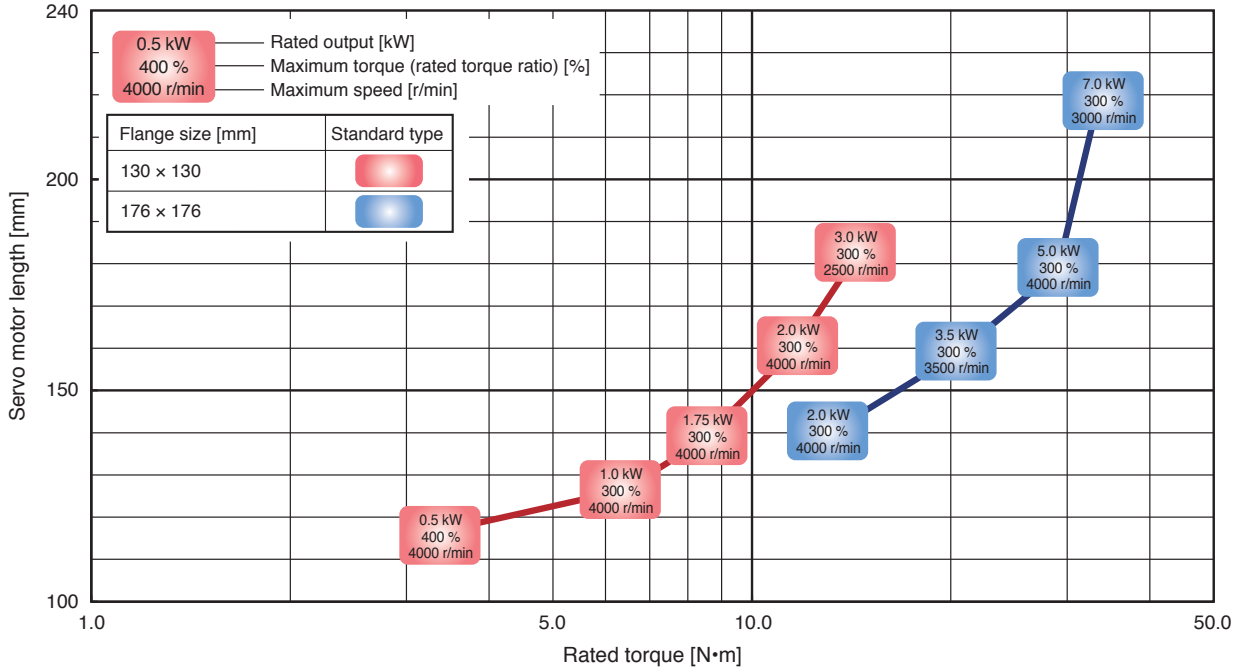
HK-KT_W: Rated speed 3000 r/min, 2000 r/min



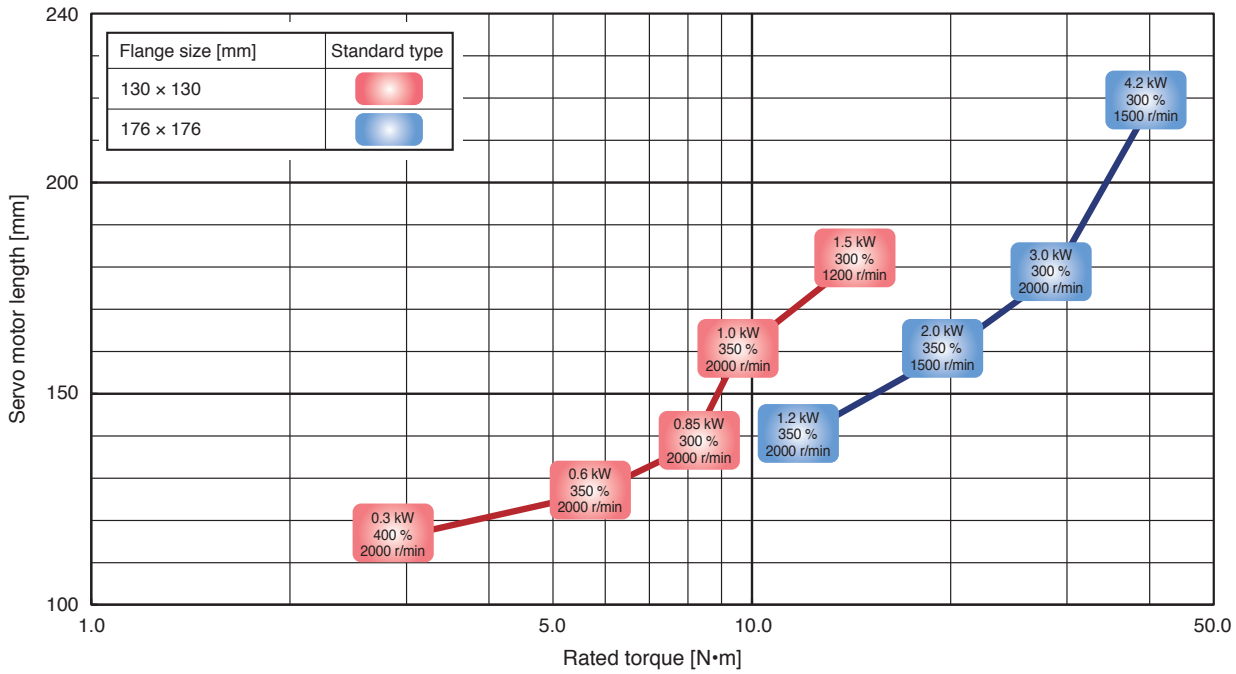
HK-KT_4_W: Rated speed 1500 r/min, 1000 r/min



HK-ST_W: Rated Speed 2000 [r/min] (*1)



HK-ST_4_W: Rated Speed 1000 [r/min]



Note:
1. The rated speed varies by the combined servo amplifiers. Refer to the list of specifications of each rotary servo motor for details.

Combinations of Rotary Servo Motors and Servo Amplifiers 200V

The listed values in the table are applicable when combining the servo motors with 200 VAC servo amplifiers. The value in brackets is applicable when the torque is increased by combining a larger-capacity servo amplifier. Refer to "Combinations of Rotary Servo Motors and Servo Amplifiers" in this catalog for the available combinations.

Motor Type	Flange Size [mm]	Model	Rated Output [kW]	Torque [N•m]	Speed [r/min]			Rated Power Rate [kW/s] (*1)
				Rated	Maximum	Rated	Maximum	
HK-KT_W	40 × 40	HK-KT053W	0.05	0.16	0. 56 (0.72)	3000	6700	6.4
		HK-KT13W	0.1	0.32	1.1 (1.4)	3000	6700	14.8
		HK-KT1M3W	0.15	0.48	1.7 (2.1)	3000	6700	23.3
	60 × 60	HK-KT13UW	0.1	0.32	1.1 (1.4)	3000	6700	8.4
		HK-KT23W	0.2	0.64	2.2 (2.9)	3000	6700	19.4
		HK-KT43W	0.4	1.3	4.5 (5.7)	3000	6700	39.5
		HK-KT63W	0.6	1.9	6.7 (8.6)	3000	6700	61.0
	80 × 80	HK-KT23UW	0.2	0.64	1.9 (2.5)	3000	6700	9.7
		HK-KT43UW	0.4	1.3	4.5 (5.7)	3000	6700	22.3
		HK-KT7M3W	0.75	2.4	8.4 (10.7)	3000	6700	41.6
		HK-KT103W	1.0	3.2	11.1 (14.3)	3000	6500	60.3
	90 × 90	HK-KT7M3UW	0.75	2.4	8.4 (10.7)	3000	6700	27.0
		HK-KT103UW	1.0	3.2	11.1 (14.3)	3000	6000	37.0
		HK-KT153W	1.5	4.8	16.7 (21.5)	3000	5000	52.0
		HK-KT203W	2.0	6.4	19.1 (25.5)	3000	5000	71.7
		HK-KT202W	2.0	9.5	28.6 (38.2)	2000	3000	111
HK-KT_4_W	60 × 60	HK-KT434W	0.2	1.3	4.5 (5.7)	1500	3500	39.5
		HK-KT634W	0.3	1.9	6.7 (8.6)	1500	3500	61.0
	80 × 80	HK-KT7M34W	0.375	2.4	8.4 (10.7)	1500	3500	41.6
		HK-KT1034W	0.5	3.2	11.1 (14.3)	1500	3000	60.3
	90 × 90	HK-KT1534W	0.75	4.8	21.5	1500	2500	52.0
		HK-KT2034W	1.0	6.4	25.5	1500	2500	71.7
		HK-KT2024W	1.0	9.5	38.2	1000	1500	111

Note:
1. The values are for the standard servo motors (without an electromagnetic brake). Refer to the list of specifications of each rotary servo motor for details.
2. In model names, "U" indicates a flat type.

Motor Type	Flange Size [mm]	Model	Rated Output [kW]	Torque [N•m]	Speed [r/min]			Rated Power Rate [kW/s] (*1)
				Rated	Maximum	Rated	Maximum	
HK-ST_W	130 × 130	HK-ST52W	0.5	2.4 (3.2)	7.2 (12.7)	2000 (1500)	4000	9.7 (17.2)
		HK-ST102W	1.0	4.8 (6.4)	14.3 (19.1)	2000 (1500)	4000	26.3 (46.8)
		HK-ST172W	1.75	8.4	25.1	2000	4000	61.2
		HK-ST202AW	2.0	9.5 (11.6)	28.6 (34.7)	2000 (1650)	4000	53.9 (79.2)
		HK-ST302W	3.0	14.3	43.0	2000	2500	91.5
	176 × 176	HK-ST202W	2.0	9.5 (12.7)	28.6 (38.2)	2000 (1500)	4000	25.1 (44.6)
		HK-ST352W	3.5	16.7	50.1	2000	3500	52.1
		HK-ST502W	5.0	23.9 (28.9)	23.9 (28.9)	2000 (1650)	4000	80.4 (118)
		HK-ST702W	7.0	33.4	100	2000	3000	106
HK-ST_4_W	130 × 130	HK-ST524W	0.3	2.9	11.5	1000	2000	13.9
		HK-ST1024W	0.6	5.7	17.2 (20.1)	1000	2000	37.9
		HK-ST1724W	0.85	8.1	24.4	1000	2000	57.8
		HK-ST2024AW	1.0	9.5	33.4	1000	2000	53.9
		HK-ST3024W	1.5	14.3	43.0	1000	1200	91.5
	176 × 176	HK-ST2024W	1.2	11.5	40.1	1000	2000	36.1
		HK-ST3524W	2.0	19.1	57.3 (66.8)	1000	1500	68.0
		HK-ST5024W	3.0	28.6	85.9	1000	2000	116
		HK-ST7024W	4.2	40.1	120	1000	1500	153

Note:
1. The values are for the standard servo motors (without an electromagnetic brake). Refer to the list of specifications of each rotary servo motor for details.

Combinations of Rotary Servo Motors and Servo Amplifiers (*1)
The torque can be increased by combining a large-capacity servo amplifier. (*2)
The torque characteristics vary by the combinations. Refer to the list of the specifications of each rotary servo motor.

○ = Standard Torque
◎ = Increased Torque

1-axis Servo Amplifier (200V)

Rotary Servo Motor (*2)			Servo amplifier MR-J5-_ (200V)							
			10G/A	20G/A	40G/A	60G/A	70G/A	100G/A	200G/A	350G/A
HK-KT_W	40 x 40	HK-KT053W	○	◎	◎	-	-	-	-	-
		HK-KT13W	○	◎	◎	-	-	-	-	-
		HK-KT1M3W	-	○	◎	◎	-	-	-	-
	60 x 60	HK-KT13UW	○	◎	◎	-	-	-	-	-
		HK-KT23W	-	○	◎	◎	-	-	-	-
		HK-KT43W	-	-	○	○	◎	-	-	-
		HK-KT63W	-	-	-	-	○	○	◎	-
	80 x 80	HK-KT23UW	-	○	◎	◎	-	-	-	-
		HK-KT43UW	-	-	○	○	◎	-	-	-
		HK-KT7M3W	-	-	-	-	○	○	◎	-
		HK-KT103W	-	-	-	-	-	○	◎	◎
	90 x 90	HK-KT63UW	-	-	-	○	◎	◎	-	-
		HK-KT7M3UW	-	-	-	-	○	○	◎	-
		HK-KT103UW	-	-	-	-	-	○	◎	◎
		HK-KT153W	-	-	-	-	-	-	○	◎
		HK-KT203W	-	-	-	-	-	-	○	◎
		HK-KT202W	-	-	-	-	-	-	○	◎
HK-KT_4_W	60 x 60	HK-KT434W	-	○	◎	◎	-	-	-	-
		HK-KT634W	-	-	○	○	◎	-	-	-
	80 x 80	HK-KT7M34W	-	-	○	○	◎	-	-	-
		HK-KT1034W	-	-	-	○	◎	◎	-	-
	90 x 90	HK-KT1534W	-	-	-	-	○	○	◎	-
		HK-KT2034W	-	-	-	-	-	○	◎	◎
		HK-KT2024W	-	-	-	-	-	○	○	○
HK-MT_W (*3)	40 × 40	HK-MT053W	○	◎	◎	-	-	-	-	-
		HK-MT13W	○	◎	◎	-	-	-	-	-
		HK-MT1M3W	-	○	◎	-	-	-	-	-
	60 × 60	HK-MT23W	-	○	◎	-	-	-	-	-
		HK-MT43W	-	-	○	-	◎	-	-	-
		HK-MT63W	-	-	-	-	○	-	◎	-
	80 × 80	HK-MT7M3W	-	-	-	-	○	-	◎	-
		HK-MT103W	-	-	-	-	-	○	◎	-
HK-MT_VW (*3)	40 × 40	HK-MT053VW	○	◎	◎	-	-	-	-	-
		HK-MT13VW	○	◎	◎	-	-	-	-	-
		HK-MT1M3VW	-	○	◎	-	-	-	-	-
	60 × 60	HK-MT23VW	-	○	◎	-	-	-	-	-
		HK-MT43VW	-	-	-	○	◎	-	-	-
		HK-MT63VW	-	-	-	-	○	-	◎	-
	80 × 80	HK-MT7M3VW	-	-	-	-	○	-	◎	-
		HK-MT103VW	-	-	-	-	-	-	○	◎

Notes:
1. The combinations of servo motors and servo amplifiers with special specifications are the same as those of standard servo amplifiers. Refer to the servo amplifiers with the same rated output.
2. The combinations of servo amplifiers and geared servo motors, servo motors with an electromagnetic brake, or servo motors with functional safety are the same as those described in this table. Note that the torque is not increased for the combinations marked with when a geared servo motor is used.
3. Use the servo amplifiers with firmware version C2 or later. If the servo amplifiers with the previous firmware version are connected, an alarm occurs.

1-axis Servo Amplifier (200V)

○ = Standard Torque ◎ = Increased Torque

Rotary Servo Motor (*2)			Servo amplifier MR-J5-_ (200V)							
			40G/A	60G/A	70G/A	100G/A	200G/A	350G/A	500G/A	700G/A
HK-ST_W (*3)	130 × 130	HK-ST52W	-	○	◎	◎	-	-	-	-
		HK-ST102W	-	-	-	○	◎	◎	-	-
		HK-ST172W	-	-	-	-	○	○	-	-
		HK-ST202AW	-	-	-	-	○	◎	-	-
		HK-ST302W	-	-	-	-	-	○	◎(*4)	-
		HK-ST353W	-	-	-	-	-	○	◎	-
		HK-ST503W	-	-	-	-	-	-	○	◎
	176 × 176	HK-ST202W	-	-	-	-	○	◎		-
		HK-ST352W	-	-	-	-	-	○	◎(*4)	-
		HK-ST502W	-	-	-	-	-	-	○	◎
		HK-ST702W	-	-	-	-	-	-	-	○
HK-ST_4_W	130 × 130	HK-ST524W	○	○	○	-	-	-	-	-
		HK-ST1024W	-	○	◎	◎	-	-	-	-
		HK-ST1724W	-	-	-	○	○	○	-	-
		HK-ST2024AW	-	-	-	○	○	○	-	-
		HK-ST3024W	-	-	-	-	○	○	-	-
	176 × 176	HK-ST2024W	-	-	-	-	○	○	-	-
		HK-ST3524W	-	-	-	-	○	◎	-	-
		HK-ST5024W	-	-	-	-	-	○	○(*4)	-
		HK-ST7024W	-	-	-	-	-	-	○	○
HK-RT_W	90 × 90	HK-RT103W	-	-	-	○ (*5)	◎	-	-	-
		HK-RT153W	-	-	-	-	○	-	◎	-
		HK-RT203W	-	-	-	-	○	◎	-	-
	130 × 130	HK-RT353W	-	-	-	-	-	○	◎	-
		HK-RT503W	-	-	-	-	-	-	○	◎
		HK-RT703W	-	-	-	-	-	-	-	○

Notes:
1. The combinations of servo motors and servo amplifiers with special specifications are the same as those of standard servo amplifiers. Refer to the servo amplifiers with the same rated output.
2. The combinations of servo amplifiers and geared servo motors, servo motors with an electromagnetic brake, or servo motors with functional safety are the same as those described in this table. Note that the torque is not increased for the combinations marked with when a geared servo motor is used.
3. The servo amplifiers for HK-ST152G_ geared servo motor are the same as for HK-ST172W.
4. Use the rotary servo motors manufactured in December 2020 or later. If the rotary servo motors manufactured before that date are connected, an alarm occurs. Refer to "Rotary Servo Motor User's Manual" on how to check the date of manufacture.
5. The dynamic brake time constant is longer than that of when the previous HG-RR103 and MR-J4-200_ are combined. When the time constant equivalent to that of the previous series is required, combine HK-RT103W and MR-J5-200_. Refer to "MR-J5 User's Manual" for how to calculate the coasting distance.

1-axis Servo Amplifier (400V)

Rotary Servo Motor (*2)			Servo amplifier MR-J5-_ (400V)			
			60G4/A4	100G4/A4	200G4/A4	350G4/A4
HK-KT_W	40 x 40	HK-KT053W	○ (*3)	◎ (*3)	-	-
		HK-KT13W	○ (*3)	◎ (*3)	-	-
		HK-KT1M3W	○ (*3)	◎ (*3)	-	-
HK-KT_4W	60 x 60	HK-KT434W	○ (*3)	◎ (*3)	◎ (*3)	-
		HK-KT634W	-	○ (*3)	◎ (*3)	◎ (*3)
	80 x 80	HK-KT7M34W	-	○ (*3)	◎ (*3)	◎ (*3)
		HK-KT1034W	-	○ (*3)	◎ (*3)	◎ (*3)
	90 x 90	HK-KT634UW	○	◎	◎	-
		HK-KT1034UW	-	○	◎	◎
		HK-KT1534W	-	-	○ (*3)	◎ (*3)
		HK-KT2034W	-	-	○ (*3)	◎ (*3)
		HK-KT2024W	-	-	○ (*3)	◎ (*3)
HK-ST_4_W (*5)	130 × 130	HK-ST524W	○ (*4)	◎ (*4)	◎ (*4)	-
		HK-ST1024W	-	○ (*4)	◎ (*4)	◎ (*4)
		HK-ST1724W	-	-	○ (*4)	○ (*4)
		HK-ST2024AW	-	-	○ (*4)	◎ (*4)
		HK-ST3024W	-	-	-	○ (*4)
		HK-ST3534W	-	-	-	○
	176 × 176	HK-ST2024W	-	-	○ (*4)	◎ (*4)
		HK-ST3524W	-	-	-	○ (*4)
HK-RT_4W	90 × 90	HK-RT1034W	-	○	◎	-
		HK-RT1534W	-	-	○	-
		HK-RT2034W	-	-	○	◎
	130 × 130	HK-RT3534W	-	-	-	○

Notes:
1. The combinations of servo motors and servo amplifiers with special specifications are the same as those of standard servo amplifiers. Refer to the servo amplifiers with the same rated output.
2. The combinations of servo amplifiers and geared servo motors, servo motors with an electromagnetic brake, or servo motors with functional safety are the same as those described in this table. Note that the torque is not increased for the combinations marked with when a geared servo motor is used.
3. Use the rotary servo motors manufactured in September 2020 or later. If the rotary servo motors manufactured before that date are connected, an alarm occurs. Refer to Rotary Servo Motor User's Manual.
4. Use the rotary servo motors manufactured in December 2020 or later. If the rotary servo motors manufactured before that date are connected, an alarm occurs. Refer to Rotary Servo Motor User's Manual.
5. The servo amplifiers for HK-ST1524G_ geared servo motor are the same as for HK-ST1724W.

Combinations of Rotary Servo Motors and Servo Amplifiers (*1)

The torque can be increased by combining a large-capacity drive unit. (*2)
The torque characteristics vary by the combinations. Refer to the list of the specifications of each rotary servo motor.
Any combination of the servo motors with different series and capacities is possible as long as the servo motors are compatible with the multi-axis drive unit.

○ = Standard Torque
◎ = Increased Torque

Multi-axis Servo Amplifier (200V)

Rotary Servo Motor (*2)			Servo Amplifier MR-J5W2-_				Servo amplifier MR-J5W3-_	
			22G	44G	77G	1010G	222G	444G
HK-KT_W	40 x 40	HK-KT053W	◎	◎	-	-	◎	◎
		HK-KT13W	◎	◎	-	-	◎	◎
		HK-KT1M3W	○	◎	-	-	○	◎
	60 x 60	HK-KT13UW	◎	◎	-	-	◎	◎
		HK-KT23W	○	◎	-	-	○	◎
		HK-KT43W	-	○	◎	◎	-	○
		HK-KT63W	-	-	○	○	-	-
	80 x 80	HK-KT23UW	○	◎	-	-	○	◎
		HK-KT43UW	-	○	◎	◎	-	○
		HK-KT7M3W	-	-	○	○	-	-
		HK-KT103W	-	-	-	○	-	-
	90 x 90	HK-KT63UW	-	-	◎	◎	-	-
		HK-KT7M3UW	-	-	○	○	-	-
		HK-KT103UW	-	-	-	○	-	-
HK-KT_4_W	60 x 60	HK-KT434W	○	◎	-	-	○	◎
		HK-KT634W	-	○	◎	◎	-	○
	80 x 80	HK-KT7M34W	-	○	◎	◎	-	○
		HK-KT1034W	-	-	◎	◎	-	-
	90 x 90	HK-KT1534W	-	-	○	○	-	-
		HK-KT2034W	-	-	-	○	-	-
		HK-KT2024W	-	-	-	○	-	-
HK-MT_W (*3)	40 × 40	HK-MT053W	◎	◎	-	-	◎	◎
		HK-MT13W	◎	◎	-	-	◎	◎
		HK-MT1M3W	○	◎	-	-	○	◎
	60 × 60	HK-MT23W	○	◎	-	-	○	◎
		HK-MT43W	-	○	◎	◎	-	○
		HK-MT63W	-	-	○	○	-	-
	80 × 80	HK-MT7M3W	-	-	○	○	-	-
		HK-MT103W	-	-	-	○	-	-
HK-MT_VW (*3)	40 × 40	HK-MT053VW	◎	◎	-	-	◎	◎
		HK-MT13VW	◎	◎	-	-	◎	◎
		HK-MT1M3VW	○	◎	-	-	○	◎
	60 × 60	HK-MT23VW	○	◎	-	-	○	◎
		HK-MT43VW	-	-	◎	◎	-	-
		HK-MT63VW	-	-	○	○	-	-
	80 × 80	HK-MT7M3VW	-	-	○	○	-	-
HK-ST_W	130 x 130	HK-ST52W	-	-	◎	◎	-	-
		HK-ST102W	-	-	-	○	-	-
HK-ST_4_W	130 x 130	HK-ST524W	-	○	○	-	-	○
		HK-ST1024W	-	-	◎	◎	-	-
		HK-ST1724W	-	-	-	○	-	-
		HK-ST2024AW	-	-	-	○	-	-
HK-RT_W	90 × 90	HK-RT103W	-	-	-	○	-	

Notes:

1. The combinations of servo motors and servo amplifiers with special specifications are the same as those of standard servo amplifiers.Refer to the servo amplifiers with the same rated output.
2. The combinations of servo amplifiers and geared servo motors, servo motors with an electromagnetic brake, or servo motors with functional safety are the same as those described in this table. Note that the torque is not increased for the combinations marked with when a geared servo motor is used.
3. 3. Use the servo amplifiers with firmware version C2 or later. If the servo amplifiers with the previous firmware version are connected, an alarm occurs.

Combinations of Rotary Servo Motors and Servo Amplifiers (*1)

The torque can be increased by combining a large-capacity drive unit. (*2)
The torque characteristics vary by the combinations. Refer to the list of the specifications of each rotary servo motor.
Any combination of the servo motors with different series and capacities is possible as long as the servo motors are compatible with the multi-axis drive unit.

○ = Standard Torque
◎ = Increased Torque

Drive Unit (400V)

Rotary Servo Motor (*2)			Drive unit MR-J5D1-_					Drive unit MR-J5D2-_					Drive unit MR-J5D3-_	
			100G4	200G4	350G4	500G4	700G4	100G4	200G4	350G4	500G4	700G4	100G4	200G4
HK-KT_W	40 × 40	HK-KT053W	◎ (*3)	-	-	-	-	◎ (*3)	-	-	-	-	◎ (*3)	-
		HK-KT13W	◎ (*3)	-	-	-	-	◎ (*3)	-	-	-	-	◎ (*3)	-
		HK-KT1M3W	◎ (*3)	-	-	-	-	◎ (*3)	-	-	-	-	◎ (*3)	-
HK-KT_4_W	60 × 60	HK-KT434W	◎ (*3)	◎ (*3)	-	-	-	◎ (*3)	◎ (*3)	-	-	-	◎ (*3)	◎ (*3)
		HK-KT634W	○ (*3)	◎ (*3)	◎ (*3)	-	-	○ (*3)	◎ (*3)	◎ (*3)	-	-	○ (*3)	◎ (*3)
	80 × 80	HK-KT7M34W	○ (*3)	◎ (*3)	◎ (*3)	-	-	○ (*3)	◎ (*3)	◎ (*3)	-	-	○ (*3)	◎ (*3)
		HK-KT1034W	○ (*3)	◎ (*3)	◎ (*3)	-	-	○ (*3)	◎ (*3)	◎ (*3)	-	-	○ (*3)	◎ (*3)
	90 × 90	HK-KT634UW	◎	◎	-	-	-	◎	◎	-	-	-	◎	◎
		HK-KT1034UW	○	◎	◎	-	-	○	◎	◎	-	-	○	◎
		HK-KT1534W	-	○ (*3)	◎ (*3)	-	-	-	○ (*3)	◎ (*3)	-	-	-	○ (*3)
		HK-KT2034W	-	○ (*3)	◎ (*3)	-	-	-	○ (*3)	◎ (*3)	-	-	-	○ (*3)
		HK-KT2024W	-	○ (*3)	◎ (*3)	-	-	-	○ (*3)	◎ (*3)	-	-	-	○ (*3)
HK-ST_4_W (*6)	130 × 130	HK-ST524W	◎ (*4)	◎ (*4)	-	-	-	◎ (*4)	◎ (*4)	-	-	-	◎ (*4)	◎ (*4)
		HK-ST1024W	○ (*4)	◎ (*4)	◎ (*4)	-	-	○ (*4)	◎ (*4)	◎ (*4)	-	-	○ (*4)	◎ (*4)
		HK-ST1724W	-	○ (*4)	○ (*4)	○ (*5)	-	-	○ (*4)	○ (*4)	○ (*5)	-	-	○ (*4)
		HK-ST2024AW	-	○ (*4)	◎ (*4)	◎ (*5)	-	-	○ (*4)	◎ (*4)	◎ (*5)	-	-	○ (*4)
		HK-ST3024W	-	-	○ (*4)	◎ (*5)	◎ (*5)	-	-	○ (*4)	◎ (*5)	◎ (*5)	-	-
		HK-ST3534W	-	-	○	◎	-	-	-	○	◎	-	-	-
		HK-ST5034W	-	-	-	○	◎	-	-	-	○	◎	-	-
	176 × 176	HK-ST2024W	-	○ (*4)	◎ (*4)	◎ (*5)	-	-	○ (*4)	◎ (*4)	◎ (*5)	-	-	○ (*4)
		HK-ST3524W	-	-	○ (*4)	◎ (*5)	◎ (*5)	-	-	○ (*4)	◎ (*5)	◎ (*5)	-	-
		HK-ST5024W	-	-	-	○ (*5)	◎ (*5)	-	-	-	○ (*5)	◎ (*5)	-	-
		HK-ST7024W	-	-	-	-	○ (*5)	-	-	-	-	○ (*5)	-	-
HK-RT_4W	90 × 90	HK-RT1034W	○	◎	-	-	-	○	◎	-	-	-	○	◎
		HK-RT1534W	-	○	-	◎	-	-	○	-	◎	-	-	○
		HK-RT2034W	-	○	◎	-	-	-	○	◎	-	-	-	○
	130 × 130	HK-RT3534W	-	-	○	◎	-	-	-	○	◎	-	-	-
		HK-RT5034W	-	-	-	○	◎	-	-	-	○	◎	-	-
		HK-RT7034W	-	-	-	-	○	-	-	-	-	○	-	-

Notes:
1. The combinations of servo motors and drive units with special specifications are the same as those of standard drive units. Refer to the drive units with the same rated output.
2. The combinations of drive units and geared servo motors, servo motors with an electromagnetic brake, or servo motors with functional safety are the same as those described in this table. Note that the torque is not increased for the combinations marked with when a geared servo motor is used.
3. Use the rotary servo motors manufactured in September 2020 or later. If the rotary servo motors manufactured before that date are connected, an alarm occurs. Refer to "Rotary Servo Motor User's Manual" for how to check the date of manufacture.
4. Use the rotary servo motors manufactured in December 2020 or later. If the rotary servo motors manufactured before that date are connected, an alarm occurs. Refer to "Rotary Servo Motor User's Manual" for how to check the date of manufacture.
5. Use the rotary servo motors manufactured in April 2021 or later. If the rotary servo motors manufactured before that date are connected, an alarm occurs. Refer to "Rotary Servo Motor User's Manual" for how to check the date of manufacture.
6. The drive units for HK-ST1524G_ geared servo motor are the same as for HK-ST1724W.

Combinations of Direct Drive Motors and Servo Amplifiers (*1)

The maximum torque will be increased by combining the servo amplifiers with a large capacity. The torque characteristics vary by the combinations. Refer to the list of specifications of each direct drive motor. Any combination of the rotary servo motors, the linear servo motors, and the direct drive motors with different series and capacities is possible as long as the servo motors are compatible with the servo amplifier.

X = Compatible
- = Not compatible
○ = Future support planned

1-Axis Servo Amplifier

Rotary Servo Motor MR-J5-_		20G/A	40G/A	60G/A	70G/A	100G/A	350G/A	500G/A
TM-RG2M/TM-RU2M Series	TM-RG2M002C30 TM-RU2M002C30	X	-	-	-	-	-	-
	TM-RG2M004E30 TM-RU2M004E30	X	○	-	-	-	-	-
	TM-RG2M009G30 TM-RU2M009G30	-	X	-	-	-	-	-
TM-RFM Series	TM-RFM002C20	X	-	-	-	-	-	-
	TM-RFM004C20	-	X	-	-	-	-	-
	TM-RFM006C20	-	-	X	-	-	-	-
	TM-RFM006E20	-	-	X	-	-	-	-
	TM-RFM012E20	-	-	-	X	-	-	-
	TM-RFM018E20	-	-	-	-	X	-	-
	TM-RFM012G20	-	-	-	X	-	-	-
	TM-RFM048G20	-	-	-	-	-	X	-
	TM-RFM072G20	-	-	-	-	-	X	-
	TM-RFM040J10	-	-	-	X	-	-	-
	TM-RFM120J10	-	-	-	-	-	X	-
	TM-RFM240J10	-	-	-	-	-	-	X

Note:
1. Note that combinations of servo motors and servo amplifiers with special specifications are the same as those of standard servo amplifiers. Refer to the servo amplifiers with the same rated output.

Multi-Axis Servo Amplifier

Direct Drive Motor (*1)		Servo Amplifier MR-J5W2-				Servo Amplifier MR-J5W3-	
		22G/A	42G/A	77G/A	1010G/A	222G/A	444G/A
TM-RG2M/TM-RU2M Series	TM-RG2M002C30 TM-RU2M002C30	X	X	-	-	X	X
	TM-RG2M004E30 TM-RU2M004E30	X	○	-	-	X	○
	TM-RG2M009G30 TM-RU2M009G30	-	X	X	X	-	X
TM-RFM Series	TM-RFM002C20	X	X	-	-	X	X
	TM-RFM004C20	-	X	X	X	-	X
	TM-RFM006C20	-	-	X	X	-	-
	TM-RFM006E20	-	-	X	X	-	-
	TM-RFM012E20	-	-	X	X	-	-
	TM-RFM018E20	-	-	-	X	-	-
	TM-RFM012G20	-	-	X	X	-	-
	TM-RFM040J10	-	-	X	X	-	-

Notes:
1. Use the direct drive motors manufactured in June 2019 or later when connecting to MR-J5 servo amplifiers. If the direct drive motors manufactured before the date above are connected, an alarm occurs.
2. Note that combinations of servo motors and servo amplifiers with special specifications are the same as those of standard servo amplifiers. Refer to the servo amplifiers with the same rated output.

Combinations of Linear Servo Motors and Servo Amplifiers (*1)

1-Axis Servo Amplifier

X = Compatible
- = Not compatible

Linear Servo Motor			Rotary Servo Motor MR-J5-_									
	Primary Side (Coil)	Secondary Side (Magnet)	10G/A	20G/A	40G/A	60G/A	70G/A	100G/A	200G/A	350G/A	500G/A	700G/A
LM-H3 Series	LM-H3P2A-07P-BSS0	LM-H3S20-288-BSS0 LM-H3S20-384-BSS0 LM-H3S20-480-BSS0 LM-H3S20-768-BSS0	-	-	X	-	-	-	-	-	-	-
	LM-H3P3A-12P-CSS0	LM-H3S30-288-CSS0 LM-H3S30-384-CSS0 LM-H3S30-480-CSS0 LM-H3S30-768-CSS0	-	-	X	-	-	-	-	-	-	-
	LM-H3P3B-24P-CSS0		-	-	-	-	X	-	-	-	-	-
	LM-H3P3C-36P-CSS0		-	-	-	-	X	-	-	-	-	-
	LM-H3P3D-48P-CSS0		-	-	-	-	-	-	X	-	-	-
	LM-H3P7A-24P-ASS0	LM-H3S70-288-ASS0 LM-H3S70-384-ASS0 LM-H3S70-480-ASS0 LM-H3S70-768-ASS0	-	-	-	-	X	-	-	-	-	-
	LM-H3P7B-48P-ASS0		-	-	-	-	-	-	X	-	-	-
	LM-H3P7C-72P-ASS0		-	-	-	-	-	-	X	-	-	-
	LM-H3P7D-96P-ASS0		-	-	-	-	-	-	-	X	-	-
LM-AJ Series	LM-AJP1B-07K-JSS0	LM-AJS10-080-JSS0 LM-AJS10-200-JSS0 LM-AJS10-400-JSS0	-	-	X	-	-	-	-	-	-	-
	LM-AJP1D-14K-JSS0		-	-	-	-	X	-	-	-	-	-
	LM-AJP2B-12S-JSS0	LM-AJS20-080-JSS0 LM-AJS20-200-JSS0 LM-AJS20-400-JSS0	-	-	X	-	-	-	-	-	-	-
	LM-AJP2D-23T-JSS0		-	-	-	-	X	-	-	-	-	-
	LM-AJP3B-17N-JSS0	LM-AJS30-080-JSS0 LM-AJS30-200-JSS0 LM-AJS30-400-JSS0	-	-	X	-	-	-	-	-	-	-
	LM-AJP3D-35R-JSS0		-	-	-	-	X	-	-	-	-	-
	LM-AJP4B-22M-JSS0	LM-AJS40-080-JSS0 LM-AJS40-200-JSS0 LM-AJS40-400-JSS0	-	-	X	-	-	-	-	-	-	-
	LM-AJP4D-45N-JSS0		-	-	-	-	X	-	-	-	-	-
LM-F Series	LM-FP2B-06M-1SS0	LM-FS20-480-1SS0 LM-FS20-576-1SS0	-	-	-	-	-	-	X	-	-	-
	LM-FP2D-12M-1SS0		-	-	-	-	-	-	-	-	X	-
	LM-FP2F-18M-1SS0		-	-	-	-	-	-	-	-	-	X
	LM-FP4B-12M-1SS0	LM-FS40-480-1SS0 LM-FS40-576-1SS0	-	-	-	-	-	-	-	-	X	-
	LM-FP4D-24M-1SS0		-	-	-	-	-	-	-	-	-	X
LM-K2 Series	LM-K2P1A-01M-2SS1	LM-K2S10-288-2SS1 LM-K2S10-384-2SS1 LM-K2S10-480-2SS1 LM-K2S10-768-2SS1	-	-	X	-	-	-	-	-	-	-
	LM-K2P1C-03M-2SS1		-	-	-	-	-	-	X	-	-	-
	LM-K2P2A-02M-1SS1	LM-K2S20-288-1SS1 LM-K2S20-384-1SS1 LM-K2S20-480-1SS1 LM-K2S20-768-1SS1	-	-	-	-	X	-	-	-	-	-
	LM-K2P2C-07M-1SS1		-	-	-	-	-	-	-	X	-	-
	LM-K2P2E-12M-1SS1		-	-	-	-	-	-	-	-	X	-
	LM-K2P3C-14M-1SS1	LM-K2S30-288-1SS1 LM-K2S30-384-1SS1 LM-K2S30-480-1SS1 LM-K2S30-768-1SS1	-	-	-	-	-	-	-	X	-	-
	M-K2P3E-24M-1SS1		-	-	-	-	-	-	-	-	X	-
LM-U2 Series	LM-U2PAB-05M-0SS0	LM-U2SA0-240-0SS0 LM-U2SA0-300-0SS0 LM-U2SA0-420-0SS0	-	X	-	-	-	-	-	-	-	-
	LM-U2PAD-10M-0SS0		-	-	X	-	-	-	-	-	-	-
	LM-U2PAF-15M-0SS0		-	-	X	-	-	-	-	-	-	-
	LM-U2PBB-07M-1SS0	LM-U2SB0-240-1SS1 LM-U2SB0-300-1SS1 LM-U2SB0-420-1SS1	-	X	-	-	-	-	-	-	-	-
	LM-U2PBD-15M-1SS0		-	-	-	X	-	-	-	-	-	-
	LM-U2PBF-22M-1SS0		-	-	-	-	X	-	-	-	-	-
	LM-U2P2B-40M-2SS0	LM-U2S20-300-2SS1 LM-U2S20-480-2SS1	-	-	-	-	-	-	X	-	-	-
	LM-U2P2C-60M-2SS0		-	-	-	-	-	-	-	X	-	-
	LM-U2P2D-80M-2SS0		-	-	-	-	-	-	-	-	X	-

Note:
1. The combinations of servo motors and servo amplifiers with special specifications are the same as those of standard servo amplifiers. Refer to the servo amplifiers with the same rated output.

Multi-Axis Servo Amplifier

X = Compatible
- = Not compatible

	Primary Side (Coil)	Secondary Side (Magnet)	Servo amplifier MR-J5W2-				Servo amplifier MR-J5W3-	
			22G	44G	77G	1010G	222G	444G
LM-H3 Series	LM-H3P2A-07P-BSS0	LM-H3S20-288-BSS0 LM-H3S20-384-BSS0 LM-H3S20-480-BSS0 LM-H3S20-768-BSS0	-	X	X	X	-	X
	LM-H3P3A-12P-CSS0	LM-H3S30-288-CSS0 LM-H3S30-384-CSS0 LM-H3S30-480-CSS0 LM-H3S30-768-CSS0	-	X	X	X	-	X
	LM-H3P3B-24P-CSS0		-	-	X	X	-	-
	LM-H3P3C-36P-CSS0		-	-	X	X	-	-
	LM-H3P7A-24P-ASS0	LM-H3S70-288-ASS0 LM-H3S70-384-ASS0 LM-H3S70-480-ASS0 LM-H3S70-768-ASS0	-	-	X	X	-	-
LM-AJ Series	LM-AJP1B-07K-JSS0	LM-AJS10-080-JSS0 LM-AJS10-200-JSS0 LM-AJS10-400-JSS0	-	X	X	X	-	X
	LM-AJP1D-14K-JSS0		-	-	X	X	-	-
	LM-AJP2B-12S-JSS0	LM-AJS20-080-JSS0 LM-AJS20-200-JSS0 LM-AJS20-400-JSS0	-	X	X	X	-	X
	LM-AJP2D-23T-JSS0		-	-	X	X	-	-
	LM-AJP3B-17N-JSS0	LM-AJS30-080-JSS0 LM-AJS30-200-JSS0 LM-AJS30-400-JSS0	-	X	X	X	-	X
	LM-AJP3D-35R-JSS0		-	-	X	X	-	-
	LM-AJP4B-22M-JSS0	LM-AJS40-080-JSS0 LM-AJS40-200-JSS0 LM-AJS40-400-JSS0	-	X	X	X	-	X
	LM-AJP4D-45N-JSS0		-	-	X	X	-	-
LM-K2 Series	LM-K2P1A-01M-2SS1	LM-K2S10-288-2SS1 LM-K2S10-384-2SS1 LM-K2S10-480-2SS1 LM-K2S10-768-2SS1	-	X	X	X	-	X
	LM-K2P2A-02M-1SS1	LM-K2S20-288-1SS1 LM-K2S20-384-1SS1 LM-K2S20-480-1SS1 LM-K2S20-768-1SS1	-	-	X	X	-	-
LM-U2 Series	LM-U2PAB-05M-0SS0	LM-U2SA0-240-0SS0 LM-U2SA0-300-0SS0 LM-U2SA0-420-0SS0	X	X	-	-	X	X
	LM-U2PAD-10M-0SS0		-	X	X	X	-	X
	LM-U2PAF-15M-0SS0		-	X	X	X	-	X
	LM-U2PBB-07M-1SS0	LM-U2SB0-240-1SS1 LM-U2SB0-300-1SS1 LM-U2SB0-420-1SS1	X	X	-	-	X	X
	LM-U2PBD-15M-1SS0		-	-	X	X	-	-
	LM-U2PBF-22M-1SS0		-	-	X	X	-	-

Note:
1. Note that combinations of servo motors and servo amplifiers with special specifications are the same as those of standard servo amplifiers. Refer to the servo amplifiers with the same rated output.

Environment

Motion Module

Item	Operation	Storage
Ambient Temperature	0 ˚C to 55 ˚C (when not using the extended temperature range base unit) 0 ˚C to 60 ˚C (when using the extended temperature range base unit) (*5)	-25 ˚C to 75 ˚C (non-freezing)
Ambient Humidity	5 %RH to 95 %RH (non-condensing)	
Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
Altitude	2000 m or less	
Vibration Resistance	Under intermittent vibration (directions of X, Y, and Z axes): 5 Hz to 8.4 Hz, displacement amplitude 3.5 mm 8.4 Hz to 150 Hz, acceleration amplitude 9.8 m/s² Under continuous vibration: 5 Hz to 8.4 Hz, displacement amplitude 1.75 mm 8.4 Hz to 150 Hz, acceleration amplitude 4.9 m/s²	

Servo Amplifier

Item	Operation	Transportation	Storage
Ambient Temperature	0 ˚C to 60 ˚C (non-freezing) Class 3K3 (IEC 60721-3-3)	-25 ˚C to 70 ˚C (non-freezing) Class 2K3 (IEC 60721-3-2)	-25 ˚C to 70 ˚C (non-freezing) Class 1K3 (IEC 60721-3-1)
Ambient Humidity	5 %RH to 95 %RH (non-condensing)		
Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust		
Altitude/Atmospheric Pressure	Altitude: 2000 m or less (*3)	Overland/sea transportation, or transporting on an airplane whose cargo compartment is pressurized at 700 hPa or higher	Atmospheric pressure: 700 hPa to 1060 hPa (Equivalent to altitudes from -400 m to 3000 m)
Vibration Resistance	Under intermittent vibration: 10 Hz to 57 Hz, displacement amplitude 0.075 mm 57 Hz to 150 Hz, acceleration amplitude 9.8 m/s² Class 3M1 (IEC 60721-3-3) Under continuous vibration: 10 Hz to 55 Hz, acceleration amplitude 5.9 m/s²	2 Hz to 8 Hz, displacement amplitude (single amplitude) 7.5 mm 8 Hz to 200 Hz, acceleration amplitude 20 m/s² Class 2M3 (IEC 60721-3-2)	2 Hz to 9 Hz, displacement amplitude (single amplitude) 1.5 mm 9 Hz to 200 Hz, acceleration amplitude 5 m/s² Class 1M2 (IEC 60721-3-1)

Rotary Servo Motor

Item	Operation	Storage
Ambient Temperature	0 ˚C to 60 ˚C (non-freezing) (*2)	-25 ˚C to 75 ˚C (non-freezing)
Ambient Humidity	10 %RH to 90 %RH (non-condensing)	
Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust, no object generating a strong magnetic field	
Altitude	2000 m or less (*3)	
External Magnetic Field	10 mT or less	
Vibration Resistance	Refer to the specifications of each rotary servo motor	

Linear Servo Motor (LM-H3/LM-F/LM-K2/LM-U2 Series)

Item	Operation	Storage
Ambient Temperature	0 ˚C to 60 ˚C (non-freezing)	-15 ˚C to 70 ˚C (non-freezing)
Ambient Humidity	10 %RH to 80 %RH (non-condensing)	10 %RH to 90 %RH (non-condensing)
Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
Altitude	2000 m or less (*3)	
Vibration Resistance	Refer to the specifications of each linear servo motor	

Linear Servo Motor (LM-AJ Series)

Item	Operation	Storage
Ambient Temperature	0 ˚C to 40 ˚C (non-freezing)	-15 ˚C to 70 ˚C (non-freezing)
Ambient Humidity	10 %RH to 80 %RH (non-condensing)	10 %RH to 90 %RH (non-condensing)
Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
Altitude	1000 m or less	
Vibration Resistance	Refer to the specifications of each linear servo motor	

Direct Drive Motor

Item	Operation	Storage
Ambient Temperature	0 ˚C to 40 ˚C (non-freezing)	-15 ˚C to 70 ˚C (non-freezing)
Ambient Humidity	10 %RH to 80 %RH (non-condensing)	10 %RH to 90 %RH (non-condensing)
Ambience (*1, *4)	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust, no object generating a strong magnetic field	
Altitude	2000 m or less (*3)	
Vibration Resistance	Refer to the specifications of each direct drive motor	

Notes:
1. Do not use the servo motors in the environment where the servo motors are exposed to oil mist, oil and/or water.
2. Refer to User's Manuals of each servo motor for the restrictions on the ambient temperature.
3. Refer to User's Manuals of each servo amplifier and servo motor for the derating condition when using the servo amplifiers and servo motors at an altitude exceeding 1000 m.
4. Do not place any object (such as a magnet) which generates a magnetic force near the direct drive motor. If it is unavoidable, take a measure such as mounting a shielding plate and so on to cut off the magnetic force.

Safety Sub-Functions (*1) Specifications of Servo Amplifiers

MR-J5-G(-N1)/MR-J5-A(-RJ)/MR-J5-G4/MR-J5-G4-N1/MR-J5-A4/MR-J5-A4-RJ

Safety Performance	Satisfied standards	EN ISO 13849-1:2015 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2
	Mean time to dangerous failure (MTTFd)	MTTFd ≥ 100 [years] (314a)
	Diagnostic coverage (DC)	DC = Medium, 97.6 %
	Probability of dangerous Failure per Hour (PFH)	PFH = 6.4×10^{-9} [1/h]
	Mission time (TM) (*3)	TM = 20 [years]

MR-J5-G-RJ(N1)/MR-J5W_)/MR-J5-G4-RJ/MR-J5-G4-RJN1

Safety Performance	Satisfied standards (*2)	EN ISO 13849-1:2015 Category 4 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2
	Mean time to dangerous failure (MTTFd)	MTTFd ≥ 100 [years] (750a)
	Diagnostic coverage (DC)	DC = Medium, 96.5 %
	Probability of dangerous Failure per Hour (PFH)	PFH = 3×10^{-9} [1/h]
	Mission time (TM) (*3)	TM = 20 [years]

Servo Amplifier

Safety Sub-Functions (*2)	**STO**	Shut-off response time (STO input off — energy shut off)	8 ms or less (using input device) 60 ms or less (using CC-Link IE TSN) (*4, *5, *8)
	SS1	Deceleration delay time	0 ms to 60000 ms (functional safety parameter setting)
	SS2	Deceleration delay time	0 ms to 60000 ms (functional safety parameter setting)
	SOS	Observation position	0 rev to 1000 rev (functional safety parameter setting)
	SBC	Shut-off response time	8 ms or less (using input device) 60 ms or less (using CC-Link IE TSN) (*4, *5, *8)
	SLS1/2/3/4	Observation speed	0 r/min (mm/s) to 10000 r/min (mm/s) (functional safety parameter setting) (*6)
	SSM	Observation speed	0 r/min (mm/s) to 10000 r/min (mm/s) (functional safety parameter setting)
	SDI	Direction monitor delay time	0 ms to 60000 ms (functional safety parameter setting)
	SLI	Observation position	0 rev to 1000 rev (functional safety parameter setting)
	SLT	Observation torque	-1000.0 [%] to 1000.0 [%] (functional safety parameter setting)
Input/Output Function	**Input Device**	Number of inputs	1 point x 2 systems
		Permissible time for mismatched double inputs	0 ms to 60000 ms (functional safety parameter setting)
		Noise elimination filter	1.000 ms to 32.000 ms (functional safety parameter setting)
		Test pulse off time (*7)	1 Hz to 25 Hz
	Output Device	Number of outputs	1 point x 2 systems
		Test pulse off time (*7)	0.500 ms to 2.000 ms (functional safety parameter setting)
		Test pulse interval (*7)	1 s or less
Safety Communication Function		Response time	250 ms (*9)
		Transmission interval monitor time	16.0 ms to 1000.0 ms (functional safety parameter setting) (using CC-Link IE TSN) (*5, *8)
		Safety communication delay time	60 ms or less (using CC-Link IE TSN) (*4, *5, *8)

Notes:

1. Supported safety sub-functions and their safety levels vary by the combinations of the servo amplifier and the servo motor, and the firmware version of the servo amplifier. Refer to "List of supported safety sub-functions".
2. When DI/O connection (CN8) is used, a diagnosis using test pulses is required to meet Category 4 PL e, SIL 3.
3. The performance of special proof tests within the mission time of the product is regarded as not necessary, however, the diagnostic interval is suggested as at least one test per three months for Category 3 PL e, SIL 3 on IEC 61800-5-2:2016.
4. This value is applicable when the transmission interval monitor time is 32.0 ms or less.
5. Set the communication cycle to 125 µs or more when connecting to the network.
6. The observation speed can be set separately.
7. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
8. The safety-sub functions through the network connection are supported only by MR-J5-G-RJ.
9. This value is applicable when the transmission interval monitor time is 64.0 ms or less.

Safety Sub-Functions

List of supported safety sub-functions (servo amplifier firmware version: B2)
Supported safety sub-functions and their safety levels vary by the combinations of the servo amplifier and the servo motor.
Refer to the table below.

Servo Amplifier Model	Connection Method (Connector)	Servo Motor Type	Safety Sub-Function (IEC/EN 61800-5-2)										
			STO	SS1		SS2 (*3)	SOS (*3)	SBC	SLS (*3)	SSM (*3)	SDI (*3)	SLI (*3)	SLT
				SS1-t	SS1-r (*3)	SS2-t, SS2-r							
MR-J5-G MR-J5-A(-RJ)	DI/O Connection (CN8)	Servo motor with functional safety Rotary servo motor Linear servo motor Direct drive motor	Cat. 3 PL e, SIL 3	- (*8)	-	-	-	-	-	-	-	-	-
MR-J5-G4 MR-J5-A4(-RJ)		Servo motor with functional safety Rotary servo motor	Cat. 3 PL e, SIL 3	-	-	-	-	-	-	-	-	-	-
MR-J5-G-RJ	DI/O Connection (*2, *6) (CN8)	Servo motor with functional safety	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2
		Rotary servo motor Linear servo motor Direct drive motor	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2	-	-	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2	Cat. 3 PL d, SIL 2	Cat. 3 PL d, SIL 2	-	Cat. 3 PL d, SIL 2
	Network Connection (*1, *5, *7) (CN1A/CN1B)	Servo motor with functional safety	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2
		Rotary servo motor Linear servo motor Direct drive motor	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2	-	-	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2	Cat. 3 PL d, SIL 2	Cat. 3 PL d, SIL 2	-	Cat. 3 PL d, SIL 2
MR-J5-G4-RJ	DI/O Connection (*2, *6) (CN8)	Servo motor with functional safety	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2
		Rotary servo motor	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2	-	-	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2	Cat. 3 PL d, SIL 2	Cat. 3 PL d, SIL 2	-	Cat. 3 PL d, SIL 2
	Network Connection (*1, *5, *7) (CN1A/CN1B)	Servo motor with functional safety	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2
		Rotary servo motor	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2	-	-	Cat. 4 PL e, SIL 3	Cat. 3 PL d, SIL 2	Cat. 3 PL d, SIL 2	Cat. 3 PL d, SIL 2	-	Cat. 3 PL d, SIL 2
MR-J5W2-G (*4) MR-J5W3-G (*4)	DI/O Connection (*2, *6) (CN8)	Servo motor with functional safety Rotary servo motor Linear servo motor Direct drive motor	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	-	-	-	Cat. 4 PL e, SIL 3	-	-	-	-	-
MR-J5-G-N1	DI/O Connection (CN8)	Servo motor with functional safety Rotary servo motor Linear servo motor Direct drive motor	Cat. 4 PL e, SIL 3	-	-	-	-	-	-	-	-	-	-
MR-J5-G4-N1	DI/O Connection (CN8)	Servo motor with functional safety Rotary servo motor	Cat. 3 PL e, SIL 3	(*8)	-	-	-	-	-	-	-	-	-
MR-J5-G-RJN1	DI/O Connection (*2, *6) (CN8)	Servo motor with functional safety Rotary servo motor Linear servo motor Direct drive motor	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	-	-	-	Cat. 4 PL e, SIL 3	-	-	-	-	-
MR-J5-G4-RJN1		Servo motor with functional safety Rotary servo motor	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	-	-	-	Cat. 4 PL e, SIL 3	-	-	-	-	-
MR-J5W2-G-N1 MR-J5W3-G-N1		Servo motor with functional safety Rotary servo motor Linear servo motor Direct drive motor	Cat. 4 PL e, SIL 3	Cat. 4 PL e, SIL 3	-	-	-	Cat. 4 PL e, SIL 3	-	-	-	-	-

Notes:
1. Combine the servo amplifier with an R_SFCPU safety CPU with firmware version of 20 or later.
2. The listed safety levels are applicable when a safety CPU or a safety controller that meets Category 4 PL e, SIL 3 executes safety sub-function control. When a forced stop switch, a safety switch, or an enable switch is directly connected to the servo amplifier, the safety level is Category 3 PL d, SIL 2.
3. A fully closed loop system does not support SS1-r, SS2, SOS, SLS, SSM, SDI, and SLI.
4. The safety sub-functions are supported by MR-J5W_ manufactured in November 2019 or later. The STO function can be set for each axis.
5. Set the communication cycle to 125 µs or more when connecting to the network.
6. When DI/O connection (CN8) is used, a diagnosis using test pulses is required to meet Category 4 PL e, SIL 3.
7. The safety-sub functions through the network connection are supported only by MR-J5-G-RJ.
8. The servo amplifiers support SS1-t when combined with MR-J3-D05. Refer to p. 7-43 in this catalog for details.

Servo Motor Specifications

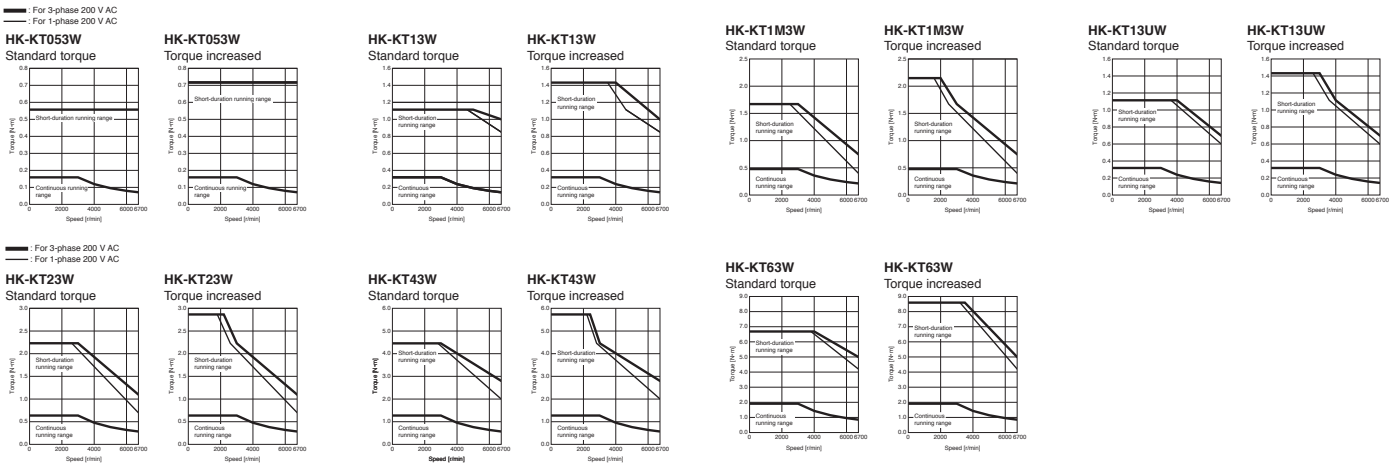
HK-KT_W (Low Inertia, Small Capacity) Specifications 200V

Servo Motor Model HK-KT_		053W	13W	1M3W	13UW	23W	43W	63W
Flange Size (mm)		40 × 40			60 × 60			
Continuous Running Duty (*4)	Rated Output (kW)	0.05	0.1	0.15	0.1	0.2	0.4	0.6
	Rated Torque (N•m) (*5)	0.16 (*6)	0.32	0.48	0.32	0.64	1.3	1.9
Maximum Torque (N•m) (*3)		0.56 (0.72)	1.1 (1.4)	1.7 (2.1)	1.1 (1.4)	2.2 (2.9)	4.5 (5.7)	6.7 (8.6)
Rated Speed (r/min) (*4)		3000						
Maximum Speed (r/min) (*4)		6700						
Power Rate Continuous Rated Torque	Standard (kW/s)	6.4	14.8	23.3	8.4	19.4	39.5	61.0
	With Electromagnetic Brake (kW/s)	5.8	14.0	22.4	6.6	16.0	36.7	58.0
Rated Current (A)		1.3	1.2	1.2	1.1	1.4	2.6	4.5
Maximum Current (A) (*3)		4.6 (6.2)	4.6 (6.0)	4.5 (6.0)	4.6 (6.0)	5.4 (7.1)	9.8 (14)	19 (25)
Moment of Inertia J (x10^{-4}kg•m^2)	Standard	0.0394	0.0686	0.0977	0.121	0.209	0.410	0.598
	With Electromagnetic Brake	0.0434	0.0725	0.102	0.153	0.254	0.442	0.629
Recommended Load/Motor Inertia Ratio (*1)		20 times or less (*9)		20 times or less	10 times or less (*9)	23 times or less (*8)	23 times or less	25 times or less
Speed/Position Detector		Batteryless absolute/incremental 26-bit encoder (resolution: 67,108,864 pulses/rev)						
Oil Seal		None (Servo motors with an oil seal are available. (HK-KT_J)) (*6)						
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HK-KT_B))						
Thermistor		None						
Insulation Class		155 (°F)						
Structure		Totally enclosed, natural cooling (IP rating: IP67) (*2, *7)						
Vibration Resistance (Note 1)		X: 49 m/s^2 Y: 49 m/s^2						
Vibration Rank		V10 (Note 3)						
Permissible Load for the Shaft (Note 2)	L (mm)	25				30		
	Radial (N)	88				245		
	Thrust (N)	59				98		
Environment	Ambient Temperature	Operation: 0 ˚C to 60 ˚C (non-freezing); Storage: -15 ˚C to 70 ˚C (non-freezing)						
	Ambient Humidity	10 %RH to 90 %RH (non-condensing)						
	Ambience	Indoors (no direct sunlight); no corrosive or inflammable gas, oil mist or dust, no object generating a strong magnetic field						
	Altitude	2000 m or less (*13)						
	External Magnetic Field	10 mT or less						
	Vibration Resistance	Refer to the specifications of each rotary servo motor						
Weight (kg)	Standard	0.27	0.37	0.47	0.57	0.77	1.2	1.5
	With Electromagnetic Brake	0.53	0.63	0.73	0.99	1.2	1.6	1.9

HK-KT_W Series Electromagnetic Brake Specifications (*1)

Servo Motor Model HK-KT_		053WB	13WB	1M3WB	13UWB	23WB	43WB	63WB
Type		Spring actuated type safety brake						
Rated Voltage		24 VDC (-10 % to 0 %)						
Power Consumption (W) at 20°C		6.4				7.9		
Electromagnetic Brake Static Friction Torque (N•m)		0.48 or higher				1.9 or higher		
Permissible Braking Work	Per Braking (J)	5.6				22		
	Per Hour (J)	56				220		
Electromagnetic Brake Life (*2)	Number of Times	20000						
	Work Per Braking (J)	5.6				22		

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.



HK-KT_W (Low Inertia, Small Capacity) Specifications 200V

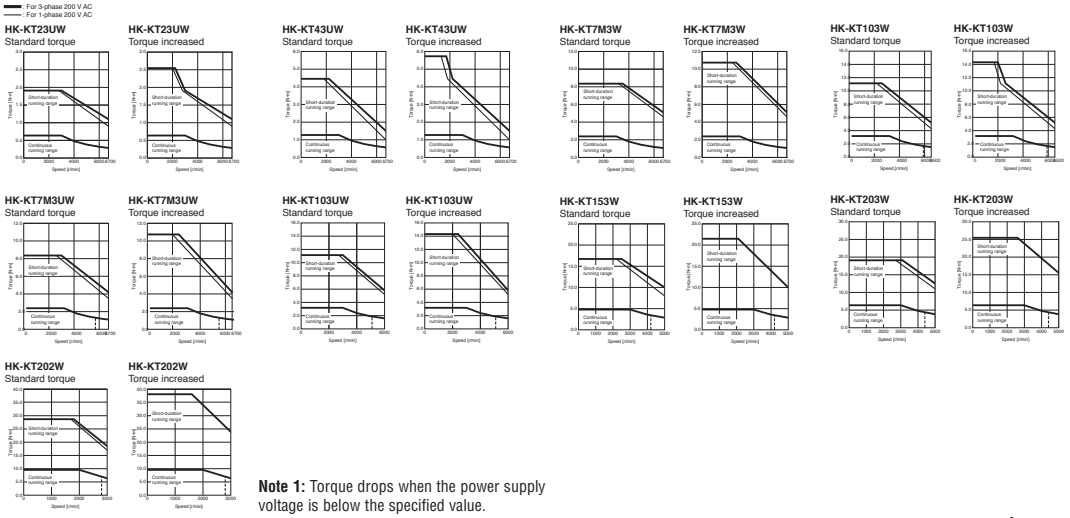
Servo Motor Model HK-KT_		23UW	43UW	7M3W	103W	7M3UW	103UW	153W	203W	202W
Flange Size (mm)		80 × 80				90 × 90				
Continuous Running Duty (*4)	Rated Output (kW)	0.2	0.4	0.75	1.0	0.75	1.0	1.5	2.0	2.0
	Rated Torque (N•m) (*5)	0.64	1.3	2.4	3.2	2.4	3.2	4.8	6.4	9.5
Maximum Torque (N•m) (*3)		1.9 (2.5)	4.5 (5.7)	8.4 (10.7)	11.1 (14.3)	8.4 (10.7)	11.1 (14.3)	16.7 (21.5)	19.1 (25.5)	28.6 (38.2)
Rated Speed (r/min) (*4)		3000								
Maximum Speed (r/min) (*4)		6700			6500	6700	6000	5000		3000
Power Rate Continuous Rated Torque	Standard (kW/s)	9.7	22.3	41.6	60.3	27.0	37.0	52.0	71.7	111
	With Electromagnetic Brake (kW/s)	7.3 1	8.8	37.7	56.0	23.3	32.9	48.3	67.7	107
Rated Current (A)		1.5	2.1	4.7	5.0	4.0	4.9	6.5	9.0	9.0
Maximum Current (A) (*3)		5.9 (9.0)	9.2 (13)	20 (26)	21 (28)	16 (22)	21 (27)	26 (34)	30 (41)	30 (41)
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	0.419	0.726	1.37	1.68	2.11	2.74	4.38	5.65	8.18
	With Electromagnetic Brake	0.557	0.864	1.51	1.81	2.45	3.08	4.72	5.99	8.53
Recommended Load/Motor Inertia Ratio (*1)		10 times or less		16 times or less	17 times or less	10 times or less	15 times or less			
Speed/Position Detector		Batteryless absolute/incremental 26-bit encoder (resolution: 67,108,864 pulses/rev)								
Oil Seal		None (Servo motors with an oil seal are available. (HK-KT_J))								
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HK-KT_B))								
Thermistor		None								
Insulation Class		155 (°F)								
Structure		Totally enclosed, natural cooling (IP rating: IP67) (*2, *6)								
Vibration Resistance (Note 1)		X: 49 m/s² Y: 49 m/s²				X: 24.5 m/s² Y: 49 m/s²		X: 24.5 m/s² Y: 24.5 m/s²		
Vibration Rank		V10 (*3)								
Permissible Load for the Shaft (Note 2)	L (mm)	30		40						
	Radial (N)	245		392						
	Thrust (N)	98		147						
Environment	Ambient Temperature	Operation: 0 ˚C to 60 ˚C (non-freezing); Storage: -15 ˚C to 70 ˚C (non-freezing)								
	Ambient Humidity	10 %RH to 90 %RH (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive or inflammable gas, oil mist or dust, no object generating a strong magnetic field								
	Altitude	2000 m or less (*13)								
	External Magnetic Field	10 mT or less								
	Vibration Resistance	Refer to the specifications of each rotary servo motor								
Weight (kg)	Standard	1.2	1.5	2.2	2.4	2.3	2.7	3.6	4.4	5.9
	With Electromagnetic Brake	1.9	2.2	2.9	3.1	3.4	3.8	4.7	5.5	7.0

Notes: For MR-J5 Servo Motor notes, please go to page 395

HK-KT_W Series Electromagnetic Brake Specifications (*1)

Servo Motor Model HK-KT_		23UWB	43UWB	7M3WB	103WB	7M3UWB	103UWB	153WB	203WB	202WB
Type		Spring actuated type safety brake								
Rated Voltage		24 VDC (-10 % to 0 %)								
Power Consumption (W) at 20 °C		8.2		10		9.0		13.8		
Electromagnetic Brake Static Friction Torque (N•m)		1.3 or higher		3.2 or higher		3.2 or higher		9.5 or higher		
Permissible Braking Work	Per Braking (J)	22		64		66		64		
	Per Hour (J)	220		640		660		640		
Electromagnetic Brake Life (*2)	Number of Times	20000								
	Work Per Braking (J)	22		64		33		64		

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.



Note 1: Torque drops when the power supply voltage is below the specified value.

HK-KT_W (Low Inertia, Small Capacity) 400V

Servo Motor Model HK-KT_		053W	13W	1M3W
Flange Size (mm)		40 × 40		
Continuous Running Duty (*4)	Rated Output (kW)	0.05	0.1	0.15
	Rated Torque (N•m) (*5)	0.16 (*6)	0.32	0.48
Maximum Torque (N•m) (*3)		0.56 (0.72)	1.1 (1.4)	1.7 (2.1)
Rated Speed (r/min) (*4)		3000		
Maximum Speed (r/min) (*4)		6700		
Power Rate Continuous Rated Torque	Standard (kW/s)	6.4	14.8	23.3
	With Electromagnetic Brake (kW/s)	5.8	14.0	22.4
Rated Current (A)		1.3	1.2	1.2
Maximum Current (A) (*3)		4.6 (6.2)	4.6 (6.0)	4.5 (6.0)
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	0.0394	0.0686	0.0977
	With Electromagnetic Brake	0.0434	0.0725	0.102
Recommended Load/Motor Inertia Ratio (*1)		20 times or less		25 times or less
Speed/Position Detector		Batteryless absolute/incremental 26-bit encoder (resolution: 67,108,864 pulses/rev)		
Oil Seal		None (Servo motors with an oil seal are available. (HK-KT_J)) (*6)		
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HK-KT_B))		
Thermistor		None		
Insulation Class		155 (°F)		
Structure		Totally enclosed, natural cooling (IP rating: IP67) (*2, *7)		
Vibration Resistance (Note 1)		X: 49 m/s² Y: 49 m/s²		
Vibration Rank		V10 (Note 3)		
Permissible Load for the Shaft (Note 2)	L (mm)	25		
	Radial (N)	88		
	Thrust (N)	59		
Weight (kg)	Standard	0.27	0.37	0.47
	With Electromagnetic Brake	0.53	0.63	0.73

Notes: For MR-J5 Servo Motor notes, please go to page 395

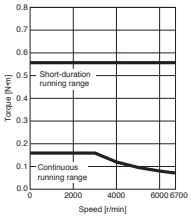
HK-KT_W Series Electromagnetic Brake Specifications (*1)

Servo Motor Model HK-KT_		053WB	13WB	1M3WB
Type		Spring actuated type safety brake		
Rated Voltage		24 VDC (-10 % to 0 %)		
Power Consumption (W) at 20°C		6.4		
Electromagnetic Brake Static Friction Torque (N•m)		0.48 or higher		
Permissible Braking Work	Per Braking (J)	5.6		
	Per Hour (J)	56		
Electromagnetic Brake Life (*2)	Number of Times	20000		
	Work Per Braking (J)	5.6		

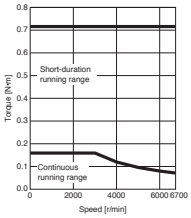
Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

: For 3-phase 400 V AC
: For 3-phase 380 V AC

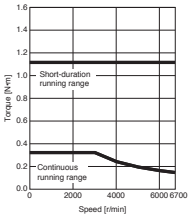
HK-KT053W
Standard torque



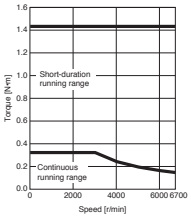
HK-KT053W
Torque increased



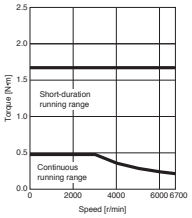
HK-KT13W
Standard torque



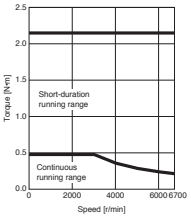
HK-KT13W
Torque increased



HK-KT1M3W
Standard torque



HK-KT1M3W
Torque increased



Note 1: Torque drops when the power supply voltage is below the specified value.

HK-KT_4_W (Low Inertia, Small Capacity) Specifications 200V

Servo Motor Model HK-KT_		434W	634W	7M34W	1034W	1534W	2034W	2024W
Flange Size (mm)		60 × 60		80 × 80		90 × 90		
Continuous Running Duty (*4)	Rated Output (kW)	0.2	0.3	0.375	0.5	0.75	1.0	1.0
	Rated Torque (N•m) (*5)	1.3	1.9	2.4	3.2	4.8	6.4	9.5
Maximum Torque (N•m) (*3)		4.5 (5.7)	6.7 (8.6)	8.4 (10.7)	11.1 (14.3)	21.5	25.5	38.2
Rated Speed (r/min) (*4)		1500						1000
Maximum Speed (r/min) (*4)		3500						1500
Power Rate Continuous Rated Torque	Standard (kW/s)	39.5	61.0	41.6	60.3	52.0	71.7	111
	With Electromagnetic Brake (kW/s)	36.7	58.0	37.7	56.0	48.3	67.7	107
Rated Current (A)		1.3	2.3	2.4	2.5	3.3	4.5	4.5
Maximum Current (A) (*3)		4.9 (6.6)	9.1 (13)	9.7 (13)	11 (14)	17	21	21
Moment of inertia J ($x10^{-4}$kg•m^2)	Standard	0.410	0.598	1.37	1.68	4.38	5.65	8.18
	With Electromagnetic Brake	0.442	0.629	1.51	1.81	4.72	5.99	8.53
Recommended Load/Motor Inertia Ratio (*1)		25 times or less		17 times or less		15 times or less		
Speed/Position Detector		Batteryless absolute/incremental 26-bit encoder (resolution: 67,108,864 pulses/rev)						
Oil Seal		None (Servo motors with an oil seal are available. (HK-KT_J))						
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HK-KT_B))						
Thermistor		None						
Insulation Class		155 (°F)						
Structure		Totally enclosed, natural cooling (IP rating: IP67) (*2, *7)						
Vibration Resistance (Note 1)		X: 49 m/s² Y: 49 m/s²				X: 24.5 m/s² Y: 24.5 m/s²		
Vibration Rank		V10 (Note 3)						
Permissible Load for the Shaft (Note 2)	L (mm)	30		40				
	Radial (N)	245		392				
	Thrust (N)	98		147				
Environment	Ambient Temperature	Operation: 0 ˚C to 60 ˚C (non-freezing); Storage: -15 ˚C to 70 ˚C (non-freezing)						
	Ambient Humidity	10 %RH to 90 %RH (non-condensing)						
	Ambience	Indoors (no direct sunlight); no corrosive or inflammable gas, oil mist or dust, no object generating a strong magnetic field						
	Altitude	2000 m or less (*13)						
	External Magnetic Field	10 mT or less						
	Vibration Resistance	Refer to the specifications of each rotary servo motor						
Weight (kg)	Standard	1.2	1.5	2.2	2.4	3.6	4.4	5.9
	With Electromagnetic Brake	1.6	1.9	2.9	3.1	4.7	5.5	7.0

Notes: For MR-J5 Servo Motor notes, please go to page 395

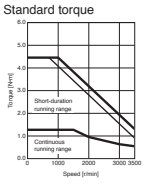
HK-KT_4_W Series Electromagnetic Brake Specifications (*1)

Servo Motor Model HK-KT_		053WB	13WB	1M3WB	13UWB	23WB	43WB	63WB
Type		Spring actuated type safety brake						
Rated Voltage		24 VDC (-10 % to 0 %)						
Power Consumption (W) at 20°C		7.9		10		13.8		
Electromagnetic Brake Static Friction Torque (N•m)		1.9 or higher		3.2 or higher		9.5 or higher		
Permissible Braking Work	Per Braking (J)	22		64		64		
	Per Hour (J)	220		640		640		
Electromagnetic Brake Life (*2)	Number of Times	20000						
	Work Per Braking (J)	22		64		64		

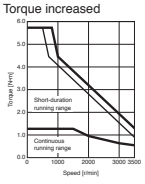
Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

: For 3-phase 200 V AC
: For 1-phase 200 V AC

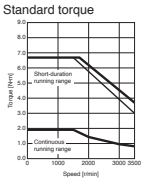
HK-KT434W
Standard torque



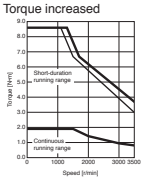
HK-KT434W
Torque increased



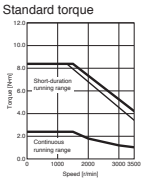
HK-KT634W
Standard torque



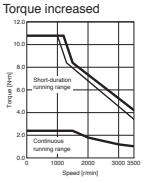
HK-KT634W
Torque increased



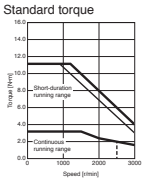
HK-KT7M34W
Standard torque



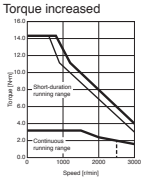
HK-KT7M34W
Torque increased



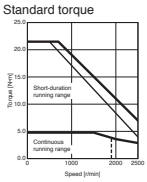
HK-KT1034W
Standard torque



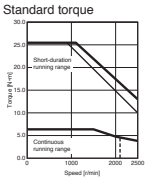
HK-KT1034W
Torque increased



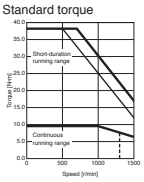
HK-KT1534W
Standard torque



HK-KT2034W
Standard torque



HK-KT2024W
Standard torque



Note 1: Torque drops when the power supply voltage is below the specified value.

HK-KT_4W (Low Inertia, Small Capacity) 400V

Servo Motor Model HK-KT_		434W	634W	7M34W	1034W	1534W	2034W	2024W
Flange Size (mm)		60 × 60		80 × 80		90 × 90		
Continuous Running Duty (*4)	Rated Output (kW)	0.4	0.6	0.75	1.0	1.5	2.0	2.0
	Rated Torque (N•m) (*5)	1.3	1.9	2.4	3.2	4.8	6.4	9.5
Maximum Torque (N•m) (*3)		4.5 (5.7)	6.7 (8.6)	8.4 (10.7)	11.1 (14.3)	16.7 (21.5)	19.1 (25.5)	28.6 (38.2)
Rated Speed (r/min) (*4)		3000						
Maximum Speed (r/min) (*4)		6700			6500	6700		3000
Power Rate Continuous Rated Torque	Standard (kW/s)	39.5	61.0	41.6	60.3	52.0	71.7	111
	With Electromagnetic Brake (kW/s)	36.7	58.0	37.7	56.0	48.3	67.7	107
Rated Current (A)		1.3	2.3	2.4	2.5	4.4	5.3	4.5
Maximum Current (A) (*3)		4.9 (6.6)	9.1 (13)	9.7 (13)	10 (14)	17 (23)	17 (24)	15 (21)
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	0.410	0.598	1.37	1.68	4.38	5.65	8.18
	With Electromagnetic Brake	0.442	0.629	1.51	1.81	4.72	5.99	8.53
Recommended Load/Motor Inertia Ratio (*1)		23 times or less	20 times or less (*14)	9 times or less (*11)	7 times or less (*14)	11 times or less (*14)	10 times or less (*14)	15 times or less
Speed/Position Detector		Batteryless absolute/incremental 26-bit encoder (resolution: 67,108,864 pulses/rev)						
Oil Seal		None (Servo motors with an oil seal are available. (HK-KT_J))						
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HK-KT_B))						
Thermistor		None						
Insulation Class		155 (°F)						
Structure		Totally enclosed, natural cooling (IP rating: IP67) (*2, *7)						
Vibration Resistance (Note 1)		X: 49 m/s² Y: 49 m/s²				X: 24.5 m/s² Y: 49 m/s²		
Vibration Rank		V10 (*3)						
Permissible Load for the Shaft (Note 2)	L (mm)	30		40				
	Radial (N)	245		392				
	Thrust (N)	98		147				
Weight (kg)	Standard	1.2	1.5	2.2	2.4	3.6	4.4	5.9
	With Electromagnetic Brake	1.6	1.9	2.9	3.1	4.7	5.5	7.0

Notes: For MR-J5 Servo Motor notes, please go to page 395

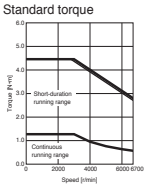
HK-KT_W Series Electromagnetic Brake Specifications (*1)

Servo Motor Model HK-KT_		434WB	634WB	7M34WB	1034WB	1534WB	2034WB	2024WB
Type		Spring actuated type safety brake						
Rated Voltage		24 VDC (-10 % to 0 %)						
Power Consumption (W) at 20 °C		7.9		10		13.8		
Electromagnetic Brake Static Friction Torque (N•m)		1.9 or higher		3.2 or higher		9.5 or higher		
Permissible Braking Work	Per Braking (J)	22		64		64		
	Per Hour (J)	220		640		640		
Electromagnetic Brake Life (*2)	Number of Times	20000				5000		
	Work Per Braking (J)	22		64		64		

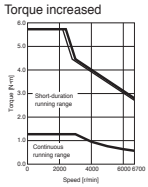
Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

: For 3-phase 400 V AC
: For 3-phase 380 V AC

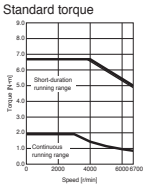
HK-KT434W
Standard torque



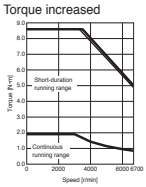
HK-KT434W
Torque increased



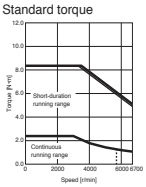
HK-KT634W
Standard torque



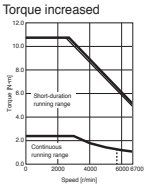
HK-KT634W
Torque increased



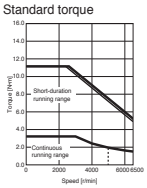
HK-KT7M34W
Standard torque



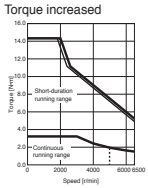
HK-KT7M34W
Torque increased



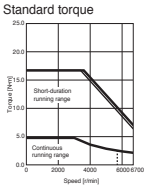
HK-KT1034W
Standard torque



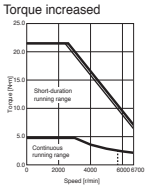
HK-KT1034W
Torque increased



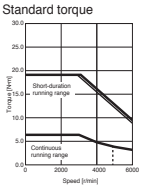
HK-KT1534W
Standard torque



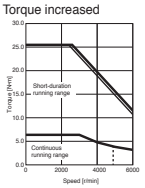
HK-KT1534W
Torque increased



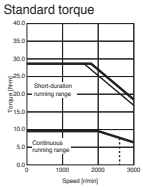
HK-KT2034W
Standard torque



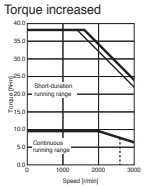
HK-KT2034W
Torque increased



HK-KT2024W
Standard torque



HK-KT2024W
Torque increased



Note 1: Torque drops when the power supply voltage is below the specified value.

HK-KT Series Geared Servo Motor Specifications

With a gear reducer for general industrial machines: G1

Model HK-KT	Output [kW]	Reduction Ratio	Actual Reduction Ratio	Moment of inertia J [× 10-4 kg•m²] (*1)		Permissible Load to Motor Inertia Ratio (*2) (When Converted Into the Servo Motor Shaft)	Permissible Load for the Shaft (*1)			Weight (kg)		Lubrication Method	Mounting Direction
				Standard	With Electro-magnetic Brake		Q [mm]	Radial [N]	Thrust [N]	Standard	With Electro-magnetic Brake		
053G1	0.05	1/5	9/44	0.0764	0.0804	5 times or less	12.5	150	200	1.4	1.6	Grease (filled)	Any direction
		1/12	49/576	0.0984	0.1024			240	320	1.8	2.0		
		1/20	25/484	0.0804	0.0844			370	450	1.8	2.0		
13G1	0.1	1/5	9/44	0.106	0.110	5 times or less	12.5	150	200	1.5	1.7		
		1/12	49/576	0.128	0.132			240	320	1.9	2.1		
		1/20	25/484	0.110	0.114			370	450	1.9	2.1		
23G1	0.2	1/5	19/96	0.363	0.408	7 times or less	17.5	330	350	3.2	3.6		
		1/12	961/11664	0.494	0.539			710	720	3.8	4.2		
		1/20	513/9984	0.375	0.420			780	780	3.8	4.2		
43G1	0.4	1/5	19/96	0.564	0.596	7 times or less	17.5	330	350	3.5	3.9		
		1/12	961/11664	0.695	0.727			710	720	4.1	4.5		
		1/20	7/135	0.687	0.719			760	760	5.2	5.6		
7M3G1	0.75	1/5	1/5	1.79	1.93	5 times or less	25	430	430	5.4	6.1		
		1/12	7/87	1.85	1.99			620	620	6.5	7.2		
		1/20	625/12544	2.52	2.66			970	960	9.4	11		

Item	Specifications
Mounting Method	Flange mounting
Output Shaft Rotation Direction	Same as the servo motor output shaft direction
Backlash (*4)	60 minutes or less at gear reducer output shaft
Maximum Torque (*5)	Three times of the rated torque (Refer to HK-KT series specifications in this catalog for the rated torque.)
Maximum Speed (At Servo Motor Shaft)	4500 r/min
IP Rating (Gear Reducer Part)	Equivalent to IP44
Gear Reducer Efficiency (*3)	40 % to 85 %

Notes:

1. The moments of inertia in the table are the values that are converted into the shaft of the servo motor with a gear reducer (and with an electromagnetic brake).
2. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
3. The gear reducer efficiency varies depending on the reduction ratio and the conditions of use such as an output torque, speed, and temperature. The values in the table are not guaranteed as they are representative values at the rated torque and speed at a temperature of 20 °C.
4. The backlash can be converted: 1 minute = 0.0167°
5. The torques of the geared servo motors do not increase even when these servo motors are combined with larger capacity servo amplifiers.

HK-KT Series Geared Servo Motor Specifications

With a gear reducer for general industrial machines: G1

Model HK-KT	Output [kW]	Reduction Ratio (*3)	Moment of inertia J [× 10^{-4} kg•m^2] (*1)		Permissible Load to Motor Inertia Ratio (*2) (When Converted Into the Servo Motor Shaft)	Permissible Load for the Shaft (*1)			Weight (kg)		Lubrication Method	Mounting Direction
			Standard	With Electro-magnetic Brake		L [mm]	Radial [N]	Thrust [N]	Standard	With Electro-magnetic Brake		
053G5	0.05	1/5 (40 × 40)	0.0429	0.0469	10 times or less	17	93	431	0.48	0.66	Grease (filled)	Any direction
		1/5 (60 × 60)	0.1074	0.1114		23	177	706	1.1	1.3		
		1/9	0.0419	0.0459		17	111	514	0.49	0.67		
		1/11	0.0994	0.1034		23	224	895	1.2	1.4		
		1/21	0.0904	0.0944		23	272	1987	1.2	1.4		
		1/33	0.0844	0.0884		23	311	1244	1.2	1.4		
		1/45	0.0844	0.0884		23	342	1366	1.2	1.4		
13G5	0.1	1/5 (40 × 40)	0.0721	0.076	10 times or less	17	93	431	0.58	0.76		
		1/5 (60 × 60)	0.137	0.141		23	177	706	1.2	1.4		
		1/11	0.129	0.133		23	224	895	1.3	1.5		
		1/21	0.120	0.124		23	272	1087	1.3	1.5		
		1/33	0.131	0.135		32	733	2581	2.5	2.7		
		1/45	0.130	0.134		32	804	2833	2.5	2.7		
23G5	0.2	1/5	0.410	0.455	14 times or less	23	177	706	1.7	2.7		
		1/11	0.412	0.457		23	224	895	1.8	2.1		
		1/21	0.707	0.752		32	640	2254	3.3	2.2		
		1/33	0.661	0.706		32	733	2581	3.3	3.7		
		1/45	0.660	0.705		32	804	2833	3.3	3.7		
43G5	0.4	1/5	0.611	0.643	14 times or less	23	177	706	2.1	2.5		
		1/11	0.986	1.02		32	527	1856	3.7	4.1		
		1/21	0.908	0.940		32	640	2254	3.7	4.1		
		1/33	0.960	0.992		57	1252	4992	5.8	6.2		
		1/45	0.954	0.986		57	1374	5478	5.8	6.2		
7M3G5	0.75	1/5	2.02	2.16	10 times or less	32	416	1465	4.2	4.9		
		1/11	1.93	2.07		32	527	1856	4.5	5.2		
		1/21	2.12	2.26		57	1094	4359	6.6	7.3		
		1/33	1.90	2.04		57	1252	4992	6.6	7.3		
		1/45	1.90	2.04		57	1374	5478	6.6	7.3		

Item	Specifications
Mounting Method	Flange mounting
Output Shaft Rotation Direction	Same as the servo motor output shaft direction
Backlash (*5)	3 minutes or less at gear reducer output shaft
Maximum Torque (*6)	Three times of the rated torque (Refer to HK-KT series specifications in this catalog for the rated torque.)
Maximum Speed (At Servo Motor Shaft)	6000 r/min
IP Rating (Gear Reducer Part)	Equivalent to IP44
Gear Reducer Efficiency (*3)	HK-KT053G5 1/5 (60 × 60): 12 % HK-KT053G5 1/11, 1/21, 1/33, and 1/45: 22 % to 34 % HK-KT053G5 1/5 (40 × 40) and 1/9, and HK-KT13G5 to HK-KT7M3G5: 48 % to 84 %

Notes:

1. The moments of inertia in the table are the values that are converted into the shaft of the servo motor with a gear reducer (and with an electromagnetic brake).
2. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
3. The values in brackets represent the dimensions of the flange.
4. The gear reducer efficiency varies depending on the reduction ratio and the conditions of use such as an output torque, speed, and temperature. The values in the table are not guaranteed as they are representative values at the rated torque and speed at a temperature of 20 °C.
5. The backlash can be converted: 1 minute = 0.0167°
6. The torques of the geared servo motors do not increase even when these servo motors are combined with larger capacity servo amplifiers.

HK-KT Series Geared Servo Motor Specifications

With a gear reducer for general industrial machines: G1

Model HK-KT	Output [kW]	Reduction Ratio (*3)	Moment of inertia J [× 10^{-4} kg•m^2] (*1)		Permissible Load to Motor Inertia Ratio (*2) (When Converted Into the Servo Motor Shaft)	Permissible Load for the Shaft (*1)			Weight (kg)		Lubrication Method	Mounting Direction
			Standard	With Electro-magnetic Brake		Q [mm]	Radial [N]	Thrust [N]	Standard	With Electro-magnetic Brake		
053G7	0.05	1/5 (40 × 40)	0.0456	0.0469	10 times or less	17	93	431	0.51	0.69	Grease (filled)	Any direction
		1/5 (60 × 60)	0.113	0.117		23	177	706	1.1	1.3		
		1/9	0.0436	0.0459		17	111	514	0.51	0.69		
		1/11	0.100	0.104		23	224	895	1.2	1.4		
		1/21	0.0904	0.0944		23	272	1987	1.2	1.4		
		1/33	0.0844	0.0884		23	311	1244	1.2	1.4		
		1/45	0.0844	0.0884		23	342	1366	1.2	1.4		
13G7	0.1	1/5 (40 × 40)	0.0748	0.0787	10 times or less	17	93	431	0.61	0.79		
		1/5 (60 × 60)	0.143	0.147		23	177	706	1.2	1.4		
		1/11	0.130	0.134		23	224	895	1.3	1.5		
		1/21	0.120	0.124		23	272	1087	1.3	1.5		
		1/33	0.132	0.136		32	733	2581	2.8	3.0		
		1/45	0.130	0.134		32	804	2833	2.8	3.0		
23G7	0.2	1/5	0.416	0.461	14 times or less	23	177	706	1.7	2.2		
		1/11	0.412	0.457		23	224	895	1.8	2.3		
		1/21	0.709	0.754		32	640	2254	3.7	4.1		
		1/33	0.662	0.707		32	733	2581	3.7	4.1		
		1/45	0.660	0.705		32	804	2833	3.7	4.1		
43G7	0.4	1/5	0.617	0.649	14 times or less	23	177	706	2.2	2.6		
		1/11	0.994	1.03		32	527	1856	4.1	4.5		
		1/21	0.910	0.942		32	640	2254	4.1	4.5		
		1/33	0.966	0.998		57	1252	4992	7.2	7.6		
		1/45	0.957	0.989		57	1374	5478	7.2	7.6		
7M3G7	0.75	1/5	2.06	2.20	10 times or less	32	416	1465	4.6	5.3		
		1/11	1.94	2.08		32	527	1856	4.9	5.6		
		1/21	2.14	2.28		57	1094	4359	8.0	8.7		
		1/33	1.91	2.05		57	1252	4992	8.0	8.7		
		1/45	1.90	2.04		57	1374	5478	8.0	8.7		

Item	Specifications
Mounting Method	Flange mounting
Output Shaft Rotation Direction	Same as the servo motor output shaft direction
Backlash (*5)	3 minutes or less at gear reducer output shaft
Maximum Torque (*6)	Three times of the rated torque (Refer to HK-KT series specifications in this catalog for the rated torque.)
Maximum Speed (At Servo Motor Shaft)	6000 r/min
IP Rating (Gear Reducer Part)	Equivalent to IP44
Gear Reducer Efficiency (*3)	HK-KT053G7 1/5 (60 × 60): 12 % HK-KT053G7 1/11, 1/21, 1/33, and 1/45: 22 % to 34 % HK-KT053G7 1/5 (40 × 40) and 1/9, and HK-KT13G7 to HK-KT7M3G7: 48 % to 84 %

Notes:

1. The moments of inertia in the table are the values that are converted into the shaft of the servo motor with a gear reducer (and with an electromagnetic brake).
2. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
3. The values in brackets represent the dimensions of the flange.
4. The gear reducer efficiency varies depending on the reduction ratio and the conditions of use such as an output torque, speed, and temperature. The values in the table are not guaranteed as they are representative values at the rated torque and speed at a temperature of 20 °C.
5. The backlash can be converted: 1 minute = 0.0167°
6. The torques of the geared servo motors do not increase even when these servo motors are combined with larger capacity servo amplifiers

HK-ST_W (Medium Inertia, Medium Capacity) Specifications 200V

Rotary Servo Motor Model HK-ST_		52W	102W	172W	202AW	302W	202W	352W	502W	702W
Flange Size (mm)		130 x 130					176 x 176			
Continuous Running Duty (*4)	Rated Output (kW)	0.05	1.0	1.75	2.0	3.0	2.0	3.5	5.0	7.0
	Rated Torque (N•m) (*3, 5)	2.4 (3.2)	4.8 (6.4)	8.4	9.5 (11.6)	14.3	9.5 (12.7)	16.7	23.9 (28.9)	33.4
Maximum Torque (N•m) (*3)		7.2 (12.7)	14.3 (19.1)	25.1	28.6 (34.7)	43.0	28.6 (38.2)	50.1	71.6 (86.8)	100
Rated Speed (r/min) (*3, *4)		2000 (1500)	2000 (1500)	2000	2000 (1650)	2000	2000 (1500)	2000	2000 (1650)	2000
Maximum Speed (r/min) (*4)		4000				2500	4000	3500	4000	3000
Power Rate Continuous Rated Torque (*3)	Standard (kW/s)	9.7 (17.2)	26.3 (46.8)	61.2	53.9 (79.2)	91.5	25.1	52.1	80.4 (118)	106
	With Electromagnetic Brake (kW/s)	7.0 (12.4)	20.9 (37.2)	51.1	47.8 (70.3)	83.6	22.0 (39.2)	47.7	75.2 (110)	101
Rated Current (A) (*3)		3.0 (4.0)	5.3 (7.0)	9.3	11 (13)	11	10 (14)	16	27 (32)	28
Maximum Current (A) (*3)		11 (19)	18 (24)	32	34 (42)	34	32 (45)	52	90 (110)	102
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	5.90	8.65	11.4	16.9	22.4	36.4	53.6	70.8	105
	With Electromagnetic Brake	8.15	10.9	13.7	91.1	24.5	41.4	58.6	75.8	110
Recommended Load/Motor Inertia Ratio (*1)		15 times or less (*10)	23 times or less	24 times or less			15 times or less (*11)	12 times or less (*12)	10 times or less (*8)	8 times or less (*8)
Speed/Position Detector		Batteryless absolute/incremental 26-bit encoder (resolution: 67,108,864 pulses/rev)								
Oil Seal		None (Servo motors with an oil seal are available. (HK-ST_J))								
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HK-ST_B))								
Thermistor		None								
Insulation Class		155 (°F)								
Structure		Totally enclosed, natural cooling (IP rating: IP67) (*2)								
Vibration Resistance (Notemn1)		X: 24.5 m/s² Y: 49 m/s²							X: 24.5, Y: 29.4	
Vibration Rank		V10 (Note 3)								
Permissible Load for the Shaft (Note 2)	L (mm)	55					79			
	Radial (N)	980					2058			
	Thrust (N)	490					980			
Environment	Ambient Temperature	Operation: 0 ˚C to 60 ˚C (non-freezing); Storage: -15 ˚C to 70 ˚C (non-freezing)								
	Ambient Humidity	10 %RH to 90 %RH (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive or inflammable gas, oil mist or dust, no object generating a strong magnetic field								
	Altitude	2000 m or less (*13)								
	External Magnetic Field	10 mT or less								
	Vibration Resistance	Refer to the specifications of each rotary servo motor								
Weight (kg)	Standard	4.3	5.2	6.2	8.0	9.8	12	15	18	24
	With Electromagnetic Brake	6.0	6.9	7.8	10	12	17	20	23	29

HK-ST_W Series Electromagnetic Brake Specifications (*1)

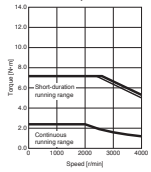
Servo Motor Model HK-ST_		52WB	102WB	172WB	202AWB	302WB	202WB	352WB	502WB	702WB
Type		Spring actuated type safety brake								
Rated Voltage		24 VDC (-10 % to 0 %)								
Power Consumption (W) at 20 °C		20			23		34			
Electromagnetic Brake Static Friction Torque (N•m)		8.5 or higher			16.0 or higher		44.0 or higher			
Permissible Braking Work	Per Braking (J)	400			400		4500			
	Per Hour (J)	4000			4000		45000			
Electromagnetic Brake Life (*2)	Number of Times	20000			5000		20000			
	Work Per Braking (J)	200			400		1000			

Notes:

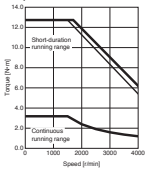
1. The electromagnetic brake is for holding. It cannot be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until readjustment is needed.

: For 3-phase 200 V AC
: For 1-phase 200 V AC

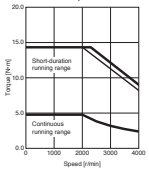
HK-ST52W
Standard torque



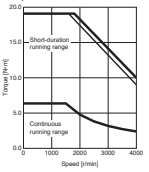
HK-ST52W
Torque increased



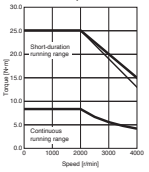
HK-ST102W
Standard torque



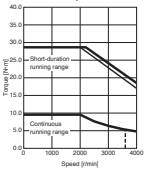
HK-ST102W
Torque increased



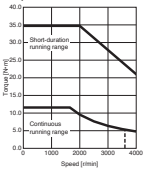
HK-ST172W
Standard torque



HK-ST202AW
Standard torque

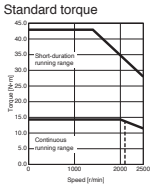


HK-ST202AW
Torque increased

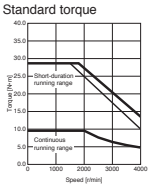


Note 1: Torque drops when the power supply voltage is below the specified value.

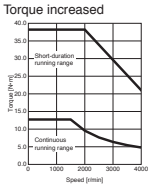
HK-ST302W
Standard torque



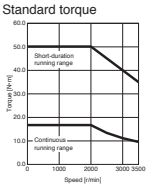
HK-ST202W
Standard torque



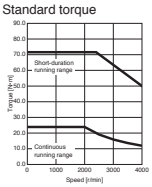
HK-ST202W
Torque increased



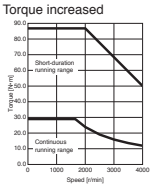
HK-ST352W
Standard torque



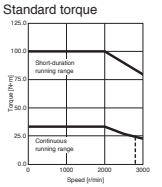
HK-ST502W
Standard torque



HK-ST502W
Torque increased



HK-ST702W
Standard torque



HK-ST_4_W (Medium Inertia, Medium Capacity) Specifications 200V

Rotary Servo Motor Model HK-ST		524W	1024W	1724W	2024AW	3024W	2024W	3524W	5024W	7024W
Flange Size (mm)		130 x 130					176 x 176			-
Continuous Running Duty (*4)	Rated Output (kW)	0.3	0.6	0.85	1.0	1.5	1.2	2.0	3.0	4.2
	Rated Torque (N•m) (*5)	2.9	5.7	8.1	9.5	14.3	11.5	19.1	28.6	40.1
Maximum Torque (N•m) (*3)		11.5	17.2 (20.1)	24.4	33.4	43.0	40.1	57.3 (66.8)	85.9	120
Rated Speed (r/min) (*4)		1000								
Maximum Speed (r/min) (*4)		2000				1200	2000	1500	2000	1500
Power Rate Continuous Rated Torque (*3)	Standard (kW/s)	13.9	37.9	57.8	53.9	91.5	36.1	68.0	116	153
	With Electromagnetic Brake (kW/s)	10.1	30.1	48.3	47.8	83.6	31.7	62.3	108	146
Rated Current (A)		1.8	3.2	4.5	5.2	5.1	6.0	9.0	16	17
Maximum Current (A) (*3)		8.3	11 (13)	17	20	17	24	32 (37)	52	60
Moment of inertia J (x10^{-4}kg•m^2)	Standard	5.90	8.65	11.4	16.9	22.4	36.4	53.6	70.8	105
	With Electromagnetic Brake	8.15	10.9	13.7	91.1	24.5	41.4	58.6	58.6	110
Recommended Load/Motor Inertia Ratio (*1)		15 times or less	24 times or less		20 times or less	24 times or less	23 times or less			22 times or less
Speed/Position Detector		Batteryless absolute/incremental 26-bit encoder (resolution: 67,108,864 pulses/rev)								
Oil Seal		None (Servo motors with an oil seal are available. (HK-ST_J))								
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HK-ST_B))								
Thermistor		None								
Insulation Class		155 (°F)								
Structure		Totally enclosed, natural cooling (IP rating: IP67) (*2)								
Vibration Resistance (Note 1)		X: 24.5 m/s² Y: 49 m/s²							X: 24.5 m/s², Y: 29.4 m/s²	
Vibration Rank		V10 (Note 3)								
Permissible Load for the Shaft (Note 2)	L (mm)	55					79			
	Radial (N)	980					2058			
	Thrust (N)	490					980			
Environment	Ambient Temperature	Operation: 0 ˚C to 60 ˚C (non-freezing); Storage: -15 ˚C to 70 ˚C (non-freezing)								
	Ambient Humidity	10 %RH to 90 %RH (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive or inflammable gas, oil mist or dust, no object generating a strong magnetic field								
	Altitude	2000 m or less (*13)								
	External Magnetic Field	10 mT or less								
	Vibration Resistance	Refer to the specifications of each rotary servo motor								
Weight (kg)	Standard	4.3	5.2	6.2	8.0	9.8	12	15	18	24
	With Electromagnetic Brake	6.0	6.9	7.8	10	12	17	20	23	29

HK-ST_4_W Series Electromagnetic Brake Specifications (*1)

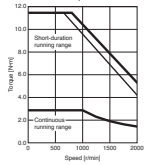
Servo Motor Model HK-ST_		524WB	1024WB	1724WB	2024AWB	3024WB	2024WB	3524WB	5024WB	7024WB
Type		Spring actuated type safety brake								
Rated Voltage		24 VDC (-10 % to 0 %)								
Power Consumption (W) at 20°C		20			23		34			
Electromagnetic Brake Static Friction Torque (N•m)		8.5 or higher			16.0 or higher		44.0 or higher			
Permissible Braking Work	Per Braking (J)	400			400		4500			
	Per Hour (J)	4000			4000		45000			
Electromagnetic Brake Life (*2)	Number of Times	20000			5000		20000			
	Work Per Braking (J)	200			400		1000			

Notes:

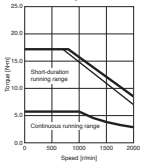
1. The electromagnetic brake is for holding. It cannot be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until readjustment is needed.

: For 3-phase 200 V AC
: For 1-phase 200 V AC

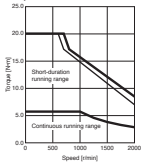
HK-ST524W
Standard torque



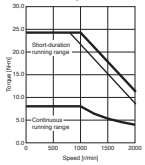
HK-ST1024W
Standard torque



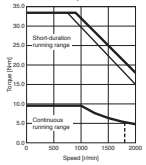
HK-ST1024W
Torque increased



HK-ST1724W
Standard torque

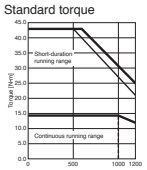


HK-ST2024AW
Standard torque

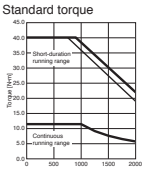


Note 1: Torque drops when the power supply voltage is below the specified value.

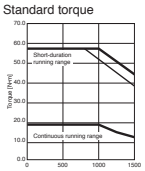
HK-ST3024W
Standard torque



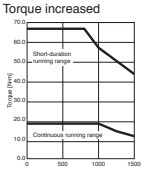
HK-ST2024W
Standard torque



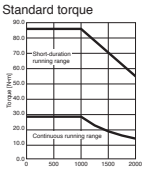
HK-ST3524W
Standard torque



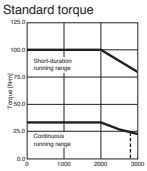
HK-ST3524W
Torque increased



HK-ST5024W
Standard torque



HK-ST702W
Standard torque



HK-ST Series Geared Servo Motor Specifications

With a gear reducer for general industrial machines, flange mounting: G1

Model HK-ST	Output [kW]	Reduction Ratio (*3)	Moment of inertia J [× 10^{-4} kg•m^2] (*1)		Permissible Load to Motor Inertia Ratio (*2) (When Converted Into the Servo Motor Shaft)	Permissible Load for the Shaft (*1)			Weight (kg)		Lubrication Method (*5)	Mounting Direction
			Standard	With Electro-magnetic Brake		Q [mm]	Radial [N]	Thrust [N]	Standard	With Electro-magnetic Brake		
52G1	0.05	1/6	6.72	8.97	4 times or less	35	2058	1470	17	19	Grease (filled)	Any direction
		1/11	6.29	8.54		35	2391	1470	17	19		
		1/17	6.17	8.42		35	2832	1470	17	19		
		1/29	6.11	8.36		35	3273	1470	17	19		
		1/35	6.90	9.15		55	5253	2940	27	29		
		1/43	6.86	9.11		55	5253	2940	27	29		
		1/59	6.82	9.07		55	5880	2940	27	29		
102G1	1.0	1/6	11.9	14.1	4 times or less	55	2842	2352	29	31	Grease (filled)	Any direction
		1/11	10.4	12.6		55	3273	2764	29	31		
		1/17	9.95	12.2		55	3646	2940	29	31		
		1/29	9.65	11.9		55	4410	2940	29	31		
		1/35	9.65	11.9		55	5253	2940	29	31		
		1/43	10.9	13.1		70	6047	3920	48	50	Oil (*3)	Shaft horizontal (*4)
		1/59	16.2	18.4		90	9741	6860	80	82		
152G1 (*6)	1.5	1/6	14.6	16.9	4 times or less	55	2842	2352	30	32	Grease (filled)	Any direction
		1/11	13.1	15.4		55	3273	2764	30	32		
		1/17	12.7	15.0		55	3646	2940	30	32		
		1/29	13.8	16.1		70	5135	3920	49	51	Oil (*3)	Shaft horizontal (*4)
		1/35	13.7	16.0		70	6047	3920	49	51		
		1/43	19.0	21.3		90	8555	6860	81	83		
		1/59	18.9	21.2		90	9741	6860	81	83		
202G1	2.0	1/6	39.6	44.6	4 times or less	55	2842	2352	37	42	Grease (filled)	Any direction
		1/11	38.0	43.0		55	3273	2764	37	42		
		1/17	37.7	42.7		55	3646	2940	37	42		
		1/29	44.4	49.4		90	7291	6860	88	93	Oil (*3)	Shaft horizontal (*4)
		1/35	44.1	49.1		90	8555	6860	88	93		
		1/43	43.9	48.9		90	8555	6860	88	93		
		1/59	43.8	48.8		90	9741	6860	88	93		
352G1	3.5	1/6	62.1	67.1	4 times or less	70	3332	3920	59	63	Oil (*3)	Shaft horizontal (*4)
		1/11	57.8	62.8		70	3871	3920	59	63		
		1/17	56.5	61.5		70	4420	3920	59	63		
		1/29	61.6	66.6		90	7291	6860	91	96		
		1/35	61.3	66.3		90	8555	6860	91	96		
		1/43	80.0	85.0		90	11662	9800	135	140	Oil	
		1/59	79.0	84.0		90	13132	9800	135	140		
502G1	5.0	1/6	97.1	102	4 times or less	90	5448	5000	94	99	Oil	Shaft horizontal (*4)
		1/11	85.1	90.1		90	5488	6292	94	99	Oil (*3)	
		1/17	81.1	86.1		90	6468	6860	94	99		
		1/29	112	117		110	13426	13720	165	170	Oil	
		1/35	111	116		110	16072	13720	165	170		
		1/43	110	115		110	16072	13720	165	170		
		1/59	109	114		110	16072	13720	165	170		
702G1	7.0	1/6	131	136	4 times or less	90	7526	5000	100	105	Oil	Shaft horizontal (*4)
		1/11	144	149		90	7526	8085	145	150		
		1/17	136	141		90	8683	9673	145	150		
		1/29	146	151		110	13426	13720	170	175		
		1/35	146	151		110	16072	13720	170	175		
		1/43	221	226		135	22540	19600	240	245		
		1/59	220	225		135	22540	19600	240	245		

Notes:

1. The moments of inertia in the table are the values that are converted into the shaft of the servo motor with a gear reducer (and with an electromagnetic brake).
2. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
3. The oil lubricated servo motor cannot be used for applications where the servo motor moves. In that case, order a grease lubricated servo motor (special specification). The maximum speed of the grease lubricated servo motor is the same as that of the oil lubricated.
4. Do not mount the servo motor in a way that the servo motor is tilted to the shaft direction or to the shaft rotation direction. Refer to the asterisk 2 of "Annotations for Geared Servo Motor Specifications" on p. 4-44 in this catalog. Servo motors with special specifications may be available to be mounted with other than the shaft horizontal. Refer to "Rotary Servo Motor User's Manual" for the available models.
5. The lubricant oil is removed from the gear reducer before shipment, and thus please purchase the required lubricant oil and fill the oil into the gear reducer.
6. The torque characteristics of HK-ST152 are equivalent to those of HK-ST172 that are derated by the output ratio of HK-ST172W (1.75 kW) to HK-ST152 (1.5 kW). (The rated torque of HK-ST152 is 7.2 N•m.) The moment of inertia of HK-ST152 is the same as that of HK-ST172W.

Item	Specifications
Mounting Method	Flange mounting
Output Shaft Rotation Direction	Opposite from the servo motor output shaft direction
Backlash (*3)	40 minutes to 2° at gear reducer output shaft (*2)
Maximum Torque (*4)	Three times of the rated torque (Refer to HK-ST series specifications in this catalog for the rated torque.) (*5)
Maximum Speed (At Servo Motor Shaft)	Grease lubricated: 3000 r/min; Oil lubricated: 2000 r/min
IP Rating (Gear Reducer Part)	Equivalent to IP44
Gear Reducer Efficiency (*3)	85 % to 94 %

Notes:

1. The gear reducer efficiency varies depending on the reduction ratio and the conditions of use such as an output torque, speed, and temperature. The values in the table are not guaranteed as they are representative values at the rated torque and speed at a temperature of 20 °C.
2. This is a designed value, not guaranteed value.
3. The backlash can be converted: 1 minute = 0.0167°
4. The torques of the geared servo motors do not increase even when these servo motors are combined with larger capacity servo amplifiers.
5. The torque characteristics of HK-ST152 are equivalent to those of HK-ST172 that are derated by the output ratio of HK-ST172W (1.75 kW) to HK-ST152 (1.5 kW). (The rated torque of HK-ST152 is 7.2 N•m.) The moment of inertia of HK-ST152 is the same as that of HK-ST172W.

HK-ST Series Geared Servo Motor Specifications

With a gear reducer for general industrial machines, foot mounting: G1H

Model HK-ST	Output [kW]	Reduction Ratio (*3)	Moment of inertia J [× 10^{-4} kg•m^2] (*1)		Permissible Load to Motor Inertia Ratio (*2) (When Converted Into the Servo Motor Shaft)	Permissible Load for the Shaft (*1)			Weight (kg)		Lubrication Method (*5)	Mounting Direction
			Standard	With Electro-magnetic Brake		Q [mm]	Radial [N]	Thrust [N]	Standard	With Electro-magnetic Brake		
52G1H	0.05	1/6	6.72	8.97	4 times or less	35	2058	1470	20	22	Grease (filled)	Any direction
		1/11	6.29	8.54		35	2391	1470	20	22		
		1/17	6.17	8.42		35	2832	1470	20	22		
		1/29	6.11	8.36		35	3273	1470	20	22		
		1/35	6.90	9.15		55	5253	2940	28	30		
		1/43	6.86	9.11		55	5253	2940	28	30		
		1/59	6.82	9.07		55	5880	2940	28	30		
102G1H	1.0	1/6	11.9	14.1	4 times or less	55	2842	2352	30	32	Grease (filled)	Any direction
		1/11	10.4	12.6		55	3273	2764	30	32		
		1/17	9.95	12.2		55	3646	2940	30	32		
		1/29	9.65	11.9		55	4410	2940	30	32		
		1/35	9.65	11.9		55	5253	2940	30	32		
		1/43	10.9	13.1		70	6047	3920	49	51	Oil (*3)	Shaft horizontal (*4)
		1/59	16.2	18.4		90	9741	6860	85	87		
152G1H (*6)	1.5	1/6	14.6	16.9	4 times or less	55	2842	2352	31	33	Grease (filled)	Any direction
		1/11	13.1	15.4		55	3273	2764	31	33		
		1/17	12.7	15.0		55	3646	2940	31	33		
		1/29	13.8	16.1		70	5135	3920	50	52	Oil (*3)	Shaft horizontal (*4)
		1/35	13.7	16.0		70	6047	3920	50	52		
		1/43	19.0	21.3		90	8555	6860	86	88		
		1/59	18.9	21.2		90	9741	6860	86	88		
202G1H	2.0	1/6	39.6	44.6	4 times or less	55	2842	2352	38	43	Grease (filled)	Any direction
		1/11	38.0	43.0		55	3273	2764	38	43		
		1/17	37.7	42.7		55	3646	2940	38	43		
		1/29	44.4	49.4		90	7291	6860	93	98	Oil (*3)	Shaft horizontal (*4)
		1/35	44.1	49.1		90	8555	6860	93	98		
		1/43	43.9	48.9		90	8555	6860	93	98		
		1/59	43.8	48.8		90	9741	6860	93	98		
352G1H	3.5	1/6	62.1	67.1	4 times or less	70	3332	3920	60	64	Oil (*3)	Shaft horizontal (*4)
		1/11	57.8	62.8		70	3871	3920	60	64		
		1/17	56.5	61.5		70	4420	3920	60	64		
		1/29	61.6	66.6		90	7291	6860	96	105		
		1/35	61.3	66.3		90	8555	6860	96	105		
		1/43	80.0	85.0		90	11662	9800	140	145	Oil	
		1/59	79.0	84.0		90	13132	9800	140	145		
502G1H	5.0	1/6	97.1	102	4 times or less	90	5448	5000	99	105	Oil	Shaft horizontal (*4)
		1/11	85.1	90.1		90	5488	6292	99	105	Oil (*3)	
		1/17	81.1	86.1		90	6468	6860	99	105		
		1/29	112	117		110	13426	13720	180	185	Oil	
		1/35	111	116		110	16072	13720	180	185		
		1/43	110	115		110	16072	13720	180	185		
		1/59	109	114		110	16072	13720	180	185		
702G1H	7.0	1/6	131	136	4 times or less	90	7526	5000	105	110	Oil	Shaft horizontal (*4)
		1/11	144	149		90	7526	8085	145	150		
		1/17	136	141		90	8683	9673	145	150		
		1/29	146	151		110	13426	13720	185	190		
		1/35	146	151		110	16072	13720	185	190		
		1/43	221	226		135	22540	19600	255	260		
		1/59	220	225		135	22540	19600	255	260		

Notes:

1. The moments of inertia in the table are the values that are converted into the shaft of the servo motor with a gear reducer (and with an electromagnetic brake).
2. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
3. The oil lubricated servo motor cannot be used for applications where the servo motor moves. In that case, order a grease lubricated servo motor (special specification). The maximum speed of the grease lubricated servo motor is the same as that of the oil lubricated.
4. Do not mount the servo motor in a way that the servo motor is tilted to the shaft direction or to the shaft rotation direction. Refer to the asterisk 2 of "Annotations for Geared Servo Motor Specifications" on p. 4-44 in this catalog. Servo motors with special specifications may be available to be mounted with other than the shaft horizontal. Refer to "Rotary Servo Motor User's Manual" for the available models.
5. The lubricant oil is removed from the gear reducer before shipment, and thus please purchase the required lubricant oil and fill the oil into the gear reducer.
6. The torque characteristics of HK-ST152 are equivalent to those of HK-ST172 that are derated by the output ratio of HK-ST172W (1.75 kW) to HK-ST152 (1.5 kW). (The rated torque of HK-ST152 is 7.2 N•m.) The moment of inertia of HK-ST152 is the same as that of HK-ST172W.

Item	Specifications
Mounting Method	Foot mounting
Output Shaft Rotation Direction	Opposite from the servo motor output shaft direction
Backlash (*3)	40 minutes to 2° at gear reducer output shaft (*2)
Maximum Torque (*4)	Three times of the rated torque; (Refer to HK-ST series specifications in this catalog for the rated torque.)
Maximum Speed (At Servo Motor Shaft)	Grease lubricated: 3000 r/min; Oil lubricated: 2000 r/min
IP Rating (Gear Reducer Part)	Equivalent to IP44
Gear Reducer Efficiency (*3)	85 % to 94 %

Notes:

1. The gear reducer efficiency varies depending on the reduction ratio and the conditions of use such as an output torque, speed, and temperature. The values in the table are not guaranteed as they are representative values at the rated torque and speed at a temperature of 20 °C.
2. This is a designed value, not guaranteed value.
3. The backlash can be converted: 1 minute = 0.0167°
4. The torques of the geared servo motors do not increase even when these servo motors are combined with larger capacity servo amplifiers.
5. The torque characteristics of HK-ST152 are equivalent to those of HK-ST172 that are derated by the output ratio of HK-ST172W (1.75 kW) to HK-ST152 (1.5 kW). (The rated torque of HK-ST152 is 7.2 N•m.) The moment of inertia of HK-ST152 is the same as that of HK-ST172W.

HK-ST Series Geared Servo Motor Specifications

With a flange-output type gear reducer for high precision applications, flange mounting: G5

Model HK-ST	Output [kW]	Reduction Ratio (*3)	Moment of inertia J [× 10^{-4} kg•m^2] (*1)		Permissible Load to Motor Inertia Ratio (*2) (When Converted Into the Servo Motor Shaft)	Permissible Load for the Shaft (*1)			Weight (kg)		Lubrication Method (*5)	Mounting Direction
			Standard	With Electro-magnetic Brake		L [mm]	Radial [N]	Thrust [N]	Standard	With Electro-magnetic Brake		
52G5	0.05	1/5	6.55	8.80	10 times or less	32	416	1465	7.1	8,8	Grease (filled)	Any direction
		1/11	6.46	8.71		32	527	1856	7.5	9.2		
		1/21	8.80	11.1		57	1094	4359	11	13		
		1/33	8.60	10.9		57	1252	4992	11	13		
		1/45	8.60	10.9		57	1374	5478	11	13		
102G5	1.0	1/5	9.30	11.6	10 times or less	32	416	1465	8.0	9.7		
		1/11	12.0	14.2		57	901	3590	12	14		
		1/21	11.6	13.8		57	1094	4359	12	14		
		1/33	13.4	15.6		62	2929	10130	22	23		
		1/45	13.3	15.5		62	3215	11117	22	23		
152G5 (*3)	1.5	1/5	12.1	14.4	10 times or less	32	416	1465	9.0	11		
		1/11	14.7	17.0		57	901	3590	13	15		
		1/21	17.1	19.4		62	2558	8845	23	24		
		1/33	16.1	18.4		62	2929	10130	23	24		
		1/45	16.0	18.3		62	3215	11117	23	24		
202G5	2.0	1/5	41.0	46.0	10 times or less	57	711	2834	20	25		
		1/11	40.8	45.8		57	901	3590	20	25		
		1/21	42.8	47.8		62	2558	8845	30	35		
		1/33	41.8	46.8		62	2929	10130	30	35		
		1/45	41.8	46.8		62	3215	11117	30	35		
352G5	3.5	1/5	58.2	63.2	10 times or less	57	711	2834	23	28		
		1/11	61.7	66.7		62	2107	7285	33	38		
		1/21	60.0	65.0		62	2558	8845	33	38		
502G5	5.0	1/5	80.9	85.9	10 times or less	62	1663	5751	34	39		
		1/11	78.9	83.9		62	2107	7285	36	41		
702G5	7.0	1/5	115	120	10 times or less	62	1663	5751	43	45		

Item	Specifications
Mounting Method	Flange mounting
Output Shaft Rotation Direction	Same as the servo motor output shaft direction
Backlash (*3)	3 minutes or less at gear reducer output shaft
Maximum Torque (*4)	Three times of the rated torque; (Refer to HK-ST series specifications in this catalog for the rated torque.) (*3)
Maximum Speed (At Servo Motor Shaft)	3000 r/min
IP Rating (Gear Reducer Part)	Equivalent to IP44
Gear Reducer Efficiency (*3)	77 % to 92 %

Notes:

1. The moments of inertia in the table are the values that are converted into the shaft of the servo motor with a gear reducer (and with an electromagnetic brake).
2. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
3. The torque characteristics of HK-ST152 are equivalent to those of HK-ST172 that are derated by the output ratio of HK-ST172W (1.75 kW) to HK-ST152 (1.5 kW). (The rated torque of HK-ST152 is 7.2 N•m.) The moment of inertia of HK-ST152 is the same as that of HK-ST172W.
4. The gear reducer efficiency varies depending on the reduction ratio and the conditions of use such as an output torque, speed, and temperature. The values in the table are not guaranteed as they are representative values at the rated torque and speed at a temperature of 20 °C.
5. The backlash can be converted: 1 minute = 0.0167°
6. The torques of the geared servo motors do not increase even when these servo motors are combined with larger capacity servo amplifiers.

HK-ST Series Geared Servo Motor Specifications

With a shaft-output type gear reducer for high precision applications, flange mounting: G7

Model HK-ST	Output [kW]	Reduction Ratio (*3)	Moment of inertia J [× 10^{-4} kg•m^2] (*1)		Permissible Load to Motor Inertia Ratio (*2) (When Converted Into the Servo Motor Shaft)	Permissible Load for the Shaft (*1)			Weight (kg)		Lubrication Method (*5)	Mounting Direction
			Standard	With Electro-magnetic Brake		Q [mm]	Radial [N]	Thrust [N]	Standard	With Electro-magnetic Brake		
52G7	0.05	1/5	6.59	8.84	10 times or less	32	416	1465	7.5	9.2	Grease (filled)	Any direction
		1/11	6.46	8.71		32	527	1856	7.7	9.4		
		1/21	8.80	11.1		57	1094	4359	13	14		
		1/33	8.60	10.9		57	1252	4992	13	14		
		1/45	8.60	10.9		57	1374	5478	13	14		
102G7	1.0	1/5	9.34	11.6	10 times or less	32	416	1465	8.4	11		
		1/11	12.1	14.3		57	901	3590	14	15		
		1/21	11.6	13.8		57	1094	4359	14	15		
		1/33	13.4	15.6		62	2929	10130	25	26		
		1/45	13.4	15.6		62	3215	11117	25	26		
152G7 (*3)	1.5	1/5	12.1	14.4	10 times or less	32	416	1465	9.4	11		
		1/11	14.8	17.1		57	901	3590	15	16		
		1/21	17.1	19.4		62	2558	8845	26	27		
		1/33	16.1	18.4		62	2929	10130	26	27		
		1/45	16.1	18.4		62	3215	11117	26	27		
202G7	2.0	1/5	41.3	46.3	10 times or less	57	711	2834	21	26		
		1/11	40.9	45.9		57	901	3590	22	27		
		1/21	42.9	47.9		62	2558	8845	33	38		
		1/33	41.8	46.8		62	2929	10130	33	38		
		1/45	41.8	46.8		62	3215	11117	33	38		
352G7	3.5	1/5	58.5	63.5	10 times or less	57	711	2834	24	29		
		1/11	62.0	67.0		62	2107	7285	36	41		
		1/21	60.1	65.1		62	2558	8845	36	41		
502G7	5.0	1/5	82.3	87.3	10 times or less	62	1663	5751	37	42		
		1/11	79.2	84.2		62	2107	7285	39	44		
702G7	7.0	1/5	117	122	10 times or less	62	1663	5751	43	48		

Item	Specifications
Mounting Method	Flange mounting
Output Shaft Rotation Direction	Same as the servo motor output shaft direction
Backlash (*3)	3 minutes or less at gear reducer output shaft
Maximum Torque (*4)	Three times of the rated torque; (Refer to HK-ST series specifications in this catalog for the rated torque.) (*3)
Maximum Speed (At Servo Motor Shaft)	3000 r/min
IP Rating (Gear Reducer Part)	Equivalent to IP44
Gear Reducer Efficiency (*3)	77 % to 92 %

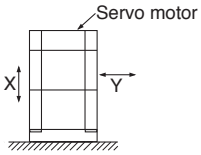
Notes:

1. The moments of inertia in the table are the values that are converted into the shaft of the servo motor with a gear reducer (and with an electromagnetic brake).
2. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
3. The torque characteristics of HK-ST152 are equivalent to those of HK-ST172 that are derated by the output ratio of HK-ST172W (1.75 kW) to HK-ST152 (1.5 kW). (The rated torque of HK-ST152 is 7.2 N•m.) The moment of inertia of HK-ST152 is the same as that of HK-ST172W.
4. The gear reducer efficiency varies depending on the reduction ratio and the conditions of use such as an output torque, speed, and temperature. The values in the table are not guaranteed as they are representative values at the rated torque and speed at a temperature of 20 °C.
5. The backlash can be converted: 1 minute = 0.0167°
6. The torques of the geared servo motors do not increase even when these servo motors are combined with larger capacity servo amplifiers.

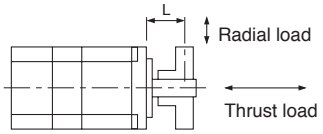
Servo Motor Notes:

1. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
2. The shaft-through portion is excluded. For more information refer to the MR-J5 Users Manual.
3. The value in brackets is applicable when the torque is increased with a combination with a larger-capacity servo amplifier. Refer to "Combinations of Rotary Servo Motors and Servo Amplifiers" in this catalog for the available combinations.
4. The continuous running duty and the speed are not guaranteed when the power supply voltage is dropped.
5. When unbalanced torque is generated, such as in a vertical lift machine, keep the unbalanced torque of the machine under 70% of the servo motor rated torque.
6. For the HK-KT053W with an oil seal, use 80% of the rated output.
7. When IP67 cables are required, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION.
8. 28 times or less for 6000 r/min or less.
9. When the servo motor is combined with a 100 W servo amplifier, the recommended load to motor inertia ratio is for operating the servo motor at the rated speed. If operating the servo motor at a speed exceeding the rated speed, check the need for a regenerative option with the drive system sizing software Motorizer. A servo amplifier with a larger capacity can be combined.
10. 19 times or less for 3000 r/min or less.
11. 20 times or less for 3000 r/min or less.
12. 22 times or less for 3000 r/min or less.
13. Refer to User's Manuals of each servo amplifier and servo motor for the derating condition when using the servo amplifiers and servo motors at an altitude exceeding 1000 m.
14. 30 times or less for 3000 r/min or less.

Notes 1-3 Annotations for Rotary Servo Motor Specifications

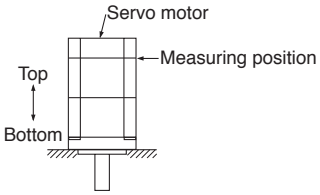


1. The vibration direction is shown in the diagram below. The numerical value indicates the maximum value of the component (commonly the bracket in the opposite direction of the load side). Fretting tends to occur on the bearing when the servo motor stops. Thus, maintain vibration level at approximately one-half of the allowable value.

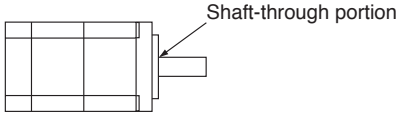


L: Distance between the flange mounting surface and the center of load.

2. Refer to the diagram below for the permissible load for the shaft. Ensure that loads applied on the shaft do not exceed the values specified in the table. The values in the table are applicable when each load is applied singly.



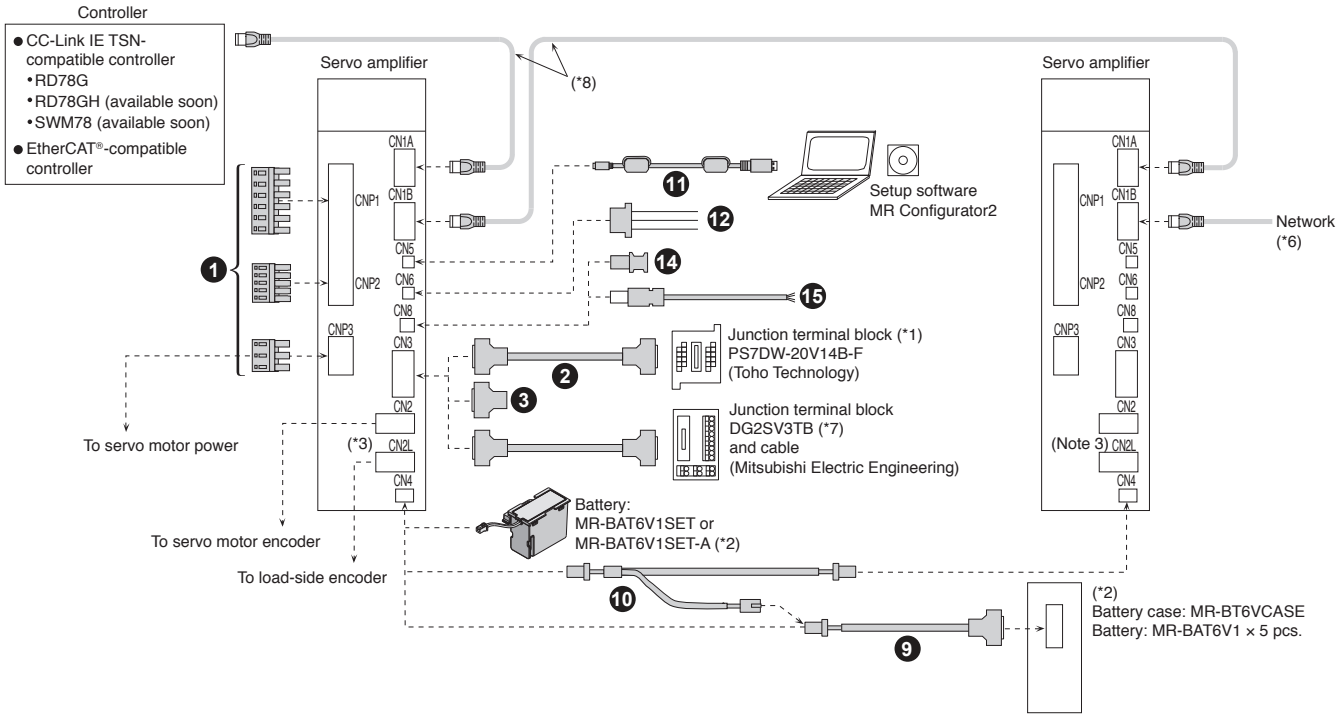
3. V10 indicates that the amplitude of the servo motor itself is 10 μm or less. The following shows mounting orientation and measuring position of the servo motor during the measurement:



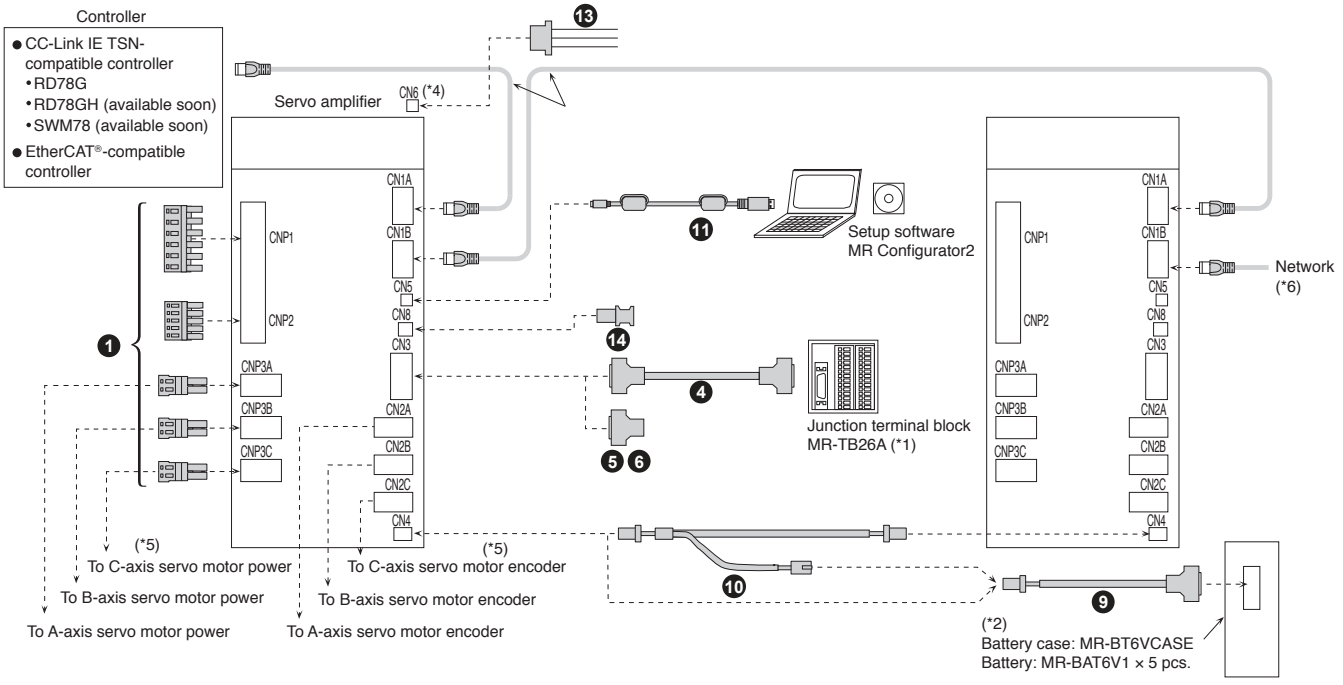
4. Refer to the diagram below for the shaft-through portion.

MR-J5 Servo Amplifier Cables and Connectors

Configuration Example for MR-J5-_G(-RJ)



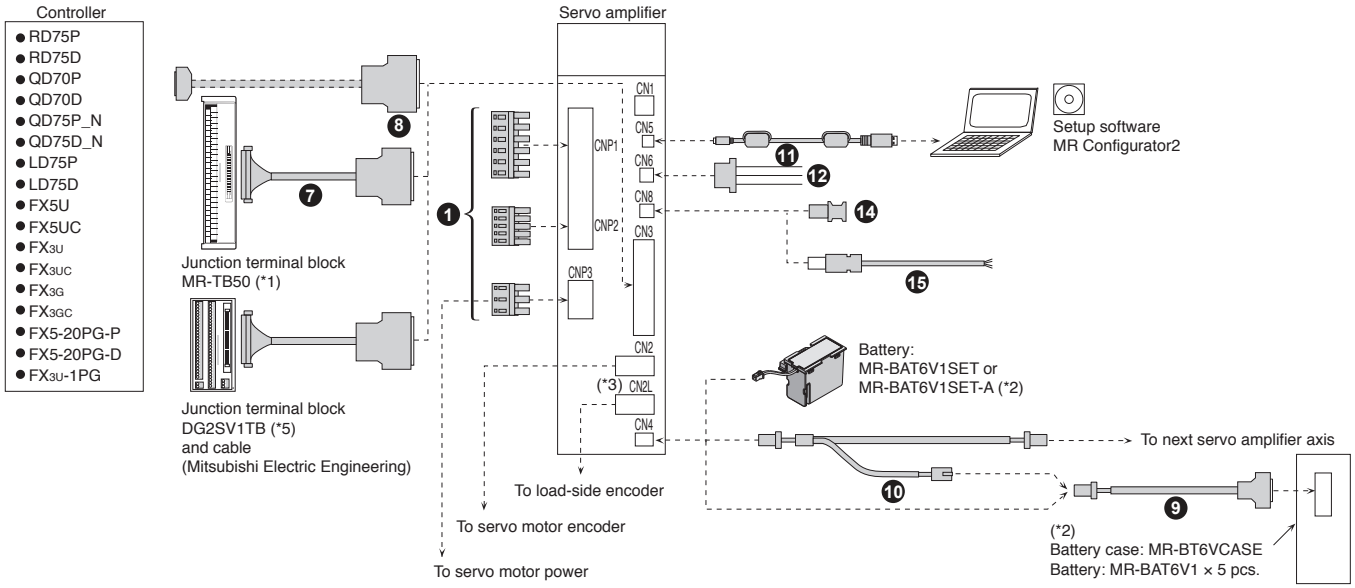
Configuration Example for MR-J5W2-_G/MR-J5W3-_G



Notes:
1. Refer to "Junction Terminal Block" in this catalog.
2. The battery, or the battery and the battery case are required to configure an absolute position detection system with a direct drive motor. Refer to "Battery" or "Battery Case and Battery" in this guide.
3. CN2L connector is available for MR-J5-G-RJ servo amplifiers.
4. MR-J5W2-G/MR-J5W3-G servo amplifiers have CN6 connector on the top of the unit.
5. CNP3C and CN2C connectors are available for MR-J5W3-G servo amplifiers.
6. When branching off CC-Link IE TSN (synchronous communication function) with a switching hub, use a switching hub (Class B) recommended by CC-Link Partner Association. When a switching hub (Class A) is used, there are restrictions on the topologies to be used. Refer to "MELSEC iQ-R Motion Module User's Manual" for details.
7. Refer to the MR-J5 User's Manual for details.
8. Refer to "Ethernet Cable Specifications" in the MR-J5 User's Manual for specifications of the Ethernet cable.

MR-J5 Servo Amplifier Cables and Connectors

Configuration Example for MR-J5-_A(-RJ) (*4)



Notes:
1. Refer to "Junction Terminal Block" in this guide.
2. The battery, or the battery and the battery case are required to configure an absolute position detection system with a direct drive motor. Refer to "Battery" or "Battery Case and Battery" in this guide.
3. CN2L connector is available for MR-J5-A-RJ servo amplifiers.
4. Cables drawn with dashed lines need to be fabricated by users. Refer to "MR-J5 User's Manual" when fabricating the cables.
5. Refer to the MR-J5 User's Manual for details.

For CNP1/CNP2/CNP3/CNP3A/CNP3B/CNP3C

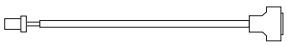
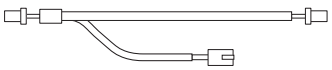
Figure Number	Item	Model Number	Stocked Item	Protection Level	Description
1	**Servo Amplifier Power Connector Set for MR-J5-100G (-RJ) or Smaller / MR-J5-100A (-RJ) or Smaller**	Supplied with Amplifier	-	-	CNP1 connector, CNP2 connector, CNP3 connector, Open tool  Applicable wire size (*1) : AWG 18 to 14 Insulator OD: 3.9 mm or smaller
	Servo Amplifier Power Connector Set for MR-J5-200G (-RJ) / MR-J5-200A (-RJ) / MR-J5-350G (-RJ)/ MR-J5-350A (-RJ)	Supplied with Amplifier	-	-	CNP1 connector, CNP2 connector, CNP3 connector, Open tool  CNP1/CNP3 connector Applicable wire size (*1): AWG 16 to 10 Insulator OD: 4.7 mm or smaller CNP2 connector Applicable wire size (*1): AWG 18 to 14 Insulator OD: 3.9 mm or smaller
	Servo Amplifier Power Connector Set for MR-J5W2-44G or Smaller/MR-J5W3-444G or Smaller	Supplied with Amplifier	-	-	CNP1 connector, CNP2 connector, CNP3_ connector, Open tool  Applicable wire size (*1) : AWG 18 to 14 Insulator OD: 3.9 mm or smaller
	Servo Amplifier Power Connector Set for MR-J5W2-77G or Larger	Supplied with Amplifier	-	-	CNP1 connector, CNP2 connector, CNP3_ connector, Open tool  CNP1 connector Applicable wire size (*1) : AWG 16 to 10 Insulator OD: 4.7 mm or smaller CNP2, CNP3_ connector Applicable wire size (*1) : AWG 18 to 14 Insulator OD: 3.9 mm or smaller

Note:
1. The wire size shows wiring specifications of the connector. Refer to "Selection Example in HIV Wires for Servo Motors" in this catalog for examples of wire size selection

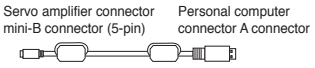
For CN3

Figure Number	Item	Model Number	Stocked Items	Protection Level	Description
2	**Junction Terminal Block Cable for Connecting MR-J5-_G (-RJ) and PS7DW-20V14B-F**	R-J2HBUS_M (_ = cable length 0.5, 1, 5m)	0.5, 1, 3	-	Servo amplifier connector, Junction terminal block connector 
3	**Connector Set for MR-J5-_G (-RJ)**	MR-J2CN1	-	-	
4	**Junction Terminal Block Cable for Connecting MR-J5W2-_G / MR-J5W3-_G and MR-TB26A**	MR-TBNATBL_M (_ = cable length 0.5, 1m)	S	-	
5	**Connector Set (Qty: 1 pc.) for MR-J5W2-_G / MR-J5W3-_G**	MR-J2CMP2	S	-	
6	**Connector Set (Qty: 20 pcs.) for MR-J5W2-_G / MR-J5W3-_G**	MR-ECN1	S	-	
7	**Junction Terminal Block Cable for Connecting MR-J5-_A (-RJ) and MR-TB50**	MR-J2M-CN1TBL_M (_ = cable length 0.5, 1m)	S	-	
8	**Connector Set for MR-J5-_A (-RJ)**	MR-J3CN1	S	-	 Servo amplifier connector

For CN4

Figure Number	Item	Model Number	Stocked Lengths	Protection Level	Description
9	**Battery Cable for Connecting MR-J5-_G(-RJ)/ MR-J5W2-_G/MR-J5W3-_G/MR-J5-_A(-RJ) and MR-BT6VCASE**	MR-BT6V1CBL_M (_ = cable length 0.3, 1m)	S	-	
10	**Junction Battery Cable for MR-J5-_G(-RJ)/ MR-J5W2-_G/MR-J5W3-_G/MR-J5-_A(-RJ)**	MR-BT6V2CBL_M (_ = cable length 0.3, 1m)	S	-	

For CN5 and CN6

Figure Number	Item	Model Number	Stocked Items	Protection Level	Description
11	**Personal Computer Communication Cable (USB Cable) for MR-J5-_G(-RJ)/MR-J5W2-_G/ MR-J5W3-_G/MR-J5-_A(-RJ)**	MR-J3USBCBL3M	3m	-	
12	**Monitor Cable for MR-J5-_G(-RJ)/MR-J5-_A(-RJ)**	MR-ACN6CBL1M	1m	-	
13	**Monitor Cable for MR-J5W2-_G/MR-J5W3-_G**	MR-J3CN6CBL1M	1m	-	

For CN8

Figure Number	Item	Model Number	Stocked Items	Protection Level	Description
14	**Short-Circuit Connector for MR-J5-_G(-RJ)/ MR-J5W2-_G/MR-J5W3-_G/MR-J5-_A(-RJ)**	(Supplied with Amplifier)	S	-	
15	**STO Cable for Connecting MR-J3-D05 or Another Safety Control Device With MR-J5-_G(-RJ)/ MR-J5W2-_G/MR-J5W3-_G/MR-J5-_A(-RJ)/ MR-J5-G4(-RJ)/MR-J5-A4(-RJ)**	MR-D05UDL3M-B	3m	-	

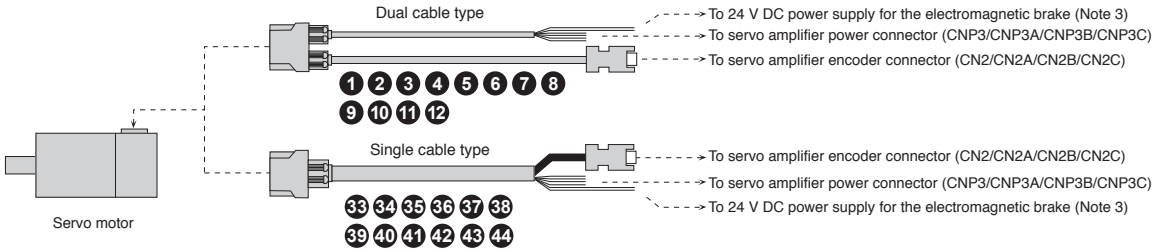
Ethernet Cable Specifications

Figure Number	Item			Model Number	Description
	Ethernet Cable Category 5e or Higher, (Double Shielded/ STP) Straight Cable	**CC-Link IE TSN (*1, *2)** The cable must meet the following: • IEEE802.3 (1000BASE-T) • ANSI/TIA/EIA-568-B (Category 5e) • RJ-45 Connector with Shield **EtherCAT®** The cable must meet the following: • IEEE802.3 (100BASE-TX) • ANSI/TIA/EIA-568-B (Category 5e) • RJ-45 Connector with Shield	For indoor	SC-E5EW-S_M	Double shielded cable (Category 5e)
			For indoor and moving part	SC-E5EW-S_M-MV	
			For indoor/outdoor	SC-E5EW-S_M-L	

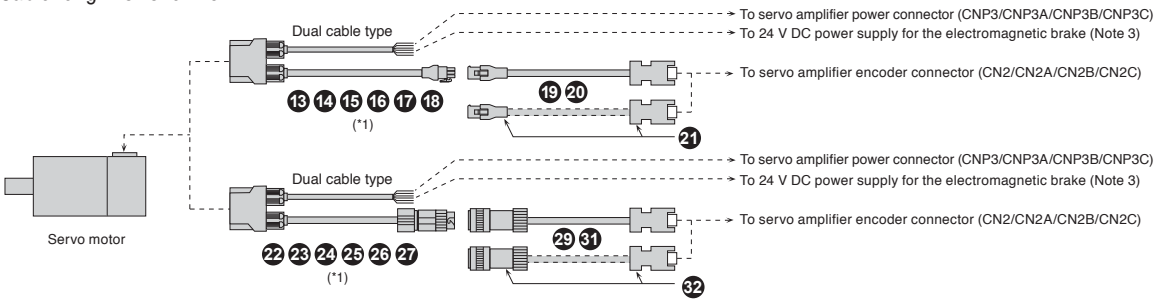
Notes:
1. For details, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
2. * When using CC-Link IE TSN, refer to the website of CC-Link Partner Association for cables on the market other than above. https://www.cc-link.org/en/

Configuration Example for Rotary Servo Motors (*3)

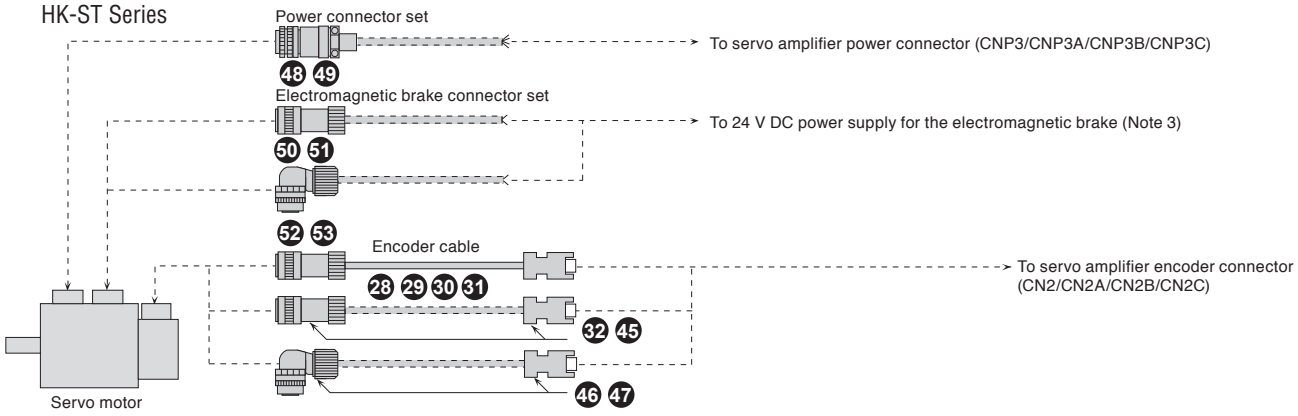
HK-KT series (Cable direction: load side/opposite to load side/vertical) (*1, *5)



Cable length of over 10 m

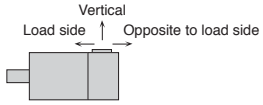


HK-ST Series

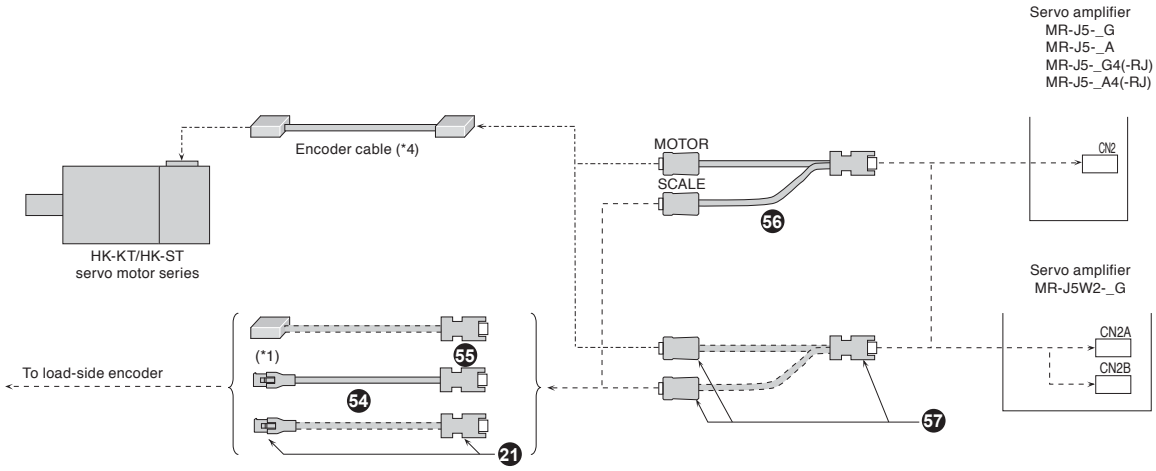


Notes:

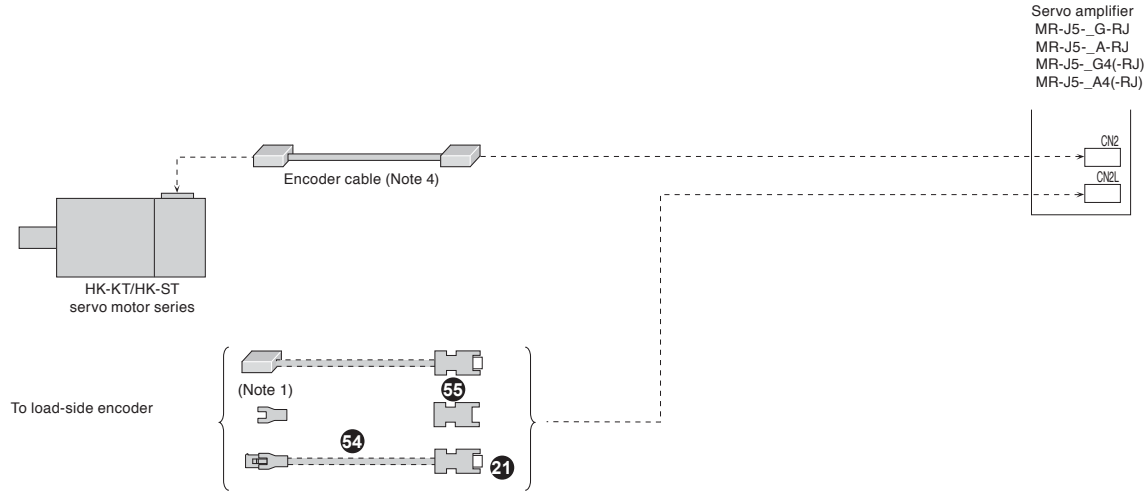
1. Secure this cable as it does not have a long bending life.
2. Cables drawn with dashed lines need to be fabricated by users. Refer to "Rotary Servo Motor User's Manual" when fabricating the cables.
3. This is for the servo motors with an electromagnetic brake.
4. When a vertically mounted cable is led out, the lock lever of the connector must be on the load side.
5. The cable direction in the configuration examples is in the opposite direction to the load side.
6. Cables can be led out in the direction of the load side, the opposite to the load side, and vertical, depending on the option to be used
   These cable directions are shown below.



Configuration Example for Rotary Servo Motors (*2)
For fully closed loop control (MR-J5-G/A, MR-J5W2-G and rotary servo motors) (*3)



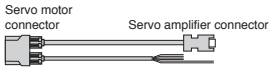
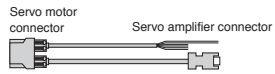
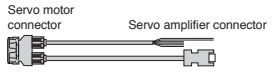
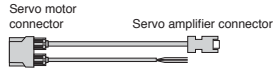
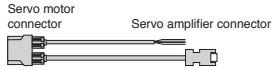
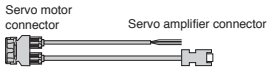
For fully closed loop control
(MR-J5-G-RJ/A-RJ and rotary servo motors) (*3)



Notes:
1. Contact the relevant linear encoder manufacturers for connectors to connect with the head cables.
2. Cables drawn with dashed lines need to be fabricated by users. Refer to "Rotary Servo Motor User's Manual" when fabricating the cables.
3. Connections other than mentioned are the same as those for each rotary servo motor. Refer to cables and connectors for relevant servo motors in this catalog.
4. Necessary encoder cables vary depending on the servo motor series. Refer to cables and connectors for relevant servo motors in this catalog.

Cables and Connectors for Rotary Servo Motors

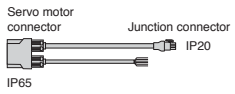
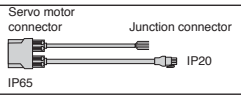
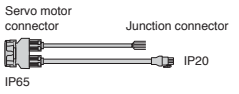
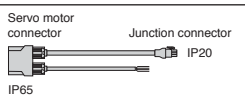
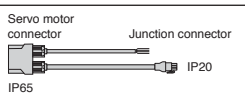
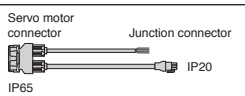
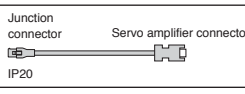
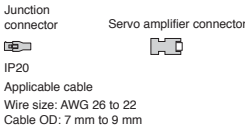
Motor cable (dual cable type/ direct connection type for 10m or shorter) (*2, *3)

Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level	Description
1	For HK-KT Load-Side Lead With Electromagnetic Brake Wires	Long Bending Life	MR-AEPB2CBL_M-A1-H	2, 5	2, 5	IP65	
			MR-AEPB2CBL10M-A1H	10	10		
2		Standard	MR-AEPB2CBL_M-A1-L	2, 5	2, 5		
			MR-AEPB2CBL10M-A1L	10	10		
3	For HK-KT Opposite to Load-Side Lead With Electromagnetic Brake Wires	Long Bending Life	MR-AEPB2CBL_M-A2-H	2, 5	2, 5		
			MR-AEPB2CBL10M-A2H	10	10		
4		Standard	MR-AEPB2CBL_M-A2-L	2, 5	2, 5		
			MR-AEPB2CBL10M-A2L	10	10		
5	For HK-KT Vertical Lead With Electromagnetic Brake Wires (*5)	Long Bending Life	MR-AEPB2CBL_M-A5-H	2, 5, 10	-		
6		Standard	MR-AEPB2CBL_M-A5-L	2, 5, 10	-		
7	For HK-KT Load-Side Lead Without Electromagnetic Brake Wires	Long Bending Life	MR-AEP2CBL_M-A1-H	2, 5, 10	-		
8		Standard	MR-AEP2CBL_M-A1-L	2, 5, 10	-		
8	For HK-KT Opposite to Load-Side Lead Without Electromagnetic Brake Wires	Long Bending Life	MR-AEP2CBL_M-A2-H	2, 5, 10	-		
10		Standard	MR-AEP2CBL_M-A2-L	2, 5, 10	-		
11	For HK-KT Vertical Lead Without Electromagnetic Brake Wires (*5)	Long Bending Life	MR-AEP2CBL_M-A5-H	2, 5, 10	-		
12		Standard	MR-AEP2CBL_M-A5-L	2, 5, 10	-		

Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo motor. If the IP rating of the servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. For unlisted lengths of the cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
3. When IP67 cables are required, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
4. Long bending life cables and standard cables are for moving parts and fixed parts respectively.
5. When a vertically mounted cable is led out, the lock lever of the connector must be on the load side.

Cables and Connectors for Rotary Servo Motors

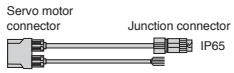
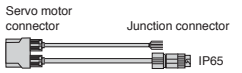
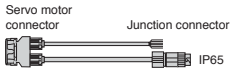
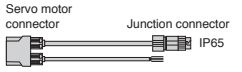
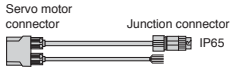
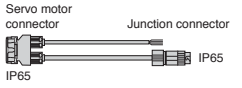
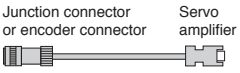
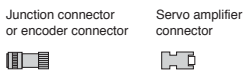
Motor cable (dual cable type/junction type for over 10m) (*3, *5)

Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level	Description
13	For HK-KT Load-side Lead With Electromagnetic Brake Wires	Standard	MRAEPB2J10CBL03M1L	0.3	-	IP65/IP20	
14	For HK-KT Opposite To Load-Side Lead With Electromagnetic Brake Wires	Standard	MRAEPB2J10CBL03M2L	0.3	-	IP65/IP20	
15	For HK-KT Vertical Lead With Electromagnetic Brake Wires	Standard	MREPB2J10CBL03MA5L	0.3	-	IP65/IP20	
16	For HK-KT Load-Side Lead Without Electromagnetic Brake Wires	Standard	MR-AEP2J10CBL03M1L	0.3	-	IP65/IP20	
17	For HK-KT Opposite to Load-Side Lead Without Electromagnetic Brake Wires	Standard	MR-AEP2J10CBL03M2L	0.3	-	IP65/IP20	
18	For HK-KT Vertical Lead Without Electromagnetic Brake Wires (*8)	Standard	MRAEP2J10CBL03MA5L	0.3	-	IP65/IP20	
19	Encoder Cable For HK-KT (*4, *5)	Long Bending Life	MR-AEKCBL_M-H	20, 30, 40, 50	-	IP20	
20		Standard	MR-AEKCBL_M-L	20, 30	-	IP20	
21	Encoder Connector Set For HK-KT For Connecting a Load-Side Encoder (*2, *4, *6)	Standard	MR-ECNM	-	-	IP20	

Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo motor. If the IP rating of the servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. The crimping tool (91529-1) manufactured by TE Connectivity Ltd. Company is required. Contact the manufacturer directly.
3. Use this cable in combination with an option from (19) to (21).
4. When using this cable or connector set for HK-KT series, use it in combination with an option from (13) to (18).
5. For unlisted lengths of the cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
6. Use MR-EKCBL_M-H or MR-ECNM to connect to an output cable for AT343A, AT543A-SC or AT545A-SC scales manufactured by Mitutoyo Corporation.
7. Long bending life cables and standard cables are for moving parts and fixed parts respectively.
8. When a vertically mounted cable is led out, the lock lever of the connector must be on the load side.

Cables and Connectors for Rotary Servo Motors

Motor cable (dual cable type/junction type for over 10m) (*4, *6, *7)

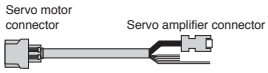
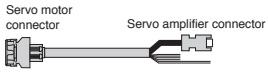
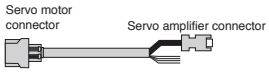
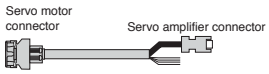
Figure Number	Item		Model Number	Available Lengths (m)	Stocked Lengths	Protection Level	Description
22	For HK-KT Load-Side Lead with Electromagnetic Brake Wires	Standard	MR-AEPB2J20CB1M1L	3	-	IP65	
23	For HK-KT Opposite to Load-Side Lead with Electromagnetic Brake Wires	Standard	MR-AEPB2J20CB103M2L	3	-	IP65	
24	For HK-KT Vertical Lead with Electromagnetic Brake Wires (*9)	Standard	MR-AEPB2J20CBL03M-A5-L	3	-	IP65	
25	For HK-KT Load-Side Lead Without Electromagnetic Brake Wires	Standard	MR-AEP2J20CBL03M1L	3	-	IP65	
26	For HK-KT Opposite to Load-Side Lead Without Electromagnetic Brake Wires	Standard	MR-AEP2J20CBL03M2L	3	-	IP65	
27	For HK-KT Vertical Lead Without Electromagnetic Brake Wires (*9)	Standard	MR-AEP2J20CBL03M-A5-L	3	-	IP65	
28	Encoder Cable For HK-ST (*5, *6)	Long Bending Life	MR-J3ENSCBL_M-H	2, 5, 10, 15, 17, 20, 30, 40, 50, 60	2, 5, 10, 20, 30	IP67	
29	Encoder Cable For HK-kT/ HK-ST	Long Bending Life	MR-AENSCBL_M-H	2, 5, 10, 20, 30	2, 5	IP67	
30	Encoder Cable For HK-ST	Standard	MR-J3ENSCBL_M-L	2, 5, 10		IP67	
31	Encoder Cable For HK-kT/ HK-ST	Standard	MR-AENSCBL_M-L	20, 30		IP67	
32	Encoder Connector Set (One-Touch Connection Type) For HK-KT/HK-ST (*2, *3, *5)	-	MR-J3SCNS	-	S	IP67	 Applicable cable Wire size: 0.5 mm² (AWG 20) or smaller Cable OD: 5.5 mm to 9.0 mm

Notes:

1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo motor. If the IP rating of the servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. Cable clamps and bushings for cable OD of 5.5 mm to 7.5 mm and of 7.0 mm to 9.0 mm are included in the set.
3. The connector set contains a plug and contacts. Using contacts for other plugs may damage the connector. Use the enclosed contacts.
4. Use this cable in combination with (29), (31), or (32).
5. When using this cable or connector set for HK-KT series, use it in combination with an option from (22) to (27).
6. For unlisted lengths of the cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
7. When IP67 cables are required, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
8. Long bending life cables and standard cables are for moving parts and fixed parts respectively.
9. When a vertically mounted cable is led out, the lock lever of the connector must be on the load side.

Cables and Connectors for Rotary Servo Motors

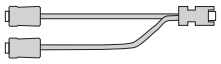
Motor cable (single cable type/direct connection type for 10m or shorter) (*2, *3)

Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level	Description
33	For HK-KT Load-Side Lead With Electromagnetic Brake Wires	Long Bending Life	MR-AEPB1CBL_M-A1-H	2, 5	2, 5	IP67	
			MR-AEPB1CBL10M-A1H	10	10		
34		Standard	MR-AEPB1CBL_M-A1-L	2, 5	2, 5		
			MR-AEPB1CBL10M-A1L	10	10		
35	For HK-KT Opposite to Load-Side Lead With Electromagnetic Brake Wires	Long Bending Life	MR-AEPB1CBL_M-A2-H	2, 5	2, 5		
			MR-AEPB1CBL10M-A2H	10	10		
36		Standard	MR-AEPB1CBL_M-A2-L	2, 5	2, 5		
			MR-AEPB1CBL10M-A2L	10	10		
37	For HK-KT Vertical Lead With Electromagnetic Brake Wires (*5)	Long Bending Life	MR-AEPB1CBL_M-A5-H	2, 5, 10	-		
38		Standard	MR-AEPB1CBL_M-A5-L	2, 5, 10	-		
39	For HK-KT Load-Side Lead Without Electromagnetic Brake Wires	Long Bending Life	MR-AEP1CBL_M-A1-H	2, 5, 10	2, 5, 10		
40		Standard	MR-AEP1CBL_M-A1-L	2, 5, 10	2, 5, 10		
41	For HK-KT Opposite to Load-Side Lead Without Electromagnetic Brake Wires	Long Bending Life	MR-AEP1CBL_M-A2-H	2, 5, 10	2, 5, 10		
42		Standard	MR-AEP1CBL_M-A2-L	2, 5, 10	2, 5, 10		
43	For HK-KT Vertical Lead Without Electromagnetic Brake Wires (*5)	Long Bending Life	MR-AEP1CBL_M-A5-H	2, 5, 10	-		
44		Standard	MR-AEP1CBL_M-A5-L	2, 5, 10	-		

Notes:

1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo motor. If the IP rating of the servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. For unlisted lengths of the cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
3. When IP67 cables are required, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
4. Long bending life cables and standard cables are for moving parts and fixed parts respectively.
5. When a vertically mounted cable is led out, the lock lever of the connector must be on the load side.

Cables and Connectors for Rotary Servo Motors

Figure Number	Item	Model Number	Available Lengths	Stocked Items	Protection Level	Description
45	**Encoder Connector Set (Screw Type) For HK-ST (Straight Type) (*2, *3, *4)**	MR-ENCNS2	-	S	IP67	Encoder connector / Servo amplifier connector  IP67 Applicable cable Wire size: 0.5 mm² (AWG 20) or smaller Cable OD: 5.5 mm to 9.0 mm
46	**Encoder Connector Set (One-Touch Connection Type) For HK-ST (Angle Type) (*2, *3, *4)**	MR-J3SCNSA	-	S		Encoder connector / Servo amplifier connector  IP67 Applicable cable Wire size: 0.5 mm² (AWG 20) or smaller Cable OD: 5.5 mm to 9.0 mm
47	**Encoder Connector Set (Screw Type) For HK-ST (Angle Type) (*2, *3, *4)**	MR-ENCNS2A	-	S		
48	**Power Connector Set (One-Touch Connection Type) HK-ST52(4)W, 102(4)W, 172(4)W, 202(4)AW, 302(4)W (*4, *5, *6)**	MR-APWCNS4	-	-		Power connector  IP67 Applicable cable Wire size: 2 mm² to 3.5 mm² (AWG 14 to 12) Cable OD: 11 mm to 14.1 mm
49	**Power Connector Set (One-Touch Connection Type) HK-ST202(4)W, 352(4)W, 502(4)W, 702(4)W (*4, *5)**	MR-APWCNS5	-	-		Power connector  IP67 Applicable cable Wire size: 5.5 mm² to 8 mm² (AWG 10 to 8) Cable OD: 12.9 mm to 16 mm
50	**Electromagnetic Brake Connector Set (One-Touch Connection Type) For HK-ST (Straight Type) (*3, *4)**	MR-BKCNS1	-	S		Electromagnetic brake connector  IP67 Applicable cable Wire size: 1.25 mm² (AWG 16) or smaller Cable OD: 9.0 mm to 11.6 mm
51	**Electromagnetic Brake Connector Set (Screw Type) For HK-ST (Straight Type) (*3, *4)**	MR-BKCNS2	-	S		
52	**Electromagnetic Brake Connector Set (One-Touch Connection Type) For HK-ST (Angle Type) (*3, *4)**	MR-BKCNS1A	-	S		Electromagnetic brake connector  IP67 Applicable cable Wire size: 1.25 mm² (AWG 16) or smaller Cable OD: 9.0 mm to 11.6 mm
53	**Electromagnetic Brake Connector Set (Screw Type) For HK-ST (Angle Type) (*3, *4)**	MR-BKCNS2A	-	S		
54	**Encoder Cable For Connecting a Load-Side Encoder. Long Bending Life (*6, *8, *10)**	MR-EKCBL_M-H	2, 5	-	IP20	Junction connector / Servo amplifier connector  IP20
55	**Encoder Connector Set For Connecting a Load-Side Encoder**	MR-J3CN2	-	S	-	Servo amplifier connector 
56	**Junction Cable for Fully Closed Loop Control For Branching a Load-Side Encoder (*9, *10)**	MR-J4FCCBL03M	3	S	-	Junction connector / Servo amplifier connector 
57	**Connector Set For fully Closed Loop Control**	MR-J3THMCN2	-	-	-	Junction connector / Servo amplifier connector 

Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo motor. If the IP rating of the servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. Cable clamps and bushings for cable OD of 5.5 mm to 7.5 mm and of 7.0 mm to 9.0 mm are included in the set.
3. The connector set contains a plug and contacts. Using contacts for other plugs may damage the connector. Use the enclosed contacts.
4. For fabricating cables with these connectors, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
5. When the screw type is required, refer to "Products on the Market for Rotary Servo Motors" in this catalog.
6. Connectors for HK-ST152G1/G1H/G5/G7 geared servo motors are the same as those for HK-ST172W.
7. Use MR-EKCBL_M-H or MR-ECNM to connect to an output cable for AT343A, AT543A-SC or AT545A-SC scales manufactured by Mitutoyo Corporation.
8. For unlisted lengths of the cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
9. Servo system will not operate correctly when the junction cables for fully closed loop control and for linear servo motors are used mistakenly or interchangeably. Make sure of the model before placing an order.
10. Long bending life cables and standard cables are for moving parts and fixed parts respectively

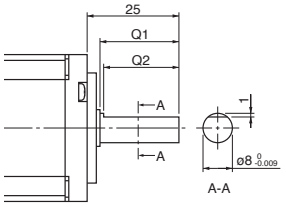
HK-KT and HK-ST Keyshaft Dimensions

HK-KT Series with Special Shaft Dimensions

Servo motors with the following specifications are also available.

D: D-cut Shaft (*1)

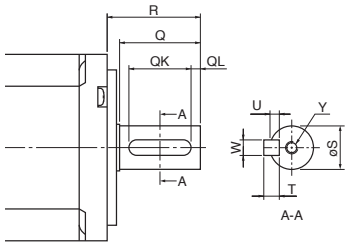
Model	Variable Dimensions	
	Q1	Q2
HK-KT053WD HK-KT13WD HK-KT1M3WD	21.5	20.5
HK-KT13UWD	21	20



[Unit: mm]

K: Key Shaft (With a Double Round-ended Key) (*1)

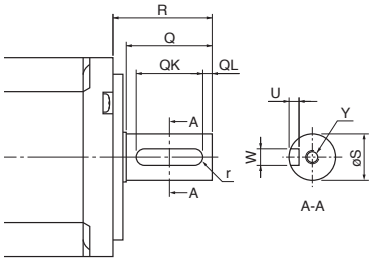
Model	Variable Dimensions								
	S	R	Q	W	QK	QL	U	T	Y
HK-KT053WK HK-KT13WK HK-KT1M3WK	8 0 -0.009	25	21.5	3	14	5	1.8	3	M3 Screw depth: 8
HK-KT13UWK			21						
HK-KT23WK HK-KT43(4)WK HK-KT63(4)WK HK-KT23UWK HK-KT43UWK	14 0 -0.011	30	26	5	20	3	3	5	M4 Screw depth: 15
HK-KT7M3(4)WK HK-KT103(4)WK HK-KT7M3UWK HK-KT103UWK HK-KT153(4)WK HK-KT203(4)WK HK-KT202(4)WK	19 0 -0.013	40	36	6	25	5	3.5	6	M5 Screw depth: 20



[Unit: mm]

N: Key Shaft (Without Key) (*1, 2)

Model	Variable Dimensions								
	S	R	Q	W	QK	QL	U	r	Y
HK-KT053WN HK-KT13WN HK-KT1M3WN	8 0 -0.009	25	21.5	3 -0.004 -0.029	14	5	1.8 +0.1 0	1.5	M3 Screw depth: 8
HK-KT13UWN			21						
HK-KT23WN HK-KT43(4)WN HK-KT63(4)WN HK-KT23UWN HK-KT43UWN	14 0 -0.011	30	26	5 0 -0.03	20	3	3 +0.1 0	2.5	M4 Screw depth: 15
HK-KT7M3(4)WN HK-KT103(4)WN HK-KT7M3UWN HK-KT103UWN HK-KT153(4)WN HK-KT203(4)WN HK-KT202(4)WN	19 0 -0.013	40	36	6 0 -0.03	25	5	3.5 +0.1 0	3	M5 Screw depth: 20



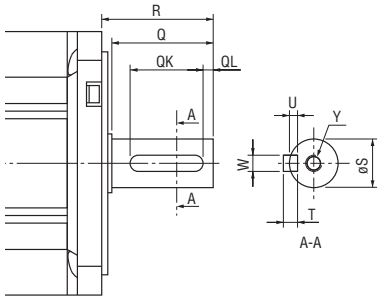
[Unit: mm]

HK-ST Series with Special Shaft Dimensions

Servo motors with the following specifications are also available.

K: Key Shaft (With a Double Round-Ended Key) (*1)

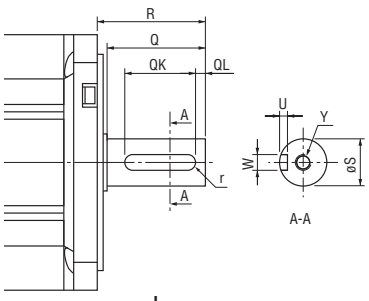
Model	Variable Dimensions								
	S	R	Q	W	QK	QL	U	T	Y
HK-ST52(4)WK HK-ST102(4)WK HK-ST172(4)WK HK-ST202(4)AWK HK-ST302(4)WK	24 0 -0.013	55	50	8	36	5	4	7	M8 Screw depth: 20
HK-ST202(4)WK HK-ST352(4)WK HK-ST5024WK HK-ST502(4)WK HK-ST702(4)WK	35 0.010 0	79	75	10	55	5	5	8	M8 Screw depth: 20



[Unit: m]

N: Key Shaft (Without Key) (*1, 2)

Model	Variable Dimensions								
	S	R	Q	W	QK	QL	U	r	Y
HK-ST52(4)WN HK-ST102(4)WN HK-ST172(4)WN HK-ST202(4)AWN HK-ST302(4)WN	24 0 -0.013	55	50	8 0 -0.036	36	5	4 +0.2 0	4	M8 Screw depth: 20
HK-ST202(4)WN HK-ST352(4)WN HK-ST502(4)WN HK-ST702(4)WN	35 0.010 0	79	75	10 0 -0.036	55	5	5 +0.2 0	5	M8 Screw depth: 20



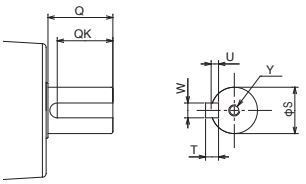
[Unit: mm]

HK-KT Series Geared Servo Motor Special Shaft Dimensions

The standard HK-KT_G1 (with a gear reducer for general industrial machines) and HK-KT_G7 (with a shaft-output type gear reducer for high precision applications, flange mounting) have a straight shaft. Note that these motors are also available with a keyed shaft (with a key) as HK-KT_G1K and HK-KT_G7K.

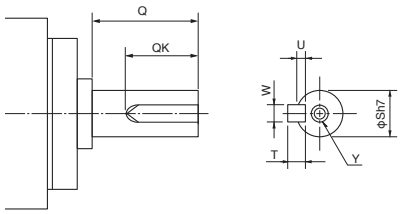
HK-KT_G1K (*1, *2)

Keyed shaft (with a double square-ended key)



[Unit: mm]

Model	Reduction Ratio (Actual Reduction Ratio)	Variable Dimensions						
		S	Q	W	QK	U	T	Y
HK-KT053(B)G1K	1/5 (9/44)	$16^{0}_{-0.011}$	25	5	20	3	5	M4 Screw depth: 8
	1/12 (49/576)							
	1/20 (25/484)							
HK-KT13(B)G1K	1/5 (9/44)							
	1/12 (49/576)							
	1/20 (25/484)							
HK-KT23(B)G1K	1/5 (19/96)	$25^{0}_{-0.013}$	35	8	30	4	7	M6 Screw depth: 12
	1/12 (961/11664)							
	1/20 (513/9984)							
HK-KT43(B)G1K	1/5 (19/96)							
	1/12 (961/11664)							
	1/20 (7/135)	$32^{0}_{-0.016}$	50	10	40	5	8	M8 Screw depth: 16
HK-KT7M3(B)G1K	1/5 (1/5)							
	1/12 (7/87)							
	1/20 (625/12544)	$40^{0}_{-0.016}$	60	12	50			M10 Screw depth: 20



[Unit: mm]

Model	Reduction Ratio (*3)	Variable Dimensions						
		S	Q	W	QK	U	T	Y
HK-KT053(B)G7K	1/5 (40 × 40)	10	20	4	15	2.5	4	M3 Screw depth: 6
	1/5 (60 × 60)	16	28	5	25	3	5	M4 Screw depth: 8
	1/9	10	20	4	15	2.5	4	M3 Screw depth: 6
	1/11	16	28	5	25	3	5	M4 Screw depth: 8
	1/21							
	1/33							
	1/45							
HK-KT13(B)G7K	1/5 (40 × 40)	10	20	4	15	2.5	4	M3 Screw depth: 6
	1/5 (60 × 60)	16	28	5	25	3	5	M4 Screw depth: 8
	1/11							
	1/21							
	1/33	25	42	8	36	4	7	M6 Screw depth: 12
	1/45							
HK-KT23(B)G7K	1/5	16	28	5	25	3	5	M4 Screw depth: 8
	1/11							
	1/21	25	42	8	36	4	7	M6 Screw depth: 12
	1/33							
	1/45							
HK-KT43(B)G7K	1/5	16	28	5	25	3	5	M4 Screw depth: 8
	1/11	25	42	8	36	4	7	M6 Screw depth: 12
	1/21							
	1/33	40	82	12	70	5	8	M10 Screw depth: 20
	1/45							
HK-KT73(B)G7K	1/5	25	42	8	36	4	7	M6 Screw depth: 12
	1/11							
	1/21	40	82	12	70	5	8	M10 Screw depth: 20
	1/33							
	1/45							

Notes:

1. Do not use the servo motors with a keyed shaft for frequent start/stop applications as this may cause the damage to the shaft.
2. Dimensions not shown in the tables are respectively the same as those of HK-KT_G1 and HK-KT_G7 with a straight shaft. Refer to "HK-KT_G1" and "HK-KT_G7" of "HK-KT Series Geared Servo Motor Dimensions" in this catalog.
3. The values in brackets represent the dimensions of the flange.

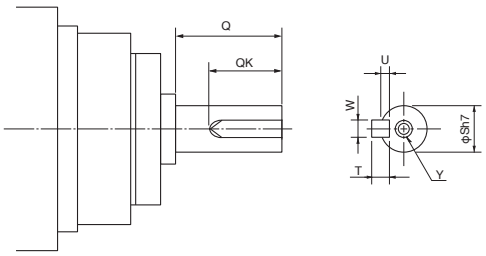
HK-ST Series Geared Servo Motor Special Shaft Dimensions

The standard HK-ST_G7 (with a shaft-output type gear reducer for high precision applications, flange mounting) has a straight shaft.
Note that this motor is also available with a keyed shaft (with a key) as HK-ST_G7K.

HK-ST_G7K (*1,*2)

Keyed shaft (with a single pointed key)

Model	Reduction Ratio	Variable Dimensions						
		S	Q	W	QK	U	T	Y
HK-ST52(B)G7K	1/5	25	42	8	36	4	7	M6 Screw depth: 12
	1/11							
	1/21	40	82	12	70	5	8	M10 Screw depth: 20
	1/33							
	1/45							
HK-ST102(B)G7K	1/5	25	42	8	36	4	7	M6 Screw depth: 12
	1/11	40	82	12	70	5	8	M10 screw depth: 20
	1/21							
	1/33	50	82	14	70	5.5	9	M10 Screw depth: 20
	1/45							
HK-ST152(B)G7K	1/5	25	42	8	36	4	7	M6 Screw depth: 12
	1/11	40	82	12	70	5	8	M10 Screw depth: 20
	1/21	50	82	14	70	5.5	9	M10 Screw depth: 20
	1/33							
	1/45							
HK-ST202(B)G7K	1/5	40	82	12	70	5	8	M10 Screw depth: 20
	1/11							
	1/21	50	82	14	70	5.5	9	M10 Screw depth: 20
	1/33							
	1/45							
HK-ST352(B)G7K	1/5	40	82	12	70	5	8	M10 Screw depth: 20
	1/11	50	82	14	70	5.5	9	M10 Screw depth: 20
	1/21							
HK-ST502(B)G7K	1/5							
	1/11							
HK-ST702(B)G7K	1/5							



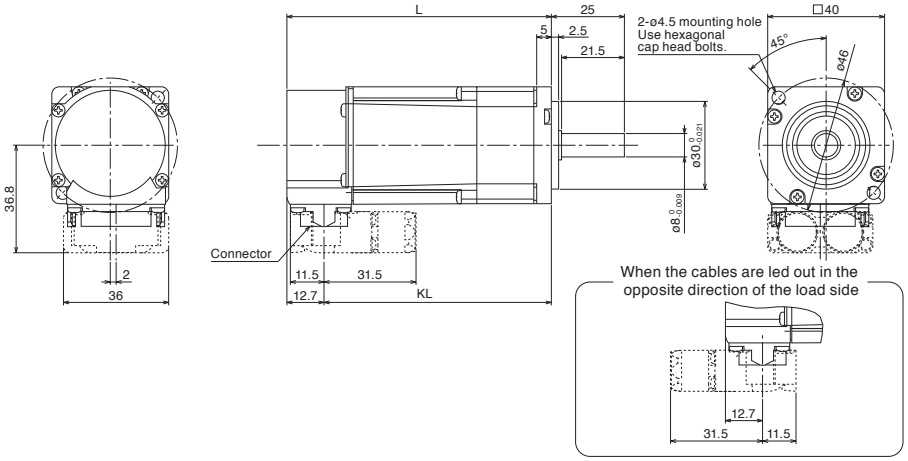
[Unit: mm]

Notes:
1. Do not use the servo motors with a keyed shaft for frequent start/stop applications as this may cause the damage to the shaft.
2. Dimensions not shown in the tables are the same as those of HK-ST_G7 with a straight shaft. Refer to "HK-ST_G7" of "HK-ST Series Geared Servo Motor Dimensions" in this catalog.

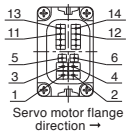
HK-KT and HK-ST Motor Dimensions

HK-KT Series Dimensions (*3, *4)

HK-KT053W(B), HK-KT13W(B), HK-KT1M3W(B)



Connector



Servo motor flange direction →

Electromagnetic brake (*2)

Pin No.	Signal name
5	B1
6	B2

Power supply

Pin No.	Signal name
1	⏚ (PE)
2	U
3	W
4	V

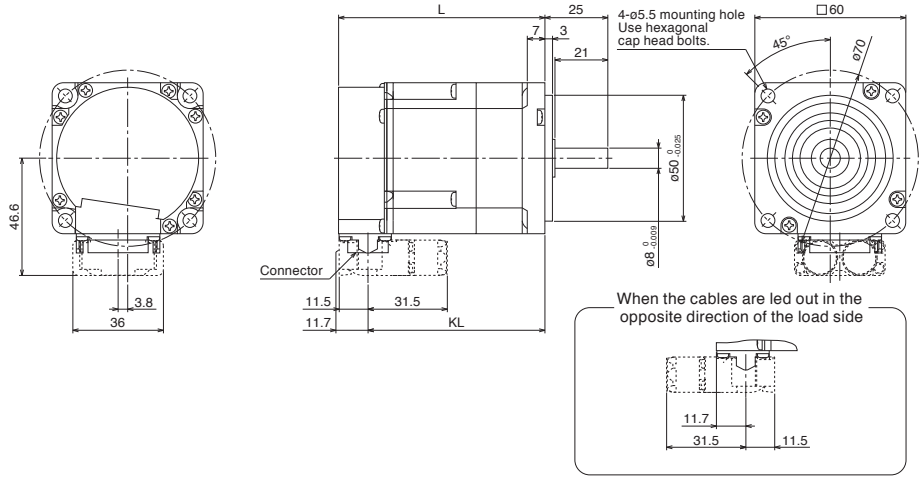
Encoder

Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

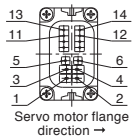
Model	Variable dimensions (*1)	
	L	KL
HK-KT053W(B)	55.5 (90.5)	42.8 (77.8)
HK-KT13W(B)	68 (103)	55.3 (90.3)
HK-KT1M3W(B)	80.5 (115.5)	67.8 (102.8)

[Unit: mm]

HK-KT13UW(B)



Connector



Servo motor flange direction →

Electromagnetic brake (Note 2)

Pin No.	Signal name
5	B1
6	B2

Power supply

Pin No.	Signal name
1	⏚ (PE)
2	U
3	W
4	V

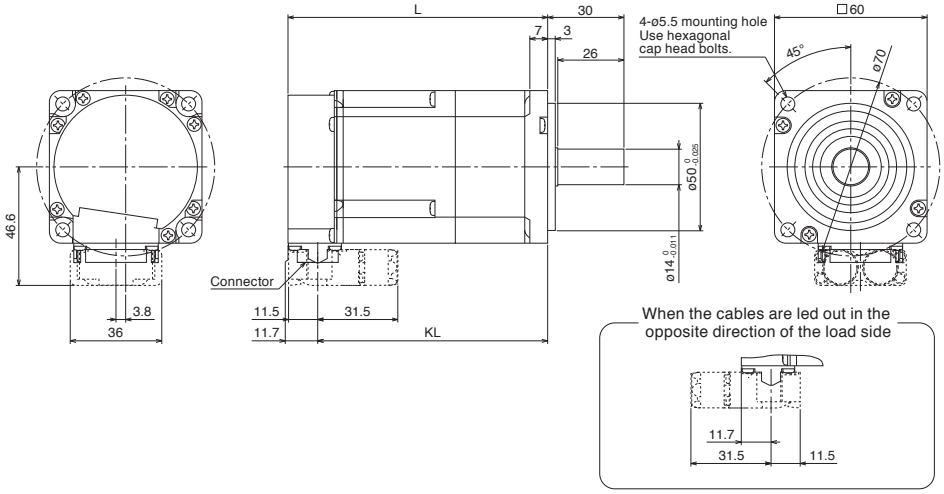
Encoder

Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

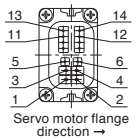
Model	Variable dimensions (Note 1)	
	L	KL
HK-KT13UW(B)	58.5 (82)	46.8 (70.3)

[Unit: mm]

HK-KT23W(B), HK-KT43W(B), HK-KT63W(B),
HK-KT434W(B), HK-KT634W(B)



Connector



Servo motor flange direction →

Electromagnetic brake (Note 2)

Pin No.	Signal name
5	B1
6	B2

Power supply

Pin No.	Signal name
1	⏚ (PE)
2	U
3	W
4	V

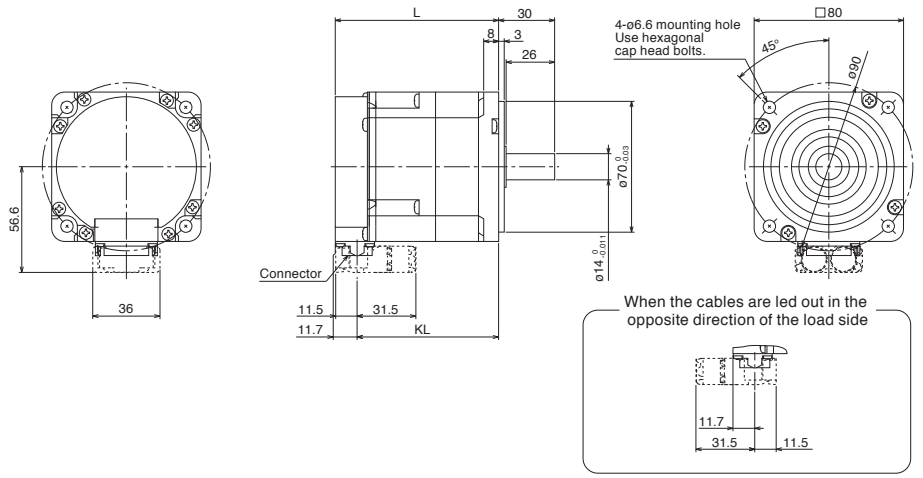
Encoder

Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

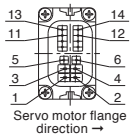
Model	Variable dimensions (Note 1)	
	L	KL
HK-KT23W(B)	67.5 (102.1)	55.8 (90.4)
HK-KT43W(B) HK-KT434W(B)	85.5 (120.1)	73.8 (108.4)
HK-KT63W(B) HK-KT634W(B)	103.5 (138.1)	91.8 (126.4)

[Unit: m

HK-KT23UW(B), HK-KT43UW(B)



Connector



Electromagnetic brake (Note 2)

Pin No.	Signal name
5	B1
6	B2

Power supply

Pin No.	Signal name
1	⏚(PE)
2	U
3	W
4	V

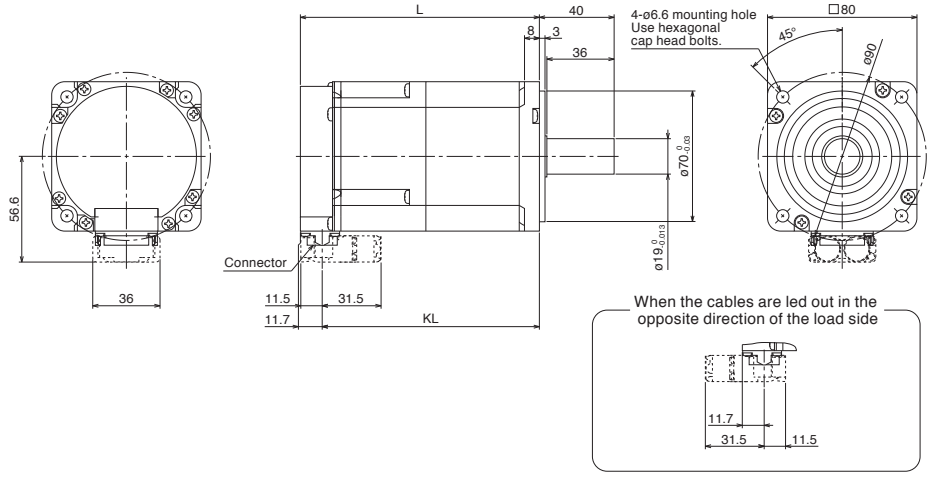
Encoder

Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

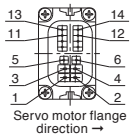
Model	Variable dimensions (Note 1)	
	L	KL
HK-KT23UW(B)	65.5 (87.5)	53.8 (75.8)
HK-KT43UW(B)	74.5 (96.5)	62.8 (84.8)

[Unit: mm]

HK-KT7M3W(B), HK-KT103W(B), HK-KT7M34W(B), HK-KT1034W(B)



Connector



Electromagnetic brake (Note 2)

Pin No.	Signal name
5	B1
6	B2

Power supply

Pin No.	Signal name
1	⏚(PE)
2	U
3	W
4	V

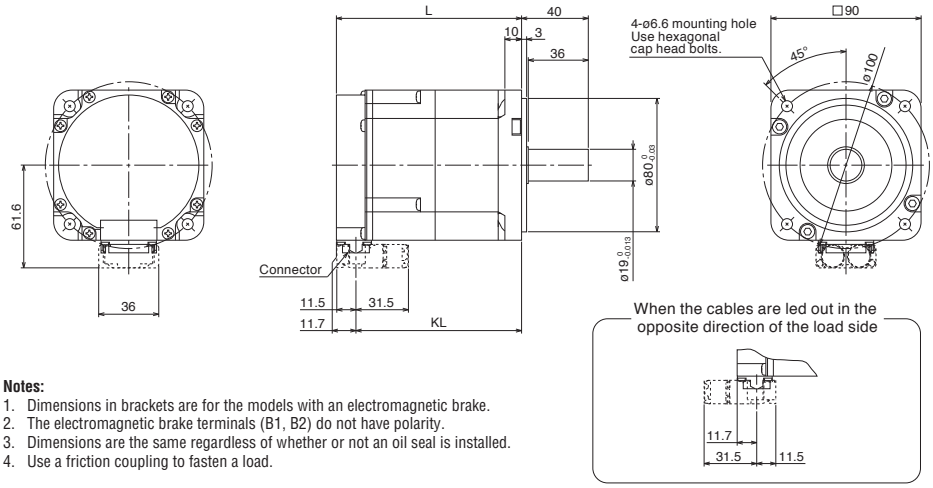
Encoder

Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

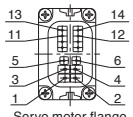
Model	Variable dimensions (Note 1)	
	L	KL
HK-KT7M3W(B) HK-KT7M34W(B)	92.5 (128)	80.8 (116.3)
HK-KT103W(B) HK-KT1034W(B)	101.5 (137)	89.8 (125.3)

[Unit: mm]

HK-KT7M3UW(B), HK-KT103UW(B), HK-KT153W(B), HK-KT203W(B), HK-KT202W(B), HK-KT1534W(B), HK-KT2034W(B), HK-KT2024W(B)



Connector



Electromagnetic brake (Note 2)

Pin No.	Signal name
5	B1
6	B2

Power supply

Pin No.	Signal name
1	⏚(PE)
2	U
3	W
4	V

Encoder

Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

Model	Variable dimensions (Note 1)	
	L	KL
HK-KT7M3UW(B)	83.5 (111)	71.8 (99.3)
HK-KT103UW(B)	92.5 (120)	80.8 (108.3)
HK-KT153W(B) HK-KT1534W(B)	118.9 (158.3)	107.2 (146.6)
HK-KT203W(B) HK-KT2034W(B)	136.9 (176.3)	125.2 (164.6)
HK-KT202W(B) HK-KT2024W(B)	172.9 (212.3)	161.2 (200.6)

[Unit: mm]

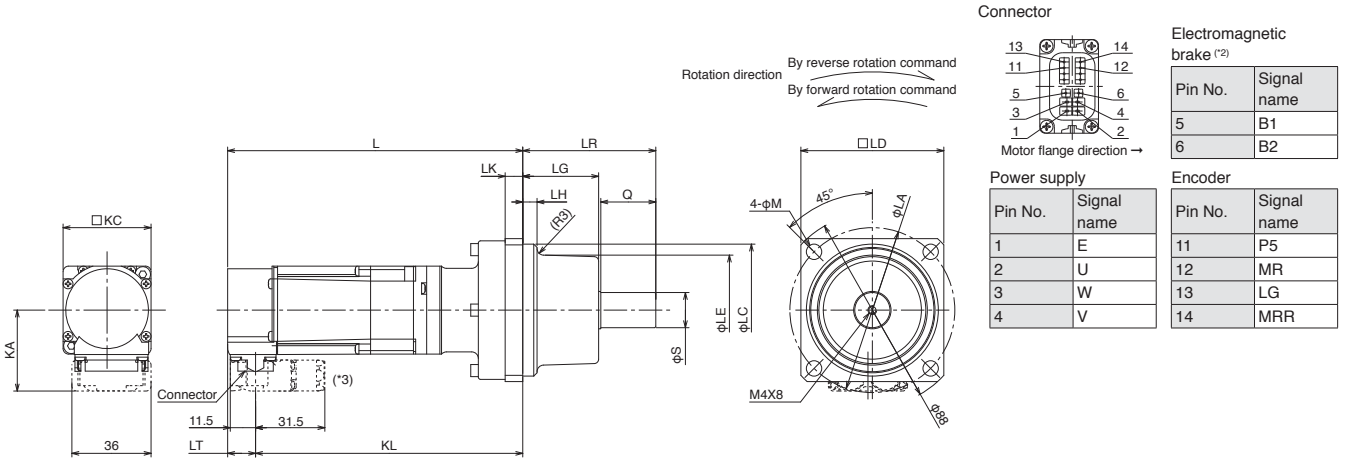
Notes:
1. Dimensions in brackets are for the models with an electromagnetic brake.
2. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Dimensions are the same regardless of whether or not an oil seal is installed.
4. Use a friction coupling to fasten a load.

HK-KT Series Geared Servo Motor Dimensions (*1, *5)

With a gear reducer for general industrial machines.

HK-KT_G1 (*6)

The drawing is schematic only. The actual shapes of the servo motors and the location of the mounting screws may differ from the drawing.



Electromagnetic brake (*2)

Pin No.	Signal name
5	B1
6	B2

Power supply

Pin No.	Signal name
1	E
2	U
3	W
4	V

Encoder

Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

[Unit: mm]

Model HK-KT	Reduction Ratio (Actual Reduction Ratio)	Variable Dimensions (*4) L	LA	LC	LD	LE	S	LH	LK	KL	LG	Q	LR	M	KA	LT	KC
053(B)G1	1/5 (9/44)	99.2 (134.2)	75	60 $^{0}_{-0.03}$	65	50	16 $^{0}_{-0.011}$	6.5	8	86.5 (121.5)	34.5	25	60.5	7	36.8	12.7	40
	1/12 (49/576)	118 (153)								105.3 (140.3)							
	1/20 (25/484)																
13(B)G1	1/5 (9/44)	111.7 (146.7)								99 (134)							
	1/12 (49/576)	130.5 (165.5)								117.8 (152.8)							
	1/20 (25/484)																
23(B)G1	1/5 (19/96)	120.7 (155.3)	100	82 $^{0}_{-0.035}$	90	75	25 $^{0}_{-0.013}$	8	10	109 (143.6)	38	35	74	9	46.6	11.7	60
	1/12 (961/11664)	140.5 (175.1)								128.8 (163.4)							
	1/20 (513/9984)																
43(B)G1	1/5 (19/96)	138.7 (173.3)								127 (161.6)							
	1/12 (961/11664)	158.5 (193.1)								146.8 (181.4)							
	1/20 (7/135)	162.5 (197.1)								150.8 (185.4)							
7M3(B)G1	1/5 (1/5)	157.5 (193)	115	95 $^{0}_{-0.035}$	100	83	32 $^{0}_{-0.016}$	9.5		145.8 (181.3)	39	50	90		56.6		80
	1/12 (7/87)	179.5 (215)								167.8 (203.3)							
	1/20 (625/12544)	192.5 (228)	140	115 $^{0}_{-0.035}$	120	98	40 $^{0}_{-0.016}$	11.5	15	180.8 (216.3)	44.5	60	105.5	14			

Notes:

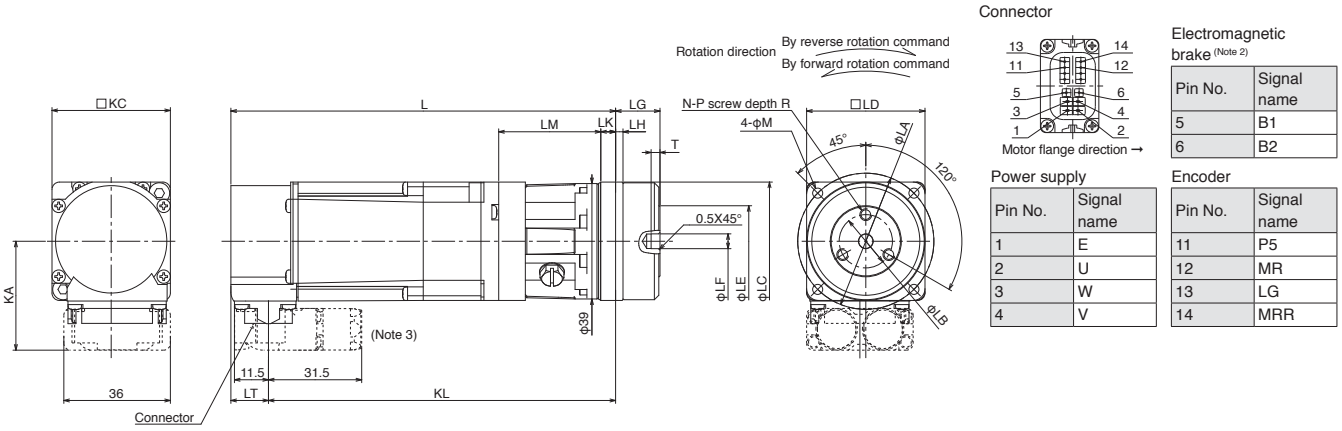
1. The actual dimensions may be up to 3 mm larger than those shown in the drawing because of shifting and variance of parts that occur during the assembly and manufacture of the rotary servo motors. The dimensions and tolerances shown are applicable at a temperature of 20 °C and may vary depending on the ambient temperature. Design the machine to allow for sufficient space.
2. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. The dimensions are applicable when a dual type motor cable is led to the load side. Refer to "HK-KT Series Connector Dimensions" for the dimensions when leading the cable to the opposite to the load side or leading vertically and when using a single type motor cable.
4. The dimensions in brackets are for the models with an electromagnetic brake.
5. Use a friction coupling to fasten a load.
6. HK-KT_G1K, a geared servo motor with a keyed shaft (with a key), is also available. Refer to "HK-KT Series Geared Servo Motor Special Shaft Dimensions" in this guide for details.

HK-KT Series Geared Servo Motor Dimensions (*1)

With a flange-output type gear reducer for high precision applications, flange mounting

HK-KT_G5

The drawing is schematic only. The actual shapes of the servo motors and the location of the mounting screws may differ from the drawing.



Connector

Electromagnetic brake (Note 2)

Pin No.	Signal name
5	B1
6	B2

Power supply

Pin No.	Signal name
1	E
2	U
3	W
4	V

Encoder

Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

[Unit: mm]

Model HK-KT	Reduction Ratio(*5)	Variable Dimensions (*4)																			
		L	LA	LB	LC	LD	LE	LF	LG	LH	LK	LM	KL	T	N	P	R	M	KA	LT	KC
053(B)G5	1/5 (40 × 40)	95 (130)	46	18	$40^{0}_{-0.025}$	40	24	$5^{+0.012}_{0}$	$15^{+0.25}_{-0.20}$	2.5	5	34.5	82.3 (117.3)	3	3	M4	6	3.4	36.8	12.7	40
	1/5 (60 × 60)	119.5 (154.5)	70	30	$56^{0}_{-0.03}$	60	40	$14^{+0.018}_{0}$	$21^{+0.4}_{-0.5}$	3	8	56	106.8 (141.8)	5	6		7	5.5			
	1/9	95 (130)	46	18	$40^{0}_{-0.025}$	40	24	$5^{+0.012}_{0}$	$15^{+0.25}_{-0.20}$	2.5	5	34.5	82.3 (117.3)	3	3		6	3.4			
	1/11	119.5 (154.5)	70	30	$56^{0}_{-0.03}$	60	40	$14^{+0.018}_{0}$	$21^{+0.4}_{-0.5}$	3	8	56	106.8 (141.8)	5	6		7	5.5			
	1/21																				
	1/33																				
	1/45																				
13(B)G5	1/5 (40 × 40)	107.5 (142.5)	46	18	$40^{0}_{-0.025}$	40	24	$5^{+0.012}_{0}$	$15^{+0.25}_{-0.20}$	2.5	5	34.5	94.8 (129.8)	3	3		6	3.4			
	1/5 (60 × 60)	132 (167)	70	30	$56^{0}_{-0.03}$	60	40	$14^{+0.018}_{0}$	$21^{+0.4}_{-0.5}$	3	8	56	119.3 (154.3)	5	6		7	5.5			
	1/11																				
	1/21																				
	1/33	134.5 (169.5)	105	45	$85^{0}_{-0.035}$	90	59	$24^{+0.021}_{0}$	$27^{+0.4}_{-0.5}$	8	10	56.5	121.8 (156.8)			M6	10	9			
	1/45																				
23(B)G5	1/5	131.5 (166.1)	70	30	$56^{0}_{-0.03}$	60	40	$14^{+0.018}_{0}$	$21^{+0.4}_{-0.5}$	3	8	56	119.8 (154.4)			M4	7	5.5	46.6	11.7	60
	1/11																				
	1/21	138.5 (173.1)	105	45	$85^{0}_{-0.035}$	90	59	$24^{+0.021}_{0}$	$27^{+0.4}_{-0.5}$	8	10	61	126.8 (161.4)			M6	10	9			
	1/33																				
	1/45																				
43(B)G5	1/5	149.5 (184.1)	70	30	$56^{0}_{-0.03}$	60	40	$14^{+0.018}_{0}$	$21^{+0.4}_{-0.5}$	3	8	56	137.8 (172.4)	5	6	M4	7	5.5			
	1/11	156.5 (191.1)	105	45	$85^{0}_{-0.035}$	90	59	$24^{+0.021}_{0}$	$27^{+0.4}_{-0.5}$	8	10	61	144.8 (179.4)			M6	10	9			
	1/21																				
	1/33	168.5 (203.1)	135	60	$115^{0}_{-0.035}$	120	84	$32^{+0.025}_{0}$	$35^{+0.4}_{-0.5}$	13	13	70	156.8 (191.4)			M8	12	11			
	1/45																				
7M3(B)G5	1/5	170.5 (206)	105	45	$85^{0}_{-0.035}$	90	59	$24^{+0.021}_{0}$	$27^{+0.4}_{-0.5}$	8	10	68	158.8 (194.3)			M6	10	9	56.6		80
	1/11																				
	1/21	180.5 (216)	135	60	$115^{0}_{-0.035}$	120	84	$32^{+0.025}_{0}$	$35^{+0.4}_{-0.5}$	13	13	75	168.8 (204.3)			M8	12	11			
	1/33																				
	1/45																				

Notes:

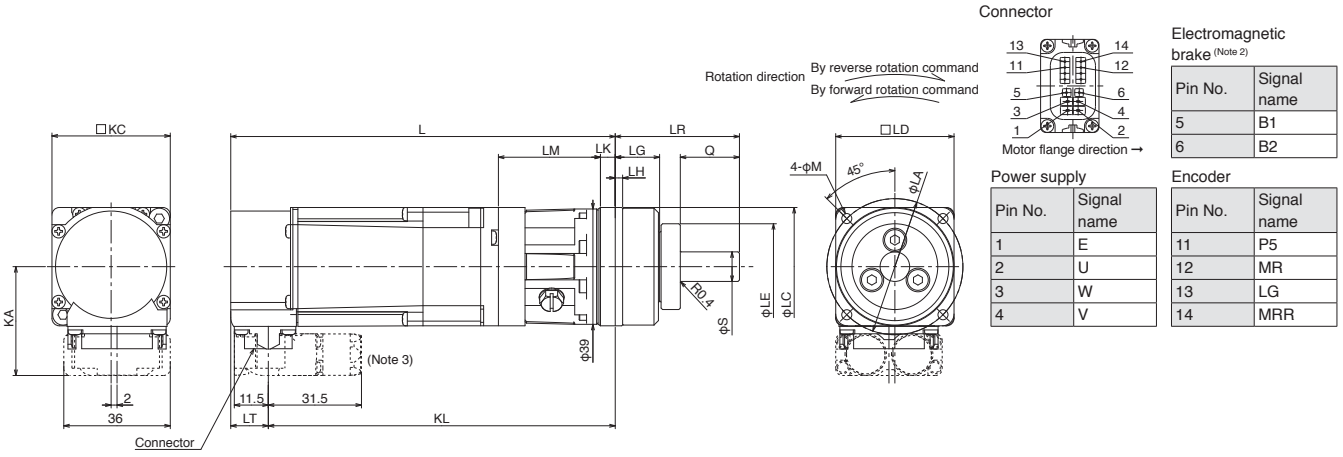
1. The actual dimensions may be up to 3 mm larger than those shown in the drawing because of shifting and variance of parts that occur during the assembly and manufacture of the rotary servo motors. The dimensions and tolerances shown are applicable at a temperature of 20 °C and may vary depending on the ambient temperature. Design the machine to allow for sufficient space.
2. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. The dimensions are applicable when a dual type motor cable is led to the load side. Refer to "HK-KT Series Connector Dimensions" for the dimensions when leading the cable to the opposite to the load side or leading vertically and when using a single type motor cable.
4. The dimensions in brackets are for the models with an electromagnetic brake.
5. The values in brackets represent the dimensions of the flange.

HK-KT Series Geared Servo Motor Dimensions (*1, *5)

With a shaft-output type gear reducer for high precision applications, flange mounting

HK-KT_G7 (*7)

The drawing is schematic only. The actual shapes of the servo motors and the location of the mounting screws may differ from the drawing.



Electromagnetic brake (Note 2)	
Pin No.	Signal name
5	B1
6	B2

Power supply	
Pin No.	Signal name
1	E
2	U
3	W
4	V

Encoder	
Pin No.	Signal name
11	P5
12	MR
13	LG
14	MRR

[Unit: mm]

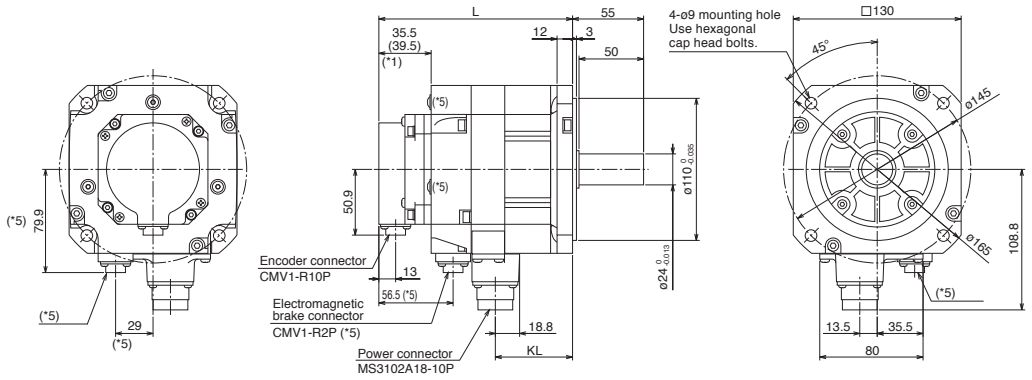
Model HK-KT	Reduction ratio (Note 6)	Variable dimensions (Note 4) L	LA	LC	LD	LE	S	LG	LH	Q	LR	LK	LM	KL	M	KA	LT	KC
053(B)G7	1/5 (40 × 40)	95 (130)	46	$40^{0}_{-0.025}$	40	29	$10^{0}_{-0.015}$	15	2.5	20	42	5	34.5	82.3 (117.3)	3.4	36.8	12.7	40
	1/5 (60 × 60)	119.5 (154.5)	70	$56^{0}_{-0.03}$	60	40	$16^{0}_{-0.018}$	21	3	28	58	8	56	106.8 (141.8)	5.5			
	1/9	95 (130)	46	$40^{0}_{-0.025}$	40	29	$10^{0}_{-0.015}$	15	2.5	20	42	5	34.5	82.3 (117.3)	3.4			
	1/11	119.5 (154.5)	70	$56^{0}_{-0.03}$	60	40	$16^{0}_{-0.018}$	21	3	28	58	8	56	106.8 (141.8)	5.5			
	1/21																	
	1/33																	
	1/45																	
13(B)G7	1/5 (40 × 40)	107.5 (142.5)	46	$40^{0}_{-0.025}$	40	29	$10^{0}_{-0.015}$	15	2.5	20	42	5	34.5	94.8 (129.8)	3.4			
	1/5 (60 × 60)	132 (167)	70	$56^{0}_{-0.03}$	60	40	$16^{0}_{-0.018}$	21	3	28	58	8	56	119.3 (154.3)	5.5			
	1/11																	
	1/21																	
	1/33	134.5 (169.5)	105	$85^{0}_{-0.035}$	90	59	$25^{0}_{-0.021}$	27	8	42	80	10	56.5	121.8 (156.8)	9			
	1/45																	
23(B)G7	1/5	131.5 (166.1)	70	$56^{0}_{-0.03}$	60	40	$16^{0}_{-0.018}$	21	3	28	58	8	56	119.8 (154.4)	5.5	46.6	11.7	60
	1/11																	
	1/21	138.5 (173.1)	105	$85^{0}_{-0.035}$	90	59	$25^{0}_{-0.021}$	27	8	42	80	10	61	126.8 (161.4)	9			
	1/33																	
	1/45																	
43(B)G7	1/5	149.5 (184.1)	70	$56^{0}_{-0.03}$	60	40	$16^{0}_{-0.018}$	21	3	28	58	8	56	137.8 (172.4)	5.5			
	1/11	156.5 (191.1)	105	$85^{0}_{-0.035}$	90	59	$25^{0}_{-0.021}$	27	8	42	80	10	61	144.8 (179.4)	9			
	1/21																	
	1/33	168.5 (203.1)	135	$115^{0}_{-0.035}$	120	84	$40^{0}_{-0.025}$	35	13	82	133	13	70	156.8 (191.4)	11			
	1/45																	
7M3(B)G7	1/5	170.5 (206)	105	$85^{0}_{-0.035}$	90	59	$25^{0}_{-0.021}$	27	8	42	80	10	68	158.8 (194.3)	9	56.6		80
	1/11																	
	1/21	180.5 (216)	135	$115^{0}_{-0.035}$	120	84	$40^{0}_{-0.025}$	35	13	82	133	13	75	168.8 (204.3)	11			
	1/33																	
	1/45																	

Notes:

1. The actual dimensions may be up to 3 mm larger than those shown in the drawing because of shifting and variance of parts that occur during the assembly and manufacture of the rotary servo motors. The dimensions and tolerances shown are applicable at a temperature of 20 °C and may vary depending on the ambient temperature. Design the machine to allow for sufficient space.
2. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. The dimensions are applicable when a dual type motor cable is led to the load side. Refer to "HK-KT Series Connector Dimensions" for the dimensions when leading the cable to the opposite to the load side or leading vertically and when using a single type motor cable.
4. The dimensions in brackets are for the models with an electromagnetic brake.
5. Use a friction coupling to fasten a load.
6. The values in brackets represent the dimensions of the flange.
7. HK-KT_G7K, a geared servo motor with a keyed shaft (with a key), is also available. Refer to "HK-KT Series Geared Servo Motor Special Shaft Dimensions" in this guide for details.

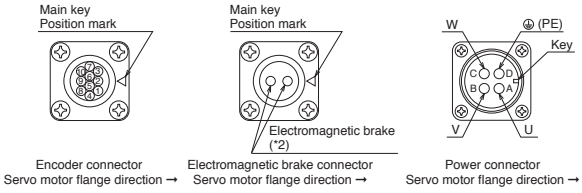
HK-ST Series Dimensions (*3, *4)

HK-ST52W(B), HK-ST102W(B), HK-ST172W(B), HK-ST202AW(B), HK-ST302W(B),
HK-ST524W(B), HK-ST1024W(B), HK-ST1724W(B), HK-ST2024AW(B), HK-ST3024W(B)



Encoder

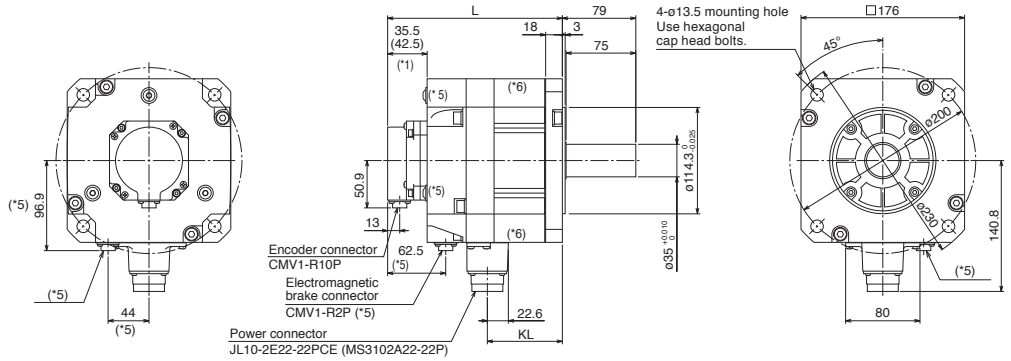
Pin No.	Signal name	Pin No.	Signal name
1	MR	6	-
2	MRR	7	-
3	-	8	P5
4	-	9	-
5	LG	10	SHD



Model	Variable dimensions (*1)	
	L	KL
HK-ST52W(B)	115.5	59.8
HK-ST524W(B)	(150)	
HK-ST102W(B)	126.5	70.8
HK-ST1024W(B)	(161)	
HK-ST172W(B)	137.5	81.8
HK-ST1724W(B)	(172)	
HK-ST202AW(B)	159.5	103.8
HK-ST2024AW(B)	(194)	
HK-ST302W(B)	181.5	125.8
HK-ST3024W(B)	(216)	

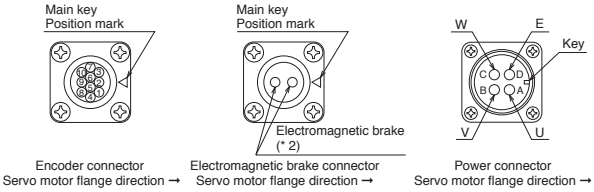
[Unit: mm]

HK-ST202W(B), HK-ST352W(B), HK-ST502W(B), HK-ST702W(B),
HK-ST2024W(B), HK-ST3524W(B), HK-ST5024W(B), HK-ST7024W(B)



Encoder

Pin No.	Signal name	Pin No.	Signal name
1	MR	6	-
2	MRR	7	-
3	-	8	P5
4	-	9	-
5	LG	10	SHD



Model	Variable dimensions (*1)	
	L	KL
HK-ST202W(B)	138.5	80.7
HK-ST2024W(B)	(188)	
HK-ST352W(B)	158.5	100.7
HK-ST3524W(B)	(208)	
HK-ST502W(B)	178.5	120.7
HK-ST5024W(B)	(228)	
HK-ST702W(B)	218.5	160.7
HK-ST7024W(B)	(268)	

[Unit: mm]

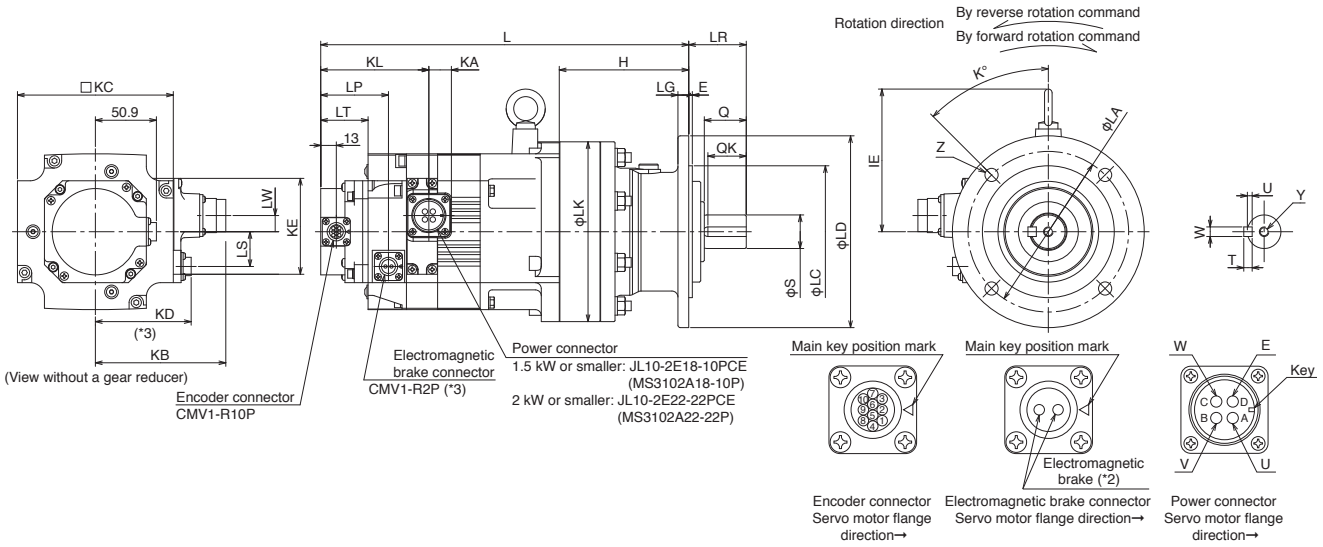
Notes:
1. Dimensions in brackets are for the models with an electromagnetic brake.
2. The electromagnetic brake terminals do not have polarity.
3. Dimensions are the same regardless of whether or not an oil seal is installed.
4. Use a friction coupling to fasten a load.
5. Only for the models with an electromagnetic brake.
6. HK-ST352W(B), HK-ST3524W(B), and HK-ST5024W(B) have screw holes (M8) for eyebolts

HK-ST Series Geared Servo Motor Dimensions (*1, *5)

With a gear reducer for general industrial machines, flange mounting

HK-ST_G1 (*6)

The drawing is schematic only. The actual shapes of the servo motors and the location of the mounting screws and the oil cap may differ from the drawing.



[Unit: mm]

Model HK-ST	Reduction Ratio	Variable Dimensions (*4) L	LA	LC	LD	LG	LK	LR	IE	KL	KA	LP	LT	LW	LS	KE	Z	K	E	H	KB	KD	KC	Q	QK	S	T	U	W	Y
52(B)G1	1/6	272.5 (307)	134	$110^{0.036}_{0.090}$	160	9	150	48	119	55.7 (90.2)	18.8	(56.5)	35.5 (39.5)	13.5	(29)	80	4-φ11	45	3	108	108.8	(79.9)	130	35	32	$28^{0}_{0.013}$	7	4	8	M8 Screw depth: 20
	1/11																													
	1/17																													
	1/29																													
	1/35	265 (299.5)	180	$140^{0.043}_{0.106}$	210	13	204	69	132	55.7 (90.2)	18.8	(56.5)	35.5 (39.5)	13.5	(29)	80	6-φ11	30	4	117	108.8	(79.9)	130	55	50	$38^{0}_{0.016}$	8	5	10	
	1/43																													
	1/59																													
102(B)G1	1/6	276 (310.5)	180	$140^{0.043}_{0.106}$	210	13	204	69	132	55.7 (90.2)	18.8	(56.5)	35.5 (39.5)	13.5	(29)	80	6-φ11	30	4	117	108.8	(79.9)	130	55	50	$38^{0}_{0.016}$	8	5	10	M8 Screw depth: 20
	1/11																													
	1/17																													
	1/29																													
	1/35																													
	1/43	321.5 (356)	230	$200^{0.050}_{0.122}$	260	15	230	76	145	55.7 (90.2)	18.8	(56.5)	35.5 (39.5)	13.5	(29)	80	6-φ11	60	4	164	108.8	(79.9)	130	70	56	$50^{0}_{0.016}$	9	5.5	14	M10 Screw depth: 18
	1/59	379 (413.5)	310	$270^{0.056}_{0.137}$	340	20	300	89	192	55.7 (90.2)	18.8	(56.5)	35.5 (39.5)	13.5	(29)	80	6-φ11	60	4	219	108.8	(79.9)	130	90	80	$60^{0}_{0.019}$	11	7	18	
152(B)G1	1/6	287 (321.5)	180	$140^{0.043}_{0.106}$	210	13	204	69	132	55.7 (90.2)	18.8	(56.5)	35.5 (39.5)	13.5	(29)	80	6-φ11	30	4	117	108.8	(79.9)	130	55	50	$38^{0}_{0.016}$	8	5	10	M8 Screw depth: 20
	1/11																													
	1/17																													
	1/29	332.5 (367)	230	$200^{0.050}_{0.122}$	260	15	230	76	145	55.7 (90.2)	18.8	(56.5)	35.5 (39.5)	13.5	(29)	80	6-φ11	60	4	164	108.8	(79.9)	130	70	56	$50^{0}_{0.016}$	9	5.5	14	M10 Screw depth: 18
	1/35																													
	1/43	390 (424.5)	310	$270^{0.056}_{0.137}$	340	20	300	89	192	55.7 (90.2)	18.8	(56.5)	35.5 (39.5)	13.5	(29)	80	6-φ11	60	4	219	108.8	(79.9)	130	90	80	$60^{0}_{0.019}$	11	7	18	
	1/59																													
202(B)G1	1/6	306 (355.5)	180	$140^{0.043}_{0.106}$	210	13	204	69	142	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	6-φ11	30	4	117	140.8	(96.9)	176	55	50	$38^{0}_{0.016}$	8	5	10	M8 Screw depth: 20
	1/11																													
	1/17																													
	1/29	403 (452.5)	310	$270^{0.056}_{0.137}$	340	20	300	89	181	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	6-φ11	60	4	219	140.8	(96.9)	176	90	80	$60^{0}_{0.019}$	11	7	18	M10 Screw depth: 18
	1/35																													
	1/43																													
	1/59																													
352(B)G1	1/6	368.5 (418)	230	$200^{0.056}_{0.137}$	260	15	230	76	145	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	6-φ11	60	4	164	140.8	(96.9)	176	70	56	$50^{0}_{0.016}$	9	5.5	14	M10 Screw depth: 18
	1/11																													
	1/17																													
	1/29	423 (472.5)	310	$270^{0.056}_{0.137}$	340	20	300	89	181	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	6-φ11	60	4	219	140.8	(96.9)	176	90	80	$60^{0}_{0.019}$	11	7	18	
	1/35																													
	1/43	462.5 (512)	360	$316^{0.062}_{0.151}$	400	22	340	94	181	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	8-φ14	22.5	5	258	140.8	(96.9)	176	90	80	$70^{0}_{0.019}$	12	7.5	20	M12 Screw depth: 24
	1/59																													
502(B)G1	1/6	443 (492.5)	310	$270^{0.056}_{0.137}$	340	20	300	89	181	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	6-φ11	60	4	219	140.8	(96.9)	176	90	80	$60^{0}_{0.019}$	11	7	18	M10 Screw depth: 18
	1/11																													
	1/17																													
	1/29	506.5 (556)	390	$345^{0.062}_{0.151}$	430	22	370	110	176	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	8-φ18	22.5	5	279	140.8	(96.9)	176	110	100	$80^{0}_{0.019}$	14	9	22	M12 Screw depth: 24
	1/35																													
	1/43																													
	1/59																													
702(B)G1	1/6	483 (532.5)	310	$270^{0.056}_{0.137}$	340	20	300	89	181	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	6-φ11	60	4	219	140.8	(96.9)	176	90	80	$60^{0}_{0.019}$	11	7	18	M10 Screw depth: 18
	1/11	522.5 (572)	360	$316^{0.062}_{0.151}$	400	22	340	94	181	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	8-φ14	22.5	5	258	140.8	(96.9)	176	90	80	$70^{0}_{0.019}$	12	7.5	20	M12 Screw depth: 24
	1/17																													
	1/29	546.5 (596)	390	$345^{0.062}_{0.151}$	430	22	370	110	176	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	8-φ18	22.5	5	279	140.8	(96.9)	176	110	100	$80^{0}_{0.019}$	14	9	22	
	1/35																													
	1/43	602.5 (652)	450	$400^{0.062}_{0.151}$	490	30	430	145	210	57.8 (107.3)	22.6	(62.5)	35.5 (42.5)	0	(44)	80	12-φ18	15	6	320	140.8	(96.9)	176	135	125	$95^{0}_{0.022}$	14	9	25	M20 Screw depth: 34
	1/59																													

Notes:

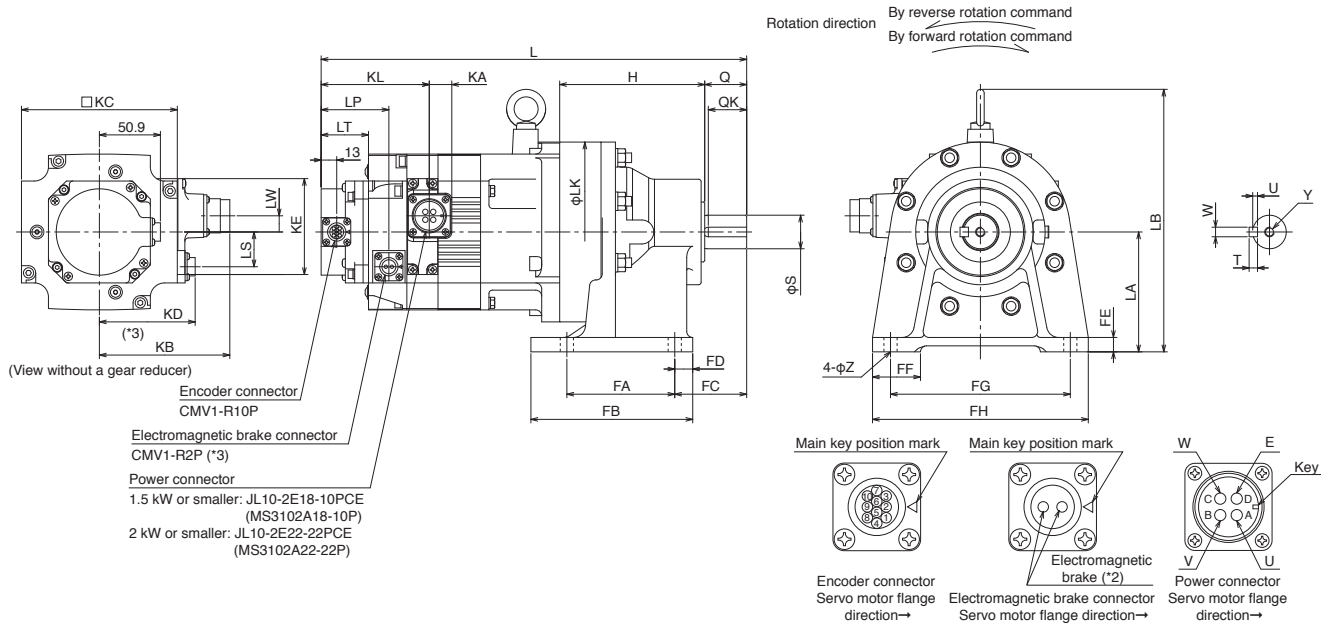
1. The actual dimensions may be up to 3 mm larger than those shown in the drawing because of shifting and variance of parts that occur during the assembly and manufacture of the rotary servo motors. The dimensions and tolerances shown are applicable at a temperature of 20 °C and may vary depending on the ambient temperature. Design the machine to allow for sufficient space.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with an electromagnetic brake.
4. The dimensions in brackets are for the models with an electromagnetic brake.
5. The lubricant oil is removed from the gear reducer before shipment, and thus please purchase the required lubricant oil and fill the oil into the gear reducer.
6. This geared servo motor has a keyed shaft (with a key).

HK-ST Series Geared Servo Motor Dimensions (*1, *5)

With a gear reducer for general industrial machines, foot mounting

HK-ST_G1H (*6)

The drawing is schematic only. The actual shapes of the servo motors and the location of the mounting screws and the oil cap may differ from the drawing.



[Unit: mm]

Model HK-ST	Reduction Ratio	Variable Dimensions (*4) L	LA	LB	LK	LS	LT	LP	LW	H	KL	KA	KB	KD	KC	KE	Z	FA	FB	FC	FD	FE	FF	FG	FH	Q	QK	S	T	U	W	Y
52(B)G1H	1/6	320.5 (355)	100	219	150	(29)	35.5 (39.5)	(56.5)	13.5	121	55.7 (90.2)	18.8	108.8	(79.9)	130	80	11	90	135	60	15	12	40	150	180	35	32	$28^{0}_{-0.013}$	7	4	8	M8 Screw depth: 20
	1/11																															
	1/17																															
	1/29																															
	1/35	334 (368.5)	120	252	204	(29)	35.5 (39.5)	(56.5)	13.5	131	55.7 (90.2)	18.8	108.8	(79.9)	130	80	14	115	155	82	20	15	55	190	230	55	50	$38^{0}_{-0.016}$	8	5	10	
	1/43																															
	1/59																															
102(B)G1H	1/6	345 (379.5)	120	252	204	(29)	35.5 (39.5)	(56.5)	13.5	131	55.7 (90.2)	18.8	108.8	(79.9)	130	80	14	115	155	82	20	15	55	190	230	55	50	$38^{0}_{-0.016}$	8	5	10	M8 Screw depth: 20
	1/11																															
	1/17																															
	1/29																															
	1/35																															
	1/43	397.5 (432)	150	295	230	(29)	35.5 (39.5)	(56.5)	13.5	170	55.7 (90.2)	18.8	108.8	(79.9)	130	80	18	145	195	100	25	22	65	290	330	70	56	$50^{0}_{-0.016}$	9	5.5	14	M10 Screw depth: 18
	1/59	468 (502.5)	160	352	300	(29)	35.5 (39.5)	(56.5)	13.5	218	55.7 (90.2)	18.8	108.8	(79.9)	130	80	18	150	238	139	44	25	75	370	410	90	80	$60^{0}_{-0.019}$	11	7	18	
152(B)G1H	1/6	356 (390.5)	120	252	204	(29)	35.5 (39.5)	(56.5)	13.5	131	55.7 (90.2)	18.8	108.8	(79.9)	130	80	14	115	155	82	20	15	55	190	230	55	50	$38^{0}_{-0.016}$	8	5	10	M8 Screw depth: 20
	1/11																															
	1/17																															
	1/29	408.5 (443)	150	295	230	(29)	35.5 (39.5)	(56.5)	13.5	170	55.7 (90.2)	18.8	108.8	(79.9)	130	80	18	145	195	100	25	22	65	290	330	70	56	$50^{0}_{-0.016}$	9	5.5	14	M10 Screw depth: 18
	1/35																															
	1/43	479 (513.5)	160	352	300	(29)	35.5 (39.5)	(56.5)	13.5	218	55.7 (90.2)	18.8	108.8	(79.9)	130	80	18	150	238	139	44	25	75	370	410	90	80	$60^{0}_{-0.019}$	11	7	18	
	1/59																															
202(B)G1H	1/6	375 (424.5)	120	262	204	(44)	35.5 (42.5)	(62.5)	0	131	57.8 (107.3)	22.6	140.8	(96.9)	176	80	14	115	155	82	20	15	55	190	230	55	50	$38^{0}_{-0.016}$	8	5	10	M8 Screw depth: 20
	1/11																															
	1/17																															
	1/29	492 (541.5)	160	341	300	(44)	35.5 (42.5)	(62.5)	0	218	57.8 (107.3)	22.6	140.8	(96.9)	176	80	18	150	238	139	44	25	75	370	410	90	80	$60^{0}_{-0.019}$	11	7	18	M10 Screw depth: 18
	1/35																															
	1/43																															
	1/59																															
352(B)G1H	1/6	444.5 (494)	150	295	230	(44)	35.5 (42.5)	(62.5)	0	170	57.8 (107.3)	22.6	140.8	(96.9)	176	80	18	145	195	100	25	22	65	290	330	70	56	$50^{0}_{-0.016}$	9	5.5	14	M10 Screw depth: 18
	1/11																															
	1/17																															
	1/29	512 (561.5)	160	341	300	(44)	35.5 (42.5)	(62.5)	0	218	57.8 (107.3)	22.6	140.8	(96.9)	176	80	18	150	238	139	44	25	75	370	410	90	80	$60^{0}_{-0.019}$	11	7	18	
	1/35																															
	1/43	556.5 (606)	200	381	340	(44)	35.5 (42.5)	(62.5)	0	262	57.8 (107.3)	22.6	140.8	(96.9)	176	80	22	275	335	125	30	30	80	380	430	90	80	$70^{0}_{-0.019}$	12	7.5	20	M12 Screw depth: 24
	1/59																															
502(B)G1H	1/6	532 (581.5)	160	341	300	(44)	35.5 (42.5)	(62.5)	0	218	57.8 (107.3)	22.6	140.8	(96.9)	176	80	18	150	238	139	44	25	75	370	410	90	80	$60^{0}_{-0.019}$	11	7	18	M10 Screw depth: 18
	1/11																															
	1/17																															
	1/29																															
	1/35	616.5 (666)	220	405	370	(44)	35.5 (42.5)	(62.5)	0	279	57.8 (107.3)	22.6	140.8	(96.9)	176	80	22	320	380	145	30	30	85	420	470	110	100	$80^{0}_{-0.019}$	14	9	22	M12 Screw depth: 24
	1/43																															
	1/59																															
702(B)G1H	1/6	572 (621.5)	160	341	300	(44)	35.5 (42.5)	(62.5)	0	218	57.8 (107.3)	22.6	140.8	(96.9)	176	80	18	150	238	139	44	25	75	370	410	90	80	$60^{0}_{-0.019}$	11	7	18	M10 Screw depth: 18
	1/11	616.5 (666)	200	381	340	(44)	35.5 (42.5)	(62.5)	0	262	57.8 (107.3)	22.6	140.8	(96.9)	176	80	22	275	335	125	30	30	80	380	430	90	80	$70^{0}_{-0.019}$	12	7.5	20	M12 Screw depth: 24
	1/17																															
	1/29	656.5 (706)	220	405	370	(44)	35.5 (42.5)	(62.5)	0	279	57.8 (107.3)	22.6	140.8	(96.9)	176	80	22	320	380	145	30	30	85	420	470	110	100	$80^{0}_{-0.019}$	14	9	22	
	1/35																															
	1/43	747.5 (797)	250	465	430	(44)	35.5 (42.5)	(62.5)	0	330	57.8 (107.3)	22.6	140.8	(96.9)	176	80	26	380	440	170	30	35	90	480	530	135	125	$95^{0}_{-0.022}$	14	9	25	M20 Screw depth: 34
	1/59																															

Notes:

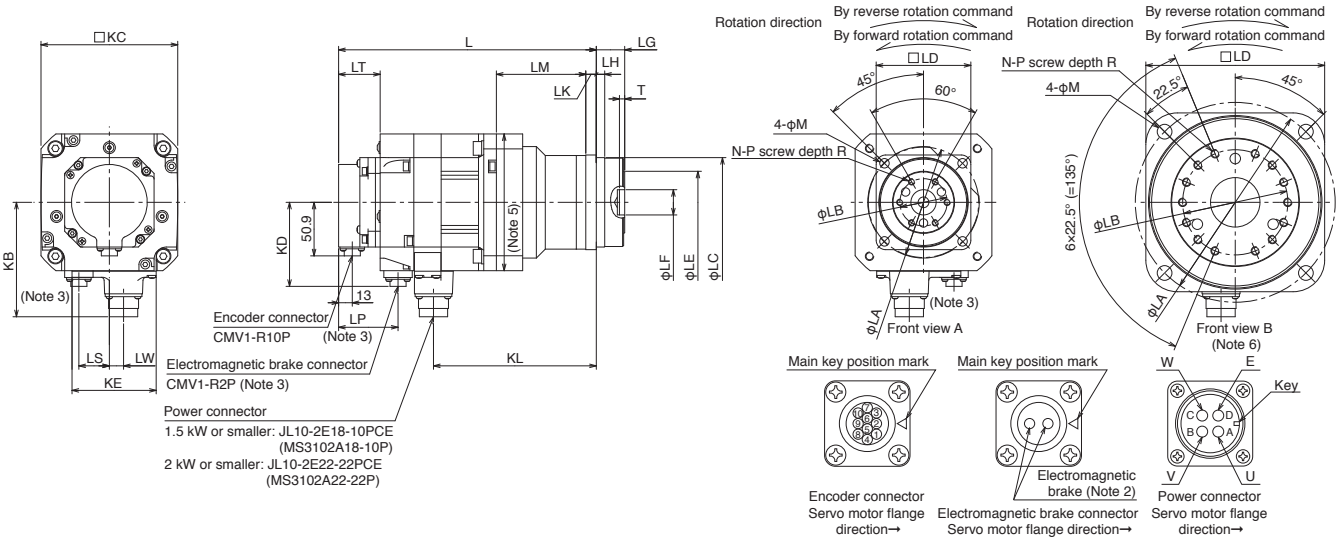
1. The actual dimensions may be up to 3 mm larger than those shown in the drawing because of shifting and variance of parts that occur during the assembly and manufacture of the rotary servo motors. The dimensions and tolerances shown are applicable at a temperature of 20 °C and may vary depending on the ambient temperature. Design the machine to allow for sufficient space.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with an electromagnetic brake.
4. The dimensions in brackets are for the models with an electromagnetic brake.
5. The lubricant oil is removed from the gear reducer before shipment, and thus please purchase the required lubricant oil and fill the oil into the gear reducer.
6. This geared servo motor has a keyed shaft (with a key).

HK-ST Series Geared Servo Motor Dimensions (*1)

With a flange-output type gear reducer for high precision applications, flange mounting

HK-ST_G5

The drawing is schematic only. The actual shapes of the servo motors and the location of the mounting screws may differ from the drawing.



[Unit: mm]

	Reduction ratio	Variable dimensions (Note 4)																									Front view
		L	LA	LB	LC	LD	LE	LF	LG	LH	LK	LM	LT	KL	LP	LW	LS	T	N	P	R	M	KB	KD	KC	KE	
	1/5 1/11	210.5 (245)	105	45	$85^{\ 0}_{-0.035}$	90	59	$24^{+0.021}_{\ 0}$	$27^{+0.4}_{+0.5}$	8	10	85	35.5 (39.5)	154.8	(56.5)	13.5	(29)	5	6	M6	10	9	108.8	(79.9)	130	80	A
	1/21 1/33 1/45	222.5 (257)	135	60	$115^{\ 0}_{-0.035}$	120	84	$32^{+0.025}_{\ 0}$	$35^{+0.4}_{+0.5}$	13	13	94	35.5 (39.5)	166.8	(56.5)	13.5	(29)	5	6	M8	12	11	108.8	(79.9)	130	80	A
	1/5	221.5 (256)	105	45	$85^{\ 0}_{-0.035}$	90	59	$24^{+0.021}_{\ 0}$	$27^{+0.4}_{+0.5}$	8	10	85	35.5 (39.5)	165.8	(56.5)	13.5	(29)	5	6	M6	10	9	108.8	(79.9)	130	80	A
	1/11 1/21	233.5 (268)	135	60	$115^{\ 0}_{-0.035}$	120	84	$32^{+0.025}_{\ 0}$	$35^{+0.4}_{+0.5}$	13	13	94	35.5 (39.5)	177.8	(56.5)	13.5	(29)	5	6	M8	12	11	108.8	(79.9)	130	80	A
	1/33 1/45	249.5 (284)	190	100	$165^{\ 0}_{-0.063}$	170	122	$47^{+0.025}_{\ 0}$	$53^{+0.5}_{+0.8}$	13	16	107	35.5 (39.5)	193.8	(56.5)	13.5	(29)	7	14	M8	12	14	108.8	(79.9)	130	80	B
	1/5	232.5 (267)	105	45	$85^{\ 0}_{-0.035}$	90	59	$24^{+0.021}_{\ 0}$	$27^{+0.4}_{+0.5}$	8	10	85	35.5 (39.5)	176.8	(56.5)	13.5	(29)	5	6	M6	10	9	108.8	(79.9)	130	80	A
	1/11	244.5 (279)	135	60	$115^{\ 0}_{-0.035}$	120	84	$32^{+0.025}_{\ 0}$	$35^{+0.4}_{+0.5}$	13	13	94	35.5 (39.5)	188.8	(56.5)	13.5	(29)	5	6	M8	12	11	108.8	(79.9)	130	80	A
	1/21 1/33 1/45	260.5 (295)	190	100	$165^{\ 0}_{-0.063}$	170	122	$47^{+0.025}_{\ 0}$	$53^{+0.5}_{+0.8}$	13	16	107	35.5 (39.5)	204.8	(56.5)	13.5	(29)	7	14	M8	12	14	108.8	(79.9)	130	80	B
	1/5 1/11	267.5 (317)	135	60	$115^{\ 0}_{-0.035}$	120	84	$32^{+0.025}_{\ 0}$	$35^{+0.4}_{+0.5}$	13	13	116	35.5 (42.5)	209.7	(62.5)	0	(44)	5	6	M8	12	11	140.8	(96.9)	176	80	A
	1/21 1/33 1/45	287.5 (337)	190	100	$165^{\ 0}_{-0.063}$	170	122	$47^{+0.025}_{\ 0}$	$53^{+0.5}_{+0.8}$	13	16	133	35.5 (42.5)	229.7	(62.5)	0	(44)	7	14	M8	12	14	140.8	(96.9)	176	80	B
	1/5	287.5 (337)	135	60	$115^{\ 0}_{-0.035}$	120	84	$32^{+0.025}_{\ 0}$	$35^{+0.4}_{+0.5}$	13	13	116	35.5 (42.5)	229.7	(62.5)	0	(44)	5	6	M8	12	11	140.8	(96.9)	176	80	A
	1/11 1/21	307.5 (357)	190	100	$165^{\ 0}_{-0.063}$	170	122	$47^{+0.025}_{\ 0}$	$53^{+0.5}_{+0.8}$	13	16	133	35.5 (42.5)	249.7	(62.5)	0	(44)	7	14	M8	12	14	140.8	(96.9)	176	80	B
	1/5 1/11	327.5 (377)	190	100	$165^{\ 0}_{-0.063}$	170	122	$47^{+0.025}_{\ 0}$	$53^{+0.5}_{+0.8}$	13	16	133	35.5 (42.5)	269.7	(62.5)	0	(44)	7	14	M8	12	14	140.8	(96.9)	176	80	B
	1/5	367.5 (417)	190	100	$165^{\ 0}_{-0.063}$	170	122	$47^{+0.025}_{\ 0}$	$53^{+0.5}_{+0.8}$	13	16	133	35.5 (42.5)	309.7	(62.5)	0	(44)	7	14	M8	12	14	140.8	(96.9)	176	80	B

Notes:

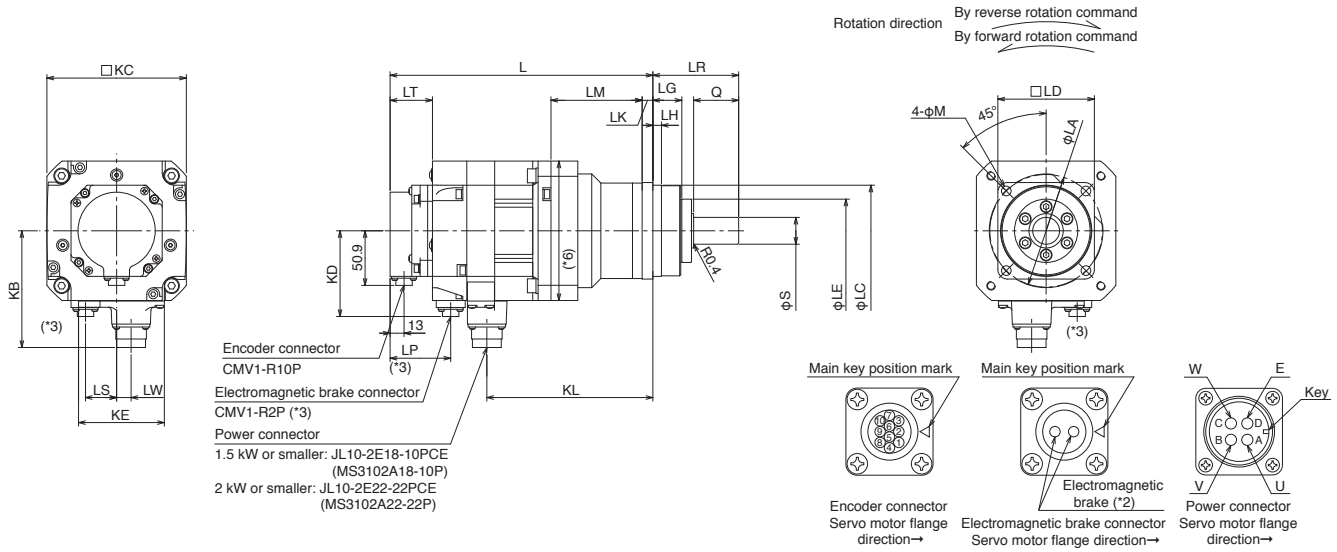
1. The actual dimensions may be up to 3 mm larger than those shown in the drawing because of shifting and variance of parts that occur during the assembly and manufacture of the rotary servo motors. The dimensions and tolerances shown are applicable at a temperature of 20 °C and may vary depending on the ambient temperature. Design the machine to allow for sufficient space.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with an electromagnetic brake.
4. The dimensions in brackets are for the models with an electromagnetic brake.
5. HK-ST202(B)G5 to HK-ST702(B)G5 have the maximum dimensions of 180 mm × 180 mm in this part.
6. For the front view B, the screws are not placed at equal intervals.

HK-ST Series Geared Servo Motor Dimensions (*1, *5)

With a shaft-output type gear reducer for high precision applications, flange mounting

HK-ST_G7 (*7)

The drawing is schematic only. The actual shapes of the servo motors and the location of the mounting screws may differ from the drawing.



[Unit: mm]

Model HK-ST	Reduction Ratio	Variable Dimensions (*4) L	LA	LC	LD	LE	S	LG	LH	Q	LR	LK	LM	LT	KL	LP	LW	LS	M	KB	KD	KC	KE
52(B)G7	1/5	210.5 (245)	105	85 $^{0}_{-0.035}$	90	59	25 $^{0}_{-0.021}$	27	8	42	80	10	85	35.5 (39.5)	154.8	(56.5)	13.5	(29)	9	108.8	(79.9)	130	80
	1/11																						
	1/21	222.5 (257)	135	115 $^{0}_{-0.035}$	120	84	40 $^{0}_{-0.025}$	35	13	82	133	13	94	35.5 (39.5)	166.8	(56.5)	13.5	(29)	11	108.8	(79.9)	130	80
	1/33																						
	1/45																						
102(B)G7	1/5	221.5 (256)	105	85 $^{0}_{-0.035}$	90	59	25 $^{0}_{-0.021}$	27	8	42	80	10	85	35.5 (39.5)	165.8	(56.5)	13.5	(29)	9	108.8	(79.9)	130	80
	1/11	233.5 (268)	135	115 $^{0}_{-0.035}$	120	84	40 $^{0}_{-0.025}$	35	13	82	133	13	94	35.5 (39.5)	177.8	(56.5)	13.5	(29)	11	108.8	(79.9)	130	80
	1/21																						
	1/33	249.5 (284)	190	165 $^{0}_{-0.063}$	170	122	50 $^{0}_{-0.025}$	53	13	82	156	16	107	35.5 (39.5)	193.8	(56.5)	13.5	(29)	14	108.8	(79.9)	130	80
	1/45																						
152(B)G7	1/5	232.5 (267)	105	85 $^{0}_{-0.035}$	90	59	25 $^{0}_{-0.021}$	27	8	42	80	10	85	35.5 (39.5)	176.8	(56.5)	13.5	(29)	9	108.8	(79.9)	130	80
	1/11	244.5 (279)	135	115 $^{0}_{-0.035}$	120	84	40 $^{0}_{-0.025}$	35	13	82	133	13	94	35.5 (39.5)	188.8	(56.5)	13.5	(29)	11	108.8	(79.9)	130	80
	1/21																						
	1/33	260.5 (295)	190	165 $^{0}_{-0.063}$	170	122	50 $^{0}_{-0.025}$	53	13	82	156	16	107	35.5 (39.5)	204.8	(56.5)	13.5	(29)	14	108.8	(79.9)	130	80
	1/45																						
202(B)G7	1/5	267.5 (317)	135	115 $^{0}_{-0.035}$	120	84	40 $^{0}_{-0.025}$	35	13	82	133	13	116	35.5 (42.5)	209.7	(62.5)	0	(44)	11	140.8	(96.9)	176	80
	1/11																						
	1/21	287.5 (337)	190	165 $^{0}_{-0.063}$	170	122	50 $^{0}_{-0.025}$	53	13	82	156	16	133	35.5 (42.5)	229.7	(62.5)	0	(44)	14	140.8	(96.9)	176	80
	1/33																						
	1/45																						
352(B)G7	1/5	287.5 (337)	135	115 $^{0}_{-0.035}$	120	84	40 $^{0}_{-0.025}$	35	13	82	133	13	116	35.5 (42.5)	229.7	(62.5)	0	(44)	11	140.8	(96.9)	176	80
	1/11	307.5 (357)	190	165 $^{0}_{-0.063}$	170	122	50 $^{0}_{-0.025}$	53	13	82	156	16	133	35.5 (42.5)	249.7	(62.5)	0	(44)	14	140.8	(96.9)	176	80
	1/21																						
502(B)G7	1/5	327.5 (377)	190	165 $^{0}_{-0.063}$	170	122	50 $^{0}_{-0.025}$	53	13	82	156	16	133	35.5 (42.5)	269.7	(62.5)	0	(44)	14	140.8	(96.9)	176	80
	1/11																						
702(B)G7	1/5	367.5 (417)	190	165 $^{0}_{-0.063}$	170	122	50 $^{0}_{-0.025}$	53	13	82	156	16	133	35.5 (42.5)	309.7	(62.5)	0	(44)	14	140.8	(96.9)	176	80

Notes:

1. The actual dimensions may be up to 3 mm larger than those shown in the drawing because of shifting and variance of parts that occur during the assembly and manufacture of the rotary servo motors. The dimensions and tolerances shown are applicable at a temperature of 20 °C and may vary depending on the ambient temperature. Design the machine to allow for sufficient space.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with an electromagnetic brake.
4. The dimensions in brackets are for the models with an electromagnetic brake.
5. Use a friction coupling to fasten a load.
6. HK-ST202(B)G7 to HK-ST702(B)G7 have the maximum dimensions of 180 mm × 180 mm in this part.
7. HK-ST_G7K, a geared servo motor with a keyed shaft (with a key), is also available. Refer to "HK-ST Series Geared Servo Motor Special Shaft Dimensions" in this catalog for details.

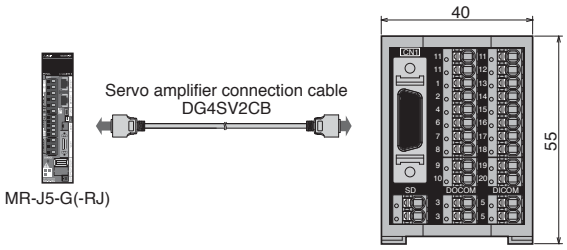
Options/Peripheral Equipment

Network Amplifier Junction Terminal Block

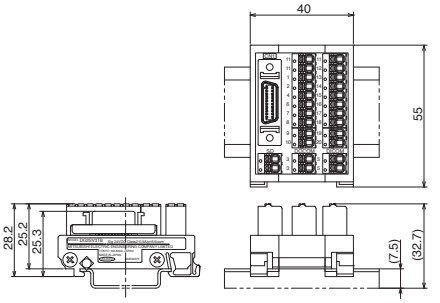
Features

- The spring clamp type reduces the installation area by about 40% compared to the screw type (based on our research).
- When multiple servo amplifiers are connected, the interface power supply can be connected in series across terminal blocks.

Connection with Servo Amplifier



Dimensions DG2SV3TB



[Unit: mm]

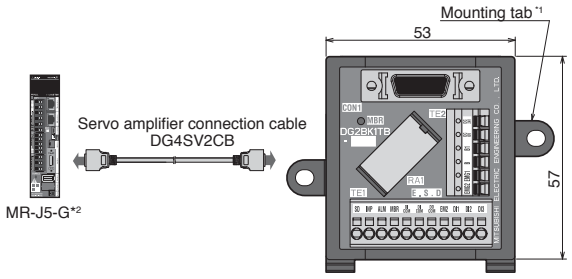
Item	Model Number	Lengths (m)	Stocked Item	Description
Network Amplifier Junction Terminal Clock	**DG2SV3TB**	-	S	For network-connectable 1-axis servo amplifier, sink/source common type External power supply voltage: 24 VDC ± 10 % Maximum usable current: 0.5 A for signal / 6 A for common line
Servo Amplifier Connection Cable	**DG4SV2CB_**	0.5, 1, 5	1	_= cable length: 05 = 0.5m; 10 = 1m; 50 = 5m

Junction Terminal Block for Servo Motors with Brakes

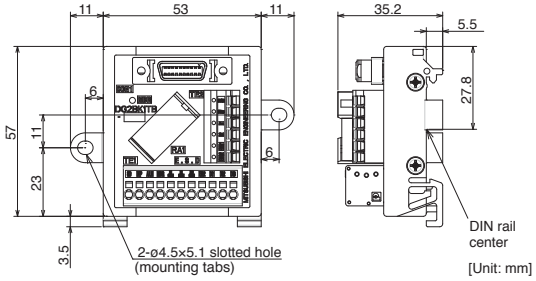
Features

- Easy to build a brake sequence circuit recommended for MR-J5-G servo amplifiers.
- The new terminal block reduces the installation area by up to 50% compared to preceding types. In addition, fewer wires are required inside the cabinet.

Connection with Servo Amplifier



Dimensions DG2BK1TB, DG2BK1TB-P01



[Unit: mm]

Note 1. The DG2BK1TB-D and the DG2BK1TB-P01-D are without mounting tabs.

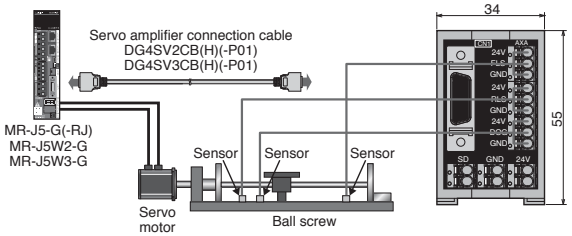
Item		Model Number	Lengths (m)	Stocked Item	Description
Junction Terminal Block for Motor with Brake		**DG2BK1TB**	-	-	For network-connectable 1-axis servo amplifier, sink type
		DG2BK1TB-D	-	S	For network-connectable 1-axis servo amplifier, sink type. For DIN rail installation
		DG2BK1TB-P01	-	-	For network-connectable 1-axis servo amplifier, source type
		DG2BK1TB-P01-D	-	S	For network-connectable 1-axis servo amplifier, source type. For DIN rail installation
Junction Terminal Block	**Applicable Servo Motor Capacity**		-	-	50 W to 22 kW
	External Power Supply Voltage				For servo amplifier interface: 24 VDC ± 10 %, 0.3 A (max.) For electromagnetic brake: 24 VDC 0 to -10 %, 1.43 A (max.)
	Relay				DSP1a-DC24V (Panasonic Corporation)
Servo Amplifier Connection Cable		**DG4SV2CB_**	0.5, 1, 5	1	_= cable length: 05 = 0.5m; 10 = 1m; 50 = 5m

Network Amplifier Junction Terminal Block

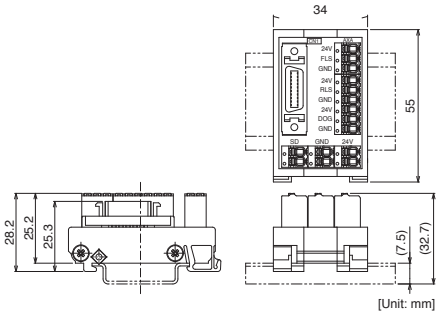
Features

- The spring clamp type reduces the installation area by about 40% compared to the screw type (based on our research).
- When multiple servo amplifiers are connected, the interface power supply can be connected in series across terminal blocks.

Connection with Servo Amplifier



Dimensions DG2SV2TB (For 1-Axis)



Item		Model Number	Cable Length (m)	Stocked Item	Description
FLS/RLS/DOG Signal-Specialized Network Amplifier Terminal Block (For 1-Axis)		DG2SV2TB	-	S	For network-connectable 1-axis servo amplifier Sink/source common type, dedicated for FLS/RLS/DOG signals
Signal-Specialized Network Amplifier Terminal Block For 1-Axis	External Power Supply Voltage		-	-	24 VDC ± 10 %
	Maximum Usable Current				0.5 A for signal / 6 A for common line
Sink-Interface Servo Amplifier Connection Cable (For 1-Axis Servo Amplifier)		DG4SV2CB_	0.5, 1, 5	0.5	_= cable length: 05 = 0.5m; 10 = 1m; 50 = 5m
Sink-Interface Servo Amplifier Connection Cable (For 1-Axis Servo Amplifier / Long Bending Life)		DG4SV2CB_H	5, 10	-	_= cable length: 50 = 5m; 100 = 10m
Source-Interface Servo Amplifier Connection Cable (For 1-Axis Servo Amplifier)		DG4SV2CB_-P01	0.5, 1, 5	0.5, 1	= cable length: 05 = 0.5m; 10 = 1m; 50 = 5m
Source-Interface Servo Amplifier Connection Cable (For 1-Axis Servo Amplifier / Long Bending Life)		DG4SV2CB_H-P01	5, 10	-	_= cable length: 50 = 5m; 100 = 10m
FLS/RLS/DOG Signal-Specialized Network Amplifier Terminal Block (For 2-Axis/3-Axis Servo Amplifier)		DG2SV2TB2	-	-	For network-connectable 2-axis integrated servo amplifier Sink/source common type, dedicated for FLS/RLS/DOG signals
		DG2SV2TB3	-	-	For network-connectable 3-axis integrated servo amplifier Sink/source common type, dedicated for FLS/RLS/DOG signals
Signal-Specialized Network Amplifier Terminal Block For 2-Axis/3-Axis	External Power Supply Voltage		-	-	DG2SV2TB2: 24 VDC ± 10% DG2SV2TB3: 24 VDC ± 10%
	Maximum Usable Current				DG2SV2TB2: 20.5 A for signal / 6 A for common line DG2SV2TB3: 20.5 A for signal / 6 A for common line
Sink-Interface Servo Amplifier Connection Cable (For 2-Axis/3-Axis Servo Amplifier)		DG4SV3CB_	0.5, 1, 5	-	_= cable length: 05 = 0.5m; 10 = 1m; 50 = 5m
Sink-Interface Servo Amplifier Connection Cable (For 2-Axis/3-Axis Servo Amplifier / Long Bending Life)		DG4SV3CB_H	5, 10	-	_= cable length: 50 = 5m; 100 = 10m
Source-Interface Servo Amplifier Connection Cable (For 2-Axis/3-Axis Servo Amplifier)		DG4SV3CB_-P01	0.5, 1, 5	-	= cable length: 05 = 0.5m; 10 = 1m; 50 = 5m
Source-Interface Servo Amplifier Connection Cable (For 2-Axis/3-Axis Servo Amplifier / Long Bending Life)		DG4SV3CB_H-P01	5, 10	-	_= cable length: 50 = 5m; 100 = 10m

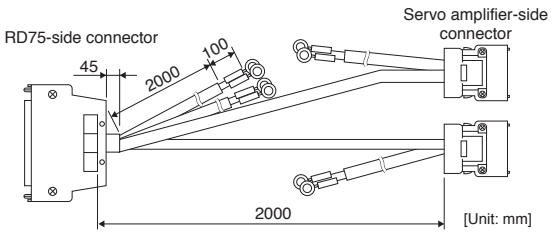
Options/Peripheral Equipment

Servo Amplifier Connection Cable for Pulse Train Positioning Modules

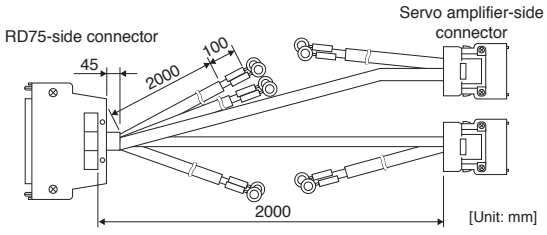
Features

- This servo amplifier connection cable for pulse train positioning modules enables easy wiring when the MELSEC Positioning module is used to control the MR-J5-A.

Dimensions FA-CBLQ75M2J3, FA-CBLQ75PM2J3



Dimensions FA-CBLQ75M2J3-P

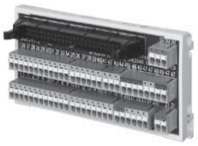


Item	Model Number	Cable Length (m)	Stocked Item	Description
Servo Amplifier Connection Cable for Pulse Train Positioning Modules	FA-CBLQ75M2J3-P	2	-	Supported Positioning Module: RD75D2, RD75D4, FX5-20PG-D Length: 2 m, with pulsar cables
	FA-CBLQ75M2J3	2	-	Supported Positioning Module: RD75D2, RD75D4, FX5-20PG-D Length: 2 m, without pulsar cables
	FA-CBLQ75PM2J3	2	-	Supported Positioning Module: RD75P2, RD75P4, FX5-20PG-P Length: 2 m, without pulsar cables

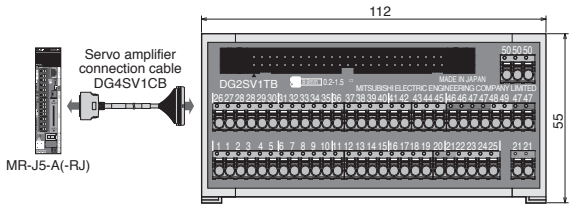
General-Purpose Interface Amplifier Junction Terminal Block

Features

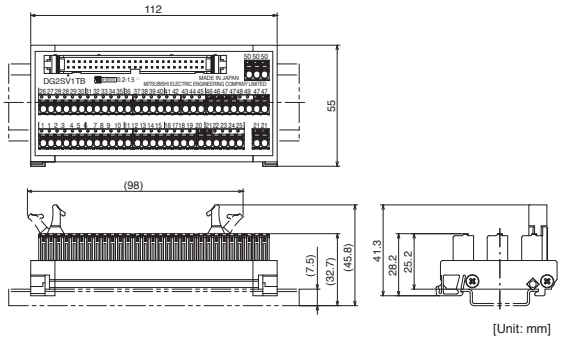
- The spring clamp type reduces the installation area by 50% compared to the screw type (based on our research).
- When multiple servo amplifiers are connected, the interface power supply can be connected in series across up to four terminal blocks.



Connection with Servo Amplifier



Dimensions DG2BK1TB, DG2BK1TB-P01



Item	Model Number	Cable Length (m)	Stocked Item	Description
General-Purpose Interface Amplifier Junction Terminal Block	DG2SV1TB	-	S	For network-connectable 1-axis servo amplifier, sink type
Servo Amplifier Connection Cable	DG4SV1CB_	0.5, 1, 5	-	_= cable length: 05 = 0.5m; 10 = 1m

MR-CM Simple Converter

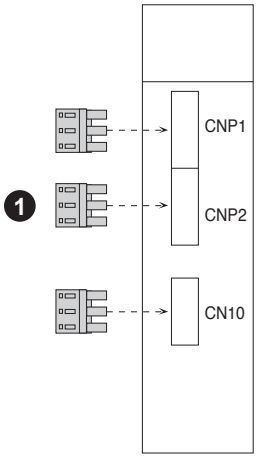
Simple converters enable a PN bus connection to servo amplifiers having a capacity of 2 kW or lower for multiple axes.

Simple Converter Unit Model		MR-CM3K
Stocked Item		
Converter Output	Rated Voltage	270 VDC to 324 VDC
	Rated Current (A)	20 (*1)
Main Circuit Power Supply Input	Voltage/Frequency	3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz
	Rated Current (A)	16 (*1)
	Permissible Voltage Fluctuation	3-phase 170 VAC to 264 VAC
Overheat Detection Function	Thermal Sensor	The contact between TH1 and TH2 opens when the thermal sensor detects an overheat condition
	Maximum Voltage	110 VAC/DC
	Maximum Current	0.3 A at 20 VDC
	Minimum Current	0.1 mA at 1 VDC
	Maximum Capacity	6 VA
Compatible Servo Amplifier		MR-J5-10G/A to MR-J5-200G/A, MR-J5W2-22G to MR-J5W2-1010G, MR-J5W3-222G, MR-J5W3-444G
Maximum Number of Connectable Servo Amplifiers		6 units
Total Capacity of Servo Amplifiers to be Driven (kW)		3
Continuous Rating (kW)		3
Instantaneous Maximum Rating (kW)		9
Structure (IP Rating)		IP20
Close Mounting		Possible
Environment		The operating environment is the same as that of the servo amplifiers. Refer to "Common Specifications"
Wire Size	L1/L2/L3/PE	2 mm^2 to 3.5 mm^2 (AWG 14 to 12)
	P4/N-	2 mm^2 to 3.5 mm^2 (AWG 14 to 12)
Total Wiring Length from P4/N- of Simple Converter to P4/N- of Servo Amplifier		5 m or shorter
Weight (kg)		23

Note:
1. This value is for 3-phase power supply input.

MR-CM Cables and Connectors

Connectors for MR-CM



Connectors for daisy chain wiring (*2)

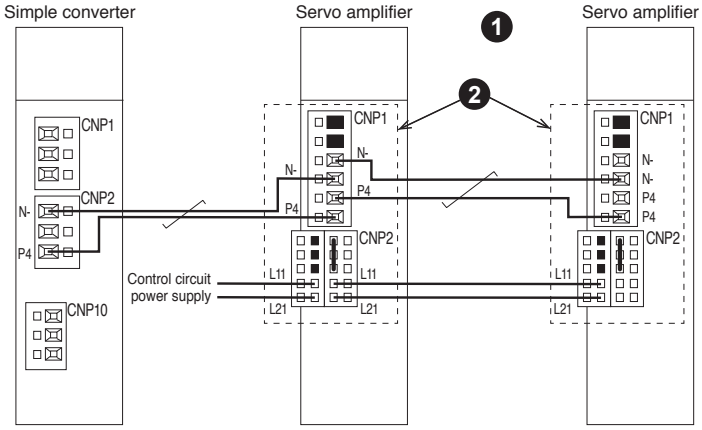
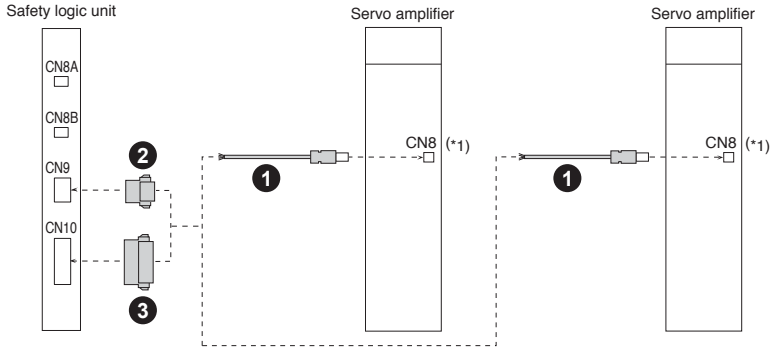


Figure Number	Item	Model Number	Stocked Items	Protection Level	Description
1	**Simple Converter Connector Set for MR-CM3K**	(Supplied with Amplifier)	-	-	CNP1 connector, CNP2 connector, CNP10 connector, Open tool  CNP1, CNP2 connector Applicable wire size (*1) : AWG 16 to 10 Insulator OD: 4.7 mm or smaller CNP10 connector Applicable wire size (*1) : AWG 18 to 14 Insulator OD: 3.9 mm or smaller
2	**Daisy Chain Power Connector For MR-J5-100G(-RJ) or Smaller/MR-J5W2-44G or Smaller/ MR-J5W3-444G or Smaller/MR-J5-100A(-RJ) or Smaller**	MR-J5CNP12-J1	-	-	CNP1 connector, CNP2 connector  CNP1 connector Applicable wire size (*1) : AWG 18 to 10 Insulator OD: 4.7 mm or smaller CNP2 connector Applicable wire size (*1) : AWG 18 to 14 Insulator OD: 3.9 mm or smaller
	Daisy Chain Power Connector For MR-J5-200G(-RJ)/ MR-J5W2-77G or Larger/MR-J5-200A(-RJ)	MR-J5CNP12-J2	-	-	CNP1 connector, CNP2 connector  CNP1 connector Applicable wire size (*1) : AWG 16 to 10 Insulator OD: 4.7 mm or smaller CNP2 connector Applicable wire size (*1) : AWG 18 to 14 Insulator OD: 3.9 mm or smaller

Notes:
1. The wire size shows wiring specifications of the connector. Refer to "Wires, Molded-Case Circuit Breakers, and Magnetic Contactors" in this catalog for examples of wire size selection.
2. When mounting the servo amplifiers, follow the restrictions indicated in "MR-J5 User's Manual".

Cables and Connectors for MR-J3-D05



For CN8, CN9, CN10

Figure Number	Item	Model Number	Stocked Items	Protection Level	Description
1	**STO Cable for Connecting MR-J3-D05 or Another Safety Control Device with MR-J5-_G (-RJ) / MR-J5W2-_G / MR-J5W3-_G / MR-J5-_A (-RJ)**	MR-D05UDL3M-B	S	-	Servo amplifier connector
2	**MR-J3-D05 Connector for CN9**	Standard accessory of MR-J3-D05)	-	-	Safety logic unit connector
3	**MR-J3-D05 Connector for CN10**	(Standard accessory of MR-J3-D05)	-	-	Safety logic unit connector

Note:
1. Attach a short-circuit connector supplied with the servo amplifier when the STO function is not used.

Safety Logic Unit (MR-J3-D05)

Safety Logic Unit		**MR-J3-D05**
Stocked Item		
Control Circuit Power Supply	**Voltage**	24 VDC
	Permissible Voltage Fluctuation	24 VDC ±10 %
	Permissible Voltage Fluctuation Required Current Capacity [A]	0.5 (*1, *2)
Compatible System		2 systems (A-axis, B-axis independent)
Shut-off Input		4 points (2 points × 2 systems) SDI_: source/sink compatible (*3)
Shut-off Release Input		2 points (1 point × 2 systems) SRES_: source/sink compatible (*3)
Feedback Input		2 points (1 point × 2 systems) TOF_: source compatible (*3)
Input Type		Photocoupler insulation, 24 V DC (external supply), internal limited resistance 5.4 kΩ
Shut-off Output		8 points (4 points × 2 systems) STO_: source compatible (*3); SDO_ : source/sink compatible (*3)
Output Type		Photocoupler insulation, open-collector type; Permissible current: 40 mA or less per output, Inrush current: 100 mA or less per output
Delay Time Setting		A-axis: select from 0 s, 1.4 s, 2.8 s, 5.6 s, 9.8 s or 30.8 s B-axis: select from 0 s, 1.4 s, 2.8 s, 9.8 s or 30.8 s Accuracy: ±2 %
Safety Sub-function		STO, SS1 (IEC/EN 61800-5-2); EMG STOP, EMG OFF (IEC/EN 60204-1)
Safety Performance	**Satisfied Standards**	ISO 13849-1:2015 Category 3 PL d, IEC 61508 SIL 2, IEC 62061 SIL CL 2, IEC 61800-5-2
	Response Performance (When Delay Time is Set to 0 s) (*4)	10 ms or less (STO input OFF — shut-off output OFF)
	Mean Time to Dangerous Failure (MTTFd)	MTTFd ≥ 100 [years] (516a)
	Diagnostic Coverage (DC)	DC = Medium, 93.1 [%]
	Probability of Dangerous Failure Per Hour (PFH)	4.75×10^{-9} [1/h]
CE Marking		LVD: EN 61800-5-1; EMC: EN 61800-3; MD: EN ISO 13849-1:2015, EN 61800-5-2, EN 62061
Structure (IP Rating)		Natural cooling, open (IP00)
Environment	**Ambient Temperature**	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)
	Ambient Humidity	Operation/storage: 5% RH to 90% RH (non-condensing)
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust
	Altitude	1000 m or less
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)
Weight (kg)		0.2 (including CN9 and CN10 connectors)

Notes:
1. Inrush current of approximately 1.5 A flows instantaneously when the power is switched on. Select an appropriate capacity of a power supply considering the inrush current.
2. Power-on duration of the safety logic unit is 100,000 times.
3. _ in signal name indicates a number and axis name.
4. Contact your local sales office for test pulse input.

Details of Option Connectors for Servo Amplifiers

Figure Number	CNP1 Connector	CNP2 Connector	CNP3 Connector	Open Tool
Servo Amplifier Power Connector Set For MR-J5-100G(4)(-RJ) or MR-J5-100A(4)(-RJ) (Standard Accessory)	 06JFAT-SAXGDK-K7.5 (LA) (J.S.T. Mfg. Co., Ltd.)	 05JFAT-SAXGDK-K5.0 (LA) (J.S.T. Mfg. Co., Ltd.)	 03JFAT-SAXGDK-K7.5 (LA) (J.S.T. Mfg. Co., Ltd.)	 J-FAT-OT-K (J.S.T. Mfg. Co., Ltd.)
Servo Amplifier Power Connector Set For MR-J5-200G(4)(-RJ) MR-J5-200A(4)(-RJ) MR-J5-350G(4)(-RJ) MR-J5-350G(4)(-RJ) (Standard Accessory)	 06JFAT-SAXGFK-XL (LA)(J.S.T. Mfg. Co., Ltd.)	 05JFAT-SAXGDK-H5.0 (LA)(J.S.T. Mfg. Co., Ltd.)	 03JFAT-SAXGFK-XL (LA)(J.S.T. Mfg. Co., Ltd.)	 J-FAT-OT-EXL (J.S.T. Mfg. Co., Ltd.)
Servo Amplifier Power Connector Set For MR-J5W2-44G or Smaller / MR-J5W3-444G or Smaller (Standard Accessory)	 06JFAT-SAXGDK-K7.5 (LB)(J.S.T. Mfg. Co., Ltd.)	 05JFAT-SAXGDK-K5.0 (LA)(J.S.T. Mfg. Co., Ltd.)	 04JFAT-SAGG-G-KK (J.S.T. Mfg. Co., Ltd.)	 J-FAT-OT-K (J.S.T. Mfg. Co., Ltd.)
Servo Amplifier Power Connector Set For MR-J5W2-77G or Larger (Standard Accessory)	 06JFAT-SAXGFK-XL (LB)(J.S.T. Mfg. Co., Ltd.)	 05JFAT-SAXGDK-H5.0 (LA)(J.S.T. Mfg. Co., Ltd.)	 04JFAT-SAGG-G-KK (J.S.T. Mfg. Co., Ltd.)	 J-FAT-OT-EXL (J.S.T. Mfg. Co., Ltd.)

Figure Number	Servo amplifier Connector	Junction Terminal Block Connector
MR-J2HBUS_M	Connector: 52316-2019 Shell kit: 52370-2070 (Molex, LLC) or an equivalent product or Press bonding type (*2) Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product 	Connector: 52316-2019 Shell kit: 52370-2070 (Molex, LLC) or an equivalent product or Press bonding type (*2) Connector: 10120-6000EL Shell kit: 10320-3210-000 (3M) or an equivalent product 
MR-CCN1	Connector: 10120-3000PE Shell kit: 10320-52F0-008 (3M) or an equivalent product 	
MR-TBNATBL_M	Connector: 10126-6000EL Shell kit: 10326-3210-000 (3M) or an equivalent product 	Connector: 10126-6000EL Shell kit: 10326-3210-000 (3M) or an equivalent product 

Notes:
1. The press bonding type (connector: 10120-6000EL and shell kit: 10320-3210-000) (3M) is also usable. Contact the manufacturer directly.
2. The solder type (connector: 10120-3000PE and shell kit: 10320-52F0-008) (3M) is also usable. Contact the manufacturer directly.

For CN3

Item	Servo Amplifier Connector	
MR-J2CMP2 MR-ECN1	Connector: 10126-3000PE Shell kit: 10326-52F0-008 (3M)or an equivalent product 	
Item	**Junction Terminal Block Connector**	**Servo Amplifier Connector**
MR-J2M-CN1TBL_M	Connector: D7950-B500FL (3M) 	Press bonding type (*1) Connector: 10150-6000EL Shell kit: 10350-3210-000 (3M) 
Item	**Servo Amplifier Connector**	
MR-J3CN1	Connector: 10150-3000PE Shell kit: 10350-52F0-008 (3M) or an equivalent product 	
Item	**Servo Amplifier Connector**	**Battery Case Connector**
MR-BT6V1CBL_M	Contact: SPHD-001G-P0.5 Housing: PAP-02V-0 (J.S.T. Mfg. Co., Ltd.) 	Solder type (*2) Connector: 10114-3000PE Shell kit: 10314-52F0-008 (3M) or an equivalent product 
Item	**Servo Amplifier Connector**	**Junction Connector**
MR-BT6V2CBL_M	Contact: SPHD-001G-P0.5 Housing: PAP-02V-0 (J.S.T. Mfg. Co., Ltd.) 	Contact: SPAL-001GU-P0.5 Housing: PALR-02VF-0 (J.S.T. Mfg. Co., Ltd.) 
Item	**Servo Amplifier Connector**	
MR-ACN6CBL1M	Housing: SHR-03V-S Contact: SSH-003T-P0.2-H (J.S.T. Mfg. Co., Ltd.) 	
Item	**Servo Amplifier Connector**	
MR-J3CN6CBL1M	Housing: 51004-0300 Terminal: 50011-8100 (Molex, LLC) 	
Item	**Servo Amplifier Connector**	
MR-D05UDL3M-B	Connector set: 2069250-1 (TE Connectivity Ltd. Company) 	

Notes:
1. The solder type (connector: 10150-3000PE and shell kit: 10350-52F0-008) (3M) is also usable. Contact the manufacturer directly.
2. The press bonding type (connector: 10114-6000EL and shell kit: 10314-3210-000) (3M) is also usable. Contact the manufacturer directly.

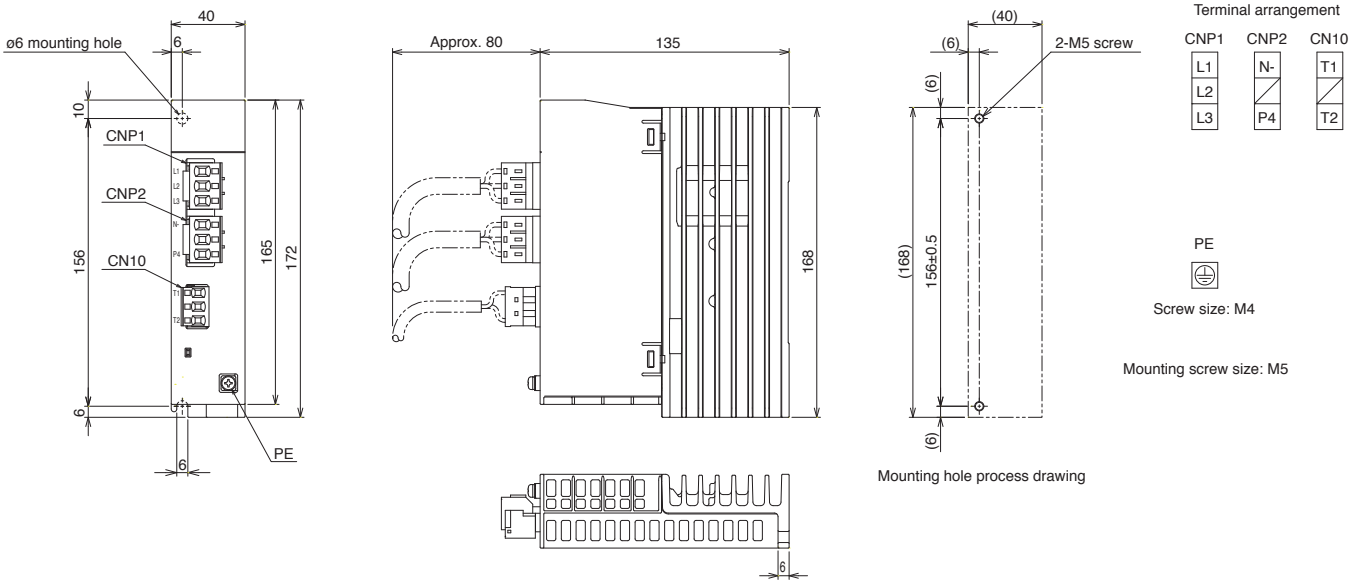
Details of Option Connectors for MR-CM

Item	CNP1 Connector	CNP2 Connector	CNP3 Connector	Open Tool
Simple Converter Connector Set (Standard Accessory)	03JFAT-SAYGFK-XL (LB) (J.S.T. Mfg. Co., Ltd.) 	02(16.0)JFAT-SAZGFK-XL (LA) (J.S.T. Mfg. Co., Ltd.) 	02(3-2)JFAT-SAYDFK-K7.5 (J.S.T. Mfg. Co., Ltd.) 	J-FAT-OT-EXL (J.S.T. Mfg. Co., Ltd.) 
Item	**CNP1 Connector**		**CNP2 Connector**	
MR-J5CNP12-J1	06JFAT-SAXGDK-KC7.5 (LA) (J.S.T. Mfg. Co., Ltd.) 		05JFAT-SAXGDK-KC5.0 (LA) (J.S.T. Mfg. Co., Ltd.) 	
Item	**CNP1 Connector**		**CNP2 Connector**	
MR-J5CNP12-J2	06JFAT-SAXGFK-XLC (LA) (J.S.T. Mfg. Co., Ltd.) 		05JFAT-SAXGDK-HC5.0 (LA) (J.S.T. Mfg. Co., Ltd 	

Details of Option Connectors for MR-J3-D05

Item	Servo Amplifier Connector
MR-D05UDL3M-B	Connector set: 2069250-1 (TE Connectivity Ltd. Company) 
Item	**Safety Logic Unit Connector**
Connector for CN9 of Safety Logic Unit (Standard Accessory of MR-J3-D05)	Connector: 1-1871940-4 (TE Connectivity Ltd. Company) 
Item	**Safety Logic Unit Connector**
Connector for CN10 of Safety Logic Unit (Standard Accessory of MR-J3-D05)	06JFAT-SAXGFK-XLC (LA) (J.S.T. Mfg. Co., Ltd.) 

MR-CM Dimensions



Compliance with Global Standards and Regulations

Motion Module

Europe	Low Voltage Directive	-
	EMC Directive	EN 61131-2
	Machine Directive	-
	RoHS Directive	EN 50581
North America	UL Standard	UL 61010-1 / UL 61010-2-201
	CSA Standard	CSA C22.2 No. 61010-1 / CSA C22.2 No. 61010-2-201
China	National Standard of the People's Republic of China (GB Standards)	GB/T15969.2
	Measures for Administration of the Pollution Control of Electronic Information Products (China RoHS)	Article 13 (Names and the content of hazardous substances are described in User's Manuals.) Article 14 (Marking for the Restricted Use of Hazardous Substances is labeled.)
	China Compulsory Certification (CCC)	N/A
Korea	Korea Radio Wave Law (KC)	KN61000-6-2 / KN61000-6-4

Servo Amplifier

Europe	Low Voltage Directive	EN 61800-5-1
	EMC Directive	EN 61800-3 Category C2/C3 second environment
	Machine Directive	EN ISO 13849-1:2015 Category 3 PL e / EN 62061 SIL CL 3 / EN 61800-5-2
	RoHS Directive	EN 50581
North America	UL Standard	UL 61800-5-1
	CSA Standard	CSA C22.2 No. 274
China	National Standard of the People's Republic of China (GB Standards)	GB 12668.501, GB 12668.3
	Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products (China RoHS)	Article 13 (Names and the content of hazardous substances are described in User's Manuals.) Article 14 (Marking for the Restricted Use of Hazardous Substances is labeled.)
	China Compulsory Certification (CCC)	N/A
Korea	Korea Radio Wave Law (KC)	KN 61800-3

Rotary Servo Motor

Europe	Low Voltage Directive	EN 60034-1
	EMC Directive	EN 61800-3 Category C3
	Machine Directive	-
	RoHS Directive	EN 50581
North America	UL Standard	UL 1004-1 / UL 1004-6
	CSA Standard	CSA C22.2 No. 100
China	National Standard of the People's Republic of China (GB Standards)	GB 755
	Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products (China RoHS)	Article 13 (Names and the content of hazardous substances are described in User's Manuals.) Article 14 (Marking for the Restricted Use of Hazardous Substances is labeled.)
	China Compulsory Certification (CCC)	N/A
Korea	Korea Radio Wave Law (KC)	N/A

Linear Servo Motor

Europe	Low Voltage Directive	DIN VDE 0580
	EMC Directive	-
	Machine Directive	-
	RoHS Directive	EN 50581
North America	UL Standard	UL 1004-6
	CSA Standard	CSA C22.2 No. 100
China	National Standard of the People's Republic of China (GB Standards)	Not subject to GB standards
	Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products (China RoHS)	Article 13 (Names and the content of hazardous substances are described in User's Manuals.) Article 14 (Marking for the Restricted Use of Hazardous Substances is labeled.)
	China Compulsory Certification (CCC)	N/A
Korea	Korea Radio Wave Law (KC)	N/A

Direct Drive Motor

Europe	Low Voltage Directive	EN 60034-1
	EMC Directive	EN 61800-3 Category C3
	Machine Directive	-
	RoHS Directive	EN 50581
North America	UL Standard	UL 1004-1 / UL 1004-6
	CSA Standard	CSA C22.2 No. 100
China	National Standard of the People's Republic of China (GB Standards)	GB 755
	Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products (China RoHS)	Article 13 (Names and the content of hazardous substances are described in User's Manuals.) Article 14 (Marking for the Restricted Use of Hazardous Substances is labeled.)
	China Compulsory Certification (CCC)	N/A
Korea	Korea Radio Wave Law (KC)	N/A

MR-JET Servo Motors and Amplifiers

Description		MR-JET Series
Input	Main AC Input Voltage	200 VAC
	Control AC Input Voltage	Same as above
	Single-Phase AC200V Compatible	3kW or less
Output	Control Method	Sine-wave PWM control, Current Control Method
	Motor Capacity (Rotary Motor)	100W – 3kW
Control	Main Control Function	Position, Speed, Torque Control Change mode
	Frequency Response	2.5kHz
	Automatic Tuning Function	Advanced One Touch Tuning/Quick Turning
	Vibration Suppression	Advanced Vibration Control II
	Path Control	Super trace control, lost motion compensation, path tracking model adaptive control
	Other Features	3rd party linear motor, single cable*, HK-KN/SN motor*, batteryless ABS encoder*
	Fully-Closed System	Standard
Comm	Network	CC-Link IE TSN, EtherCAT

***Note:** Available in 2021

X = Compatible
- = Not compatible
○ = Future support planned

MR-JET Amplifier Overview

Servo Amplifiers	Power Supply	Rated Output (kW) (*1)	Interface	Control Mode		
				Position	Velocity	Torque
MR-JET-G	200 VAC	0.1, 0.2, 0.4, 0.75, 1.0, 2.0, 3.0	CC-Link IE TSN	X	X	X
MR-JET-G-N1			EtherCAT®	X	X	X

Rotary Servo Motors

Servo Motors	Rated Speed (Maximum Speed) [r/min]	Rated Output (kW)	With Electromagnetic Brake (B)	Control M with Oil Seal (J)	IP Rating (*1)	Features
HG-KNS Series Small Capacity	3000 (6000)	0.1, 0.2, 0.4, 0.75	X	X	IP65	Low inertia 22-bit absolute position encoder (*3)
HG-SNS Series Medium Capacity	2000 (3000/2500) (*2)	0.5, 1.0, 1.5, 2.0, 3.0	X	X	IP67	Medium inertia 22-bit absolute position encoder (*3)

Linear Servo Motors

Linear Motor	Maximum Speed (m/s)	Continuous Thrust (N)	Maximum Thrust (N)	Features	Application Examples
LM-H3 Series	3.0	70, 120, 240, 360, 480, 720	175, 300, 600, 900, 1200, 1800	Suitable for space-saving. Compact size and high thrust, Maximum speed: 3 m/s	Mounters Wafer cleaning systems FPD assembly machines Material handling
LM-AJ Series	2.0 to 6.5	68.1, 117.0, 136.2, 174.5, 223.4, 234.0, 348.9, 446.8	214.7, 369.0, 429.4, 550.2, 704.5, 738.1, 1100.4, 1409.1	Low installation height, and suitable for compact X-Y tables	Semiconductor manufacturing systems FPD assembly machines

MR-JET Servo Motors and Amplifiers

The MR-JET provides capacity range of 100W to 3KW with power supply of 200V. The product family includes servo amplifier (MR-JET) and rotary servo motors (HG-KNS and HG-SNS). It provides optimized motion performance at efficient and economic manner. MR-JET is available on CC-Link IE TSN network. It's easily setup and sized with MR-Configurator2 servo software and Motorizer freeware.

MR-JET Amplifiers

Amplifier Selection

MR-JET - □ G □

Mitsubishi Electric AC servo amplifier MELSERVO-JET Series

Network compatible

Symbol	Network Specification
None	CC-Link IE TSN
N1C	EtherCAT®

Symbol	Rated Output (kW)
10	0.1
20	0.2
40	0.4
70	0.75
100	1
200	2
300	3

MR-JET Amplifier Specifications

Servo Amplifier Model		10G	20G	40G	70G	100G	200G	300G
Stocked Item MR-JET-_		S	-	S	S	-	-	-
Stocked Item MR-JET-_-N1		S	-	S	S	-	-	-
Output	Rated Voltage	3-phase 0 VAC to 240 VAC						
	Rated Current (A)	1.3	1.8	2.8	5.8	6.0	11.0	11.0
Power Supply Input	Voltage/Frequency (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz				3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz (*6)		
	Rated Current (A) (*5)	0.9	1.5	2.6	3.8	5.0	10.5	14.0
	Permissible Voltage Fluctuation	3-phase or 1-phase 170 VAC to 264 VAC				3-phase or 1-phase 170 VAC to 264 VAC (*6)		3-phase 170 VAC to 264 VAC
	Permissible Frequency Fluctuation	±5% maximum						
Interface Power Supply		24 VDC ± 10 % (required current capacity: 0.3 A)						
Control Method		Sine-wave PWM control/current control method						
Tolerable Regenerative Power of the Built-In Regenerative Resistor (W) (*2, 3)		-	-	10	30	30	100	100
Dynamic Brake (*4)		Built-in						
CC-Link IE TSN (MR-JET-G)	Communication Cycle (*7)	125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms						
	Certified Class	Class B						
EtherCAT® (MR-JET-G-N1)	Communication Cycle (*7)	125 µs, 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms						
Communication Function	USB	Connect a personal computer (MR Configurator2 compatible)						
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, quick tuning, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, lost motion compensation function, super trace control						
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection						
Structure (IP Rating)		Natural cooling, open (IP20)					Force cooling, open (IP20)	
Close Mounting	3-Phase Power Supply Input	Possible (*8)						
	1-Phase Power Supply Input	Possible (*8)						
Environment	Ambient Temperature							
	Ambient Humidity							
	Ambience							
	Altitude							
	Vibration Resistance							
Weight (kg)		0.8	0.8	0.8	1.6	1.6	2.1	2.1

Notes:

1. Rated output and speed of a rotary servo motor are applicable when the servo amplifier is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our drive system sizing software Motorizer.
3. Refer to "Regenerative Option" for the permissible regenerative power [W] when a regenerative option is used.
4. When using the dynamic brake, refer to "MR-JET User's Manual" for the permissible load to motor inertia ratio.
5. This value is applicable when a 3-phase power supply is used.
6. When a 1-phase 200 VAC to 240 VAC power supply is used, use the servo amplifiers at 75 % or less of the effective load ratio.
7. The command communication cycle depends on the controller specifications and the number of slaves connected.
8. When the servo amplifiers are closely mounted, keep the ambient temperature within 0°C to 45°C, or use the servo amplifiers at 75% or less of the effective load ratio.

MR-JET Servo Motors

HG- □□□□□□

Symbol	Oil Seal (*4)
J	Installed (*3)
None	None

Symbol	Electromagnetic Brake
None	None
B	Installed

Symbol	Rated Speed (r/min)
2	2000
3	3000

Symbol	Rated Output (kW)
1	0.1
2	0.2
4	0.4
5	0.5
7	0.75
10	1.0
15	1.5
20	2.0
30	3.0

Symbol	Inertia/Capacity
HG-KNS	Low inertia, small capacity
HG-SNS	Medium inertia, medium capacity

Symbol	Shaft End
None	Standard (Straight shaft)
K	Keyed shaft (with a double roundended key or without a key) (*2)
D	D-cut shaft (*2)

Notes:
1. This section describes what each symbol in a model name indicates. Some combinations of symbols are not available.
2. Refer to the special shaft dimensions of each series in this catalog for the available models.
3. An oil seal is installed as a standard for all servo motors.
4. The dimensions of HG-KNS series vary depending on whether or not an oil seal is installed. Refer to the dimensions for details. Dimensions of the HG-SNS series are the same regardless of whether or not an oil seal is installed

Stocked Motors

Model Number
HG-KNS13JD
HG-KNS73JK
HG-KNS13BJD

Combinations of Servo Motor and Servo Amplifier

Rotary Servo Motor		10G_	20G_	40G_	70G_	100G_	200G_	300G_
HG-KNS	HG-KNS13J	X	-	-	-	-	-	-
	HG-KNS23J	-	X	-	-	-	-	-
	HG-KNS43J	-	-	X	-	-	-	-
	HG-KNS73J	-	-	-	X	-	-	-
HG-SNS	HG-SNS52J	-	-	-	X	-	-	-
	HG-SNS102J	-	-	-	-	X	-	-
	HG-SNS152J	-	-	-	-	-	X	-
	HG-SNS202J	-	-	-	-	-	X	-
	HG-SNS302J	-	-	-	-	-	-	X

HG-KNS Series (Low Inertia, Small Capacity) Specifications

Servo Motor Model HG-KNS		13J	23J	43J	73J
Compatible Servo Amplifier Model		Refer to MR-JET Amplifier section in this manual			
Flange Size		40 x 40	60 x 60		80 x 80
Continuous Running Duty	Rated Output (W)	0.1	0.2	0.4	0.75
	Rated Torque (N•m) (Note 3)	0.32	0.64	1.3	2.4
Maximum Torque (N•m)		0.95	1.9	3.8	7.2
Rated Speed (r/min) (Note 4)		3000			
Maximum Speed (r/min) (Note 4)		6000			
Power Rate at Continuous Rated Torque	Standard (kW/s) [x 10^{-4} kg•m^2]	12.9	18.0	43.2	44.5
	With Electromagnetic Brake (kW/s) [x 10^{-4} kg•m^2]	12.0	16.4	40.8	41.0
Rated Current (A)		0.8	1.3	2.6	4.8
Maximum Current (A)		2.4	3.9	7.8	14
Moment of Inertia J	Standard [x 10^{-4} kg•m^2]	0.0783	0.225	0.375	1.28
	With Electromagnetic Brake [x 10^{-4} kg•m^2]	0.0843	0.247	0.397	1.39
Recommended Load to Motor Inertia Ratio (Note 1)		15 times or less (Note 6)			
Speed/Position Detector		Absolute (Note 5) / incremental 22-bit encoder (resolution: 4,194,304 pulses/rev)			
Oil Seal		Installed (Servo motors without an oil seal are available. (HG-KNS_))			
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HG-KNS_B))			
Thermistor		None			
Insulation Class		130 (B)			
Structure		Totally enclosed, natural cooling (IP rating: IP65) (Note 2)			
Vibration Resistance (*1)		X: 49 m/s^2 Y: 49 m/s^2			
Vibration Rank		V10 (*3)			
Permissible Load for the Shaft (*2)	L (mm)	25	30	30	40
	Radial (N)	88	245	245	392
	Thrust (N)	59	98	98	147
Weight with Oil Seal (kg)	Standard	0.57	0.98	1.5	3.0
	With Electromagnetic Brake	0.77	1.4	1.9	4.0
Weight without Oil Seal (kg)	Standard	0.54	0.91	1.4	2.8
	With Electromagnetic Brake	0.74	1.3	1.8	3.8

Notes:
1. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
2. The shaft-through portion is excluded. Refer to asterisk 4 of "Annotations for Rotary Servo Motor Specifications" on p. 4-13 in this catalog for the shaft-through portion.
3. When unbalanced torque is generated, such as in a vertical lift machine, keep the unbalanced torque of the machine under 70 % of the servo motor rated torque.
4. The continuous running duty and the speed are not guaranteed when the power supply voltage is dropped.
5. A battery is required when configuring an absolute position detection system.
6. For HG-KNS13J or HG-KNS23J, the recommended load to motor inertia ratio is for operating the servo motor at the rated speed. If operating the servo motor at a speed exceeding the rated speed, check the need for a regenerative option with the drive system sizing software Motorizer.

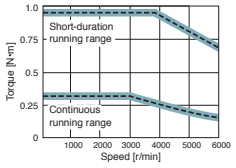
Refer to end of the section for the notes for asterisks (*) 1 to 4.

HG-KNS Series Electromagnetic Brake Specifications (Note 1)

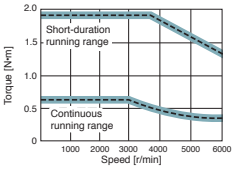
Servo Motor Model HG-KNS		13BJ	23BJ	43BJ	73BJ
Type		Spring actuated type safety brake			
Rated Voltage		24 VDC (-10 % to 0 %)			
Power Consumption [W] at 20°C		6.3	7.9	7.9	10
Electromagnetic Brake Static Friction Torque [N•m]		0.32 or higher	1.3 or higher	1.3 or higher	2.4 or higher
Permissible Braking Work	Per Braking [J]	5.6	22	22	64
	Per Hour [J]	56	220	220	640
Electromagnetic Brake Life (Note 2)	Number of Braking (Times)	20000			
	Work Per Braking (J)	5.6	22	22	64

Notes:
1. The electromagnetic brake is for holding. It cannot be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until readjustment is needed.

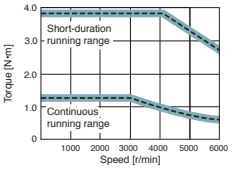
HG-KNS13J (Note 1, 2, 3)



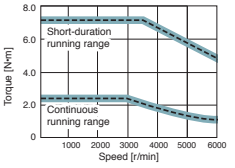
HG-KNS23J (Note 1, 2, 3)



HG-KNS43J (Note 1, 2, 3)



HG-KNS73J (Note 1, 2, 3)



1. ▬ : For 3-phase 200 V AC.
2. - - - : For 1-phase 230 V AC.
3. Torque drops when the power supply voltage is below the specified value.

HG-SNS Series (Medium Inertia, Medium Capacity) Specifications

Servo Motor Model HG-SNS		52J	102J	152J	202J	302J
Compatible Servo Amplifier Model		Refer to MR-JET Amplifier section in this manual				
Flange Size		130 x 130			176 x 176	
Continuous Running Duty (Note 4)	Rated Output (W)	0.5	1.0	1.5	2.0	3.0
	Rated Torque (N•m) (Note 3)	2.39	4.77	7.16	9.55	14.3
Maximum Torque (N•m)		7.16	14.3	21.5	28.6	42.9
Rated Speed (r/min) (Note 4)		2000				
Maximum Speed (r/min) (Note 4)		3000				2500
Power Rate at Continuous Rated Torque	Standard (kW/s) [x 10^{-4} kg•m^2]	7.85	19.7	32.1	19.5	26.1
	With Electromagnetic Brake (kW/s) [x 10^{-4} kg•m^2]	6.01	16.5	28.2	16.1	23.3
Rated Current (A)		2.9	5.6	9.4	9.6	11
Maximum Current (A)		9.0	17	29	31	33
Moment of Inertia J	Standard [x 10^{-4} kg•m^2]	7.26	11.6	16.0	46.8	78.6
	With Electromagnetic Brake [x 10^{-4} kg•m^2]	9.48	13.8	18.2	56.5	88.2
Recommended Load to Motor Inertia Ratio (Note 1)		15 times or less				
Speed/Position Detector		Absolute (Note 5) / incremental 22-bit encoder (resolution: 4,194,304 pulses/rev)				
Oil Seal		Installed (Servo motors without an oil seal are available. (HG-SNS_))				
Electromagnetic Brake		None (Servo motors with an electromagnetic brake are available. (HG-SNS_B))				
Thermistor		None				
Insulation Class		155 (F)				
Structure		Totally enclosed, natural cooling (IP rating: IP67) (Note 2)				
Vibration Resistance (*1)		X: 24.5 m/s² Y: 24.5 m/s²			X: 24.5 m/s² Y: 49 m/s²	
Vibration Rank		V10 (*3)				
Permissible Load for the Shaft (*2)	L (mm)	55	55	55	79	79
	Radial (N)	980	980	980	2058	2058
	Thrust (N)	490	490	490	980	980
Weight with/ without Oil Seal (kg)	Standard	4.8	6.2	7.3	11	16
	With Electromagnetic Brake	6.7	8.2	9.3	17	22

Notes:
1. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
2. The shaft-through portion is excluded. Refer to asterisk 4 of "Annotations for Rotary Servo Motor Specifications" on p. 4-13 in this catalog for the shaft-through portion.
3. When unbalanced torque is generated, such as in a vertical lift machine, keep the unbalanced torque of the machine under 70 % of the servo motor rated torque.
4. The continuous running duty and the speed are not guaranteed when the power supply voltage is dropped.
5. A battery is required when configuring an absolute position detection system.

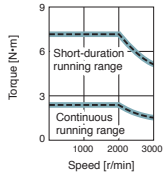
Refer to end of the section for the notes for asterisks (*) 1 to 4.

HG-SNS Series Electromagnetic Brake Specifications (Note 1)

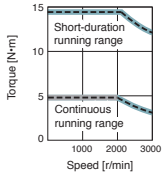
Servo Motor Model HG-SNS		52BJ	102BJ	152BJ	202BJ	302BJ
Type		Spring actuated type safety brake				
Rated Voltage		24 VDC (-10 % to 0 %)				
Power Consumption [W] at 20°C		20	20	20	34	34
Electromagnetic Brake Static Friction Torque [N•m]		8.5 or higher	8.5 or higher	8.5 or higher	44.0 or higher	44.0 or higher
Permissible Braking Work	Per Braking [J]	400	400	400	4500	4500
	Per Hour [J]	4000	4000	4000	45000	45000
Electromagnetic Brake Life (Note 2)	Number of Braking (Times)	20000				
	Work Per Braking (J)	200	200	200	1000	1000

Notes:
1. The electromagnetic brake is for holding. It cannot be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until readjustment is needed.

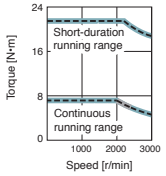
HG-SNS52J (Note 1, 2, 3)



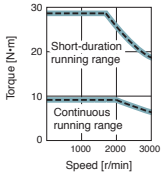
HG-SNS102J (Note 1, 2, 3)



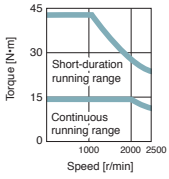
HG-SNS152J (Note 1, 2, 3)



HG-SNS202J (Note 1, 2, 3)



HG-SNS302J (Note 1, 3)

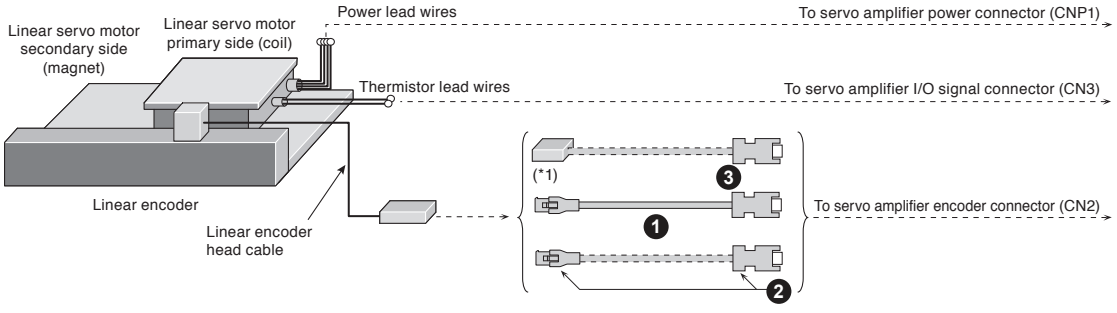


1. : For 3-phase 200 V
2. : For 1-phase 230 V
3. Torque drops when the powe voltage is below the specifie

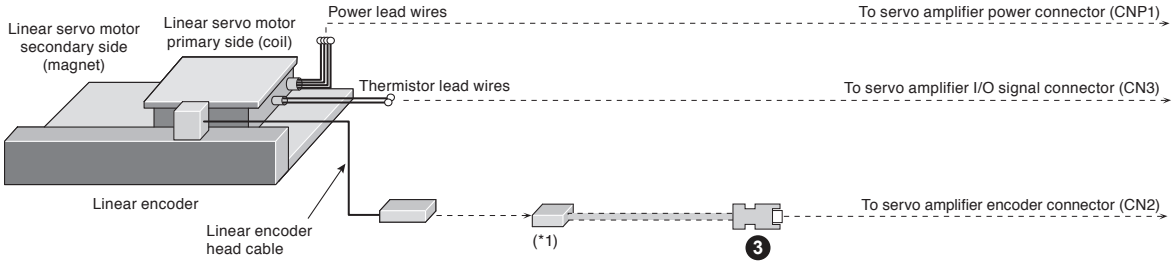
Configuration Example for Linear Servo Motors (*2)

LM-H3 Series

• When using a serial linear encoder

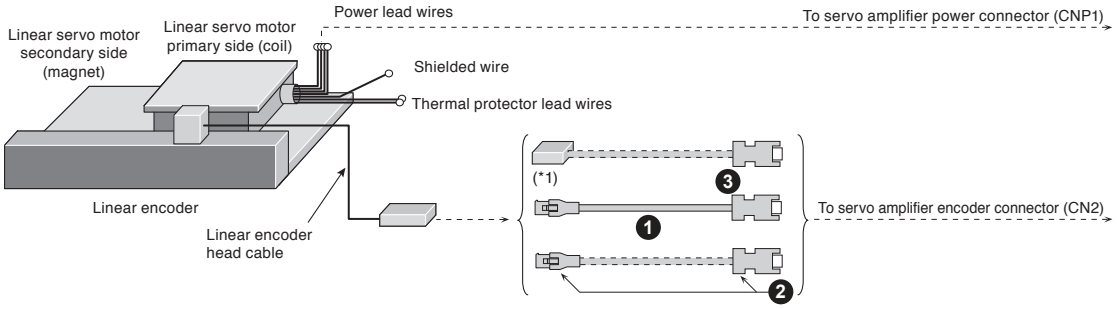


• When using an A/B/Z-phase differential output type linear encoder

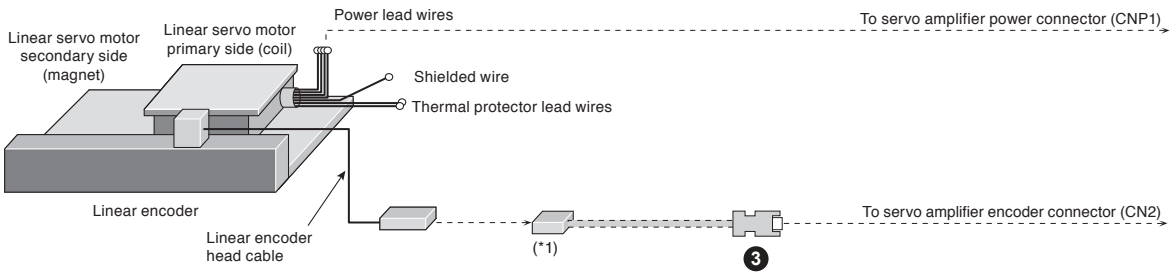


LM-AJ series

• When using a serial linear encoder



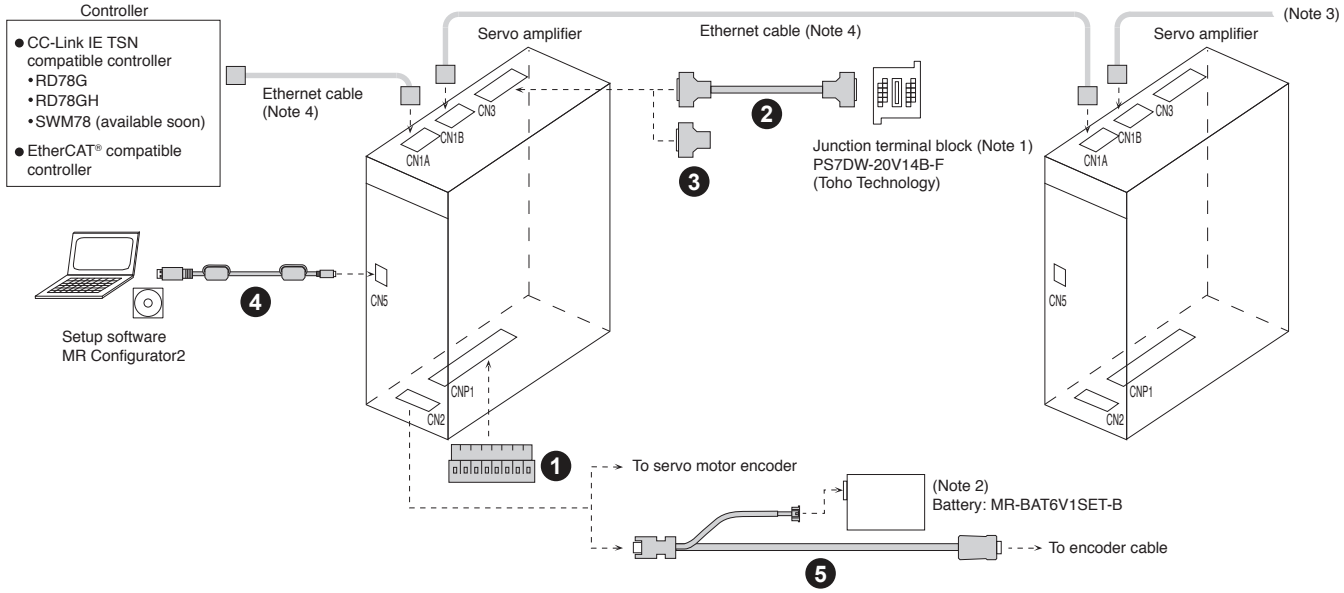
• When using an A/B/Z-phase differential output type linear encoder



Notes:
1. Contact the relevant linear encoder manufacturers for connectors to connect with the head cables.
2. Cables drawn with dashed lines need to be fabricated by users. Refer to "Linear Servo Motor User's Manual" when fabricating the cables.

MR-JET Amplifiers Cables and Connectors

Configuration Example for Servo Amplifiers



Notes:
1. Refer to "Junction Terminal Block" in this catalog.
2. The battery is required when configuring an absolute position detection system. Refer to "Battery" in this catalog.
3. When branching off CC-Link IE TSN (synchronous communication function) with a switching hub, use a switching hub (Class B) recommended by CC-Link Partner Association. When a switching hub (Class A) is used, there are restrictions on the topologies to be used. Refer to "MELSEC iQ-R Motion Module User's Manual" for details.
4. For specifications of the Ethernet cable, refer to "Ethernet Cable Specifications" in this catalog.

Ethernet Cable Specifications

Item		CC-Link IE TSN (*1, *2)	EtherCAT®
Ethernet Cable		Category 5e or higher, (double shielded/STP) straight cable	
	Standard	The cable must meet the following: • IEEE802.3 (1000BASE-T) • ANSI/TIA/EIA-568-B (Category 5e)	The cable must meet the following: • IEEE802.3 (100BASE-TX) • ANSI/TIA/EIA-568-B (Category 5e)
	Connector	RJ-45 connector with shield	

Notes:
1. Use wiring parts recommended by CC-Link Partner Association for wiring the CC-Link IE TSN.
2. Cables for CC-Link IE Controller Network cannot be used with CC-Link IE TSN.

MR-JET Cables and Connectors for Servo Amplifiers

Figure Number	Item		Model	Stocked Lengths	Protection Level	Description
1	For CNP1 Servo Amplifier Power Connector Set	For MR-JET-100G or Smaller	-	(Standard accessory)	-	CNP1 connector / Open tool Applicable wire size (*1) : AWG 18 to 14 Insulator OD: up to 3.9 mm
		For MR-JET-200G/ MR-JET-300G	-	(Standard accessory)	-	CNP1 connector / Open tool Applicable wire size (*1) : AWG 16 to 10 Insulator OD: up to 4.7 mm
2	For CN3 Junction Terminal Block Cable for Connecting MR-JET-_G and PS7DW-20V14B-F		MR-J2HBUS_M (_= 0.5, 1, 5M)	-	-	Servo amplifier connector / Junction terminal block connector
3	CN3 Connector Set for MR-JET-_G		MR-CCN1	-	-	Servo amplifier connector
4	Personal Computer Communication Cable (USB Cable) for MR-JET-_G		MR-J3USBCBL3M (3 m)	3	-	Servo amplifier connector mini-B connector (5-pin) / Personal computer connector A connector
5	Battery Branch Cable for MR-JET-_G		MR-BT6V4CBL03M (0.3 m)	0.3	-	

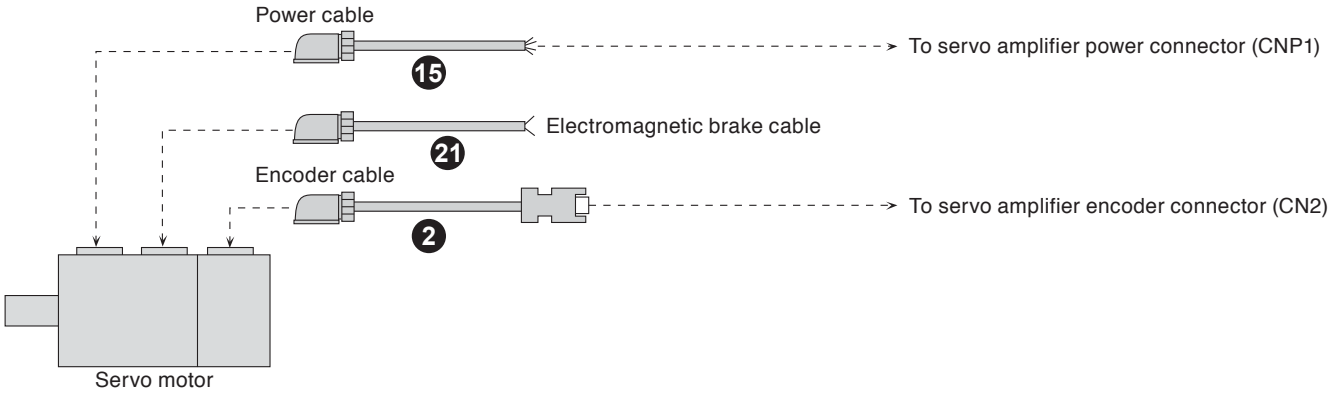
Notes:
1. The wire size shows wiring specification of the connector. Refer to User Guide for examples of wire size selection.
2. CNP1 and CNP2 connectors, and open tool are supplied with the servo amplifier.

MR-JET Rotary Servo Motor Cables and Connectors

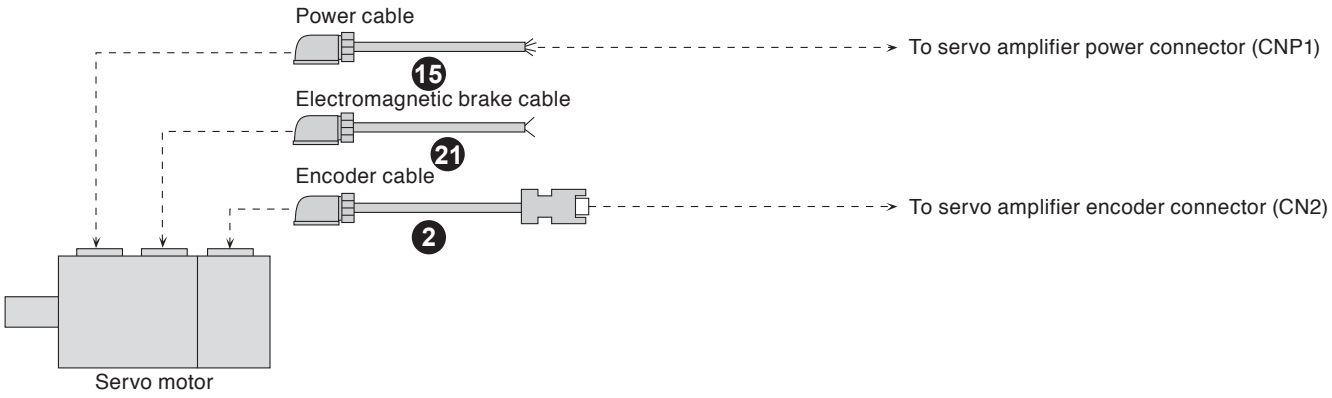
Configuration Examples for Servo Motors

HG-KNS Series: Encoder cable length 10 m or shorter

For leading the cables out in the direction of the load side (*1)



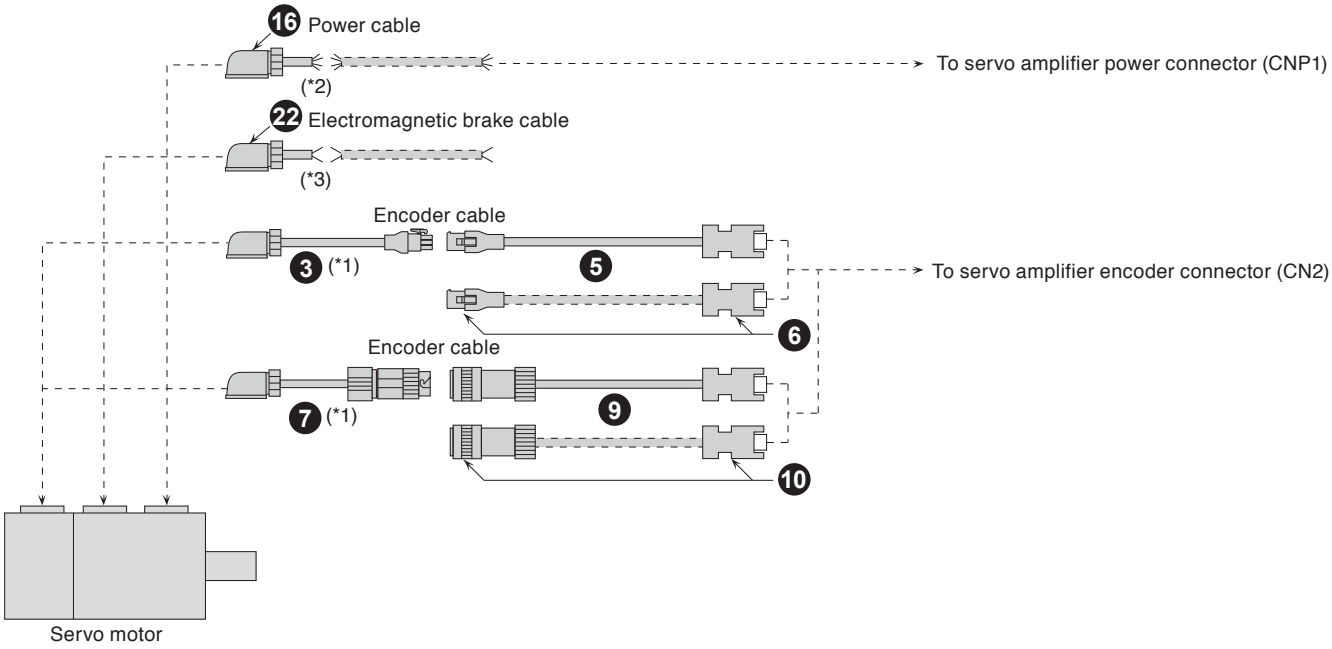
For leading the cables out in the opposite direction of the load side (*1)



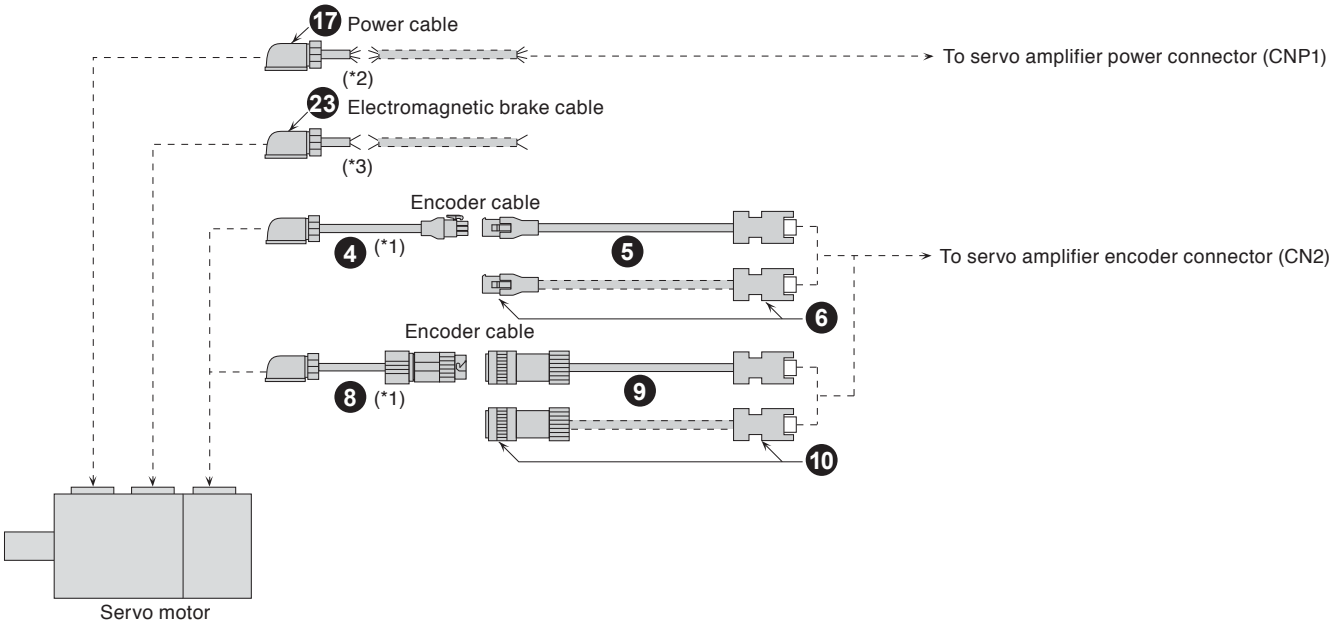
Note 1. Cables for leading two different directions may be used for one servo motor.

HG-KNS Series: Encoder cable length over 10 m

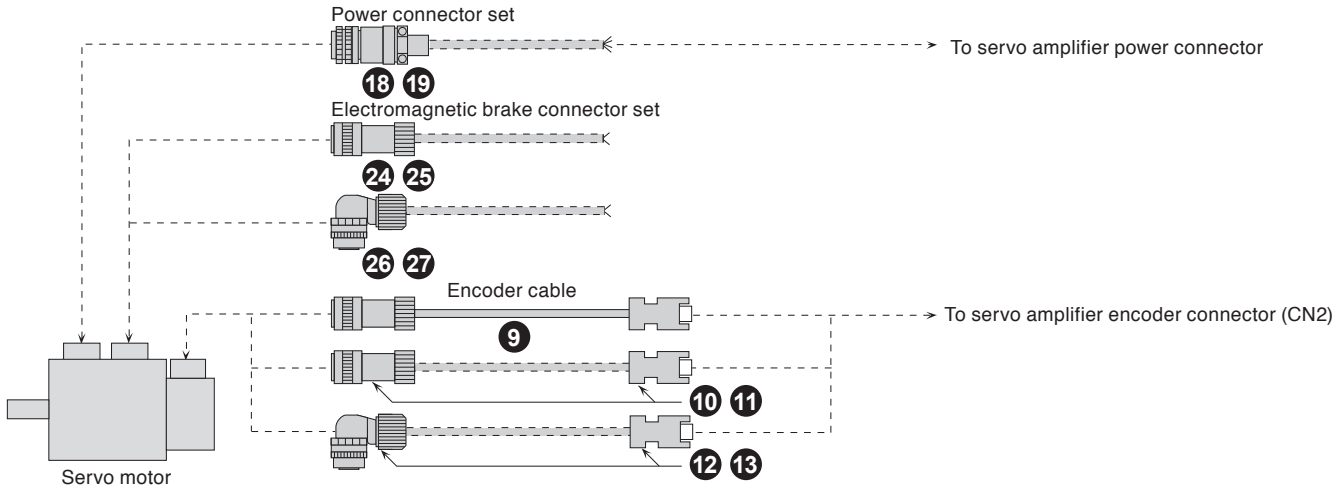
For leading the cables out in the direction of the load side (*4)



For leading the cables out in the opposite direction of the load side (*4)

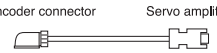
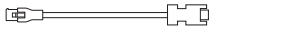
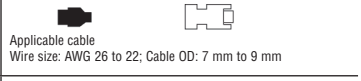
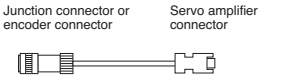
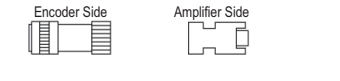
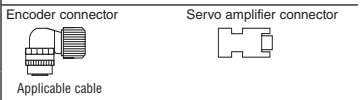
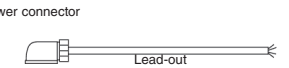
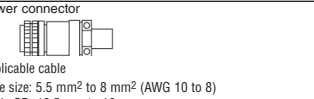


HG-SNS series



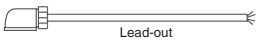
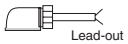
Notes:
1. Secure this cable as it does not have a long bending life.
2. Relay a cable using MR-PWS2CBL03M-A1-L or MR-PWS2CBL03M-A2-L. Secure this cable as it does not have a long bending life.
3. Relay a cable using MR-BKS2CBL03M-A1-L or MR-BKS2CBL03M-A2-L. Secure this cable as it does not have a long bending life.
4. Cables for leading two different directions may be used for one servo motor.
5. Cables drawn with dashed lines need to be fabricated by users. Refer to the User's Manual when fabricating the cables.

Encoder Cables and Connectors

Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level	Description
1	Encoder Cable 10m or Shorter (Direct Connection Type) (*2, *6)	For HG-KNS Encoder Cable (Load-Side Lead) Shaft	MR-J3ENCBL_M-A1-H	2, 5, 10	2, 3, 5, 10	IP65	
			MR-J3ENCBL_M-A1-L	2, 5, 10	2, 5, 10		
2		For HG-KNS (Lead Out in Opposite Direction of Motor Shaft)	MR-J3ENCBL_M-A2-H	2, 5, 10	1, 2, 5, 10		
			MR-J3ENCBL_M-A2-L	2, 5, 10	1, 2, 5, 10		
3	Encoder Cable (Junction Type) Use This in Combination With Cables (5) or (6)	For HG-KNS (Lead Out in Direction of Motor Shaft)	MR-J3JCBL03M-A1-L	0.3	0.3	IP20	
4		For HG-KNS (Lead Out in Opposite Direction of Motor Shaft)	MR-J3JCBL03M-A2-L	0.3	0.3		
5	Encoder Cable For HG-KR/HG-MR (Junction Type) Use This in Combination With Cables (3) or (4) (*2, *6)		MR-EKCBL_M-H (*3)	20, 30, 40, 50	10, 20, 30, 50	IP20	
			MR-EKCBL_M-L (*3)	20, 30	-		
6	Encoder Connector Set For HG-KNS (Junction Type) Use This in Combination With Cables (3) or (4)		MR-ECNM	-	S	IP20	
7	Encoder Cable (Junction Type) (Use This in Combination With Cables (9) or (10) (*2, *6)	For HG-KNS (Load-Side Lead)	MR-J3JSCBL03M-A1-L	0.3 m	0.3 m	IP65 (*4)	
8		For HG-KNS (Opposite to Load-Side Lead)	MR-J3JSCBL03M-A2-L	0.3 m	0.3 m		
9	Encoder Cable For HG-KNS (Junction Type) For HG-SNS (Direct Connection Type) (Use This in Combination With Cables (7) or (8) (*2, *6)		MR-J3ENSCBL_M-H	2, 5, 10, 20, 30, 40, 50	2, 5, 10, 20, 30	IP67	
			MR-J3ENSCBL_M-L	2, 5, 10, 20, 30	2, 5		
10	Encoder Connector Set (One-Touch Connection Type) For HG-KNS (Junction Type) For HG-SNS (Direct Connection Type) (Straight Type) Use this in Combination with Cables (7) or (8) (*5)		MR-J3SCNS	-	S	IP67	
11	Encoder Connector Set (Screw Type) For HG-SNS (Direct Connection Type) (Straight Type) (*4, *5, *7)		MR-ENCNS2	-	S		
12	Encoder Connector Set (One-Touch Connection Type) For HG-SNS (Angle Type) (*5, *7)		MR-J3SCNSA	-	S	IP67	
13	Encoder Connector Set (Screw Type) For HG-SNS (Angle Type) (*4, *5, *7)		MR-ENCNS2A	-	S		
14	Power Cable (Direct Connection Type) (*2, *6)	For HG-KNS (Load-Side Lead)	MR-PWS1CBL_M-A1-H	2, 5, 10	2, 5,10	IP65	
			MR-PWS1CBL_M-A1-L (*11)	2, 5, 10	2, 5,10		
15	Power Cable (Direct Connection Type) (*2, *6)	For HG-KNS (Opposite to Load-Side Lead)	MR-PWS1CBL_M-A2-H	2, 5, 10	2, 5,10		
			MR-PWS1CBL_M-A2-L (*11)	2, 5, 10	2, 5,10		
16	Power Cable (Junction Type) (*2)	For HG-KNS (Load-Side Lead)	MR-PWS2CBL03M-A1-L	0.3	0.3	IP55	
17	Power Cable (Junction Type) (*2)	For HG-KNS (Opposite to Load-Side Lead)	MR-PWS2CBL03M-A2-L	0.3	0.3		
18	Power Connector Set For HG-SNS52J, 102J,152J (*7)		MR-PWCNS4	-	S	IP67	
19	Power Connector Set For HG-SNS202J, 302J (*7)		MR-PWCNS5	-	S	IP67	

Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo motor. If the IP rating of the servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. -H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.
3. This encoder cable is available in four-wire type. Servo parameter setting is required to use the four-wire type encoder cable. Refer to "MR-JET User's Manual" for details.
4. The encoder cable is rated IP65 while the junction connector itself is rated IP67.
5. The crimping tool (91529-1) manufactured by TE Connectivity Ltd. Company is required. Contact the manufacturer directly.
6. For unlisted lengths of the cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
7. For fabricating cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
8. Cable clamps and bushings for cable OD of 5.5 mm to 7.5 mm and of 7.0 mm to 9.0 mm are included in the set.
9. A screw thread is cut on the encoder connector of HG-SNS series, and the screw type connector can be used.
10. The connector set contains a plug and contacts. Using contacts for other plugs may damage the connector. Use the enclosed contacts.
11. Shielded power cable MR-PWS3CBL_M-A_-L is also available. Contact your local sales office

Encoder Cables and Connectors (continued)

Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level	Description
20	Electromagnetic Brake Cable (Direct Connection Type) (*2, *5)	For HG-KNS (Load-Side Lead)	MR-BKS1CBL2M-A1-H	0.3	0.3	IP65	Power connector  *The cable is not shielded
			MR-BKS1CBL_M-A1-L	0.3	0.3		
21	Electromagnetic Brake Cable (Direct Connection Type) (*2, *5)	For HG-KNS (Opposite to Load-Side Lead)	MR-BKS1CBL_M-A2-H	2, 5, 10	2, 5,10	IP65	
			MR-BKS1CBL_M-A2-L	2, 5, 10	-		
22	Electromagnetic Brake Cable (Junction Type) (*2)	For HG-KNS (Load-Side Lead)	MR-BKS2CBL03M-A1-L	0.3	0.3	IP55	Power connector  *The cable is not shielded
23	Electromagnetic Brake Cable (Junction Type) (*2)	For HG-KNS (Opposite to Load-Side Lead)	MR-BKS2CBL03M-A2-L	0.3	0.3		
24	Electromagnetic Brake Connector Set (One-Touch Connection Type) For HG-SNS (Straight Type) (*4, *6)		MR-BKCNS1	-	S	IP67	Electromagnetic brake connector  Applicable cable Wire size: 1.25 mm^2 (AWG 16) or smaller Cable OD: 9.0 mm to 11.6 mm
25	Electromagnetic Brake Connector Set (Screw Type) For HG-SNS (Straight Type) (*3, *4, *6)		MR-BKCNS2	-	S		
26	Electromagnetic Brake Connector Set (One-Touch Connection Type) For HG-SNS (Angle Type) (* 4, *6)		MR-BKCNS1A	-	S	IP67	Electromagnetic brake connector  Applicable cable Wire size: 1.25 mm^2 (AWG 16) or smaller Cable OD: 9.0 mm to 11.6 mm
27	Electromagnetic Brake Connector Set (Screw Type) For HG-SNS (Angle Type) (*3, *4, *6)		MR-BKCNS2A	-	S		

Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo motor. If the IP rating of the servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. -H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.
3. A screw thread is cut on the electromagnetic brake connector of HG-SNS series, and the screw type connector can be used.
4. The connector set contains a plug and contacts. Using contacts for other plugs may damage the connector. Use the enclosed contacts.
5. For unlisted lengths of the cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)
6. For fabricating cables, please contact Mitsubishi Electric System & Service Co., Ltd. OVERSEAS SERVICE SECTION. (Email: osb.webmaster@melsc.jp)

Linear Motor Encoder Cables and Connectors

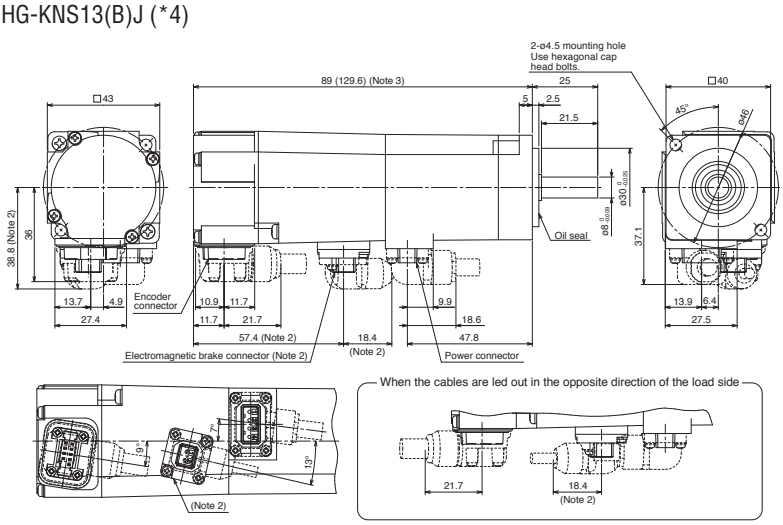
Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level	Description
1	Encoder Cable (*3, *4)	For Connecting a Linear Encoder	MR-EKCBL_M-H	2, 5	2, 5	IP20	Junction connector Servo amplifier connector 
2	Encoder Connector Set (*2, *3)	For Connecting a Linear Encoder	MR-ECNM	-	S	IP20	
3	Encoder Connector Set	For Connecting a Linear Encoder	MR-J3CN2	-	-	-	Servo amplifier connector  Applicable cable Wire size: AWG 26 to 22 Cable OD: 7 mm to 9 mm

Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo motor. If the IP rating of the servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. The crimping tool (91529-1) manufactured by TE Connectivity Ltd. Company is required. Contact the manufacturer directly.
3. Use MR-EKCBL_M-H or MR-ECNM to connect to an output cable for AT343A, AT543A-SC or AT545A-SC scales manufactured by Mitutoyo Corporation.
4. -H indicates a long bending life (for moving parts), and -L indicates a standard bending life (for fixed parts).

HG-KNS Series Dimensions

(Unit: mm)

HG-KNS13(B)J (*4)



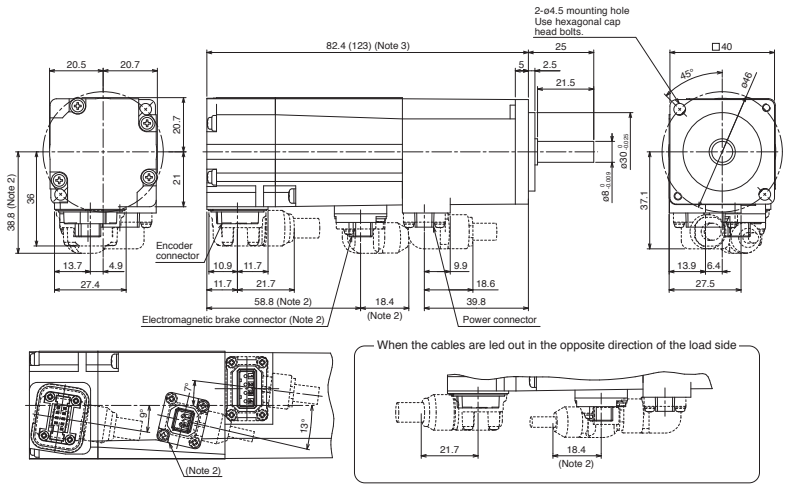
Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

Electromagnetic brake connector (Note 1)

Pin No.	Signal name
1	B1
2	B2

HG-KNS13(B (*4)



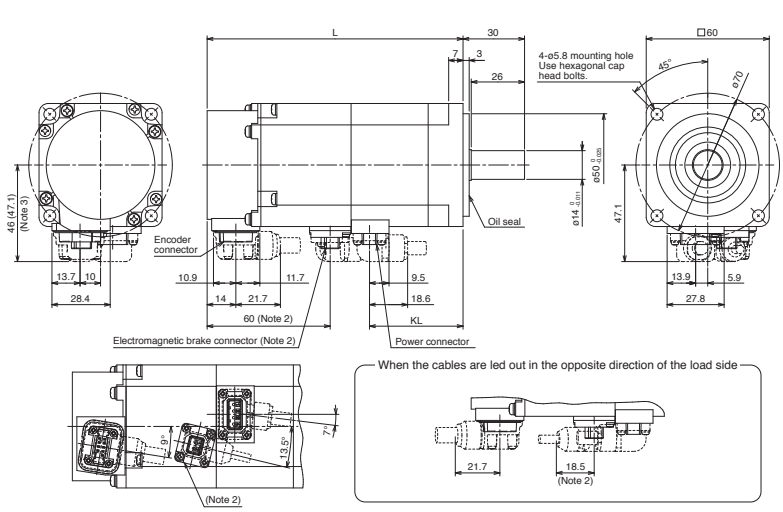
Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

Electromagnetic brake connector (Note 1)

Pin No.	Signal name
1	B1
2	B2

HG-KNS23(B)J, HG-KNS43(B)J (*4)



Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

Electromagnetic brake connector (Note 1)

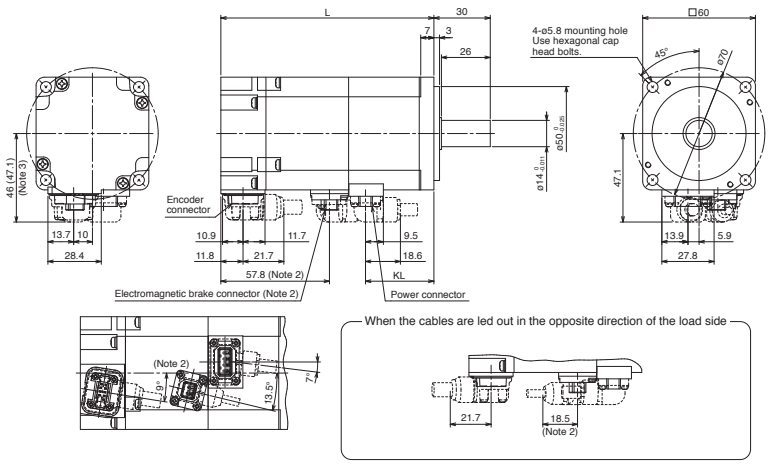
Pin No.	Signal name
1	B1
2	B2

Model	Variable dimensions (Note 3)	
	L	KL
HG-KNS23(B)J	88 (124.8)	45.6
HG-KNS43(B)J	109.7 (146.5)	67.3

Notes:
1. The electromagnetic brake terminals (B1, B2) do not have polarity.
2. Only for the models with an electromagnetic brake.
3. Dimensions in brackets are for the models with an electromagnetic brake.
4. Use a friction coupling to fasten a load.

HG-KNS23(B), HG-KNS43(B) (*4)

(Unit: mm)



Power connector

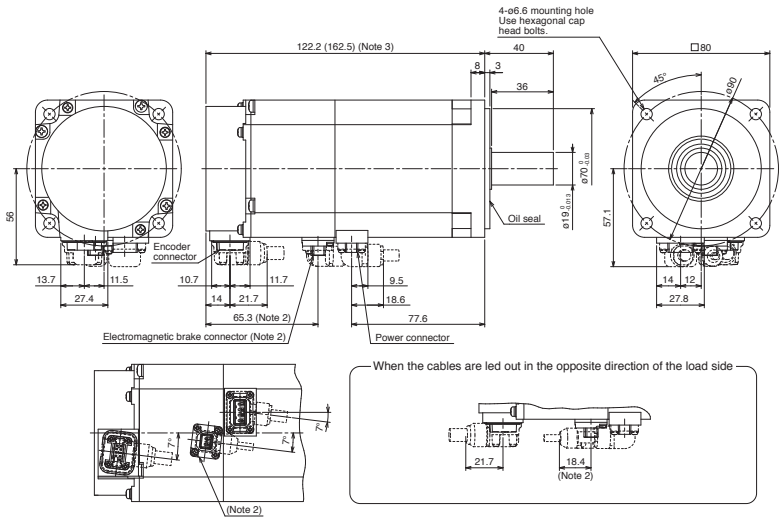
Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

Electromagnetic brake connector (Note 1)

Pin No.	Signal name
1	B1
2	B2

Model	Variable dimensions (Note 3)	
	L	KL
HG-KNS23(B)	76.6 (113.4)	36.4
HG-KNS43(B)	98.3 (135.1)	58.1

HG-KNS73(B)J (*4)



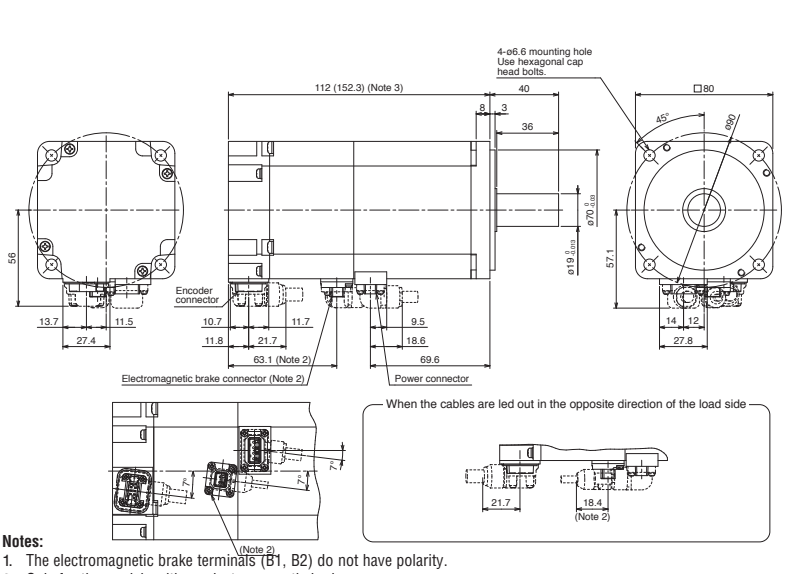
Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

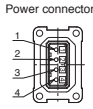
Electromagnetic brake connector (Note 1)

Pin No.	Signal name
1	B1
2	B2

HG-KNS73(B) (*4)



Power connector



Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

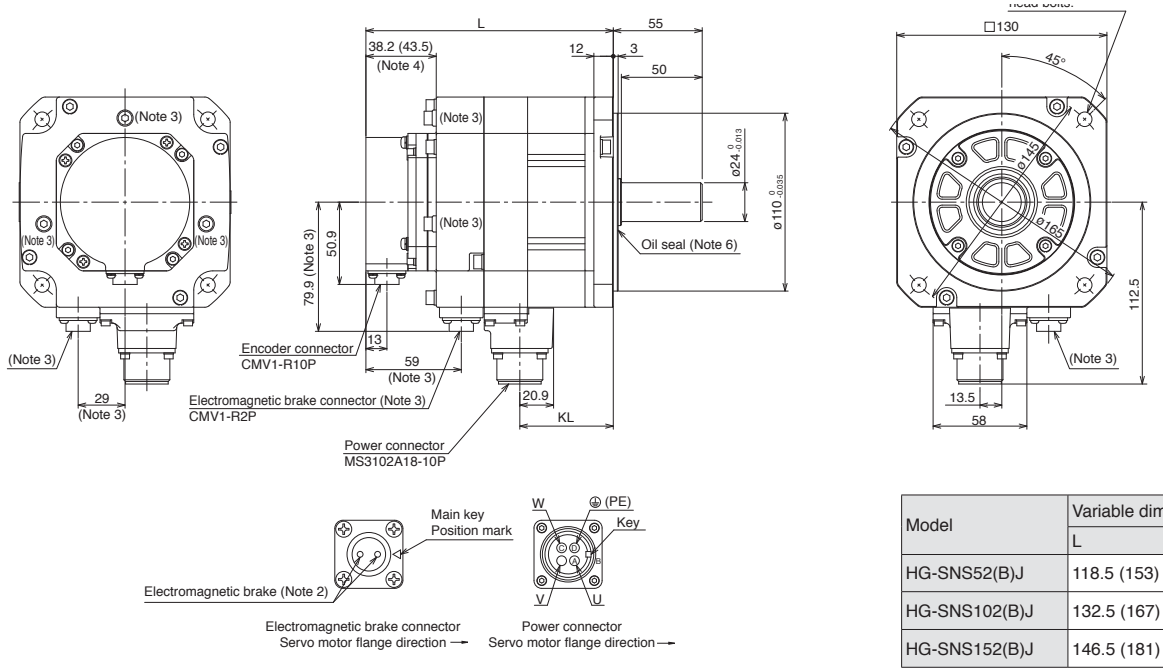
Electromagnetic brake connector (Note 1)

Pin No.	Signal name
1	B1
2	B2

Notes:
1. The electromagnetic brake terminals (B1, B2) do not have polarity.
2. Only for the models with an electromagnetic brake.
3. Dimensions in brackets are for the models with an electromagnetic brake.
4. Use a friction coupling to fasten a load.

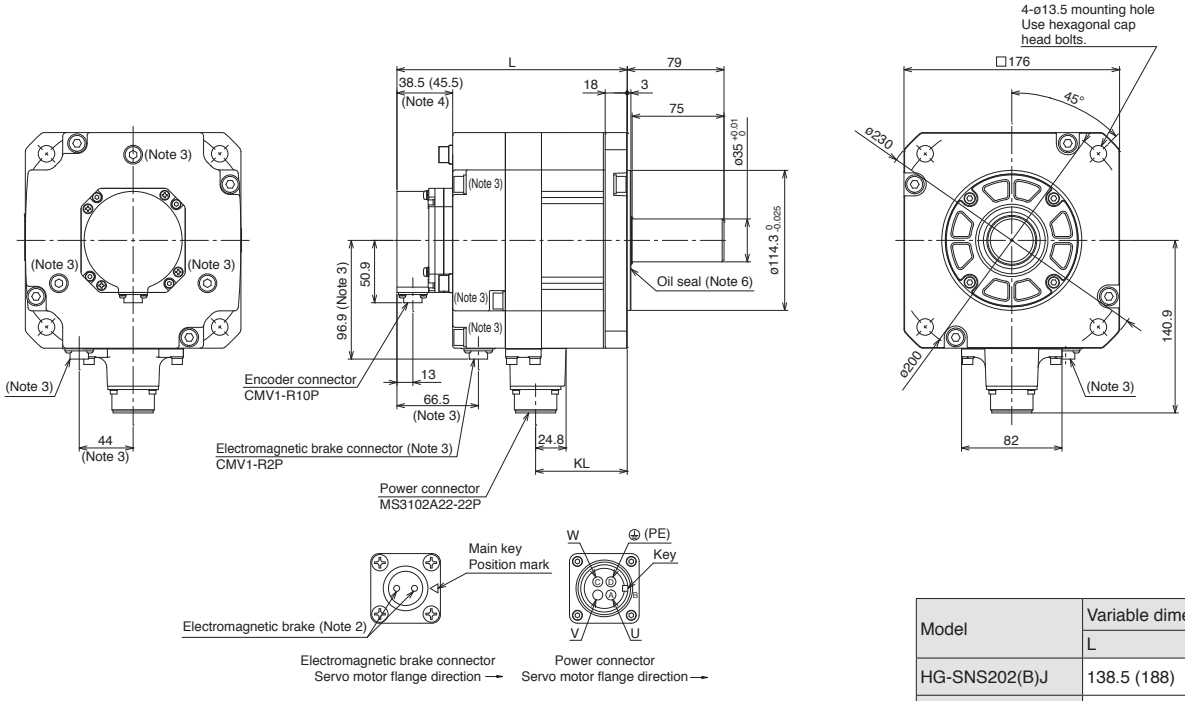
HG-SNS Series Dimensions (*1, *5)

HG-SNS52(B)J, HG-SNS102(B)J, HG-SNS152(B)J



Model	Variable dimensions (Note 4)	
	L	KL
HG-SNS52(B)J	118.5 (153)	57.8
HG-SNS102(B)J	132.5 (167)	71.8
HG-SNS152(B)J	146.5 (181)	85.8

HG-SNS202(B)J, HG-SNS302(B)J

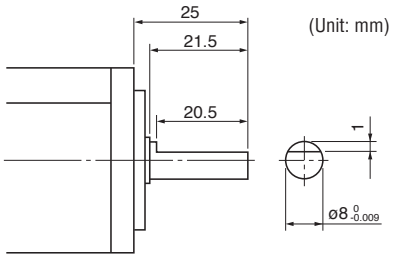


Model	Variable dimensions (Note 4)	
	L	KL
HG-SNS202(B)J	138.5 (188)	74.8
HG-SNS302(B)J	162.5 (212)	98.8

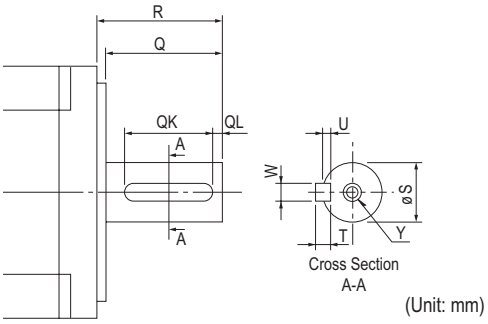
Notes:
1. Dimensions of the HG-SNS series are the same regardless of whether or not an oil seal is installed.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with an electromagnetic brake.
4. Dimensions in brackets are for the models with an electromagnetic brake.
5. Use a friction coupling to fasten a load.
6. Only for the models with an oil seal.

HG-KNS Series with Special Shaft Dimensions

Servo motors with the following specifications are also available.
D: D-cut shaft (*1): 0.1 kW



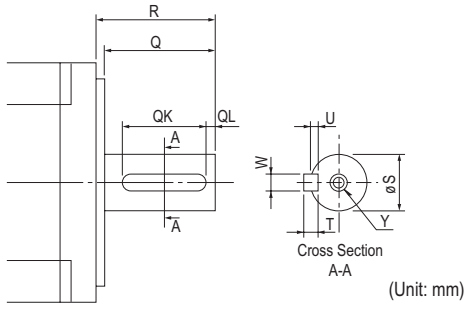
Keyed shaft (with a double round-ended key) (*1): 0.2 kW, 0.4 kW, and 0.75 kW



Motor Model	Variable Dimensions								
	T	S	R	Q	W	QK	QL	U	Y
HG-KNS23JK HG-KNS43JK	5	14	30	26	5	20	3	3	M4 Depth 15
HG-KNS73JK	6	19	40	36	6	25	5	3.5	M5 Depth 20

HG-SNS Series with Special Shaft Dimensions

Servo motors with the following specifications are also available.

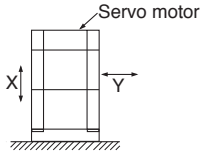


Motor Model	Variable Dimensions mm (in)								
	S	R	Q	W	QK	QL	U	r	Y
HG-SNS52JK HG-SNS102JK HG-SNS152JK	24 0 -0.013	55	50	8 0 -0.036	36	5	4 +0.2 0	4	M8 Depth 20
HG-SN202(B)JK HG-SNS202JK HG-SNS302JK	35 0 -0.010	79	75	10 0 -0.036	55	5	5 +0.2 0	5	

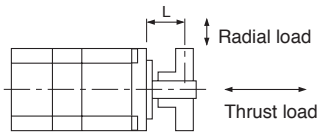
Notes:
1. Do not use a servo motor with a keyed shaft for frequent start/stop applications as this may cause the damage to the shaft.
2. 2. The servo motor is supplied without a key. The user needs to prepare a key.

Annotations for Servo Motor Specifications

1. The vibration direction is shown in the diagram below. The numerical value indicates the maximum value of the component (commonly the bracket in the opposite direction of the load side). Fretting tends to occur on the bearing when the servo motor stops. Thus, maintain vibration level at approximately one-half of the allowable value.

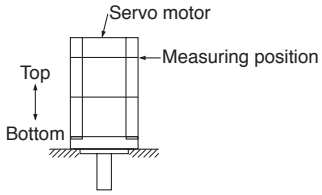


2. Refer to the diagram below for the permissible load for the shaft. Ensure that loads applied on the shaft do not exceed the values specified in the table. The values in the table are applicable when each load is applied singly.

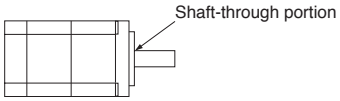


L: Distance between the flange mounting surface and the center of load.

3. V10 indicates that the amplitude of the Servo Motor itself is 10 μm or less. The following shows mounting posture and measuring position of the Servo Motor during the measurement:



4. Refer to the diagram below for shaft-through portion.



MR-J4 Servo Motors and Amplifiers Overview

The MR-J4 provides the highest power, performance, and flexibility in the Mitsubishi Electric lineup and is available from 50W-55KW. Additional features include advanced one-touch auto tuning and advanced vibration suppression control II functions. The MR-J4 motors have the same flange sizes and use the same power encoder and brake cables as the MR-J3 for easy migration from the previous generation of servo amplifiers. The MR-J4 is easily setup and sized with M-Size sizing software and MR-Configurator2 configuration software.

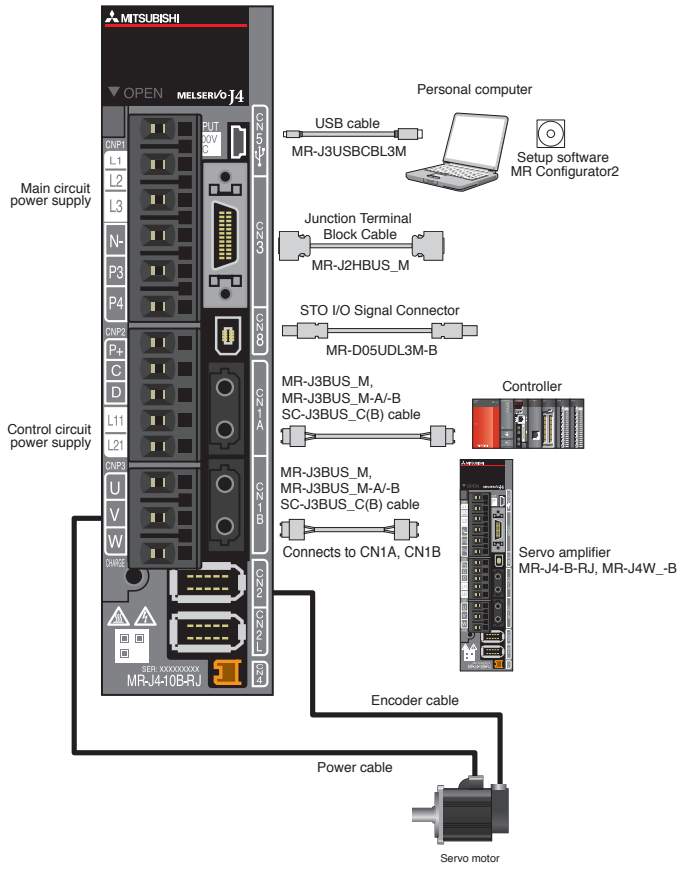
MR-J4 Amplifiers

X = Compatible
- = Not compatible

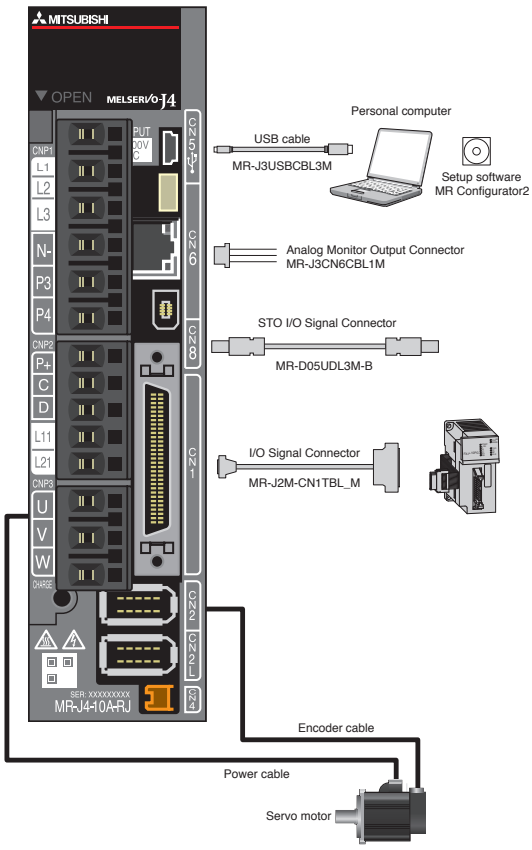
Type (*6)		Number of Control Axes	Power Supply	Rated Output (kW) (*1, *4)	Interface								Control Mode					Compatible Motor Series										
					SSCNET III / H	CC-Link IE Field	Pulse Train	Analog Voltage	RS-422 Multi-Drop	EtherCAT®	EtherNet/IP™	PROFINET®	Position	Speed	Torque	Positioning Function	Fully Closed Loop Control (*2)	HG-KR	HG-MR	HG-SR	HG-JR	HG-RR	HG-UR	HG-AK	LM-H3 (*5)	LM-F (*5)	LM-K2 (*5)	LM-U2 (*5)	TM-RFM
CC-Link IE Field Interface	MR-J4-GF-RJ	1 axis	1-Phase 100VAC	0.1, 0.2, 0.4	-	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
			3-Phase 200VAC	0.1, 0.2, 0.4, 0.6, 0.75, 1, 2, 3.5, 5, 7, 11, 15, 22	-	X	-	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
			3-Phase 400VAC	0.6, 1, 2, 3.5, 5, 7, 11, 15, 22	-	X	-	-	-	-	-	-	X	X	X	X	X	-	-	X	X	-	-	-	X	-	-	-
SSCNET III/H Interface	MR-J4-B(-RJ)	1 axis	1-Phase 100VAC	0.1, 0.2, 0.4	X	-	-	-	-	-	-	-	X	X	X	-	X	X	X	-	-	-	-	-	X	-	X	X	X
			3-Phase 200VAC	0.1, 0.2, 0.4, 0.6, 0.75, 1, 2, 3.5, 5, 7, 11, 15, 22, 30, 37	X	-	-	-	-	-	-	-	X	X	X	-	X	X	X	X	X	X	X	-	X	X	X	X	X
			3-Phase 400VAC	0.6, 1, 2, 3.5, 5, 7, 11, 15, 22, 30, 37, 45, 55	X	-	-	-	-	-	-	-	X	X	X	-	X	-	-	X	X	-	-	-	-	X	-	-	-
	MR-J4W2-B	2 axes	3-Phase 200VAC	0.2, 0.4, 0.75, 1	X	-	-	-	-	-	-	-	X	X	X	-	X	X	X	X	X	-	X	-	X	-	X	X	X
	MR-J4W3-B	3 axes	3-Phase 200VAC	0.2, 0.4	X	-	-	-	-	-	-	-	X	X	X	-	-	X	X	-	-	-	-	-	X	-	X	X	X
	MR-J4W2-0303B6	2 axes	24VDC/ 48VDC	10W, 20W, 30W	X	-	-	-	-	-	-	-	X	X	X	-	-	-	-	-	-	-	-	X	-	-	-	-	-
General Purpose Interface	MR-J4-A(-RJ)	1 axis	1-Phase 100VAC	0.1, 0.2, 0.4	-	-	X	X	X	-	-	-	X	X	X	X (*3)	X	X	X	-	-	-	-	-	X	-	X	X	X
			3-Phase 200VAC	0.1, 0.2, 0.4, 0.6, 0.75, 1, 2, 3.5, 5, 7, 11, 15, 22, 30, 37	-	-	X	X	X	-	-	-	X	X	X	X (*3)	X	X	X	X	X	X	X	-	X	X	X	X	X
			3-Phase 400VAC	0.6, 1, 2, 3.5, 5, 7, 11, 15, 22, 30, 37, 45, 55	-	-	X	X	X	-	-	-	X	X	X	X (*3)	X	-	-	X	X	-	-	-	-	X	-	-	-
	MR-J4-03A6-RJ	1 axis	24VDC/ 48VDC	10W, 20W, 30W	-	-	X	X	-	-	-	-	X	X	X	X	-	-	-	-	-	-	-	X	-	-	-	-	-
Multi-Network Interface	MR-J4-TM	1 axis	3-Phase 200VAC	0.1, 0.2, 0.4, 0.6, 0.75, 1, 2, 3.5, 5, 7, 11, 15, 22	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	X	X	X	X	X
			1-Phase 100VAC	0.1, 0.2, 0.4	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	-	-	-	-	-	-	-	-	-	-
			3-Phase 400VAC	0.6, 1, 2, 3.5, 5, 7, 11, 15, 22	-	-	-	-	-	X	X	X	X	X	X	X	X	X	X	X	X	X	X	-	-	X	-	-	-

Notes:
1. The listed are the rated output of the servo amplifier. For the compatible Servo Motor capacities, refer to MR-J4 Brochure for more details.
2. MR-J4-B/A servo amplifier is compatible with two-wire type serial linear encoder. For four-wire type serial and pulse train interface (A/B/Z-phase differential output type) linear encoders, use MR-J4-B-RJ/A-RJ servo amplifier.
3. Positioning function is available only with MR-J4-A-RJ.
4. 30 kW or lager is drive unit. One unit of converter unit is required for each drive unit.
5. MR-J4-B/A servo amplifier is compatible with two-wire type and four-wire type serial linear encoders. For pulse train interface (A/B/Z-phase differential output type) linear encoder, use MR-J4-B-RJ/A-RJ servo amplifier.
6. Some functions are available only with the servo amplifier with specific versions. Refer to relevant Servo Amplifier Instruction Manual for detail.

MR-J4-B-RJ



MR-J4-A-RJ



1-Axis Servo Amplifier Selection

(Example Part No. = MR-J4-10B-ED)

MR-J4-□ □ □ -RJ

Mitsubishi General Purpose AC Servo Amplifier

Symbol	Interface
A	General-purpose
B	SSCNET III/H

Symbol	Rated Output [kW]
03	0.03
10	0.1
20	0.2
40	0.4
60	0.6
70	0.75
100	1
200	2
350	3.5
500	5
700	7
11K	11
15K	15
22K	22

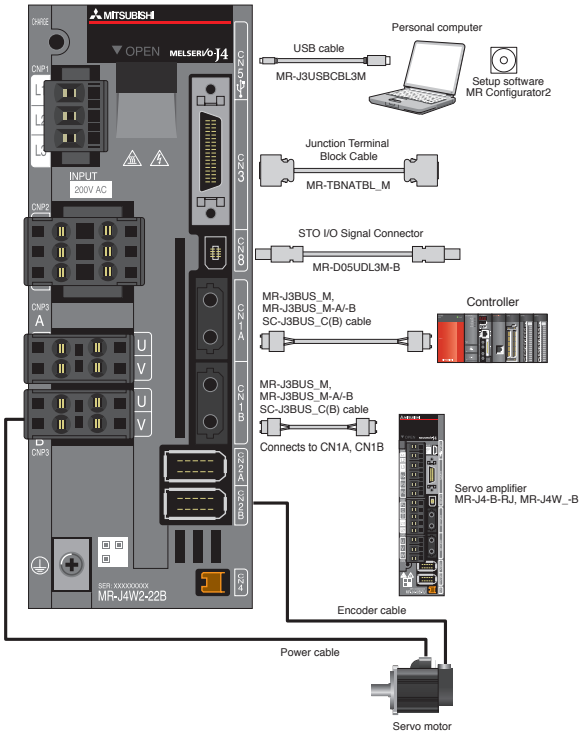
Symbol	Special Specifiction
None	-
RJ	Fully closed loop control four-wire type/load-side encoder A/B/Z-phase input compatible Functional safety unit compatible) Positioning mode compatible
ED	Without a dynamic brake (*1)
PX	Without an enclosed regenerative resistor (*4)
RU	MR-J4-_-RJ without a dynamic brake (*1)
RZ	MR-J4-_-RJ without an enclosed regenerative resistor (*4)
EG	DC power input type (*6)

Symbol	Power Supply
None	3-phase 200 VAC or 1-phase 200 VAC (*2)
1	1-phase 100 VAC (*5)
4	3-phase 400 VAC (*3)
6	48VDC/24VDC for 30W or smaller

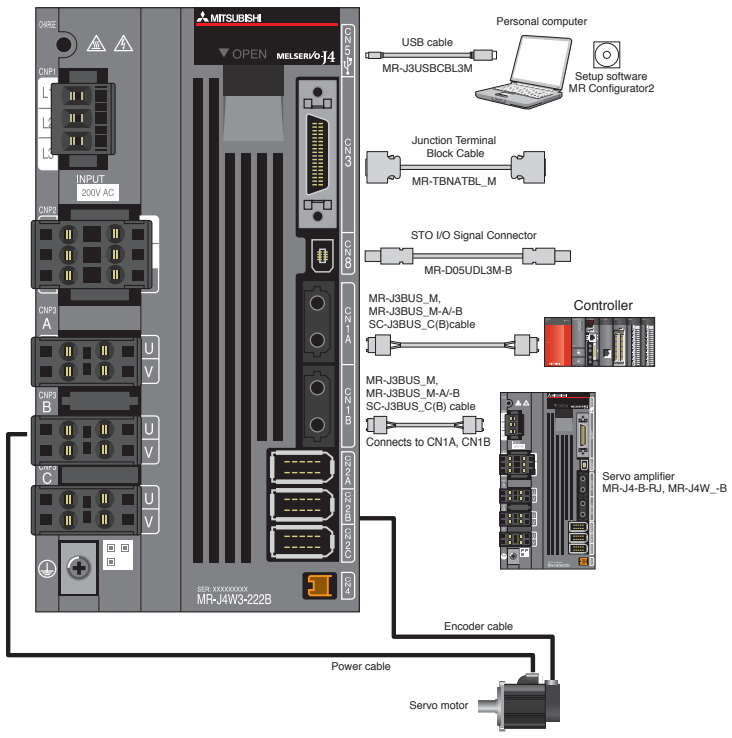
Notes:

1. Dynamic brake which is built in 7 kW or smaller servo amplifiers is removed. When using the servo amplifier without a dynamic brake, the Servo Motor does not stop immediately at alarm occurrence or power failure. Take measures to ensure safety on the entire system. When the following Servo Motors are used, an electronic dynamic brake may operate at alarm occurrence. HG-KR053, HG-KR13, HG-KR23, HG-KR43, HG-MR053, HG-MR13, HG-MR23, HG-MR43, HG-SR51, and HG-SR52 Disable the electronic dynamic brake by setting the following parameter to "_ _ _ 2." For MR-J4-B/MR-J4-B-RJ/MR-J4-B-RJ010: [Pr. PF06] For MR-J4W_-B: Disable the electronic dynamic brake for all axes with [Pr. PF06] For MR-J4-A/MR-J4-A-RJ: [Pr. PF09] In addition, when [Pr. PA04] is set to "2 _ _ _" (initial value), the Servo Motor may be decelerated to a stop forcibly at alarm occurrence. The forced stop deceleration function will be disabled by setting [Pr. PA04] to "0 _ _ _."
2. Servo amplifiers of 0.75 kW or smaller are available for 1-phase 200 VAC.
3. Servo amplifiers of 0.6 kW, and 1 kW or larger are available for 3-phase 400 VAC.
4. Available in 11 kW to 22 kW servo amplifier. A regenerative resistor (standard accessory) is not enclosed.
5. Servo amplifiers of 0.4 kW or smaller are available.
6. Contact your local sales office for the DC power input type servo amplifier.

MR-J4W2-B



MR-J4W3-B



Multi-Axis Servo Amplifier Selection
(Example Part No. = MR-J4W2-22B-ED)

MR-J4W□-□B□-ED

Mitsubishi General Purpose AC Servo Amplifier

Symbol	Special Specification
None	–
ED	Without a dynamic brake (*1)
EG	DC power input type (*3)

Symbol	Main Circuit Power Supply
None	3-phase 200VAC or 1-phase 200 VAC for 0.75 or smaller
6	48VDC/24VDC for 30W or smaller

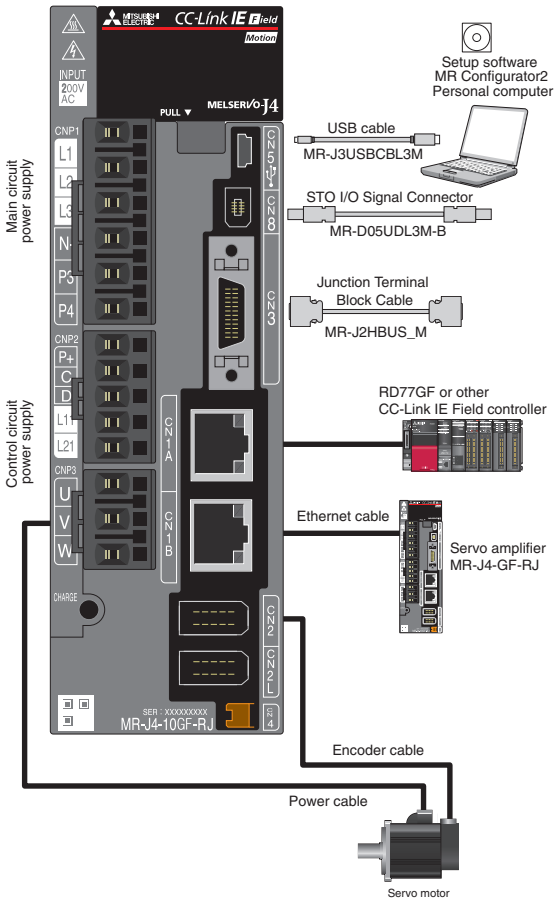
Symbol	Interface
B	SSCNET III/H

Symbol	Rated Output [kW] (*2)		
	A-Axis	B-Axis	C-Axis
0303	0.03	0.03	-
22	0.2	0.2	-
44	0.4	0.4	-
77	0.75	0.75	-
1010	1	1	-
222	0.2	0.2	0.2
444	0.4	0.4	0.4

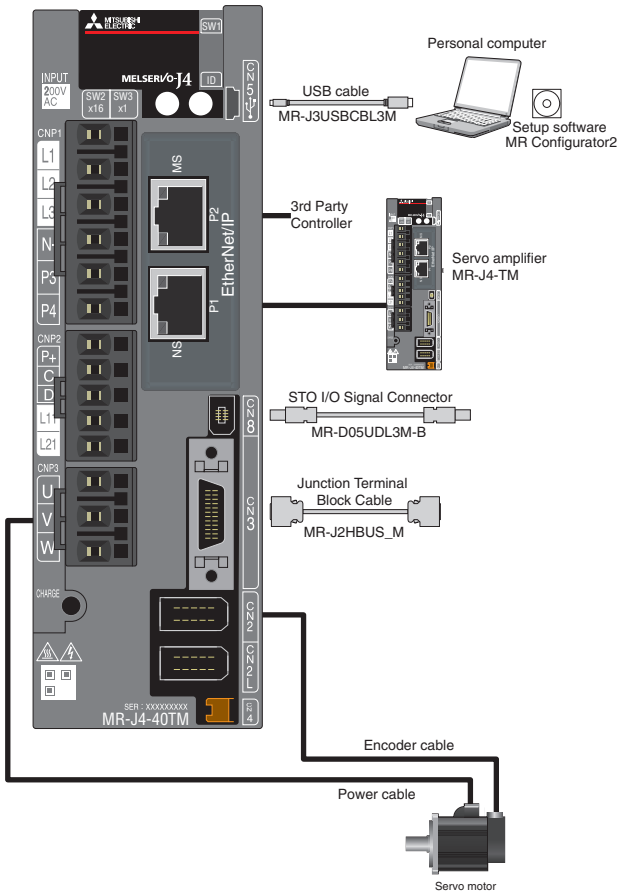
Symbol	Number of Axes
W2	2 axes
W3	3 axes

Notes:
1. Dynamic brake which is built in 7 kW or smaller servo amplifiers is removed. When using the servo amplifier without a dynamic brake, the Servo Motor does not stop immediately at alarm occurrence or power failure. Take measures to ensure safety on the entire system. When the following Servo Motors are used, an electronic dynamic brake may operate at alarm occurrence. HG-KR053, HG-KR13, HG-KR23, HG-KR43, HG-MR053, HG-MR13, HG-MR23, HG-MR43, HG-SR51, and HG-SR52 Disable the electronic dynamic brake by setting the following parameter to "_ _ _ 2." For MR-J4-B/MR-J4-B-RJ/MR-J4-B-RJ010: [Pr. PF06] For MR-J4W_-B: Disable the electronic dynamic brake for all axes with [Pr. PF06] For MR-J4-A/MR-J4-A-RJ: [Pr. PF09] In addition, when [Pr. PA04] is set to "2 _ _ _" (initial value), the Servo Motor may be decelerated to a stop forcibly at alarm occurrence. The forced stop deceleration function will be disabled by setting [Pr. PA04] to "0 _ _ _."
2. A-axis, B-axis, and C-axis indicate names of axes of the multi-axis servo amplifier. The C-axis is available for the 3-axis servo amplifier.
3. Contact your local sales office for the DC power input type servo amplifier.

MR-J4-GF-RJ



MR-J4-TM



1-Axis Servo Amplifier Selection

(Example Part No. = MR-J4-60GF-RJ)

MR-J4-□GF□-RJ

Mitsubishi General Purpose AC Servo Amplifier

Symbol	Special Specification
None	Standard outside US
RJ	DC power input compatible Load-side encoder compatible Touch probe function Option unit compatible (MR-D30)
ED	MR-J4-_GF_ without a dynamic brake (*1)
RU	MR-J4-_GF_-RJ without a dynamic brake (*1)
EB	MR-J4-_GF_ with a special coating specification (3C2) (*2)
KS	RJ functions with conformal coating (*2)

Symbol	Power Supply
None	3-phase or 1-phase 200 VAC to 240 VAC (-RJ: AC/283 VDC to 340 VAC) (*3)
1	1-phase 100 VAC
4	3-phase 380 VAC to 480 VAC (*4)

Symbol	Interface
GF	CC-Link IE Field

Symbol	Rated Output [kW]
10	0.1
20	0.2
40	0.4
60	0.6
70	0.75
100	1
200	2

Symbol	Rated Output [kW]
350	3.5
500	5
700	7
11K	11
15K	15
22K	22

Notes:

1. Dynamic brake which is built in the servo amplifiers is removed. When using the servo amplifier without a dynamic brake, the servo motor does not stop immediately at alarm occurrence or power failure. Take measures to ensure safety on the entire system. Refer to "MR-J4-_GF_(-RJ) Servo Amplifier Instruction Manual (Motion Mode)" for details.
2. The special coating (JIS C60721-3-3/IEC 60721-3-3 classification 3C2) is applied to the circuit board of the servo amplifier. Refer to "MR-J4-_GF_(-RJ) Servo Amplifier Instruction Manual (Motion Mode' for details.
3. When the servo amplifier is connected to CC-Link IE Field Network Basic, an MR-D30 functional safety unit is not supported. Servo amplifiers of 0.75 kW or smaller are available for 1-phase 200 VAC.
4. Dynamic brake which is built in the servo amplifiers is removed. When using the servo amplifier without a dynamic brake, the servo motor does not stop immediately at alarm occurrence or power failure. Take measures to ensure safety on the entire system. Refer to "MR-J4-_GF_(-RJ) Servo Amplifier Instruction Manual (Motion Mode)"for details. Servo amplifiers of 0.6 kW, and 1 kW or larger are available for 3-phase 400 VAC.

1-Axis Servo Amplifier Selection

(Example Part No. = MR-J4-10TM-ECT)

MR-J4-□TM□-□

Mitsubishi General Purpose AC Servo Amplifier

Symbol	Network
ECT	EtherCAT
EIP	EtherNET/IP
PNT	PROFINET

Symbol	Power Supply
None	3-phase 200 VAC or 1-phase 200 VAC (*1)
4	3-phase 400 VAC (*2)
1	1-phase 100 VAC (*3)

Symbol	Interface
TM	Multi-Network

Symbol	Rated Output [kW]
10	0.1
20	0.2
40	0.4
60	0.6
70	0.75
100	1
200	2

Symbol	Rated Output [kW]
350	3.5
500	5
700	7
11K	11
15K	15
22K	22

Notes:

1. Servo amplifiers of 0.75 kW or smaller are available for 1-phase 200 VAC.
2. Servo amplifiers of 0.6 kW, and 1 kW or larger are available for 3-phase 400 VAC.
3. Servo amplifiers of 0.4 kW or smaller are available.

Drive Unit Model Designation (*2)

MR-J4-DU□ □ □ □

Mitsubishi General Purpose AC Servo Amplifier

Symbol	Special Specification
RJ	Fully closed loop control four-wire type/load-side encoder A/B/Z-phase input compatible/ Positioning mode compatible (*1)

Symbol	Power Supply
None	3-phase 200 VAC
4	3-phase 400 VAC

Symbol	Interface
A	General Purpose
B	SSCNET III/H

Symbol	Rated Output (kW)
30K	30
37K	37
45K	45
55K	55

Converter Unit Model Designation (*2)

MR-CR55K□

Symbol	Power Supply
None	3-phase 200 VAC
4	3-phase 400 VAC

Symbol	Rated Output (kW)
55K	55

Notes:
1. Positioning mode is available with MR-J4-DU_A_-RJ drive unit.
2. One unit of converter unit is required for each drive unit.

MR-J4-GF/MR-J4-GF-RJ (CC-Link IE Field Network Interface) Specifications (200V)

Servo Amplifier Model MR-J4-_(-RJ)		10GF	20GF	40GF	60GF	70GF	100GF	200GF	350GF	500GF	700GF	11KGF	15KGF	22KGF
Stocked Item		S	S	S	S	S	S	S	S	S	S	S	S	S
Output	Rated Voltage	3-phase 170 VAC												
	Rated Current (A)	1.1	1.5	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0	68.0	87.0	126.0
Main Circuit Power Supply	Voltage/Frequency AC Input (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz					3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz (*36)		3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz					
	Voltage/Frequency DC Input (*1, *38)	283 VDC to 340 VDC												
	Rated Current (A) (*25)	0.9	1.5	2.6	3.2 (*8)	3.8	5.0	10.5	16.0	21.7	28.9	46.0	64.0	95.0
	Permissible Volt. Fluctuation AC Input	3-phase or 1-phase 170 VAC to 264 VAC					3-phase or 1-phase 170 VAC to 264 VAC (*36)		3-phase 170 VAC to 264 VAC					
	Permissible Volt. Fluctuation DC Input	241 VDC to 374 VDC (*38)												
	Permissible Frequency Fluctuation	±5% maximum												
Control Circuit Power Supply	Voltage/Frequency AC Input	1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz												
	Voltage/Frequency DC Input	283 VDC to 340 VDC (*38)												
	Rated Current (A)	0.2								0.3				
	Permissible Volt. Fluctuation AC Input	1-phase 170 VAC to 264 VAC												
	Permissible Volt. Fluctuation DC Input	241 VDC to 374 VDC (*38)												
	Permissible Frequency Fluctuation	±5% maximum												
	Power Consumption (W)	30								45				
Interface Power Supply		24 VDC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))												
Control Method (*8)		Sine-wave PWM control/current control method												
Permissible Regenerative Power	Built-in Regenerative Resistor (*2, *3) (W)	-	10	10	10	20	20	100	100	130	170	-	-	-
	External Regenerative Resistor (Standard Accessory) [W] (Note 2, 3, 15, 16)	-	-	-	-	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic Brake		Built-in (*4)										External option (*13)		
CC-Link IE Field Communication Cycle (*10)		0.5 ms, 1.0 ms, 2.0 ms, 4.0 ms												
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)												
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)												
Analog Monitor		2 channels												
Positioning Mode		Point table method												
Fully Closed Loop Control	MR-J4-GF	Two-wire type communication method												
	MR-J4-GF-RJ	Two-wire/four-wire type communication method												
Load-Side Encoder Interface	MR-J4-GF	Mitsubishi Electric high-speed serial communication												
	MR-J4-GF-RJ	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal												
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, scale measurement function, super trace control, lost motion compensation												
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection												
Safety Function		STO (IEC/EN 61800-5-2)												
Safety Performance	Standards Certified by CB (*34)	EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2												
	Response Performance	8 ms or less (STO input OFF – energy shut-off)												
	Test Pulse Input (STO) (*7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum												
	Mean Time to Dangerous Failure (MTTFd)	MTTFd ≥ 100 years (314a)												
	Diagnostic Coverage (DC)	DC = Medium, 97.6 (%)												
	Probability of Dangerous Failure Per Hour (PFH)	PHF = 6.4 x 10^{-9} [1/h]												
Compliance to Global Standards		Refer to "Conformity with Global Standards and Regulations" in the MR-J4 Servo Manual												
Structure (IP Rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (*5)				
Close Mounting	3-Phase Power Input	Possible (*6)								Not possible				
	1-Phase Power Input	Possible (*6)					Not possible		-					
Environment	Ambient Temperature	0 °C to 55 °C (non-freezing), storage: -20°C to 65°C (non-freezing)												
	Ambient Humidity	Operation/storage: 90%RH maximum (non-condensing)												
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust												
	Altitude	2000 m or less above sea level (*37)												
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)												
Weight (kg)		1.0	1.0	1.0	1.0	1.4	1.4	2.1	2.3	4.0	6.2	13.4	13.4	18.2

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-GF1/MR-J4-GF1-RJ (CC-Link IE Field Network Interface Specifications (100 V) (*41)

Servo Amplifier Model MR-J4-_(-RJ)		10GF1	20GF1	40GF1
Stocked Item		S	S	S
Output	Rated Voltage	3-phase 170 VAC		
	Rated Current (A)	1.1	1.5	2.8
Main Circuit Power Supply	Voltage/Frequency (*1)	1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz		
	Rated Current (A)	3.0	5.0	9.0
	Permissible Volt. Fluctuation	1-phase 85 V AC to 132 VAC		
	Permissible Frequency Fluctuation	±5% maximum		
Control Circuit Power Supply	Voltage/Frequency	1-phase 100 VAC to 120 VAC, 50 Hz/60 Hz		
	Rated Current (A)	0.4		
	Permissible Volt. Fluctuation	1-phase 85 VAC to 132 VAC		
	Permissible Frequency Fluctuation	±5% maximum		
	Power Consumption (W)	30		
Interface Power Supply		24 VDC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))		
Control Method		Sine-wave PWM control/current control method		
Permissible Regenerative Power	Built-in Regenerative Resistor (*2, *3) (W)	-	10	10
Dynamic Brake		Built-in (*4)		
CC-Link IE Field Communication Cycle (*10)		0.5 ms, 1.0 ms, 2.0 ms, 4.0 ms		
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)		
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)		
Analog Monitor		2 channels		
Positioning Mode		Point table method, indexer method		
Fully Closed Loop Control	MR-J4-GF	Two-wire type communication method		
	MR-J4-GF-RJ	Two-wire/four-wire type communication method		
Load-Side Encoder Interface	MR-J4-GF	Mitsubishi Electric high-speed serial communication		
	MR-J4-GF-RJ	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal		
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function (including failure prediction), power monitoring function, scale measurement function, super trace control, lost motion compensation		
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection		
Safety Function		STO (IEC/EN 61800-5-2)		
Safety Performance	Standards Certified by CB (*34)	EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2		
	Response Performance	8 ms or less (STO input OFF – energy shut-off)		
	Test Pulse Input (STO) (*7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum		
	Mean Time to Dangerous Failure (MTTFd)	MTTFd ≥ 100 years (314a)		
	Diagnostic Coverage (DC)	DC = Medium, 97.6 (%)		
	Probability of Dangerous Failure Per Hour (PFH)	PHF = 6.4 x 10^{-9} [1/h]		
Compliance to Global Standards		Refer to "Conformity with Global Standards and Regulations" in the MR-J4 Servo Manual		
Structure (IP Rating)		Natural cooling, open (IP20)		
Close Mounting	3-Phase Power Input	Possible (*6)		
Environment	Ambient Temperature	0 °C to 55 °C (non-freezing), storage: -20°C to 65°C (non-freezing)		
	Ambient Humidity	Operation/storage: 5% RH to 90% RH (non-condensing)		
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust		
	Altitude	2000 m or less above sea level (*37)		
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)		
Weight (kg)		1.0	1.0	1.0

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-GF4/MR-J4-GF4-RJ (CC-Link IE Field Network Interface) Specifications (400V)

Servo Amplifier Model MR-J4-_(-RJ)		60GF4	100GF4	200GF4	350GF4	500GF4	700GF4	11KGF4	15KGF4	22KGF4
Stocked Item		S	S	S	S	S	S	S	S	S
Output	Rated Voltage	3-phase 323 VAC								
	Rated Current (A)	1.5	2.8	5.4	8.6	14.0	17.0	32.0	41.0	63.0
Main Circuit Power Supply	Voltage/Frequency (*1)	3-phase 380 VAC to 480 VAC, 50 Hz/60 Hz								
	Rated Current (A)	1.4	2.5	5.1	7.9	10.8	14.4	23.1	31.8	47.6
	Permissible Voltage Fluctuation	3-phase 323 VAC to 528 VAC								
	Permissible Frequency Fluctuation	±5% maximum								
Control Circuit Power Supply Input	Voltage/Frequency	1-phase 380 VAC to 480 VAC, 50 Hz/60 Hz								
	Rated Current (A)	0.1			0.2					
	Permissible Voltage Fluctuation	1-phase 323 VAC to 528 VAC								
	Permissible Frequency Fluctuation	±5% maximum								
	Power Consumption (W)	30			45					
Interface Power Supply		24 VDC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))								
Control Method		Sine-wave PWM control/current control method								
Permissible Regenerative Power	Built-in Regenerative Resistor (*2, *3) (W)	15	15	100	100	130 (*18)	170 (*18)	-	-	-
	External Regenerative Resistor (Standard Accessory) [W] (Note 2, 3, 12, 13)	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic Brake		Built-in (*4)						External option (*13)		
CC-Link IE Field Communication Cycle (*10)		0.5 ms, 1.0 ms, 2.0 ms, 4.0 ms								
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)								
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)								
Analog Monitor		2 channels								
Positioning Mode		Point table method								
Fully Closed Loop Control	MR-J4-GF4	Two-wire type communication method								
	MR-J4-GF4-RJ	Two-wire/four-wire type communication method								
Load-Side Encoder Interface	MR-J4-GF4	Mitsubishi Electric high-speed serial communication								
	MR-J4-GF4-RJ	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal								
Servo Functions		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, scale measurement function, super trace control, lost motion compensation								
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection								
Safety Function		STO (IEC/EN 61800-5-2)								
Safety Performance	Standards Certified by CB (*34)	EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL 3, EN 61800-5-2								
	Response Performance	8 ms or less (STO input OFF – energy shut-off)								
	Test Pulse Input (STO) (*7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum								
	Mean Time to Dangerous Failure (MTTFd)	MTTFd ≥ 100 years (314a)								
	Diagnostic Coverage (DC)	DC = Medium, 97.6 (%)								
	Probability of Dangerous Failure Per Hour (PFH)	PHF = 6.4 x 10^{-9} [1/h]								
Compliance to Global Standards		Refer to "Conformity with Global Standards and Regulations" in the MR-J4 Servo Manual								
Structure (IP Rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) (*5)				
Close Mounting		Not Possible								
Environment	Ambient Temperature	0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)								
	Ambient Humidity	Operation/storage: 90%RH maximum (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Altitude	2000 m or less above sea level (*37)								
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Weight (kg)		1.7	1.7	2.1	3.6	4.3	6.5	13.4	13.4	18.2

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-B(1)/MR-J4-B(1)-RJ (SSCNET III/H Interface) Specifications (200V/100V)

Servo Amplifier Model MR-J4-_(-RJ)		10B	20B	40B	60B	70B	100B	200B	350B	500B	700B	11KB	15KB	22KB	10B1	20B1	40B1
Stocked Item		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Output	Rated Voltage	3-phase 170 VAC															
	Rated Current (A)	1.1	1.5	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0	68.0	87.0	126.0	1.1	1.5	2.8
Main Circuit Power Supply	Voltage/Frequency (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz					3-phase 200 VAC to 240 VAC, 50/60 Hz								1-phase 100 V AC to 120 V AC, 50 Hz/60 Hz		
	Rated Current (A) (*15)	0.9	1.5	2.6	3.2 (*8)	3.8	5.0	10.5	16.0	21.7	28.9	46.0	64.0	95.0	3.0	5.0	9.0
	Permissible Voltage Fluctuation	3-phase or 1-phase 170 VAC to 264 VAC					3-phase 170 VAC to 264 VAC								1-phase 85 VAC to 132 VAC		
	Permissible Frequency Fluctuation	±5% maximum															
Control Circuit Power Supply	Voltage/Frequency	1-phase 200 VAC to 240 VAC, 50/60 Hz													1-phase 100 VAC to 120VAC, 50Hz/60Hz		
	Rated Current (A)	0.2								0.3					0.4		
	Permissible Voltage Fluctuation	1-phase 170 VAC to 264 VAC													1-phase 85 VAC to 132 VAC		
	Permissible Frequency Fluctuation	±5% maximum															
	Power Consumption (W)	30								45					30		
Interface Power Supply		24 VDC ±10% (required current capacity: 0.3 A (including CN8 connector signals))															
Control Method (*8)		Sine-wave PWM control/current control method															
Tolerable Regenerative Power	Built-in Regenerative Resistor (*2, *3) (W)	-	10	10	10	20	20	100	100	130	170	-	-	-	-	10	10
	External Regenerative Resistor (W) (Standard Accessory) (*2, 3, 11, 12)	-	-	-	-	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)	-	-	-
Dynamic Brake		Built-in (*4)										External option (*13)			Built-in (*4)		
SSCNET III/H Command Communication Cycle (*10)		0.222 ms, 0.444 ms, 0.888 ms															
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)															
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)															
Analog Monitor		2 channels															
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, master-slave operation function (*14), scale measurement function (*14), J3 compatibility mode, super trace control (*16), lost motion compensation (*16)															
Fully Closed Loop Control	MR-J4-B(1)	Two-wire type communication method (*9)															
	MR-J4-B(1)-RJ	Two-wire/four-wire type communication method															
Load-Side Encoder Interface	MR-J4-B(1)	Mitsubishi high-speed serial communication															
	MR-J4-B(1)-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal															
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection															
Safety Function (*10)		STO (IEC/EN 61800-5-2)															
Safety Performance	Standards Certified by CB	EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2															
	Response Performance	8 ms or less (STO input OFF - energy shut-off)															
	Test Pulse Input (STO) (*7)	Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum															
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer															
	Diagnostic Coverage (DC)	Medium (90% to 99%)															
	Probability of Dangerous Failure Per Hour (PFH)	1.68×10^{-10} [1/h]															
Compliance to Standards		CE: EN 61800-5-1, EN 61800-3, EN ISO 13849-1 Category 3 PL d/EN 61508 SIL 2/ EN 62061 SIL CL 2/EN 61800-5-2 SIL 2; RoHS compliant; UL: UL508C															
Structure (IP Rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (*5)					Natural cooling, open (IP20)		
Close Mounting		Possible (*6)								Not possible					Possible (*6)		
Environment	Ambient Temperature	0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)															
	Ambient Humidity	90%RH maximum (non-condensing), storage: 90%RH maximum (non-condensing)															
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust															
	Altitude	1000 m or less above sea level															
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)															
Weight (kg)		0.8	0.8	1.0	1.0	1.4	1.4	2.1	2.3	4.0	6.2	13.4	13.4	18.2	0.8	0.8	1.0

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-DU_B/MR-J4-DU_B-RJ (SSCNET III/H Interface) Specifications (200V)

Model Number MR-J4-_(-RJ)		DU30KB	DU37KB
Stocked Item		-	
Compatible Converter Unit Model		MR-CR55K (*17)	
Output	Rated Voltage	3-phase 170 VAC	
	Rated Current (A)	174	204
Main Circuit Power Supply Input		Main circuit power is supplied from the converter unit to the drive unit (*17)	
Control Circuit Power Supply Input	Voltage/Frequency	1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz	
	Rated Current (A)	0.3	
	Permissible Voltage Fluctuation	1-phase 170 VAC to 264 VAC	
	Permissible Frequency Fluctuation	±5% maximum	
	Power Consumption (W)	45	
Interface Power Supply		24 VDC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))	
Control Method		Sine-wave PWM control/current control method	
Dynamic Brake		External option (*13)	
SSCNET III/H Command Communication Cycle		0.222 ms, 0.444 ms, 0.888 ms (*10)	
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)	
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)	
Analog Monitor		2 channels	
Fully Closed Loop Control	MR-J4-DU_B	Two-wire type communication method	
	MR-J4-DU_B-RJ	Two-wire/four-wire type communication method	
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, master-slave operation function, scale measurement function, J3 compatibility mode, super trace control, lost motion compensation	
Load-Side Encoder Interface	MR-J4-DU_B	Mitsubishi high-speed serial communication	
	MR-J4-DU_B-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal	
Protective Functions		Overcurrent shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection	
Functional Safety		STO (IEC/EN 61800-5-2)	
Safety	Standards Certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2	
	Response Performance	8 ms or less (STO input OFF – energy shut-off)	
	Test Pulse Input (STO) (*7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum	
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer	
	Diagnostic Coverage (DC)	Medium (90% to 99%)	
	Probability of Dangerous Failure Per Hour (PFH)	1.68×10^{-10} [1/h]	
Compliance To Standards		Refer to "Conformity with Global Standards and Regulations" in the User's Manual	
Structure (IP Rating)		Force cooling, open (IP20) (*5)	
Close Mounting		Not possible	
Environment	Ambient Temperature	Operation: 0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)	
	Ambient Humidity	Operation/storage: 90%RH maximum (non-condensing)	
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude	1000 m or less above sea level	
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Weight (kg)		21	

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4_TM (Multi-Networks Interface) Specifications (200V/100V)

Servo Amplifier Model MR-J4-			10TM	20TM	40TM	60TM	70TM	100TM	200TM	350TM	500TM	700TM	11KTM	15KTM	22KTM	10TM1	20TM1	40TM1
Stocked Item			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Output	Rated Voltage		3-phase 170 VAC															
	Rated Current (A)		1.1	1.5	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0	68.0	87.0	126.0	1.1	1.5	2.8
	Output Frequency		Less than 590 Hz															
	Output Frequency Accuracy		±0.01%															
Main Circuit Power Supply Input	Voltage/ Frequency	At AC Input	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz					3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz (*7)		3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz						1-phase 100 VAC to 120 VAC, 50Hz/60Hz		
		At DC Input	283 VDC to 340 VDC (*32)													-		
	Rated Current (*25) (A)		0.9	1.5	2.6	3.2 (*31)	3.8	5.0	10.5	16.0	21.7	28.9	46.0	64.0	95.0	3.0	5.0	9.0
	Permissible Voltage Fluctuation	At AC Input	3-phase or 1-phase 170 VAC to 264 VAC					3-phase or 1-phase 170 VAC to 264 VAC (*32)		3-phase 170 VAC to 264 VAC						1-phase 85 VAC to 132 VAC		
		At DC Input	241 VDC to 374 VDC (*32)													-		
	Permissible Frequency Fluctuation		Within ±5%															
	Power Supply Capacity (kVA)		Refer to User's Manual															
	Inrush Current (A)		Refer to User's Manual															
Control Circuit Power Supply Input	Voltage/ Frequency	At AC Input	1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz													1-phase 100 VAC to 120VAC, 50Hz/60Hz		
		At DC Input	283 VDC to 340 VDC (*32)													-		
	Rated Current (A)		0.2								0.3							
	Permissible Voltage Fluctuation	At AC Input	1-phase 170 VAC to 264 VAC													1-phase 85 VAC to 1 32 VAC		
		At DC Input	241 VDC to 374 VDC (*32)													-		
	Permissible Frequency Fluctuation		Within ±5%															
	Power Consumption (W)		30								45					30		
	Inrush Current (A)		Refer to User's Manual															
Interface Power Supply	Voltage		24 VDC ±10%															
	Current Capacity (A)		0.3 (including CN8 connector signals) (*30)															
Control Method			Sine-wave PWM control, current control method															
Dynamic Brake			Built-in										External (*13, *35)			Built-in		
Fully Closed Loop Control			Compatible													Two-wire type communication method		
Load-Side Encoder Interface			Mitsubishi high-speed serial communication															
Communication Function			USB: connection to a personal computer or others (MR Configurator2-compatible)															
Encoder Output Pulses			Compatible (A/B/Z-phase pulse)															
Analog Monitor			Two channels															
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, and linear servo control error protection															
Safety Function			STO (IEC/EN 61800-5-2)															
Safety Performance	Standards Certified by CB (*34)		EN ISO 13849-1 category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL3, and EN 61800-5-2 SIL 3													EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2		
	Response Performance		8 ms or less (STO input off – energy shut off)															
	Test Pulse Input (STO) (*7)		Test pulse interval: 1 Hz to 25 Hz; Test pulse off time: Up to 1 ms															
	Mean Time to Dangerous Failure (MTTFd)		100 years or longer															
	Diagnostic Coverage (DC)		Medium (90% to 99%)															
	Probability of Dangerous Failure Per Hour (PFH)		6.40×10^{-9} [1/h]													1.68×10^{-10} [1/h]		
Compliance to Standards			CE: LVD: EN 61800-5-1, EMC: EN 61800-3, MD: EN ISO 13849-1, EN 61800-5-2, EN 62061; UL 508C													CE: EN 61800-5-1, EN 61800-3, EN ISO 13849-1 Category 3 PL d/EN 61508 SIL 2/ EN 62061 SIL CL 2/EN 61800-5-2 SIL 2; RoHS compliant; UL: UL508C		
Structure (IP Rating)			Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (*5)					Natural cooling, open (IP20)		
Close Mounting (*6)	3-Phase Power Supply Input		Possible								Not possible					-		
	1-Phase Power Supply Input		Possible					Not possible		-								
Environment	Ambient Temperature		0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)															
	Ambient Humidity		90%RH maximum (non-condensing), storage: 90%RH maximum (non-condensing)															
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust															
	Altitude		2000 m or less above sea level (*33)													1000 m or less above sea level		
	Vibration Resistance		$5.9\ m/s^2$ at 10 Hz to 55 Hz (directions of X, Y and Z axes)															
Weight (kg)			1.0				1.4	1.4	2.1	2.3	4.0	6.2	13.4		18.2	0.8	0.8	1.0

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-B4-RJ (SSCNET III/H Interface) Specifications (400V)

Servo Amplifier Model MR-J4-_(-RJ)		60B4	100B4	200B4	350B4	500B4	700B4	11KB4	15KB4	22KB4
Stocked Item		S	S	S	S	S	S	S	S	S
Output	Rated Voltage	3-phase 323 VAC								
	Rated Current (A)	1.5	2.8	5.4	8.6	14.0	17.0	32.0	41.0	63.0
Main Circuit Power Supply	Voltage/Frequency (*1)	3-phase 380 VAC to 480 VAC, 50 Hz/60 Hz								
	Rated Current (A)	1.4	2.5	5.1	7.9	10.8	14.4	23.1	31.8	47.6
	Permissible Voltage Fluctuation	3-phase 232 VAC to 528 VAC								
	Permissible Frequency Fluctuation	±5% maximum								
Control Circuit Power Supply	Voltage/Frequency	1-phase 380 VAC to 480 VAC, 50/60 Hz								
	Rated Current (A)	0.1			0.2					
	Permissible Voltage Fluctuation	1-phase 323 VAC to 528 VAC								
	Permissible Frequency Fluctuation	±5% maximum								
	Power Consumption (W)	30			45					
Interface Power Supply		24 VDC ±10% (required current capacity: 0.3 A (including CN8 connector signals))								
Control Method (*11)		Sine-wave PWM control/current control method								
Tolerable Regenerative Power	Built-in Regenerative Resistor (*2, *3) (W)	15	15	100	100	130 (*11)	170 (*11)	-	-	-
	External Regenerative Resistor (W) (Standard Accessory) (*2, *3, *11, *12)	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic Brake		Built-in (*4)						External option (*13)		
SSCNET III/H Command Communication Cycle (*10)		0.222 ms, 0.444 ms, 0.888 ms								
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)								
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)								
Analog Monitor		2 channels								
Fully Closed Loop Control	MR-J4-B4	Two-wire type communication method								
	MR-J4-B4-RJ	Two-wire/four-wire type communication method								
Load-Side Encoder Interface	MR-J4-B4	Mitsubishi high-speed serial communication								
	MR-J4-B4-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal								
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, master-slave operation function (*14), scale measurement function (*14), J3 compatibility mode, super trace control (*16), lost motion compensation (*16)								
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection								
Safety Function (*13)		STO (IEC/EN 61800-5-2)								
Safety Performance	Standards Certified by CE	EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2								
	Response Performance	8 ms or less (STO input OFF - energy shut-off)								
	Test Pulse Input (STO) (*7)	Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum								
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer								
	Diagnostic Coverage (DC)	Medium (90% to 99%)								
	Probability of Dangerous Failure Per Hour (PFH)	1.68×10^{-10} [1/h]								
Compliance to Standards		CE: EN 61800-5-1, EN 61800-3, EN ISO 13849-1 Category 3 PL d/EN 61508 SIL 2/ EN 62061 SIL CL 2/EN 61800-5-2 SIL 2; RoHS compliant; UL: UL508C								
Structure (IP Rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) (*5)				
Close Mounting		Not Possible				Not possible				
Environment	Ambient Temperature	0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)								
	Ambient Humidity	90% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Altitude	1000 m or less above sea level								
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Weight (kg)		1.7	1.7	2.1	3.6	4.3	6.5	13.4	13.4	18.2

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-_TM (Multi-Network Interface) Specifications (400V)

Servo Amplifier Model MR-J4-		60TM4	100TM4	200TM4	350TM4	500TM4	700TM4	11KTM4	15KTM4	22KTM4
Stocked Item		S	S	S	S	S	S	S	S	S
Output	Rated Voltage	3-phase 323 VAC								
	Rated Current (A)	1.5	2.8	5.4	8.6	14.0	17.0	32.0	41.0	63.0
	Output Frequency	Less than 590 Hz								
	Output Frequency Accuracy	±0.01%								
Main Circuit Power Supply Input	Voltage/Frequency	3-phase 380 V AC to 480 V AC, 50 Hz/60 Hz								
	Rated Current (A)	1.4	2.5	5.1	7.9	10.8	14.4	23.1	31.8	47.6
	Permissible Voltage Fluctuation	3-phase 323 VAC to 528 VAC								
	Permissible Frequency Fluctuation	Within ±5%								
	Power Supply Capacity (kVA)	Refer to User's Manual								
	Inrush Current (A)	Refer to User's Manual								
Control Circuit Power Supply Input	Voltage/Frequency	1-phase 380 VAC to 480 VAC, 50 Hz/60 Hz								
	Rated Current (A)	0.1			0.2					
	Permissible Voltage Fluctuation	1-phase 323 VAC to 528 VAC								
	Permissible Frequency Fluctuation	Within ±5%								
	Power Consumption (W)	30			45					
	Inrush Current (A)	Refer to User's Manual								
Interface Power Supply	Voltage	24 VDC ± 10%								
	Current Capacity (A)	0.3 (including CN8 connector signals) (*30)								
Control Method		Sine-wave PWM control, current control method								
Dynamic Brake		Built-in						External (*13, *35)		
Fully Closed Loop Control		Compatible								
Load-Side Encoder Interface		Mitsubishi high-speed serial communication								
Communication Function		USB: connection to a personal computer or others (MR Configurator2-compatible)								
Encoder Output Pulses		Compatible (A/B/Z-phase pulse)								
Analog Monitor		Two channels								
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, and linear servo control error protection								
Safety Function		STO (IEC/EN 61800-5-2)								
Safety Performance	Standards Certified by CB (*34)	EN ISO 13849-1 category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL3, and EN 61800-5-2 SIL 3								
	Response Performance	8 ms or less (STO input off — energy shut off)								
	Test Pulse Input (STO)	Test pulse interval: 1 Hz to 25 Hz; Test pulse off time: Up to 1 ms								
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer								
	Diagnostic Coverage (DC)	Medium (90% to 99%)								
	Probability of Dangerous Failure Per Hour (PFH)	6.40×10^{-9} [1/h]								
Compliance to Standards		CE: LVD: EN 61800-5-1, EMC: EN 61800-3, MD: EN ISO 13849-1, EN 61800-5-2, EN 62061; UL 508C								
Structure (IP Rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) (*5)				
Close Mounting		Not Possible								
Environment	Ambient Temperature	0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)								
	Ambient Humidity	90%RH maximum (non-condensing), storage: 90%RH maximum (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Altitude	2000 m or less above sea level (*33)								
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Weight (kg)		1.7		2.1	3.6	4.3	6.5	13.4		18.2

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-DU_B4/MR-J4-DU_B4-RJ (SSCNET III/H Interface) Specifications (400V)

Model Number MR-J4-_(-RJ)		DU30KB4	DU37KB4	DU45KB4	DU55KB4
Stocked Item		-	-	-	-
Compatible Converter Unit Model		MR-CR55K4 (*17)			
Output	Rated Voltage	3-phase 323 VAC			
	Rated Current (A)	87	102	131	143
Main Circuit Power Supply Input		Main circuit power is supplied from the converter unit to the drive unit (*17)			
Control Circuit Power Supply Input	Voltage/Frequency	1-phase 380 VAC to 480 VAC, 50 Hz/60 Hz			
	Rated Current (A)	0.2			
	Permissible Voltage Fluctuation	1-phase 323 VAC to 528 VAC			
	Permissible Frequency Fluctuation	±5% maximum			
	Power Consumption (W)	45			
Interface Power Supply		24 V DC ± 10% (required current capacity: 0.3 A (including CN8 connector signals))			
Control Method		Sine-wave PWM control/current control method			
Dynamic Brake		External option (*13)			
SSCNET III/H Command Communication Cycle (*10)		0.222 ms, 0.444 ms, 0.888 ms			
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)			
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)			
Analog Monitor		2 channels			
Fully Closed Loop Control	MR-J4-DU_B4	Two-wire type communication method			
	MR-J4-DU_B4-RJ	Two-wire/four-wire type communication method			
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, master-slave operation function, scale measurement function, J3 compatibility mode, super trace control, lost motion compensation			
Load-Side Encoder Interface	MR-J4-DU_B4	Mitsubishi Electric high-speed serial communication			
	MR-J4-DU_B4-RJ	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal			
Protective Functions		Overcurrent shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection			
Functional Safety		STO (IEC/EN 61800-5-2)			
Safety	Standards Certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2			
	Response Performance	8 ms or less (STO input OFF – energy shut-off)			
	Test Pulse Input (STO) (*7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum			
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer			
	Diagnostic Coverage (DC)	Medium (90% to 99%)			
	Probability of Dangerous Failure Per Hour (PFH)	1.68×10^{-10} [1/h]			
Compliance To Standards		Refer to "Conformity with Global Standards and Regulations" in the User's Manual			
Structure (IP Rating)		Force cooling, open (IP20) (*5)			
Close Mounting		Not possible			
Environment	Ambient Temperature	Operation: 0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)			
	Ambient Humidity	Operation/storage: 90%RH maximum (non-condensing)			
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust			
	Altitude	1000 m or less above sea level			
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)			
Weight (kg)		16		19	

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-CR Converter Unit Specifications (200V/400V)

Converter Unit Model		MR-CR55K	MR-CR55K4
Stocked Item		-	-
Output	Rated Voltage	270 VDC to 324 VDC	513 VDC to 648 VDC
	Rated Current (A)	215.9	113.8
Main Circuit Power Supply	Voltage/Frequency (*1)	3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz	3-phase 380 VAC to 480 VAC, 50 Hz/60 Hz
	Rated Current (A)	191.3	100.7
	Permissible Voltage Fluctuation	3-phase 170 VAC to 264 VAC	3-phase 323 VAC to 528 VAC
	Permissible Frequency Fluctuation	±5% maximum	
Control Circuit Power Supply	Voltage/Frequency	1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz	1-phase 380 VAC to 480 VAC, 50 Hz/60 Hz
	Rated Current (A)	0.3	0.2
	Permissible Voltage Fluctuation	1-phase 170 VAC to 264 VAC	1-phase 323 VAC to 528 VAC
	Permissible Frequency Fluctuation	±5% maximum	
	Power Consumption (W)	45	
Interface Power Supply		24 VDC ± 10% (required current capacity: 0.15 A)	
Rated Output (kW)		55	
Regenerative Power (When Regenerative Option is Used)		1300 W (one unit of MR-RB139) 3900 W (three units of MR-RB137)	1300 W (one unit of MR-RB137-4) 3900 W (three units of MR-RB13V-4)
Protective Functions		Regenerative overvoltage shut-off, overload shut-off (electronic thermal), regenerative error protection, undervoltage protection, instantaneous power failure protection	
Compliance to Standards		Refer to "Conformity with Global Standards and Regulations" in User's Guide	
Structure		Force cooling, open (IP20) (*2)	
Environment	Ambient Temperature	Operation: 0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)	
	Ambient Humidity	Operation/storage: 90%RH maximum (non-condensing)	
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude	1000 m or less above sea level	
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Weight (kg)		22	

Notes:
1. Rated output and speed of a rotary Servo Motor are applicable when the servo amplifier, combined with the rotary Servo Motor, is operated within the specified power supply voltage and frequency.
2. Terminal blocks are excluded.

MR-J4W2-B (2-Axis, SSCNET III/H Interface) Specifications (200V)

Servo Amplifier Model MR-J4W2-			22B	44B	77B	1010B
Stocked Item			S	S	S	S
Output	Rated Voltage		3-phase 170 VAC			
	Rated Current (Each Axis) (A)		1.5	2.8	5.8	6.0
Main Circuit Power Supply	Voltage/Frequency (*1)		3-phase or 1-phase 200 VAC to 240 VAC, 50/60 Hz			3-phase 200 VAC to 240 VAC, 50/60 Hz
	Rated Current (A) (*25)		2.9	5.2	7.5	9.8
	Permissible Voltage Fluctuation		3-phase or 1-phase 170 VAC to 264 VAC			3-phase 170 VAC to 264 VAC
	Permissible Frequency Fluctuation		±5% maximum			
Control Circuit Power Supply	Voltage/Frequency		1-phase 200 VAC to 240 VAC, 50/60 Hz			
	Rated Current (A)		0.4			
	Permissible Voltage Fluctuation		1-phase 170 VAC to 264 VAC			
	Permissible Frequency Fluctuation		±5% maximum			
	Power Consumption (W)		55			
Interface Power Supply			24 VDC ±10% (required current capacity: 0.35 A (including CN8 connector signals))			
Control Method			Sine-wave PWM control/current control method			
Capacitor Regeneration	Reusable Regeneration Energy (J) (W) (*19)		17	21	44	
	Moment of Inertia (J) Equivalent to Permissible Charging Amount ($\times 10^{-4}$ kg•m^2) (*20)		3.45	4.26	8.92	
	Mass Equivalent to Permissible Charging Amount (kg) (*21)	LM-H3	3.8	4.7	9.8	
		LM-K2 LM-U2	8.5	10.5	22.0	
Tolerable Regenerative Power of the Built-in Regenerative Resistor (*2, *3) (W)			20		100	
Dynamic Brake			Built-in (*4)			
SSCNET III/H Command Communication Cycle (*10)			0.222 ms, 0.444 ms, 0.888 ms			
Communication Function			USB: Connect a personal computer (MR Configurator2 compatible)			
Encoder Output Pulse			Compatible (A/B-phase pulse)			
Analog Monitor			None			
Fully Closed Loop Control (*24)			Available (*9)			
Load-Side Encoder Interface (*22)			Mitsubishi high-speed serial communication			
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection			
Servo Function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, scale measurement function (*14), J3 compatibility mode			
Safety Function			STO (IEC/EN 61800-5-2) (*23)			
Safety Performance	Standards Certified by CB		EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2			
	Response Performance		8 ms or less (STO input OFF — energy shut-off)			
	Test Pulse Input (STO) (*7)		Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum			
	Mean Time to Dangerous Failure (MTTFd)		100 years or longer			
	Average Diagnostic Coverage (DCavg)		Medium (90% to 99%)			
	Probability of Dangerous Failure Per Hour (PFH)		1.68×10^{-10} [1/h]			
Compliance to Standards			CE: EN 61800-5-1, EN 61800-3, EN ISO 13849-1 Category 3 PL d/EN 61508 SIL 2/ EN 62061 SIL CL 2/EN 61800-5-2 SIL 2; RoHS compliant; UL: UL508C			
Structure (IP Rating)			Natural cooling, open (IP20)	Force cooling, open (IP20)		
Close Mounting			Possible			
Environment	Ambient Temperature		0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)			
	Ambient Humidity		90%RH maximum (non-condensing), storage: 90%RH maximum (non-condensing)			
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust			
	Altitude		1000 m or less above sea level			
	Vibration Resistance		5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)			
Weight (kg)			1.5	1.5	2.0	2.0

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4W2-0303B6 (2-Axis, SSCNET III/H Interface) Specifications

Servo Amplifier Model		MR-J4W2-0303B6
Stocked Item		S
Output	Rated Voltage	3-phase 13 VAC
	Rated Current (Each Axis) (A)	2.4
Main Circuit Power Supply	Voltage (*1)	48 V DC/24 VDC (*39)
	Rated Current (A)	For 48 VDC: 2.4 A; For 24 VDC: 4.8 A
	Permissible Voltage Fluctuation	For 48 VDC: 40.8 VDC to 55.2 VDC; For 24 VDC: 21.6 VDC to 26.4 VDC
Control Circuit Power Supply	Voltage	24 VDC
	Rated Current (A)	0.5
	Permissible Voltage Fluctuation	21.6 VDC to 26.4 VDC
	Power Consumption (W)	10
Interface Power Supply		24 VDC ± 10% (required current capacity: 0.25 A)
Control Method		Sine-wave PWM control/current control method
Capacitor Regeneration	Reusable Regeneration Energy (J) (W) (*19)	0.9
	Moment of Inertia (J) Equivalent to Permissible Charging Amount ($\times 10^{-4}$ kg•m^2) (*20)	0.18
Permissible Regenerative Power of the Built-in Regenerative Resistor (W)		1.3
Dynamic Brake		Built-in (*4, *40)
SSCNET III/H Command Communication Cycle (*10)		0.222 ms, 0.444 ms, 0.888 ms
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)
Encoder Output Pulse		Compatible (A/B-phase pulse)
Analog Monitor		2 channels
Fully Closed Loop Control		Not compatible
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, vibration tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, J3 compatibility mode
Compliance to Standards		Refer to "Conformity with Global Standards and Regulations" in the Instruction Manual
Structure (IP Rating)		Natural cooling, open (IP20)
Close Mounting		Possible (*6)
Environment	Ambient Temperature	Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)
	Ambient Humidity	Operation/storage: 90 %RH maximum (non-condensing)
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust
	Altitude	1000 m or less above sea level
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)
Weight (kg)		0.3

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4W3-B (3-Axis, SSCNET III/H Interface) Specifications (200V)

Servo Amplifier Model MR-J4W3-			222B	444B
Stocked Item			S	S
Output	Rated Voltage		3-phase 170 VAC	
	Rated Current (A)		1.5	2.8
Main Circuit Power Supply	Voltage/Frequency (*1)		3-phase or 1-phase 200 VAC to 240 VAC, 50/60 Hz	
	Rated Current (A) (*25)		4.3	7.8
	Permissible Voltage Fluctuation		3-phase or 1-phase 170 VAC to 264 VAC	
	Permissible Frequency Fluctuation		±5% maximum	
Control Circuit Power Supply	Voltage/Frequency		1-phase 200 VAC to 240 VAC, 50/60 Hz	
	Rated Current (A)		0.4	
	Permissible Voltage Fluctuation		1-phase 170 VAC to 264 VAC	
	Permissible Frequency Fluctuation		±5% maximum	
	Power Consumption (W)		55	
Interface Power Supply			24 VDC ±10% (required current capacity: 0.45 A (including CN8 connector signals))	
Capacitor Regeneration	Reusable Regenerative Energy (J) (*19)		21	30
	Moment of inertia (J) Equivalent to Permissible Charging Amount ($\times 10^{-4}$ kg•m^2) (*20)		4.26	6.08
	Mass Equivalent to Permissible Charging Amount (kg) (*21)	LM-H3	4.7	6.7
		LM-K2 LM-U2	10.5	15.0
Tolerable Regenerative Power of the Built-in Regenerative Resistor (*2, *3) (W)			30	
Control Method			Sine-wave PWM control/current control method	
Dynamic Brake			Built-in (*4)	
SSCNET III/H Command Communication Cycle (*10)			0.222 ms (*26), 0.444 ms, 0.888 ms	
Communication Function			USB: Connect a personal computer (MR Configurator2 compatible)	
Encoder Output Pulse			Not compatible	
Analog Monitor			None	
Fully Closed Loop Control			Not compatible	
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection	
Servo Function			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit control, machine diagnosis function, power monitoring function, J3 compatibility mode	
Safety Function			STO (IEC/EN 61800-5-2) (*23)	
Safety Performance	Standards Certified by CB		EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2	
	Response Performance		8 ms or less (STO input OFF – energy shut-off)	
	Test Pulse Input (STO) (*7)		Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum	
	Mean Time to Dangerous Failure (MTTFd)		100 years or longer	
	Diagnostic Coverage (DCavg)		Medium (90% to 99%)	
	Probability of Dangerous Failure Per Hour (PFH)		1.68×10^{-10} [1/h]	
Compliance to Standards			LVD: EN 61800-5-1; EMC: EN 61800-3; MD: EN ISO 13849-1, EN 61800-5-2, EN 62061	
Structure (IP Rating)			Forced cooling, open (IP20)	
Close Mounting			Possible	
Environment	Ambient Temperature		0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)	
	Ambient Humidity		90%RH maximum (non-condensing), storage: 90%RH maximum (non-condensing)	
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude		1000 m or less above sea level	
	Vibration Resistance		5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Weight (kg)			1.9	1.9

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-A(1)/MR-J4-A(1)-RJ (General-purpose Interface) Specifications (200V/100V)

Servo Amplifier Model MR-J4-_-RJ		10A	20A	40A	60A	70A	100A	200A	350A	500A	700A	11KA	15KA	22KA	10A1	20A1	40A1
Stocked Item		S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Output	Rated Voltage	3-phase 170 VAC															
	Rated Current (A)	1.1	1.5	2.8	3.2	5.8	6.0	11.0	17.0	28.0	37.0	68.0	87.0	126.0	1.1	1.5	2.8
Main Circuit Power Supply	Voltage/Frequency (*1)	3-phase or 1-phase 200VAC to 240 VAC, 50/60 Hz					3-phase 200 VAC to 240 VAC, 50/60 Hz								1-phase 100 VAC to 120 VAC, 50 Hz/60 Hz		
	Rated Current (A) (*14)	0.9	1.5	2.6	3.2 (*8)	3.8	5.0	10.5	16.0	21.7	28.9	46.0	64.0	95.0	3.0	5.0	9.0
	Permissible Voltage Fluctuation	3-phase or 1-phase 170 VAC to 264 VAC					3-phase 170 VAC to 264 VAC								1-phase 85 VAC to 132 VAC		
	Permissible Frequency Fluctuation	±5% maximum															
Control Circuit Power Supply	Voltage/Frequency	1-phase 200 VAC to 240 VAC, 50/60 Hz													1-phase 100 VAC to 120 VAC, 50 Hz/60 Hz		
	Rated Current (A)	0.2								0.3					0.4		
	Permissible Voltage Fluctuation	1-phase 170 VAC to 264 VAC													1-phase 85 VAC to 132 VAC		
	Permissible Frequency Fluctuation	±5% maximum															
	Power Consumption (W)	30								45					30		
Interface Power Supply		24 VDC ±10% (required current capacity: 0.5 A (including CN8 connector signal))															
Control Method		Sine-wave PWM control/current control method															
Tolerable Regenerative Power	Built-in Regenerative Resistor (*2, *3) (W)	-	10	10	10	20	20	100	100	130	170	-	-	-	-	10	10
	External Regenerative Resistor (Standard Accessory) (*2, 3, 11, 12)	-	-	-	-	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)	-	-	-
Dynamic Brake		Built-in (*4)										External option (*13)			Built-in (*4)		
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible); RS-422: 1 : n communication (up to 32 axes) (*28)															
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)															
Analog Monitor		2 channels															
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection															
Position Control Mode	Maximum Input Pulse Frequency	4 Mpps (when using differential receiver), 200 kpps (when using open-collector)															
	Positioning Feedback Pulse	Encoder resolution: 22 bits															
	Command Pulse Multiplying Factor	Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000															
	Positioning Complete Width Setting	0 pulse to ±65535 pulses (command pulse unit)															
	Error Excessive	±3 rotations															
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 VDC/maximum torque)															
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000															
	Analog Speed Command Input	0 VDC to ±10 VDC/rated speed (Speed at 10 V is changeable with [Pr. PC12])															
	Speed Fluctuation Rate	±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25°C ± 10°C) only when using analog speed command															
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 VDC/maximum torque)															
Torque Control Mode	Analog Torque Command Input	0 VDC to ±8 VDC/maximum torque (input impedance: 10 kΩ to 12 kΩ)															
	Speed Limit	Set by parameters or external analog input (0 VDC to ± 10 VDC/rated speed)															
Fully Closed Loop Control	MR-J4-A(1)	Two-wire type communication method (*9)															
	MR-J4-A(1)-RJ	Two-wire/four-wire type communication method															
Load-Side Encoder Interface	MR-J4-A(1)	Mitsubishi high-speed serial communication															
	MR-J4-A(1)-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal															
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, super trace control (Note 15), lost motion compensation (*15)															
Functional Safety		STO (IEC/EN 61800-5-2)															
Safety Performance	Standards Certified by CB	EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2															
	Response Performance	8 ms or less (STO input OFF — energy shut-off)															
	Test Pulse Input (STO) (*7)	Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum															
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer															
	Diagnostic Coverage (DCavg)	Medium (90% to 99%)															
	Probability of Dangerous Failure Per Hour (PFH)	1.68×10^{-10} [1/h]															
Compliance to Standards		CE: EN 61800-5-1, EN 61800-3, EN ISO 13849-1 Category 3 PL d/EN 61508 SIL 2/ EN 62061 SIL CL 2/EN 61800-5-2 SIL 2; RoHS compliant; UL: UL508C															
Structure (IP Rating)		Natural cooling, open (IP20)				Force cooling, open (IP20)				Force cooling, open (IP20) (*5)					Natural cooling, open (IP20)		
Close Mounting		Possible (*6)								Not possible					Possible (*6)		
Environment	Ambient Temperature	0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)															
	Ambient Humidity	90% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)															
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust															
	Altitude	1000 m or less above sea level															
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)															
Weight (kg)		0.8	0.8	1.0	1.0	1.4	1.4	2.1	2.3	4.0	6.2	13.4	13.4	18.2	0.8	0.8	1.0

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-DU_A/MR-J4-DU_A-RJ (General-Purpose Interface) Specifications (200V)

Drive Unit Model MR-J4-_(-RJ)		DU30KA	DU37KA
Stocked Item		-	-
Compatible Converter Unit Model		MR-CR55K (*29)	
Output	Rated Voltage	3-phase 170 VAC	
	Rated Current (A)	174	204
Main Circuit Power Supply Input		Main circuit power is supplied from the converter unit to the drive unit (*29)	
Control Circuit Power Supply Input	Voltage/Frequency	1-phase 200 VAC to 240 VAC, 50/60 Hz	
	Rated Current (A)	0.3	
	Permissible Voltage Fluctuation	1-phase 170 VAC to 264 VAC	
	Permissible Frequency Fluctuation	±5% maximum	
	Power Consumption (W)	45	
Interface Power Supply		24 VDC ±10% (required current capacity: 0.5 A (including CN8 connector signal))	
Control Method		Sine-wave PWM control/current control method	
Dynamic Brake		External option (*13)	
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible); RS-422: 1 : n communication (up to 32 axes)	
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)	
Analog Monitor		2 channels	
Protective Functions		Overcurrent shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection	
Position Control Mode	Maximum Input Pulse Frequency	4 Mpps (when using differential receiver), 200 kpps (when using open-collector)	
	Positioning Feedback Pulse	Encoder resolution: 22 bits	
	Command Pulse Multiplying Factor	Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000	
	Positioning Complete Width Setting	0 pulse to ±65535 pulses (command pulse unit)	
	Error Excessive	±3 rotations	
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 VDC/maximum torque)	
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000	
	Analog Speed Command Input	0 VDC to ±10 VDC/rated speed (Speed at 10 V is changeable with [Pr. PC12])	
	Speed Fluctuation Rate	±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25°C ± 10°C) only when using analog speed command	
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 VDC/maximum torque)	
Torque Control Mode	Analog Torque Command Input	0 VDC to ±8 VDC/maximum torque (input impedance: 10 kΩ to 12 kΩ)	
	Speed Limit	Set by parameters or external analog input (0 VDC to ± 10 VDC/rated speed)	
Positioning Mode		Point table method, program method, indexer (turret) meth	
Fully Closed Loop Control	MR-J4-DU_A	Two-wire type communication method (*9)	
	MR-J4-DU_A-RJ	Two-wire/four-wire type communication method	
Load-Side Encoder Interface	MR-J4-DU_A	Mitsubishi Electric high-speed serial communication	
	MR-J4-DU_A-RJ	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal	
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, super trace control, lost motion compensation	
Functional Safety		STO (IEC/EN 61800-5-2)	
Safety Performance	Standards Certified by CB	EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2	
	Response Performance	8 ms or less (STO input OFF — energy shut-off)	
	Test Pulse Input (STO) (*7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum	
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer	
	Diagnostic Coverage (DCavg)	Medium (90% to 99%)	
	Probability of Dangerous Failure Per Hour (PFH)	1.68×10^{-10} [1/h]	
Compliance to Standards		Refer to "Conformity with Global Standards and Regulations" in the User's Manual	
Structure (IP Rating)		Force cooling, open (IP20) (*5)	
Close Mounting		Not possible	
Environment	Ambient Temperature	0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)	
	Ambient Humidity	90% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)	
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust	
	Altitude	1000 m or less above sea level	
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)	
Weight (kg)		21	

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-A4/MR-J4-A4-RJ (General-Purpose Interface) Specifications (400V)

Servo Amplifier Model MR-J4-_(-RJ)		60A4	100A4	200A4	350A4	500A4	700A4	11KA4	15KA4	22KA4
Stocked Item		S	S	S	S	S	S	-	-	-
Output	Rated Voltage	3-phase 323 VAC								
	Rated Current (A)	1.5	2.8	5.4	8.6	14.0	17.0	32.0	41.0	63.0
Main Circuit Power Supply	Voltage/Frequency (*1)	3-phase 380VAC to 480VAC, 50/60 Hz								
	Rated Current (A)	1.4	2.5	5.1	7.9	10.8	14.4	23.1	31.8	47.6
	Permissible Voltage Fluctuation	3-phase 323 VAC to 528 VAC								
	Permissible Frequency Fluctuation	±5% maximum								
Control Circuit Power Supply	Voltage/Frequency	1-phase 380 VAC to 480 VAC, 50/60 Hz								
	Rated Current (A)	0.1			0.2					
	Permissible Voltage Fluctuation	1-phase 323 VAC to 528 VAC								
	Permissible Frequency Fluctuation	±5% maximum								
	Power Consumption (W)	30			45					
Interface Power Supply		24 VDC ±10% (required current capacity: 0.5 A (including CN8 connector signal))								
Control Method		Sine-wave PWM control/current control method								
Tolerable Regenerative Power	Built-in Regenerative Resistor (*2, *3) (W)	15	15	100	100	130 (*18)	170 (*18)	-	-	-
	External Regenerative Resistor (W) (Standard Accessory) (*2, 3, 11, 12)	-	-	-	-	-	-	500 (800)	850 (1300)	850 (1300)
Dynamic Brake		Built-in (*4)						External option (*13)		
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible); RS-422: 1 : n communication (up to 32 axes)								
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)								
Analog Monitor		2 channels								
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection								
Position Control Mode	Maximum Input Pulse Frequency	4 Mpps (when using differential receiver), 200 kpps (when using open-collector)								
	Positioning Feedback Pulse	Encoder resolution: 22 bits								
	Command Pulse Multiplying Factor	Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000								
	Positioning Complete Width Setting	0 pulse to ±65535 pulses (command pulse unit)								
	Error Excessive	±3 rotations								
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 VDC/maximum torque)								
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000								
	Analog Speed Command Input	0 VDC to ±10 VDC/rated speed (Speed at 10 V is changeable with [Pr. PC12])								
	Speed Fluctuation Rate	±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25°C ± 10°C) only when using analog speed command								
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 VDC/maximum torque)								
Torque Control Mode	Analog Torque Command Input	0 VDC to ±8 VDC/maximum torque (input impedance: 10 kΩ to 12 kΩ)								
	Speed Limit	Set by parameters or external analog input (0 VDC to ± 10 VDC/rated speed)								
Fully Closed Loop Control	MR-J4-A4	Two-wire type communication method								
	MR-J4-A4-RJ	Two-wire/four-wire type communication method								
Load-Side Encoder Interface	MR-J4-A4	Mitsubishi high-speed serial communication								
	MR-J4-A4-RJ	Mitsubishi high-speed serial communication, A/B/Z-phase differential input signal								
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, super trace control (*16), lost motion compensation (*16)								
Safety Function		STO (IEC/EN 61800-5-2)								
Safety Performance	Standards Certified by CB	EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2								
	Response Performance	8 ms or less (STO input OFF — energy shut-off)								
	Test Pulse Input (STO) (*7)	Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum								
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer								
	Diagnostic Coverage (DCavg)	Medium (90% to 99%)								
	Probability of Dangerous Failure Per Hour (PFH)	1.68×10^{-10} [1/h]								
Compliance to Standards		CE: EN 61800-5-1, EN 61800-3, EN ISO 13849-1 Category 3 PL d/EN 61508 SIL 2/ EN 62061 SIL CL 2/EN 61800-5-2 SIL 2; RoHS compliant; UL: UL508C								
Structure (IP Rating)		Natural cooling, open (IP20)		Force cooling, open (IP20)		Force cooling, open (IP20) (*5)				
Close Mounting		Not Possible								
Environment	Ambient Temperature	0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)								
	Ambient Humidity	90% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)								
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Altitude	1000 m or less above sea level								
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)								
Weight (kg)		1.7	1.7	2.1	3.6	4.3	6.5	13.4	13.4	18.2

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-DU_A4/MR-J4-DU_A4-RJ (General-Purpose Interface) Specifications (400 V)

Model Number MR-J4-_(-RJ)		DU30KA4	DU37KA4	DU45KA4	DU55KA4
Stocked Item		-	-	-	-
Compatible Converter Unit Model		MR-CR55K4 (*29)			
Output	Rated Voltage	3-phase 323 VAC			
	Rated Current (A)	87	102	131	143
Main Circuit Power Supply Input		Main circuit power is supplied from the converter unit to the drive unit (*29)			
Control Circuit Power Supply Input	Voltage/Frequency	1-phase 380 VAC to 480 VAC, 50 Hz/60 Hz			
	Rated Current (A)	0.2			
	Permissible Voltage Fluctuation	1-phase 323 VAC to 528 VAC			
	Permissible Frequency Fluctuation	±5% maximum			
	Power Consumption (W)	45			
Interface Power Supply		24 VDC ± 10% (required current capacity: 0.5 A (including CN8 connector signals))			
Control Method		Sine-wave PWM control/current control method			
Dynamic Brake		External option (*13)			
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)			
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)			
Analog Monitor		2 channels			
Position Control Mode	Maximum Input Pulse Frequency	4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open collector)			
	Positioning Feedback Pulse	Encoder resolution: 22 bits			
	Command Pulse Multiplying Factor	Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000			
	Positioning Complete Width Setting	0 pulse to ±65535 pulses (command pulse unit)			
	Error Excessive	±3 rotations			
	Torque Limit	Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)			
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000			
	Analog Speed Command Input	0 V DC to ±10 V DC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)			
	Speed Fluctuation Rate	±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command			
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 V DC/maximum torque)			
Torque Control Mode	Analog Torque Command Input	0 VDC to ±8 V DC/maximum torque (input impedance: 10 kΩ to 12 kΩ)			
	Speed Limit	Set by parameters or external analog input (0 V DC to ± 10 V DC/rated speed)			
Fully Closed Loop Control	MR-J4-DU_A4	Two-wire type communication method			
	MR-J4-DU_A4-RJ	Two-wire/four-wire type communication method			
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, super trace control, lost motion compensation			
Load-Side Encoder Interface	MR-J4-DU_A4	Mitsubishi Electric high-speed serial communication			
	MR-J4-DU_A4-RJ	Mitsubishi Electric high-speed serial communication, A/B/Z-phase differential input signal			
Protective Functions		Overcurrent shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection			
Functional Safety		STO (IEC/EN 61800-5-2)			
Safety	Standards Certified by CB	EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2			
	Response Performance	8 ms or less (STO input OFF – energy shut-off)			
	Test Pulse Input (STO) (*7)	Test pulse interval: 1 Hz to 25 Hz, test pulse off time: 1 ms maximum			
	Mean Time to Dangerous Failure (MTTFd)	100 years or longer			
	Diagnostic Coverage (DC)	Medium (90% to 99%)			
	Probability of Dangerous Failure Per Hour (PFH)	1.68×10^{-10} [1/h]			
Compliance To Standards		Refer to "Conformity with Global Standards and Regulations" in the User's Manual			
Structure (IP Rating)		Force cooling, open (IP20) (*5)			
Close Mounting		Not possible			
Environment	Ambient Temperature	Operation: 0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)			
	Ambient Humidity	Operation/storage: 90%RH maximum (non-condensing)			
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust			
	Altitude	1000 m or less above sea level			
	Vibration Resistance	5.9 m/s^2 at 10 Hz to 55 Hz (directions of X, Y and Z axes)			
Weight (kg)		16		19	

Notes: For MR-J4 Amplifier notes, please go to page 371.

MR-J4-03A6-RJ (General-Purpose Interface) Specifications

Servo Amplifier Model		MR-J4-03A6-RJ
Stocked Item		S
Output	Rated Voltage	3-phase 13 VAC
	Rated Current (Each Axis) (A)	2.4
Main Circuit Power Supply Input	Voltage (*1)	48 VDC/24 VDC (*39)
	Rated Current (A)	For 48 VDC: 1.2 A; For 24 VDC: 2.4 A
	Permissible Voltage Fluctuation	For 48 VDC: 40.8 VDC to 55.2 VDC; For 24 VDC: 21.6 VDC to 26.4 VDC
Control Circuit Power Supply Input	Voltage	24 VDC
	Rated Current (A)	0.2
	Permissible Voltage Fluctuation	21.6 VDC to 26.4 VDC
	Power Consumption (W)	5.0
Interface Power Supply		24 VDC ± 10% (required current capacity: 0.3 A)
Control Method		Sine-wave PWM control/current control method
Permissible Regenerative Power of the Built-in Regenerative Resistor (W)		0.7
Dynamic Brake		Built-in (*4, *40)
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible); RS-422: 1 : n communication (up to 32 axes)
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)
Analog Monitor		2 channels
Position Control Mode	Maximum Input Pulse Frequency	4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open collector)
	Positioning Feedback Pulse	Encoder resolution: 18 bits
	Command Pulse Multiplying Factor	Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000
	Positioning Complete Width Setting	0 pulse to ±65535 pulses (command pulse unit)
	Error Excessive	±3 rotations
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 VDC / maximum torque)
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000
	Analog Speed Command Input	0 VDC to ±10 VDC / rated speed (Speed at 10 V is changeable with [Pr. PC12])
	Speed Fluctuation Rate	±0.01% maximum (load fluctuation: 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25°C ± 10°C) only when using analog speed command
	Torque Limit	Set by parameters or external analog input (0 VDC to +10 VDC / maximum torque)
Torque Control Mode	Analog Torque Command Input	0 VDC to ±8 VDC / maximum torque (input impedance: 10 kΩ to 12 kΩ)
	Speed Limit	Set by parameters or external analog input (0 VDC to ± 10 VDC / rated speed)
Positioning Mode		Point table method, program method, indexer (turret) method
Fully Closed Loop Control		Not compatible
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, vibration tough drive function, drive recorder function, machine diagnosis function, power monitoring function
Compliance to Standards		Refer to "Conformity with Global Standards and Regulations" in the Instruction Manual
Structure (IP Rating)		Natural cooling, open (IP20)
Close Mounting		Possible (*6)
DIN Rail Mounting (35 mm Wide)		Possible
Environment	Ambient Temperature	Operation: 0°C to 55°C (non-freezing), storage: -20°C to 65°C (non-freezing)
	Ambient Humidity	Operation/storage: 90% RH maximum (non-condensing)
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust
	Altitude	1000 m or less above sea level
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)
Weight (kg)		0.2

Notes: For MR-J4 Amplifier notes, please go to page 371.

Amplifier Notes:

1. Rated output and speed of a rotary Servo Motor and a direct drive motor; and continuous thrust and maximum speed of a linear Servo Motor are applicable when the servo amplifier, combined with the Servo Motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this guide for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-J4-_B_(-RJ) Servo Amplifier Instruction Manual", MR-J4-_GF_(RJ) Servo Amplifier Instruction Manual (Motion Mode) or MR-J4W2-_B MR-J4W3-_B MR-J4W2-0303B6 Servo Amplifier Instruction Manual for the permissible load to motor inertia ratio and the permissible load to mass ratio and details.
5. Terminal blocks are excluded.
6. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use them with 75% or less of the effective load ratio.
7. The test pulse is a signal for the external circuit to perform self-diagnosis by turning off the signals to the servo amplifier instantaneously at regular intervals.
8. The rated current is 2.9 A when the servo amplifier is used with UL or CSA compliant servo motor.
9. Fully closed loop control is compatible with the servo amplifiers with software version A3 or later.
10. The command communication cycle depends on the controller specifications and the number of axes connected.
11. The value in brackets is applicable when cooling fans (2 units of 92 mm x 92 mm, minimum air flow: 1.0 m^3/min) are installed, and then [Pr. PA02] is changed.
12. Servo amplifiers without an enclosed regenerative resistor are also available. Refer to "1-Axis Servo Amplifier Model Designation" in this catalog for details.
13. Use an optional external dynamic brake with the servo amplifier. Without the external dynamic brake, a Servo Motor does not stop immediately at emergency stop and falls in free-run status, causing an accident such as machine collision, etc. Take measures to ensure safety on the entire system when not using the dynamic brake.
14. This function is available with the servo amplifiers with software version A8 or later.
15. This value is applicable for 750 W or smaller servo amplifiers in 200 V class when a 3-phase power supply is used.
16. This function is available with the servo amplifiers with software version B4 or later.
17. One unit of converter.
18. The servo amplifier built-in regenerative resistor is compatible with the maximum torque deceleration when the Servo Motor is used within the rated speed and the recommended load to motor inertia ratio. Contact your local sales office if the operating motor speed or the load to motor inertia ratio exceed the rated speed or the recommended ratio.
19. Reusable regenerative energy is equivalent to the energy generated under the following conditions. For rotary Servo Motor: the energy that is generated when the machine, whose moment of inertia is equivalent to the permissible charging amount, decelerates from the rated speed to a stop. For linear Servo Motor: the energy that is generated when the machine, whose mass is equivalent to the permissible charging amount, decelerates from the maximum speed to a stop. For direct drive motor: the energy that is generated when the machine, whose moment of inertia is equivalent to the permissible charging amount, decelerates from the rated speed to a stop.
20. This value is the moment of inertia when the rotary Servo Motor decelerates from the rated speed to a stop. When two axes are simultaneously decelerated, the permissible charging amount is equivalent to the total moments of inertia of the two axes. Otherwise, the permissible charging amount is equivalent to the moment of inertia of each axis. The value also applies to the direct drive motor.
21. This value is the mass when the linear Servo Motor decelerates from maximum speed to a stop. Mass of primary side (coil) is included. When two axes are simultaneously decelerated, the permissible charging amount is equivalent to the total masses of the two axes. Otherwise, the permissible charging amount is equivalent to the mass of each axis.
22. Not compatible with pulse train interface (A/B/Z-phase differential output type).
23. STO is common for all axes.
24. The load-side encoder and the Servo Motor encoder are compatible only with two-wire type communication method.
25. This value is applicable when a 3-phase power supply is used.
26. Servo amplifier with software version A3 or later is compatible with the command communication cycle of 0.222 ms. However, note that the following functions are not available when 0.222 ms is used: auto tuning (real time, one-touch, and vibration suppression control), adaptive filter II, vibration tough drive, and power monitoring.
27. The value is applicable for the MR-J4-_B-RJ010 servo amplifier only.
28. RS-422 communication is compatible with the servo amplifiers with software version A3 or later.
29. One unit of converter unit is required for each drive unit. Refer to the Users's Manual for the specifications of the converter unit.
30. 0.3 A is the value applicable when all I/O signals are used. The current capacity can be decreased by reducing the number of I/O points.
31. When using 1-phase 200 V AC to 240 V AC power supply, operate the servo amplifier at 75% or smaller effective load ratio.
32. For the connection example of the power circuit when a DC input is used, refer to the User's Manual.
33. Follow the restrictions in the User's Manual when using the servo amplifiers at altitude exceeding 1000 m and up to 2000 m over sea level.
34. The safety level depends on the setting value of [Pr. PF18 STO diagnosis error detection time] and whether STO input diagnosis by TOFB output is performed or not. For details, refer to the Function column of [Pr. PF18] in the User's Manual.
35. The external dynamic brake cannot be used for compliance with SEMI-F47 standard. Do not assign DB (Dynamic brake interlock) in [Pr. PD07] to [Pr. PD09]. Failure to do so will cause the servo amplifier to become servo-off when an instantaneous power failure occurs.
36. Use the servo amplifier with 75% or less of the effective load ratio when a 1-phase 200 VAC to 240 VAC power supply is used.
37. Refer to relevant Servo Amplifier Instruction Manual for the restrictions when using the servo amplifiers at altitude exceeding 1000 m and up to 2000 m above sea level.
38. MR-J4-_GF-RJ servo amplifiers are available for DC power input. For a connection example of power circuit with DC input, refer to relevant Servo Amplifier Instruction Manual.
39. Initial value is 48 VDC. For 24 VDC, set [Pr. PC05] to "_ 1 _ _." Servo motor characteristics vary depending whether the voltage is 48 VDC or 24 VDC. Refer to "HG-AK Series (Ultra-compact Size, Ultra-small Capacity) Specifications" and "HG-AK Series Torque Characteristics" in the User's Manual.
40. The dynamic brake is electronic. The electronic dynamic brake does not operate when the control circuit power is off. It may not operate depending on alarms and warnings. Refer to "MR-J4W2-_B MR-J4W3-_B MR-J4W2-0303B6 Servo Amplifier Instruction Manual" for details.
41. These models also support CC-Link IE Field Network Basic. To use this network, switch the network setting with the slide switches. Refer to "MR-J4-_GF_ (-RJ) Servo Amplifier Instruction Manual (CC-Link IE Field Network Basic)" for CC-Link IE Field Network Basic.
42. The connector part is excluded

MR-J4 Rotary Servo Motors

X = Available
- = Not Available

Rotary Servo Motor Series		Rated Speed (Max. r/min)	Rated Output Capacity (kW) (*1)	Servo Motor Type			Protective Degree (*3)	Compatible Series	Features	Application Examples
				Electromagnetic Brake Available	With Reducer (G1) (*2)	With Reducer (G5, G7) (*2)				
Small Capacity	HG-KR 	3000 (6000)	5 Types 0.05, 0.1, 0.2, 0.4, 0.75	X	X	X	IP65	HF-KP	Low inertia, perfect for general industrial machines	• Belt Drive • Robots • Mounters • Sewing Machines • X-Y Tables • Food Processing Machines • Semiconductor manufacturing devices • Knitting and embroidery machines
	HG-MR 	3000 (6000)	5 Types 0.05, 0.1, 0.2, 0.4, 0.75	X	-	-	IP65	HF-MP	Ultra-low inertia Well suited for high-throughput operations	• Inserters • Mounters
Medium Capacity	HG-SR 	1000 (1500)	6 Types 0.5, 0.85, 1.2, 2.0, 3.0, 4.2	X	-	-	IP67	HF-SP	Medium inertia This series is available with two rated speeds	• Material handling systems • Robots • X-Y tables
		2000 (3000)	14 types 0.5, 1.0, 1.5, 2.0, 3.5, 5.0, 7.0 0.5, 1.0, 1.5, 2.0, 3.5, 5.0, 7.0	X	X	X	IP67			
Medium/Large Capacity	HG-JR 	3000 (6000: 0.5~5 kW 5000: 7, 9 kW)	18 types 0.5, 0.75, 1.0, 1.5, 2.0, 3.5, 5.0, 7.0, 9.0 0.5, 0.75, 1.0, 1.5, 2.0, 3.5, 5.0, 7.0, 9.0	X	-	-	IP67	HF-JP	Low inertia Well suited for high-throughput and high-acceleration/deceleration operations	• Food packaging machines • Printing machines
		1500 (3000: 11~15 kW 2500: 22 kW_)	14 types 7.0, 11, 15, 22, 30, 37 7.0, 11, 15, 22, 30, 37, 45, 55	X (*5)	-	-	IP67/ IP44 (*4)	HF-JP HA-LP		• Injection molding machines • Press machines
		1000 (2000: 6~12 kW 1500: 15~37 kW_)	16 types 6.0, 8.0, 12, 15, 20, 25, 30, 37 6.0, 8.0, 12, 15, 20, 25, 30, 37	X (*5)	-	-	IP67/ IP44 (*4)	HA-LP		
Medium Capacity	HG-RR 	3000 (4500)	5 types 1.0, 1.5, 2.0, 3.5, 5.0	X	-	-	IP65	HC-RP	Ultra-low inertia Well suited for high-throughput operations	• Ultra-high-throughput material handling systems
Medium Capacity, Flat Type	HG-UR 	2000 (3000: 0.75~2 kW 2500: 3.5, 5 kW)	5 types 0.75, 1.5, 2.0, 3.5, 5.0	X	-	-	IP65	HC-UP	Flat type The flat design makes this unit well suited for situations where the installation space is limited	• Robots • Food processing machines
Ultra Small Capacity	HG-AK 	6000	3 types 10W, 20W, 30W	X	-	-	IP55	-	Ultra compact	• Assembly • Robots • Positioning

Notes:
1. For 400 V.
2. G1 for general industrial machines. G5 and G7 for high precision applications.
3. The shaft-through portion is excluded. Refer to the asterisk 7 of "Annotations for Rotary Servo Motor Specifications" in the MR-J4 Brochure. For geared Servo Motor, IP rating of the reducer portion is equivalent to IP44.
4. For HG-JR1500 r/min series, 15 kW or smaller is rated IP67, and 22 kW or larger is rated IP44. For HG-JR 1000 r/min series, 12 kW or smaller is rated IP67, and 15 kW or lager is rated IP44.
5. The Servo Motor with electromagnetic brake is not available for HG-JR 1500 r/min series 22 kW or larger, and 1000 r/min series 15 kW or larger.

Servo Motor Selection 200V/100V (Example Part No. = HG-KR053BG1)
Not all options available for every motor.

HG-□ □□□□□□□□

Symbol	Oil Seal
None	None (*8)
J	Installed (*2, *3, *4)

Symbol	Electromagnetic Brake
None	None
B	Installed (*1)

Symbol	Rated Speed [r/min]
1	1000
1M	1500
2	2000
3	3000

Symbol	Rated Output [kW]	Symbol	Rated Output [kW]
05	0.05	50	5.0
1	0.1	60	6.0
2	0.2	70	7.0
4	0.4	80	8.0
5	0.5	90	9.0
7	0.75	11K	11
8	0.85	12K	12
10	1.0	15K	15
12	1.2	20K	20
15	1.5	22K	22
20	2.0	25K	25
30	3.0	30K	30
35	3.5 (*9)	37K	37
42	4.2		

Symbol	Inertia/Capacity
HG-KR	Low inertia, small capacity
HG-MR	Ultra-low inertia, small capacity
HG-SR	Medium inertia, medium capacity
HG-JR	Low inertia, medium-large capacity
HG-RR	Ultra low inertia, medium capacity
HG-UR	Flat type, medium capacity

Symbol	Reducer (*5)
None	None
G1	With reducer for general industrial machines, flange mounting
G1H	With reducer for general industrial machines, foot mounting (*6)
G5	With flange-output type reducer for high precision applications, flange mounting
G7	With shaft-output type reducer for high precision applications, flange mounting

Symbol	Special Specification
None	Standard
W0C	Functional Safety

Symbol	Shaft End
None	Standard (Straight shaft)(*6)
K	Key shaft (with/without key)(*7, *10)
D	D-cut shaft (*7)

Stocked Motors

Model Number
HG-JR53K
HG-JR53BK
HG-JR73K
HG-JR73BK
HG-JR103K
HG-JR103BK
HG-JR153K
HG-JR1534K
HG-JR153BK
HG-JR203K
HG-JR2034
HG-JR203BK
HG-JR353K
HG-JR353BK
HG-JR503K
HG-JR503BK
HG-JR5034BK
HG-JR601BK
HG-JR703K
HG-JR7034K
HG-JR703BK
HG-JR903K
HG-JR903BK

Model Number
HG-MR053D
HG-MR053B
HG-MR053BD
HG-MR13
HG-MR13D
HG-MR13B
HG-MR13BD
HG-MR23
HG-MR23K
HG-MR23B
HG-MR23BK
HG-MR43K
HG-MR43B
HG-MR43BK
HG-MR73
HG-MR73K
HG-MR73B
HG-MR73BK

Model Number
HG-SR51K
HG-SR51K
HG-SR52K
HG-SR52B
HG-SR51BK
HG-SR52BK
HG-SR81K
HG-SR81BK
HG-SR102
HG-SR102K
HG-SR102B
HG-SR102BK
HG-SR121K
HG-SR121BK
HG-SR152K
HG-SR152B
HG-SR152BK
HG-SR201K
HG-SR202K
HG-SR202B
HG-SR202BK
HG-SR301K
HG-SR301BK
HG-SR352K
HG-SR352B
HG-SR352BK
HG-SR421K
HG-SR421BK
HG-SR502K
HG-SR502B
HG-SR502BK
HG-SR702K
HG-SR702B
HG-SR702BK

Model Number
HG-KR053
HG-KR053D
HG-KR053B
HG-KR053BD
HG-KR13
HG-KR13D
HG-KR13B
HG-KR13BD
HG-KR23
HG-KR23K
HG-KR23B
HG-KR23BK
HG-KR43
HG-KR43K
HG-KR43B
HG-KR43BK
HG-KR73
HG-KR73K
HG-KR73B
HG-KR73BK

Model Number
HG-RR103K
HG-RR103BK
HG-RR153K
HG-RR153BK
HG-RR203K
HG-RR203BK
HG-RR353K
HG-RR353BK
HG-RR503K
HG-RR503BK

Model Number
HG-UR72K
HG-UR152K
HG-UR202K
HG-UR352K
HG-UR502K
HG-UR202BK
HG-UR352K
HG-UR352BK
HG-UR502K
HG-UR502BK

Notes:
1. Refer to electromagnetic brake specifications of each Servo Motor series in this catalog for the available models and detailed specifications.
2. Available in 0.1 kW or larger HG-KR/HG-MR series and all HG-SR series. Oil seal is installed in HG-JR series as a standard.
3. Oil seal is not installed in the geared Servo Motor.
4. Dimensions for HG-KR/HG-MR series with oil seal are different from those for the standard models. Contact your local sales office for more details.
5. Refer to "Geared Servo Motor Specifications" in this catalog for the available models and detailed specifications.
6. Standard HG-SR G1/G1H has a key shaft (with key).
7. Refer to special shaft end specifications of each Servo Motor series in this catalog for the available models and detailed specifications.
8. Oil seal is installed in HG-JR, HG-RR, and HG-UR series as a standard.
9. For HG-JR353(B), the rated output varies depending on the servo amplifier to be combined. Refer to "HG-JR 3000 r/min Series (Low Inertia, Medium Capacity) (200 VClass) Specifications" for details.
10. Key Shaft option is not available on HG-KR053, HG-KR13, HG-MR053, and HG-MR13 motors

Servo Motor Selection 400V (Example Part No. = HG-SR524B)

Not all options available for every motor.

HG-□ □□4 □□□□□□

Symbol	Oil Seal
None	None
J	Installed (*2, *3, *4)

Symbol	Electromagnetic Brake
None	None
B	Installed (*1)

400V

Symbol	Rated Speed [r/min]
1	1000
1M	1500
2	2000
3	3000

Symbol	Rated Output [kW]	Symbol	Rated Output [kW]
5	0.5	11K	11
7	0.75	12K	12
10	1.0	15K	15
15	1.5	22K	22
20	2.0	25K	25
35	3.5 (*8)	30K	30
50	5.0	37K	37
60	6.0	45K	45
70	7.0	55K	55
80	8.0		
90	9.0		

Symbol	Inertia/Capacity
HG-SR	Medium inertia, medium capacity
HG-JR	Low inertia, medium-large capacity

Symbol	Reducer (*5)
None	None
G1	With reducer for general industrial machines, flange mounting
G1H	With reducer for general industrial machines, foot mounting
G5	With flange-output type reducer for high precision applications, flange mounting
G7	With shaft-output type reducer for high precision applications, flange mounting

Symbol	Special Specification
None	Standard
WOC	Functional Safety

Symbol	Shaft End
None	Standard (Straight shaft) (*6)
K	Key shaft (with/without key) (*7)

Notes:

1. Refer to electromagnetic brake specifications of each Servo Motor series in this catalog for the available models and detailed specifications.
2. Available in HG-SR series.
3. Oil seal is not installed in the geared Servo Motor.
4. Oil seal is installed in HG-JR series as a standard.
5. Refer to "Geared Servo Motor Specifications" in this catalog for the available models and detailed specifications.
6. Standard HG-SR G1/G1H has a key shaft (with key).
7. Refer to special shaft end specifications of each Servo Motor series in this catalog for the available models and detailed specifications.
8. For HG-JR3534(B), the rated output varies depending on the servo amplifier to be combined. Refer to "HG-JR 3000 r/min Series (Low Inertia, Medium Capacity) (400 V Class) Specifications" for details.

Stocked Motors

Model Number
HG-JR534K
HG-JR534BK
HG-JR734K
HG-JR734BK
HG-JR1034K
HG-JR1034BK
HG-JR1534K
HG-JR1534BK
HG-JR2034
HG-JR2034K
HG-JR2034BK
HG-JR3534K
HG-JR3534BK
HG-JR5034
HG-JR5034K
HG-JR5034BK
HG-JR6014K
HG-JR6014BK
HG-JR701M4K
HG-JR7034K
HG-JR7034BK
HG-JR9034K
HG-JR9034BK
HG-JR11K1M4K
HG-JR11K1M4BK

Model Number
HG-SR524K
HG-SR524BK
HG-SR1024K
HG-SR1024BK
HG-SR1524K
HG-SR1524BK
HG-SR2024K
HG-SR2024BK
HG-SR3524
HG-SR3524K
HG-SR3524BK
HG-SR5024K
HG-SR5024BK
HG-SR7024
HG-SR7024K
HG-SR7024BK

Servo Motor Selection 48VDC/24VDC (Example Part No. = HG-AK0236K)

HG-AK □36□□□

Ultra-compact size, ultra-small capacity

Symbol	Special Specification
None	Standard
S100	Vertical encoder cable lead

Symbol	Shaft End
None	Standard (Straight shaft)
K	Key shaft (with/without key) (*2)

Symbol	Electromagnetic Brake
None	None
B	Installed (*1)

Symbol	Power Supply
6	48 VDC/24 VDC

Symbol	Rated Speed (r/min)
3	3000

Symbol	Rated Output (W)
01	10
02	20
03	30

Model Number
HG-AK0136
HG-AK0236
HG-AK0336

Notes:

1. Refer to "HG-AK Series Electromagnetic Brake Specifications" in this guide for the available models and detailed specifications.
2. Refer to "HG-AK Series Special Shaft End Specifications" in the User Manual.

Combinations of Rotary Servo Motor and Servo Amplifier (200V/100V Class)

Model Number	MR-J4	MR-J4W2 (*1)	MR-J4W3 (*1)
HG-KR053(B)	MR-J4-10GF(-RJ), MR-J4-10B(-RJ), MR-J4-10B1(-RJ), MR-J4-10A(-RJ), MR-J4-10A1(-RJ), MR-J4-10TM, MR-J4-10TM1	MR-J4W2-22B, MR-J4W2-44B	MR-J4W3-222B, MR-J4W3-444B
HG-KR13(B)	MR-J4-10GF(-RJ), MR-J4-10B(-RJ), MR-J4-10B1(-RJ), MR-J4-10A(-RJ), MR-J4-10A1(-RJ) MR-J4-10TM, MR-J4-10TM1	MR-J4W2-22B, MR-J4W2-44B	MR-J4W3-222B, MR-J4W3-444B
HG-KR23(B)	MR-J4-20GF(-RJ), MR-J4-20B(-RJ), MR-J4-20B1(-RJ), MR-J4-20A(-RJ), MR-J4-20A1(-RJ) MR-J4-20TM, MR-J4-20TM1	MR-J4W2-22B, MR-J4W2-44B	MR-J4W3-222B, MR-J4W3-444B
HG-KR43(B)	MR-J4-40GF(-RJ), MR-J4-40B(-RJ), MR-J4-40B1(-RJ), MR-J4-40A(-RJ), MR-J4-40A1(-RJ) MR-J4-40TM, MR-J4-40TM1	MR-J4W2-44B, MR-J4W2-77B, MR-J4W2-1010B	MR-J4W3-444B
HG-KR73(B)	MR-J4-70GF(-RJ), MR-J4-70B(-RJ), MR-J4-70A(-RJ), MR-J4-70TM	MR-J4W2-77B, MR-J4W2-1010B	-
HG-MR053(B)	MR-J4-10GF(-RJ), MR-J4-10B(-RJ), MR-J4-10B1(-RJ), MR-J4-10A(-RJ), MR-J4-10A1(-RJ), MR-J4-10TM, MR-J4-10TM1	MR-J4W2-22B, MR-J4W2-44B	MR-J4W3-222B, MR-J4W3-444B
HG-MR13(B)	MR-J4-10GF(-RJ), MR-J4-10B(-RJ), MR-J4-10B1(-RJ), MR-J4-10A(-RJ), MR-J4-10A1(-RJ), MR-J4-10TM, MR-J4-10TM1	MR-J4W2-22B, MR-J4W2-44B	MR-J4W3-222B, MR-J4W3-444B
HG-MR23(B)	MR-J4-20GF(-RJ), MR-J4-20B(-RJ), MR-J4-20B1(-RJ), MR-J4-20A(-RJ), MR-J4-20A1(-RJ), MR-J4-20TM, MR-J4-20TM1	MR-J4W2-22B, MR-J4W2-44B	MR-J4W3-222B, MR-J4W3-444B
HG-MR43(B)	MR-J4-40GF(-RJ), MR-J4-40B(-RJ), MR-J4-40B1(-RJ), MR-J4-40A(-RJ), MR-J4-40A1(-RJ), MR-J4-40TM, MR-J4-40TM1	MR-J4W2-44B, MR-J4W2-77B, MR-J4W2-1010B	MR-J4W3-444B
HG-MR73(B)	MR-J4-70GF(-RJ), MR-J4-70B(-RJ), MR-J4-70A(-RJ), MR-J4-70TM	MR-J4W2-77B, MR-J4W2-1010B	-
HG-SR51(B)	MR-J4-60GF(-RJ), MR-J4-60B(-RJ), MR-J4-60A(-RJ)), MR-J4-60TM	MR-J4W2-77B, MR-J4W2-1010B	-
HG-SR81(B)	MR-J4-100GF(-RJ), MR-J4-100B(-RJ), MR-J4-100A(-RJ), MR-J4-100TM	MR-J4W2-1010B	-
HG-SR121(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-SR201(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-SR301(B)	MR-J4-350GF(-RJ), MR-J4-350B(-RJ), MR-J4-350A(-RJ), MR-J4-350TM	-	-
HG-SR421(B)	MR-J4-500GF(-RJ), MR-J4-500B(-RJ), MR-J4-500A(-RJ), MR-J4-500TM	-	-
HG-SR52(B)	MR-J4-60GF(-RJ), MR-J4-60B(-RJ), MR-J4-60A(-RJ), MR-J4-60TM	MR-J4W2-77B, MR-J4W2-1010B	-
HG-SR102(B)	MR-J4-100GF(-RJ), MR-J4-100B(-RJ), MR-J4-100A(-RJ), MR-J4-100TM	MR-J4W2-1010B	-
HG-SR152(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-SR202(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-SR352(B)	MR-J4-350GF(-RJ), MR-J4-350B(-RJ), MR-J4-350A(-RJ), MR-J4-350TM	-	-
HG-SR502(B)	MR-J4-500GF(-RJ), MR-J4-500B(-RJ), MR-J4-500A(-RJ), MR-J4-500TM	-	-
HG-SR702(B)	MR-J4-700GF(-RJ), MR-J4-700B(-RJ), MR-J4-700A(-RJ), MR-J4-700TM	-	-
HG-JR53(B)	MR-J4-60GF(-RJ), MR-J4-60B(-RJ), MR-J4-60A(-RJ), MR-J4-60TM	MR-J4W2-77B	-
HG-JR73(B)	MR-J4-70GF(-RJ), MR-J4-70B(-RJ), MR-J4-70A(-RJ), MR-J4-70TM	MR-J4W2-77B, MR-J4W2-1010B	-
HG-JR103(B)	MR-J4-100GF(-RJ), MR-J4-100B(-RJ), MR-J4-100A(-RJ), MR-J4-100TM	MR-J4W2-1010B	-

Note 1: Any combination of the servo motors is possible as long as the servo motors are compatible with the servo amplifier. Refer to "Combinations of Multi-Axis Servo Amplifier and Servo Motors"Servo Motors" in this guide.

Combinations of Rotary Servo Motor and Servo Amplifier (200V Class)

Model Number	MR-J4	MR-J4W2 (*1)	MR-J4W3 (*1)
HG-JR153(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-JR203(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-JR353(B)	MR-J4-350GF(-RJ), MR-J4-350B(-RJ), MR-J4-350A(-RJ), MR-J4-350TM	-	-
HG-JR503(B)	MR-J4-500GF(-RJ), MR-J4-500B(-RJ), MR-J4-500A(-RJ), MR-J4-500TM	-	-
HG-JR703(B)	MR-J4-700GF(-RJ), MR-J4-700B(-RJ), MR-J4-DU900B(-RJ), MR-J4-700A(-RJ), MR-J4-700TM		
HG-JR903(B)	MR-J4-11KGF(-RJ), MR-J4-11KB(-RJ), MR-J4-DU900B(-RJ), MR-J4-11KA(-RJ), MR-J4-11KTM		
HG-JR601(B)	MR-J4-700GF(-RJ), MR-J4-700B(-RJ), MR-J4-DU900B(-RJ), MR-J4-700A(-RJ), MR-J4-700TM		
HG-JR801(B)	MR-J4-11KGF(-RJ), MR-J4-11KB(-RJ), MR-J4-DU900B(-RJ), MR-J4-11KA(-RJ), MR-J4-11KTM		
HG-JR12K1(B)	MR-J4-11KGF(-RJ), MR-J4-11KB(-RJ), MR-J4-DU11KB(-RJ), MR-J4-11KA(-RJ), MR-J4-11KTM		
HG-JR15K1	MR-J4-15KGF(-RJ), MR-J4-15KB(-RJ), MR-J4-DU15KB(-RJ), MR-J4-15KA(-RJ), MR-J4-15KTM		
HG-JR20K1	MR-J4-22KGF(-RJ), MR-J4-22KB(-RJ), MR-J4-DU22KB(-RJ), MR-J4-22KA(-RJ), MR-J4-22KTM		
HG-JR25K1	MR-J4-22KGF(-RJ), MR-J4-22KB(-RJ), MR-J4-DU22KB(-RJ), MR-J4-22KA(-RJ), MR-J4-22KTM		
HG-JR30K1	MR-J4-DU30KB(-RJ), MR-J4-DU30KA(-RJ)	-	-
HG-JR37K1	MR-J4-DU37KB(-RJ), MR-J4-DU37KA(-RJ)	-	-
HG-JR701M(B)	MR-J4-700GF(-RJ), MR-J4-700B(-RJ), MR-J4-DU900B(-RJ), MR-J4-700A(-RJ)), MR-J4-700TM		
HG-JR11K1M(B)	MR-J4-11KGF(-RJ), MR-J4-11KB(-RJ), MR-J4-DU11KB(-RJ), MR-J4-11KA(-RJ), MR-J4-11KTM		
HG-JR15K1M(B)	MR-J4-15KGF(-RJ), MR-J4-15KB(-RJ), MR-J4-DU15KB(-RJ), MR-J4-15KA(-RJ), MR-J4-15KTM		
HG-JR22K1M	MR-J4-22KGF(-RJ), MR-J4-22KB(-RJ), MR-J4-DU22KB(-RJ), MR-J4-22KA(-RJ), MR-J4-22KTM		
HG-JR30K1M	MR-J4-DU30KB(-RJ), MR-J4-DU30KA(-RJ)	-	-
HG-JR37K1M	MR-J4-DU37KB(-RJ), MR-J4-DU37KA(-RJ)	-	-
HG-RR103(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-RR153(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-RR203(B)	MR-J4-350GF(-RJ), MR-J4-350B(-RJ), MR-J4-350A(-RJ), MR-J4-350TM	-	-
HG-RR353(B)	MR-J4-500GF(-RJ), MR-J4-500B(-RJ), MR-J4-500A(-RJ), MR-J4-500TM	-	-
HG-RR503(B)	MR-J4-500GF(-RJ), MR-J4-500B(-RJ), MR-J4-500A(-RJ), MR-J4-500TM	-	-
HG-UR72(B)	MR-J4-70GF(-RJ), MR-J4-70B(-RJ), MR-J4-70A(-RJ), MR-J4-70TM	MR-J4W2-77B MR-J4W2-1010B	-
HG-UR152(B)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ)), MR-J4-200TM	-	-
HG-UR202(B)	MR-J4-350GF(-RJ), MR-J4-350B(-RJ), MR-J4-350A(-RJ), MR-J4-350TM	-	-
HG-UR352(B)	MR-J4-500GF(-RJ), MR-J4-500B(-RJ), MR-J4-500A(-RJ), MR-J4-500TM	-	-
HG-UR502(B)	MR-J4-500GF(-RJ), MR-J4-500B(-RJ), MR-J4-500A(-RJ), MR-J4-500TM	-	-

Note 1: Any combination of the servo motors is possible as long as the servo motors are compatible with the servo amplifier. Refer to "Combinations of Multi-Axis Servo Amplifier and Servo Motors"Servo Motors" in this guide.

Combinations of Rotary Servo Motor and Servo Amplifier (400V Class)

Model Number	MR-J4	MR-J4W2	MR-J4W3
HG-SR524(B)	MR-J4-60GF4(-RJ), MR-J4-60B4(-RJ), MR-J4-60A4(-RJ), MR-J4-60TM4	-	-
HG-SR1024(B)	MR-J4-100GF4(-RJ), MR-J4-100B4(-RJ), MR-J4-100A4(-RJ), MR-J4-100TM4	-	-
HG-SR1524(B)	MR-J4-200GF4(-RJ), MR-J4-200B4(-RJ), MR-J4-200A4(-RJ), MR-J4-200TM4	-	-
HG-SR2024(B)	MR-J4-200GF4(-RJ), MR-J4-200B4(-RJ), MR-J4-200A4(-RJ), MR-J4-200TM4	-	-
HG-SR3524(B)	MR-J4-350GF4(-RJ), MR-J4-350B4(-RJ), MR-J4-350A4(-RJ), MR-J4-350TM4	-	-
HG-SR5024(B)	MR-J4-500GF4(-RJ), MR-J4-500B4(-RJ), MR-J4-500A4(-RJ), MR-J4-500TM4	-	-
HG-SR7024(B)	MR-J4-700GF4(-RJ), MR-J4-700B4(-RJ), MR-J4-DU900B4(-RJ), MR-J4-700A4(-RJ), MR-J4-700TM4		
HG-JR534(B)	MR-J4-60GF4(-RJ), MR-J4-60B4(-RJ), MR-J4-60A4(-RJ), MR-J4-60TM4	-	-
HG-JR734(B)	MR-J4-100GF4(-RJ), MR-J4-100B4(-RJ), MR-J4-100A4(-RJ), MR-J4-100TM4	-	-
HG-JR1034(B)	MR-J4-100GF4(-RJ), MR-J4-100B4(-RJ), MR-J4-100A4(-RJ), MR-J4-100TM4	-	-
HG-JR1534(B)	MR-J4-200GF4(-RJ), MR-J4-200B4(-RJ), MR-J4-200A4(-RJ), MR-J4-200TM4	-	-
HG-JR2034(B)	MR-J4-200GF4(-RJ), MR-J4-200B4(-RJ), MR-J4-200A4(-RJ), MR-J4-200TM4	-	-
HG-JR3534(B)	MR-J4-350GF4(-RJ), MR-J4-350B4(-RJ), MR-J4-350A4(-RJ), MR-J4-350TM4	-	-
HG-JR5034(B)	MR-J4-500GF4(-RJ), MR-J4-500B4(-RJ), MR-J4-500A4(-RJ), MR-J4-500TM4	-	-
HG-JR7034(B)	MR-J4-700GF4(-RJ), MR-J4-700B4(-RJ), MR-J4-DU900B4(-RJ), MR-J4-700A4(-RJ), MR-J4-700TM4		
HG-JR9034(B)	MR-J4-11KGF4(-RJ), MR-J4-11KB4(-RJ), MR-J4-DU900B4(-RJ), MR-J4-11KA4(-RJ),MR-J4-11KTM4		
HG-JR6014(B)	MR-J4-700GF4(-RJ), MR-J4-700B4(-RJ), MR-J4-DU900B4(-RJ), MR-J4-700A4(-RJ), MR-J4-700TM4		
HG-JR8014(B)	MR-J4-11KGF4(-RJ), MR-J4-11KB4(-RJ), MR-J4-DU900B4(-RJ), MR-J4-11KA4(-RJ), MR-J4-11KTM4		
HG-JR12K14(B)	MR-J4-11KGF4(-RJ), MR-J4-11KB4(-RJ), MR-J4-DU11KB4(-RJ), MR-J4-11KA4(-RJ), MR-J4-11KTM4		
HG-JR15K14	MR-J4-15KGF4(-RJ), MR-J4-15KB4(-RJ), MR-J4-DU15KB4(-RJ), MR-J4-15KA4(-RJ), MR-J4-15KTM4		
HG-JR20K14	MR-J4-22KGF4(-RJ), MR-J4-22KB4(-RJ), MR-J4-DU22KB4(-RJ), MR-J4-22KA4(-RJ), MR-J4-22KTM4		
HG-JR25K14	MR-J4-22KGF4(-RJ), MR-J4-22KB4(-RJ), MR-J4-DU22KB4(-RJ), MR-J4-22KA4(-RJ), MR-J4-22KTM4		
HG-JR30K14	MR-J4-DU30KB4(-RJ), MR-J4-DU30KA4(-RJ)	-	-
HG-JR37K14	MR-J4-DU37KB4(-RJ), MR-J4-DU37KA4(-RJ)	-	-
HG-JR701M4(B)	MR-J4-700GF4(-RJ), MR-J4-700B4(-RJ), MR-J4-DU900B4(-RJ), MR-J4-700A4(-RJ), MR-J4-700TM4		
HG-JR11K1M4(B)	MR-J4-11KGF4(-RJ), MR-J4-11KB4(-RJ), MR-J4-DU11KB4(-RJ), MR-J4-11KA4(-RJ), MR-J4-11KTM4		
HG-JR15K1M4(B)	MR-J4-15KGF4(-RJ), MR-J4-15KB4(-RJ), MR-J4-DU15KB4(-RJ), MR-J4-15KA4(-RJ), MR-J4-15KTM4		
HG-JR22K1M4	MR-J4-22KGF4(-RJ), MR-J4-22KB4(-RJ), MR-J4-DU22KB4(-RJ), MR-J4-22KA4(-RJ), MR-J4-22KTM4		
HG-JR30K1M4	MR-J4-DU30KB4(-RJ), MR-J4-DU30KA4(-RJ)	-	-
HG-JR37K1M4	MR-J4-DU37KB4(-RJ), MR-J4-DU37KA4(-RJ)	-	-
HG-JR45K1M4	MR-J4-DU45KB4(-RJ), MR-J4-DU45KA4(-RJ)	-	-
HG-JR55K1M4	MR-J4-DU55KB4(-RJ), MR-J4-DU55KA4(-RJ)	-	-

Combinations of HG-AK Rotary Servo Motor and Servo Amplifier (48 VDC/24 VDC Class)

Model Number	MR-J4	MR-J4W2	MR-J4W3
HG-AK0136(B)	MR-J4-03A6(-RJ)	MR-J4W2-0303B6	-
HG-AK0236(B)	MR-J4-03A6(-RJ)	MR-J4W2-0303B6	-
HG-AK0336(B)	MR-J4-03A6(-RJ)	MR-J4W2-0303B6	-

Combinations of HG-JR Servo Motor Series and Servo Amplifier (200V Class) for Increasing the Maximum Torque to 400% of the Rated Torque The following combination of the HG-JR servo motor and the servo amplifier increases the maximum torque from 300% to 400% of the rated torque.

Model Number	MR-J4	MR-J4W2 (*1)	MR-J4W3 (*1)
HG-JR53(B) (*2)	MR-J4-100GF(-RJ), MR-J4-100B(-RJ), MR-J4-100A(-RJ), MR-J4-100TM	MR-J4W2-1010B	-
HG-JR73(B) (*2)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-JR103(B) (*2)	MR-J4-200GF(-RJ), MR-J4-200B(-RJ), MR-J4-200A(-RJ), MR-J4-200TM	-	-
HG-JR153(B)	MR-J4-350GF(-RJ), MR-J4-350B(-RJ), MR-J4-350A(-RJ), MR-J4-350TM	-	-
HG-JR203(B)	MR-J4-350GF(-RJ), MR-J4-350B(-RJ), MR-J4-350A(-RJ), MR-J4-350TM	-	-
HG-JR353(B)	MR-J4-500GF(-RJ), MR-J4-500B(-RJ), MR-J4-500A(-RJ), MR-J4-500TM	-	-
HG-JR503(B)	MR-J4-700GF(-RJ), MR-J4-700B(-RJ), MR-J4-700A(-RJ), MR-J4-700TM	-	-

Notes:
1. Any combination of the servo motors is possible as long as the servo motors are compatible with the servo amplifier. Refer to "Combinations of Multi-Axis Servo Amplifier and Servo Motors".
2. When 1-phase 200 VAC input is used, increasing the maximum torque to 400% is not possible with HG-JR servo motor series.

Combinations of HG-JR Servo Motor Series and Servo Amplifier (400 V Class) for Increasing the Maximum Torque to 400% of the Rated Torque The following combination of the HG-JR servo motor and the servo amplifier increases the maximum torque from 300% to 400% of the rated torque.

Model Number	MR-J4	MR-J4W2 (*1)	MR-J4W3 (*1)
HG-JR534(B)	MR-J4-100GF4(-RJ), MR-J4-100B4(-RJ), MR-J4-100A4(-RJ), MR-J4-100TM4	MR-J4W2-1010B	-
HG-JR734(B)	MR-J4-200GF4(-RJ), MR-J4-200B4(-RJ), MR-J4-200A4(-RJ), MR-J4-200TM4	-	-
HG-JR1034(B)	MR-J4-200GF4(-RJ), MR-J4-200B4(-RJ), MR-J4-200A4(-RJ), MR-J4-200TM4	-	-
HG-JR1534(B)	MR-J4-350GF4(-RJ), MR-J4-350B4(-RJ), MR-J4-350A4(-RJ), MR-J4-350TM4	-	-
HG-JR2034(B)	MR-J4-350GF4(-RJ), MR-J4-350B4(-RJ), MR-J4-350A4(-RJ), MR-J4-350TM4	-	-
HG-JR3534(B)	MR-J4-500GF4(-RJ), MR-J4-500B4(-RJ), MR-J4-500A4(-RJ), MR-J4-500TM4	-	-
HG-JR5034(B)	MR-J4-700GF4(-RJ), MR-J4-700B4(-RJ), MR-J4-700A4(-RJ), MR-J4-700TM4	-	-

Note 1: Any combination of the servo motors is possible as long as the servo motors are compatible with the servo amplifier. Refer to "Combinations of Multi-Axis Servo Amplifier and Servo Motors".

Combinations of Servo Motor with Functional Safety and Servo Amplifier (200V Class)

The safety observation function can be expanded with the combination of the servo motor with functional safety, MR-J4-B-RJ/MR-J4-A-RJ servo amplifier, and MR-D30 functional safety unit. The servo motors with functional safety are available in HG-KR/HG-SR/HG-JR series. The specifications and dimensions of the servo motors with functional safety are the same as the standard. Combine MR-D30 with the following servo amplifiers to expand the safety observation function by using the servo motors with functional safety.

Model Number	MR-J4	MR-J4W2	MR-J4W3
HG-KR053W0C	MR-J4-10GF-RJ, MR-J4-10B-RJ, MR-J4-10B1-RJ, MR-J4-10A-RJ, MR-J4-10A1-RJ, MR-J4-10TM, MR-J4-10TM1	-	-
HG-KR13W0C	MR-J4-10GF-RJ, MR-J4-10B-RJ, MR-J4-10B1-RJ, MR-J4-10A-RJ, MR-J4-10A1-RJ, MR-J4-10TM, MR-J4-10TM1	-	-
HG-KR23W0C	MR-J4-20GF-RJ, MR-J4-20B-RJ, MR-J4-20B1-RJ, MR-J4-20A-RJ, MR-J4-20A1-RJ, MR-J4-20TM, MR-J4-20TM1	-	-
HG-KR43W0C	MR-J4-40GF-RJ, MR-J4-40B-RJ, MR-J4-40B1-RJ, MR-J4-40A-RJ, MR-J4-40A1-RJ, MR-J4-40TM, MR-J4-40TM1	-	-
HG-KR73W0C	MR-J4-70GF-RJ, MR-J4-70B-RJ, MR-J4-70A-RJ, MR-J4-70TM	-	-
HG-SR51W0C	MR-J4-60GF-RJ, MR-J4-60B-RJ, MR-J4-60A-RJ, MR-J4-60TM	-	-
HG-SR81W0C	MR-J4-100GF-RJ, MR-J4-100B-RJ, MR-J4-100A-RJ, MR-J4-100TM	-	-
HG-SR121W0C	MR-J4-200GF-RJ, MR-J4-200B-RJ, MR-J4-200A-RJ, MR-J4-200TM	-	-
HG-SR201W0C	MR-J4-200GF-RJ, MR-J4-200B-RJ, MR-J4-200A-RJ, MR-J4-200TM	-	-
HG-SR301W0C	MR-J4-350GF-RJ, MR-J4-350B-RJ, MR-J4-350A-RJ, MR-J4-350TM	-	-
HG-SR421W0C	MR-J4-500GF-RJ, MR-J4-500B-RJ, MR-J4-500A-RJ, MR-J4-500TM	-	-
HG-SR52W0C	MR-J4-60GF-RJ, MR-J4-60B-RJ, MR-J4-60A-RJ, MR-J4-60TM	-	-
HG-SR102W0C	MR-J4-100GF-RJ, MR-J4-100B-RJ, MR-J4-100A-RJJ, MR-J4-100TM	-	-
HG-SR152W0C	MR-J4-200GF-RJ, MR-J4-200B-RJ, MR-J4-200A-RJ, MR-J4-200TM	-	-
HG-SR202W0C	MR-J4-200GF-RJ, MR-J4-200B-RJ, MR-J4-200A-RJ, MR-J4-200TM	-	-
HG-SR352W0C	MR-J4-350GF-RJ, MR-J4-350B-RJ, MR-J4-350A-RJ, MR-J4-350TM	-	-
HG-SR502W0C	MR-J4-500GF-RJ, MR-J4-500B-RJ, MR-J4-500A-RJ, MR-J4-500TM	-	-
HG-SR702W0C	MR-J4-700GF-RJ, MR-J4-700B-RJ, MR-J4-DU900B-RJ (*3),MR-J4-700A-RJ, MR-J4-700TM	-	-
HG-JR53W0C	MR-J4-60GF-RJ, MR-J4-100GF-RJ (*1, *2), MR-J4-60B-RJ, MR-J4-100B-RJ (*1, *2), MR-J4-60A-RJ, MR-J4-100A-RJ (*1, *2), MR-J4-60TM, MR-J4-100TM	-	-
HG-JR73W0C	MR-J4-70GF-RJ, MR-J4-200GF-RJ (*1, *2), MR-J4-70B-RJ, MR-J4-200B-RJ (*1, *2), MR-J4-70A-RJ, MR-J4-200A-RJ (*1, *2), MR-J4-70TM, MR-J4-200TM	-	-
HG-JR103W0C	MR-J4-100GF-RJ, MR-J4-200GF-RJ (*1, *2), MR-J4-100B-RJ, MR-J4-200B-RJ (*1, *2), MR-J4-100A-RJ, MR-J4-200A-RJ (*1, *2), MR-J4-100TM, MR-J4-200TM	-	-
HG-JR153W0C	MR-J4-200GF-RJ, MR-J4-350GF-RJ (*1), MR-J4-200B-RJ, MR-J4-350B-RJ (*1), MR-J4-200A-RJ, MR-J4-350A-RJ (*1), MR-J4-200TM, MR-J4-350TM	-	-
HG-JR203W0C	MR-J4-200GF-RJ, MR-J4-350GF-RJ *1), MR-J4-200B-RJ, MR-J4-350B-RJ (*1), MR-J4-200A-RJ, MR-J4-350A-RJ (*1), MR-J4-200TM, MR-J4-350TM	-	-
HG-JR353W0C	MR-J4-350GF-RJ, MR-J4-500GF-RJ (*1), MR-J4-350B-RJ, MR-J4-500B-RJ (*1), MR-J4-350A-RJ, MR-J4-500A-RJ (*1)), MR-J4-350TM, MR-J4-500TM	-	-
HG-JR503W0C	MR-J4-500GF-RJ, MR-J4-700GF-RJ (*1), MR-J4-500B-RJ, MR-J4-700B-RJ (*1), MR-J4-DU900B-RJ (*1), MR-J4-500A-RJ, MR-J4-700A-RJ (*1) MR-J4-500TM, MR-J4-700TM	-	-
HG-JR703W0C	MR-J4-700GF-RJ, MR-J4-700B-RJ, MR-J4-DU900B-RJ *3), MR-J4-700A-RJ, MR-J4-700TM	-	-
HG-JR903W0C	MR-J4-11KGF-RJ, MR-J4-11KB-RJ, MR-J4-DU900B(-RJ), MR-J4-11KA-RJ, MR-J4-11KTM	-	-
HG-JR701MW0C	MR-J4-700GF-RJ, MR-J4-700B-RJ, MR-J4-DU900B-RJ (*3), MR-J4-700A-RJ, MR-J4-700TM	-	-
HG-JR11K1MW0C	MR-J4-11KGF-RJ, MR-J4-11KB-RJ, MR-J4-DU11KB-RJ, MR-J4-11KA-RJ, MR-J4-11KTM	-	-
HG-JR15K1MW0C	MR-J4-15KGF-RJ, MR-J4-15KB-RJ, MR-J4-DU15KB-RJ, MR-J4-15KA-RJ, MR-J4-15KTM	-	-
HG-JR22K1MW0C	MR-J4-22KGF-RJ, MR-J4-22KB-RJ, MR-J4-DU22KB-RJ, MR-J4-22KA-RJ, MR-J4-22KTM	-	-

Notes:

1. This combination increases the maximum torque from 300% to 400% of the rated torque.
2. When a 1-phase 200 VAC input is used, increasing the maximum torque to 400% is not possible with HG-JR servo motor series.
3. The maximum torque can be increased when the "Selection of maximally increasing torque function with drive unit" is enabled with a parameter.

Combinations of Servo Motors with Functional Safety and Servo Amplifier (400V Class)

Model Number	MR-J4	MR-J4W2	MR-J4W3
HG-SR524W0C	MR-J4-60GF4-RJ, MR-J4-60B4-RJ, MR-J4-60A4-RJ, MR-J4-60TM4	-	-
HG-SR1024W0C	MR-J4-100GF4-RJ, MR-J4-100B4-RJ, MR-J4-100A4-RJ, MR-J4-100TM4	-	-
HG-SR1524W0C	MR-J4-200GF4-RJ, MR-J4-200B4-RJ, MR-J4-200A4-RJ, MR-J4-200TM4	-	-
HG-SR2024W0C	MR-J4-200GF4-RJ, MR-J4-200B4-RJ, MR-J4-200A4-RJ, MR-J4-200TM4	-	-
HG-SR3524W0C	MR-J4-350GF4-RJ, MR-J4-350B4-RJ, MR-J4-350A4-RJ, MR-J4-350TM4	-	-
HG-SR5024W0C	MR-J4-500GF4-RJ, MR-J4-500B4-RJ, MR-J4-500A4-RJ, MR-J4-500TM4	-	-
HG-SR7024W0C	MR-J4-700GF4-RJ, MR-J4-700B4-RJ, MR-J4-DU900B4-RJ (*2), MR-J4-700A4-RJ, MR-J4-700TM4	-	-
HG-JR534W0C	MR-J4-60GF4-RJ, MR-J4-100GF4-RJ (*1), MR-J4-60B4-RJ, MR-J4-100B4-RJ (*1), MR-J4-60A4-RJ, MR-J4-100A4-RJ (*1), MR-J4-60TM4, MR-J4-100TM4	-	-
HG-JR734W0C	MR-J4-100GF4-RJ, MR-J4-200GF4-RJ (*1), MR-J4-100B4-RJ, MR-J4-200B4-RJ (*1), MR-J4-100A4-RJ, MR-J4-200A4-RJ (*1), MR-J4-100TM4, MR-J4-200TM4	-	-
HG-JR1034W0C	MR-J4-100GF4-RJ, MR-J4-200GF4-RJ (*1), MR-J4-100B4-RJ, MR-J4-200B4-RJ (*1), MR-J4-100A4-RJ, MR-J4-200A4-RJ (*1), MR-J4-100TM4, MR-J4-200TM4	-	-
HG-JR1534W0C	MR-J4-200GF4-RJ, MR-J4-350GF4-RJ (*1), MR-J4-200B4-RJ, MR-J4-350B4-RJ (*1), MR-J4-200A4-RJ, MR-J4-350A4-RJ (*1), MR-J4-200TM4, MR-J4-350TM4	-	-
HG-JR2034W0C	MR-J4-200GF4-RJ, MR-J4-350GF4-RJ (*1), MR-J4-200B4-RJ, MR-J4-350B4-RJ (*1), MR-J4-200A4-RJ, MR-J4-350A4-RJ (*1), MR-J4-200TM4, MR-J4-350TM4	-	-
HG-JR3534W0C	MR-J4-350GF4-RJ, MR-J4-500GF4-RJ (*1), MR-J4-350B4-RJ, MR-J4-500B4-RJ (*1), MR-J4-350A4-RJ, MR-J4-500A4-RJ (*1), MR-J4-350TM4, MR-J4-500TM4	-	-
HG-JR5034W0C	MR-J4-500GF4-RJ, MR-J4-700GF4-RJ (*1), MR-J4-500B4-RJ, MR-J4-700B4-RJ (*1), MR-J4-DU900B4-RJ (*1), MR-J4-500A4-RJ, MR-J4-700A4-RJ (*1), MR-J4-500TM4, MR-J4-700TM4	-	-
HG-JR7034W0C	MR-J4-700GF4-RJ, MR-J4-700B4-RJ, MR-J4-DU900B4-RJ (*2), MR-J4-700A4-RJ, MR-J4-700TM4	-	-
HG-JR9034W0C	MR-J4-11KGF4-RJ, MR-J4-11KB4-RJ, MR-J4-DU900B4-RJ, MR-J4-11KA4-RJ, MR-J4-11KTM4	-	-
HG-JR701M4W0C	MR-J4-700GF4-RJ, MR-J4-700B4-RJ, MR-J4-DU900B4-RJ (*2), MR-J4-700A4-RJ, MR-J4-11KTM4	-	-
HG-JR11K1M4W0C	MR-J4-11KGF4-RJ, MR-J4-11KB4-RJ, MR-J4-DU11KB4-RJ, MR-J4-11KA4-RJ, MR-J4-11KTM4	-	-
HG-JR15K1M4W0C	MR-J4-15KGF4-RJ, MR-J4-15KB4-RJ, MR-J4-DU15KB4-RJ, MR-J4-15KA4-RJ, MR-J4-15KTM4	-	-
HG-JR22K1M4W0C	MR-J4-22KGF4-RJ, MR-J4-22KB4-RJ, MR-J4-DU22KB4-RJ, MR-J4-22KA4-RJ, MR-J4-22KTM4	-	-

Notes:
1. This combination increases the maximum torque from 300% to 400% of the rated torque.
2. The maximum torque can be increased when the "Selection of maximally increasing torque function with drive unit" is enabled with a parameter.

HG-KR Series 3000 r/min (Low Inertia, Small Capacity) Specifications 200V

Servo Motor Model HG-KR_		053(B)	13(B)	23(B)	43(B)	73(B)
Servo Amplifier Model	MR-J4-_	Refer to "Combinations of Servo Motor and Servo Amplifier" in this selection guide				
	MR-J4W_-_					
Power Supply Capacity (kVA) (*1)		0.3	0.3	0.5	0.9	1.3
Continuous Running Duty	Rated Output (W)	50	100	200	400	750
	Rated Torque (N•m) (Note 3)	0.16	0.32	0.64	1.3	2.4
Maximum Torque (N•m)		0.56	1.1	2.2	4.5	8.4
Rated Speed (r/min)		3000				
Maximum Speed (r/min)		6000				
Permissible Instantaneous Speed (r/min)		6900				
Power Rate Continuous Rated Torque	Standard (kW/s)	5.63	13.0	18.3	43.7	45.2
	With Electromagnetic Brake (kW/s)	5.37	12.1	16.7	41.3	41.6
Rated Current (A)		0.9	0.8	1.3	2.6	4.8
Maximum Current (A)		3.2	2.5	4.6	9.1	17
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	(*4)	(*4)	453	268	157
	MR-J4W_- (times/min)	2500	1350	451	268	393
Moment of inertia J (x10^{-4}kg•m^2)	Standard	0.0450	0.0777	0.221	0.371	1.26
	With Electromagnetic Brake	0.0472	0.0837	0.243	0.393	1.37
Recommended Load/Motor Inertia Ratio (Note 1)		17 times or less		26 times or less	25 times or less	17 times or less
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)				
Oil Seal		None	None (Servo Motors with oil seal are available. (HG-KR_J))			
Insulation Class		130 (B)				
Structure		Totally enclosed, natural cooling (IP rating: IP65) (Note 2)				
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)				
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust				
	Elevation / Vibration (*4)	1000 m or less above sea level; X: 49 m/s^2 Y: 49 m/s^2				
Vibration Rank		V10 (*6)				
Permissible Load for the Shaft (*5)	L (mm)	25	25	30	30	40
	Radial (N)	88	88	245	245	392
	Thrust (N)	59	59	98	98	147
Weight (kg)	Standard	0.34	0.54	0.91	1.4	2.8
	With Electromagnetic Brake	0.54	0.74	1.3	1.8	3.8

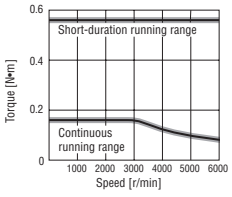
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-KR 3000 Series Electromagnetic Brake Specifications (*1)

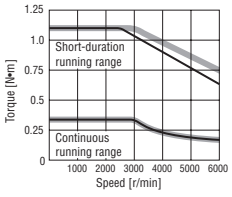
Servo Motor Model HG-KR_		053B	13B	23B	43B	73B
Type		Spring actuated type safety brake				
Rated Voltage		24 VDC $^{0}_{-10}$ %				
Power Consumption (W) at 20 °C		6.3	6.3	7.9	7.9	10
Electromagnetic Brake Static Friction Torque (N•m)		0.32	0.32	1.3	1.3	2.4
Permissible Braking Work	Per Braking (J)	5.6	5.6	22	22	64
	Per Hour (J)	56	56	220	220	640
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000				
	Work Per Braking (J)	5.6	5.6	22	22	64

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

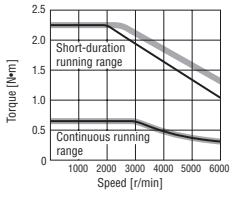
HG-KR053(B) (*1, *2)



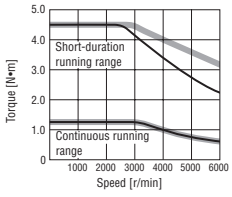
HG-KR13(B) (*1, *2)



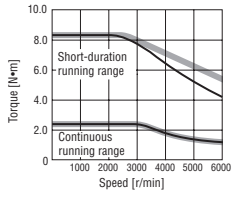
HG-KR23(B) (*1, *2)



HG-KR43(B) (*1, *2)



HG-KR73(B) (*1, *2)



Notes: 1. ▬ : For 3-phase 200 VAC or 1-phase 230 VAC.
2. —— : For 1-phase 200 VAC.
3. Torque drops when the power supply voltage is below the specified value.

HG-MR Series 3000 r/min (Ultra Low Inertia, Small Capacity) Specifications 200V

Servo Motor Model HG-MR_		053(B)	13(B)	23(B)	43(B)	73(B)
Servo Amplifier Model	MR-J4-_	Refer to "Combinations of Servo Motor and Servo Amplifier" in this selection guide				
	MR-J4W_-_					
Power Supply Capacity (kVA) (*1)		0.3	0.3	0.5	0.9	1.3
Continuous Running Duty	Rated Output (W)	50	100	200	400	750
	Rated Torque (N•m) (Note 3)	0.16	0.32	0.64	1.3	2.4
Maximum Torque (N•m)		0.48	0.95	1.9	3.8	7.2
Rated Speed (r/min)		3000				
Maximum Speed (r/min)		6000				
Permissible Instantaneous Speed (r/min)		6900				
Power Rate Continuous Rated Torque	Standard (kW/s)	15.6	33.8	46.9	114.2	97.3
	With Electromagnetic Brake (kW/s)	11.3	28.0	37.2	98.8	82.1
Rated Current (A)		1.0	0.9	1.5	2.6	5.8
Maximum Current (A)		3.1	2.5	5.3	9.0	20.0
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	(Note 4)	(Note 4)	1180	713	338
	MR-J4W_- (times/min)	7310	3640	1170	710	846
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	0.0162	0.0300	0.0865	0.142	0.586
	With Electromagnetic Brake	0.0224	0.0362	0.109	0.164	0.694
Recommended Load/Motor Inertia Ratio (Note 1)		35 times or less	32 times or less			
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)				
Oil Seal		None	None (Servo Motors with oil seal are available. (HG-MR_J))			
Insulation Class		130 (B)				
Structure		Totally enclosed, natural cooling (IP rating: IP65) (Note 2)				
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)				
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust				
	Elevation / Vibration (*4)	1000 m or less above sea level; X: 49 m/s² Y: 49 m/s²				
Vibration Rank		V10 (*6)				
Permissible Load for the Shaft (*5)	L (mm)	25	25	30	30	40
	Radial (N)	88	88	245	245	392
	Thrust (N)	59	59	98	98	147
Weight (kg)	Standard	0.34	0.54	0.91	1.4	2.8
	With Electromagnetic Brake	0.54	0.74	1.3	1.8	3.8

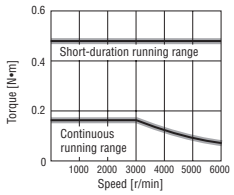
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-MR 3000 Series Electromagnetic Brake Specifications (*1)

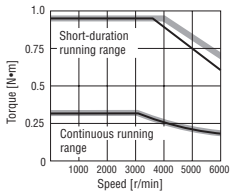
Servo Motor Model HG-MR_		053B	13B	23B	43B	73B
Type		Spring actuated type safety brake				
Rated Voltage		24 VDC $^{0}_{-10}$ %				
Power Consumption (W) at 20°C		6.3	6.3	7.9	7.9	10
Electromagnetic Brake Static Friction Torque (N•m)		0.32	0.32	1.3	1.3	2.4
Permissible Braking Work	Per Braking (J)	5.6	5.6	22	22	64
	Per Hour (J)	56	56	220	220	640
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000				
	Work Per Braking (J)	5.6	5.6	22	22	64

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

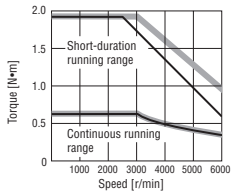
HG-MR053(B) (*1, *2)



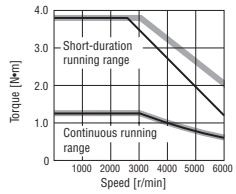
HG-MR13(B) (*1, *2)



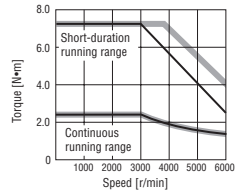
HG-MR23(B) (*1, *2)



HG-MR43(B) (*1, *2)



HG-MR73(B) (*1, *2)



Notes: 1. ▬ : For 3-phase 200 VAC or 1-phase 230 VAC.
2. ——— : For 1-phase 200 VAC.
3. Torque drops when the power supply voltage is below the specified value.

HG-SR 1000 r/min Series (Medium Inertia, Medium Capacity) Specifications 200V

Servo Motor Model HG-SR_		51(B)	81(B)	121(B)	201(B)	301(B)	421(B)
Servo Amplifier Model	MR-J4-_	Refer to "Combinations of Servo Motor and Servo Amplifier" in this selection guide					
	MR-J4W_-_						
Power Supply Capacity (kVA) (*1)		1.0	1.5	2.1	3.5	4.8	6.3
Continuous Running Duty	Rated Output (kW)	0.5	0.85	1.2	2.0	3.0	4.2
	Rated Torque (N•m) (Note 3)	4.8	8.1	11.5	19.1	28.6	40.1
Maximum Torque (N•m)		14.3	24.4	34.4	57.3	85.9	120
Rated Speed (r/min)		1000					
Maximum Speed (r/min)		1500					
Permissible Instantaneous Speed (r/min)		1725					
Power Rate Continuous Rated Torque	Standard (kW/s)	19.7	41.2	28.1	46.4	82.3	107
	With Electromagnetic Brake (kW/s)	16.5	36.2	23.2	41.4	75.3	99.9
Rated Current (A)		2.8	5.2	7.1	9.4	13	19
Maximum Current (A)		9.0	17	23	30	42	61
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	77	114	191	113	89	76
	MR-J4W_- (times/min)	392	286	-	-	-	-
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	11.6	16.0	46.8	78.6	99.7	151
	With Electromagnetic Brake	13.8	18.2	56.5	88.2	109	161
Recommended Load/Motor Inertia Ratio (Note 1)		17 times or less	15 times or less				
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)					
Oil Seal		None (Servo Motors with oil seal are available. (HG-SR_J))					
Insulation Class		155 (F)					
Structure		Totally enclosed, natural cooling (IP rating: IP67) (Note 2)					
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)					
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)					
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust					
	Elevation	1000 m or less above sea level					
	Vibration (*4)	X: 24.5 m/s² Y: 24.5 m/s²		X: 24.5 m/s² Y: 49 m/s²		X: 24.5 m/s² Y: 29.4 m/s²	
Vibration Rank		V10 (*6)					
Permissible Load for the Shaft (*5)	L (mm)	55	55	79	79	79	79
	Radial (N)	980	980	2058	2058	2058	2058
	Thrust (N)	490	490	980	980	980	980
Weight (kg)	Standard	6.2	7.3	11	16	20	27
	With Electromagnetic Brake	8.2	9.3	17	22	26	33

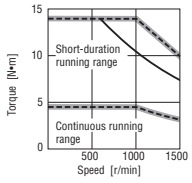
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-SR 1000 Series Electromagnetic Brake Specifications (*1)

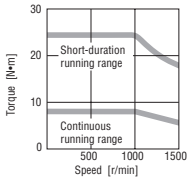
Servo Motor Model HG-SR_		51B	81B	121B	201B	301B	421B
Type		Spring actuated type safety brake					
Rated Voltage		24 VDC $^{0}_{-10}$ %					
Power Consumption (W) at 20°C		20	20	34	34	34	34
Electromagnetic Brake Static Friction Torque (N•m)		8.5	8.5	44	44	44	44
Permissible Braking Work	Per Braking (J)	400	400	4500	4500	4500	4500
	Per Hour (J)	4000	4000	45000	45000	45000	45000
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000					
	Work Per Braking (J)	200	200	1000	1000	1000	1000

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

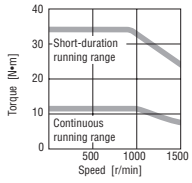
HG-SR51(B) (*1, *2, *3)



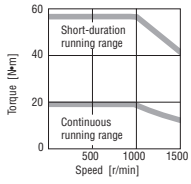
HG-SR81(B) (*1)



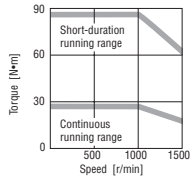
HG-SR121(B) (*1)



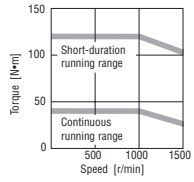
HG-SR201(B) (*1)



HG-SR301(B) (*1)



HG-SR421(B) (*1)



Notes: 1. ——— : For 3-phase 200 V AC.
2. - - - - : For 1-phase 230 V AC.
3. ——— : For 1-phase 200 V AC.
This line is drawn only where differs from the other two lines.
4. Torque drops when the power supply voltage is below the specified value.

HG-SR 2000 r/min Series (Medium Inertia, Medium Capacity) Specifications 200V

Servo Motor Model HG-SR_		52(B)	102(B)	152(B)	202(B)	352(B)	502(B)	702(B)
Servo Amplifier Model	MR-J4-	Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide.						
	MR-J4W_-_							
Power Supply Capacity (kVA) (*1)		1.0	1.7	2.5	3.5	5.5	7.5	10
Continuous Running Duty	Rated Output (kW)	0.5	1.0	1.5	2.0	3.5	5.0	7.0
	Rated Torque (N•m) (Note 3)	2.4	4.8	7.2	9.5	16.7	23.9	33.4
Maximum Torque (N•m)		7.2	14.3	21.5	28.6	50.1	71.6	100
Rated Speed (r/min)		2000						
Maximum Speed (r/min)		3000						
Permissible Instantaneous Speed (r/min)		3450						
Power Rate Continuous Rated Torque (kW/s)	Standard (kW/s)	7.85	19.7	32.1	19.5	35.5	57.2	74.0
	With Electromagnetic Brake (kW/s)	6.01	16.5	28.2	16.1	31.7	52.3	69.4
Rated Current (A)		2.9	5.6	9.4	9.6	14	22	26
Maximum Current (A)		9.0	17.4	29	31	45	70	83
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	31	38	139	47	28	29	25
	MR-J4W_- (times/min)	154	96	-	-	-	-	-
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	7.26	11.6	16.0	46.8	78.6	99.7	151
	With Electromagnetic Brake	9.48	13.8	18.2	56.5	88.2	109	161
Recommended Load/Motor Inertia Ratio (Note 1)		15 times or less	17 times or less		15 times or less			
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)						
Oil Seal		None (Servo Motors with oil seal are available. (HG-SR_J))						
Insulation Class		155 (F)						
Structure		Totally enclosed, natural cooling (IP rating: IP67) (Note 2)						
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)						
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)						
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Elevation	1000 m or less above sea level						
	Vibration (*4)	X: 24.5 m/s² Y: 24.5 m/s²			X: 24.5 m/s² Y: 49 m/s²		X: 24.5 m/s² Y: 29.4 m/s²	
Vibration Rank		V10 (*6)						
Permissible Load for the Shaft (*5)	L (mm)	55	55	55	79	79	79	79
	Radial (N)	980	980	980	2058	2058	2058	2058
	Thrust (N)	490	490	490	980	980	980	980
Weight (kg)	Standard	4.8	6.2	7.3	11	16	20	27
	With Electromagnetic Brake	6.7	8.2	9.3	17	22	26	33

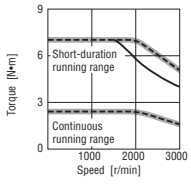
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-SR 2000 Series Electromagnetic Brake Specifications (*1)

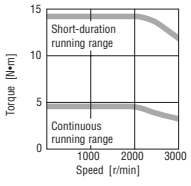
Servo Motor Model HG-SR_		52B	102B	152B	202B	352B	502B	702B
Type		Spring actuated type safety brake						
Rated Voltage		24 VDC $^{0}_{-10}$ %						
Power Consumption (W) at 20 °C		20	20	20	34	34	34	34
Electromagnetic Brake Static Friction Torque (N•m)		8.5	8.5	8.5	44	44	44	44
Permissible Braking Work	Per Braking (J)	400	400	400	4500	4500	4500	4500
	Per Hour (J)	4000	4000	4000	45000	45000	45000	45000
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000						
	Work Per Braking (J)	200	200	200	1000	1000	1000	1000

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

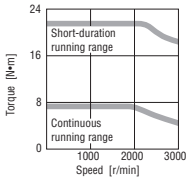
HG-SR52(B) (*1, *2, *3)



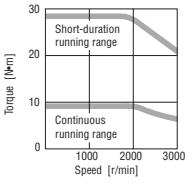
HG-SR102(B) (*1)



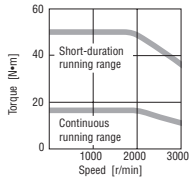
HG-SR152(B) (*1)



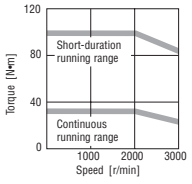
HG-SR202(B) (*1)



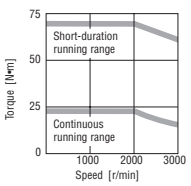
HG-SR352(B) (*1)



HG-SR702(B) (*1)



HG-SR502(B) (*1)



Notes: 1. ——— : For 3-phase 200 V AC.
2. - - - - : For 1-phase 230 V AC.
3. ——— : For 1-phase 200 V AC.
This line is drawn only where differs from the other two lines.
4. Torque drops when the power supply voltage is below the specified value.

HG-SR 2000 r/min Series (Medium Inertia, Medium Capacity) Specifications 400V

Servo Motor Model HG-SR_		524(B)	1024(B)	1524(B)	2024(B)	3524(B)	5024(B)	7024(B)
Servo Amplifier Model	MR-J4-	Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide.						
Power Supply Capacity (kVA) (*1)		1.0	1.7	2.5	3.5	5.5	7.5	10
Continuous Running Duty	Rated Output (kW)	0.5	1.0	1.5	2.0	3.5	5.0	7.0
	Rated Torque (N•m) (Note 3)	2.4	4.8	7.2	9.5	16.7	23.9	33.4
Maximum Torque (N•m)		7.2	14.3	21.5	28.6	50.1	71.6	100
Rated Speed (r/min)		2000						
Maximum Speed (r/min)		3000						
Permissible Instantaneous Speed (r/min)		3450						
Power Rate Continuous Rated Torque (kW/s)	Standard (kW/s)	7.85	19.7	32.1	19.5	35.5	57.2	74.0
	With Electromagnetic Brake (kW/s)	6.01	16.5	28.2	16.1	31.7	52.3	69.4
Rated Current (A)		1.5	2.8	4.7	4.9	7	11	13
Maximum Current (A)		4.5	8.9	17	17	27	42	59
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	46	29	139	47	34	29	25
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	7.26	11.6	16.0	46.8	78.6	99.7	151
	With Electromagnetic Brake	9.48	13.8	18.2	56.5	88.2	109	161
Recommended Load/Motor Inertia Ratio (Note 1)		15 times or less	17 times or less		15 times or less			
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)						
Oil Seal		None (Servo Motors with oil seal are available. (HG-SR_J))						
Insulation Class		155 (F)						
Structure		Totally enclosed, natural cooling (IP rating: IP67) (Note 2)						
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)						
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)						
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Elevation	1000 m or less above sea level						
	Vibration (*4)	X: 24.5 m/s^2 Y: 24.5 m/s^2			X: 24.5 m/s^2 Y: 49 m/s^2		X: 24.5 m/s^2 Y: 29.4 m/s^2	
Vibration Rank		V10 (*6)						
Permissible Load for the Shaft (*5)	L (mm)	55	55	55	79	79	79	79
	Radial (N)	980	980	980	2058	2058	2058	2058
	Thrust (N)	490	490	490	980	980	980	980
Weight (kg)	Standard	4.8	6.2	7.3	11	16	20	27
	With Electromagnetic Brake	6.7	8.2	9.3	17	22	26	33

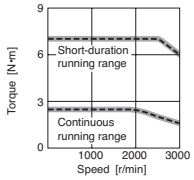
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-SR 2000 Series (400V) Electromagnetic Brake Specifications (*1)

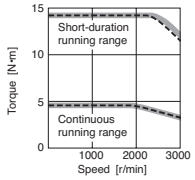
Servo Motor Model HG-SR_		524B	1024B	1524B	2024B	3524B	5024B	7024B
Type		Spring actuated type safety brake						
Rated Voltage		24 VDC $^{0}_{-10}$ %						
Power Consumption (W) at 20°C		20	20	20	34	34	34	34
Electromagnetic Brake Static Friction Torque (N•m)		8.5	8.5	8.5	44	44	44	44
Permissible Braking Work	Per Braking (J)	400	400	400	4500	4500	4500	4500
	Per Hour (J)	4000	4000	4000	45000	45000	45000	45000
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000						
	Work Per Braking (J)	200	200	200	1000	1000	1000	1000

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

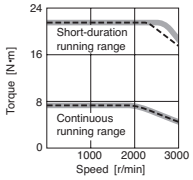
HG-SR524(B) (Note 1, 2)



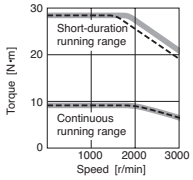
HG-SR1024(B) (Note 1, 2)



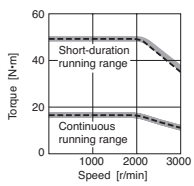
HG-SR1524(B) (Note 1, 2)



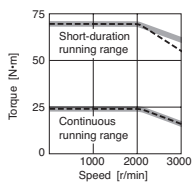
HG-SR2024(B) (Note 1, 2)



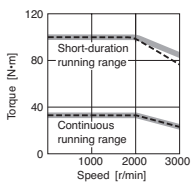
HG-SR3524(B) (Note 1, 2)



HG-SR5024(B) (Note 1, 2)



HG-SR7024(B) (Note 1, 2)



Notes: 1. ▬ : For 3-phase 400 V AC.
2. - - - : For 3-phase 380 V AC.
3. Torque drops when the power supply voltage is below the specified value.

HG-JR 3000 r/min Series (Low Inertia, Medium Capacity) Specifications 200V

Servo Motor Model HG-JR_		53(B)	73(B)	103(B)	153(B)	203(B)	353(B)	503(B)	703(B)	903(B)
Servo Amplifier Model	MR-J4-	Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide.								
	MR-J4W_-_									
Power Supply Capacity (kVA) (*1)		1.0	1.3	1.7	2.5	3.5	5.5	7.5	10	13
Continuous Running Duty	Rated Output (kW)	0.5	0.75	1.0	1.5	2.0	3.3 <3.5> (Note 5)	5.0	7.0	9.0
	Rated Torque (N•m) (Note 3)	1.6	2.4	3.2	4.8	6.4	10.5 <11.1> (Note 5)	15.9	22.3	28.6
Maximum Torque (N•m) (Note 6)		4.8 <6.4>	7.2 <9.6>	9.6 <12.7>	14.3 <19.1>	19.1 <25.5>	32.0 <44.6>	44.7 <63.7>	66.8	85.8
Rated Speed (r/min)		3000								
Maximum Speed (r/min)		6000							5000	
Permissible Instantaneous Speed (r/min)		6900							5750	
Power Rate Continuous Rated Torque (kW/s)	Standard (kW/s)	16.7	27.3	38.2	60.2	82.4	83.5	133	115	147
	With Electromagnetic Brake (kW/s)	12.5	22.0	32.2	53.1	74.8	71.6	119	93.9	125
Rated Current (A)		3.0	5.6	5.6	11	11	17 <18> (Note 5)	27	34	41
Maximum Current (A) (Note 5)		9.0 <12>	17 <23>	17 <23>	32 <43>	32 <43>	51 <71>	81 <108>	103	134
Regenerative Braking Frequency (*2, Note 5)	MR-J4- (times/min)	67 <137>	98 <511>	76 <396>	271 <271>	206 <206>	73 <98>	68 <89>	56	204 (Note 7)
	MR-J4W_- (times/min)	328 <328>	237	186	-	-	-	-	-	-
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	1.52	2.09	2.65	3.79	4.92	13.2	19.0	43.3	55.8
	With Electromagnetic Brake	2.02	2.59	3.15	4.29	5.42	15.4	21.2	52.9	65.4
Recommended Load/Motor Inertia Ratio (Note 1)		10 times or less								
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)								
Oil Seal		Attached								
Insulation Class		155 (F)								
Structure		Totally enclosed, natural cooling (IP rating: IP67) (Note 2)								
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)								
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)								
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Elevation	1000 m or less above sea level								
	Vibration (*4)	X: 24.5 m/s² Y: 24.5 m/s²								X: 24.5 m/s² Y: 29.4 m/s²
Vibration Rank		V10 (*6)								
Permissible Load for the Shaft (*5)	L (mm)	40	40	40	40	40	55	55	79	79
	Radial (N)	323	323	323	323	323	980	980	2450	2450
	Thrust (N)	284	284	284	284	284	490	490	980	980
Weight (kg)	Standard	3.0	3.7	4.5	5.9	7.5	13	18	29	36
	With Electromagnetic Brake	4.4	5.1	5.9	7.3	8.9	15	20	35	42

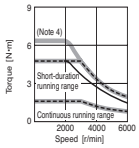
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-JR 3000 Series (200V) Electromagnetic Brake Specifications (*1)

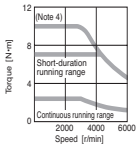
Servo Motor Model HG-JR_		53B	73B	103B	153B	203B	353B	503B	703B	903B
Type		Spring actuated type safety brake								
Rated Voltage		24 VDC $^{0}_{-10}$ %								
Power Consumption (W) at 20°C		11.7	11.7	11.7	11.7	11.7	23	23	34	34
Electromagnetic Brake Static Friction Torque (N•m)		6.6	6.6	6.6	6.6	6.6	16	16	44	44
Permissible Braking Work	Per Braking (J)	64	64	64	64	64	400	400	4500	4500
	Per Hour (J)	640	640	640	640	640	4000	4000	45000	45000
Electromagnetic Brake Life (*2)	Number of Times (Times)	5000							20000	
	Work Per Braking (J)	64	64	64	64	64	400	400	1000	1000

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

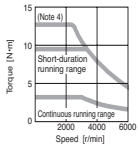
HG-JR53(B) (Note 1, 2, 3)



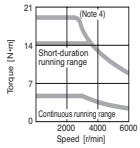
HG-JR73(B) (Note 1)



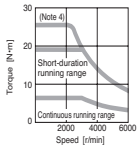
HG-JR103(B) (Note 1)



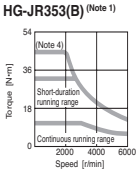
HG-JR153(B) (Note 1)



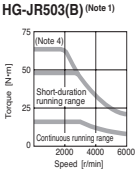
HG-JR203(B) (Note 1)



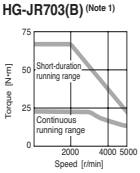
HG-JR353(B) (Note 1)



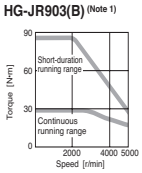
HG-JR503(B) (Note 1)



HG-JR703(B) (Note 1)



HG-JR903(B) (Note 1)



Notes: 1. ═══ : For 3-phase 200 V AC.
2. - - - - : For 1-phase 230 V AC.
3. ——— : For 1-phase 200 V AC.
This line is drawn only where differs from the other two lines.
4.This value is applicable when the torque is maximally increased. Refer to MR-J4 Brochure for more specifications.
5. Torque drops when the power supply voltage is below the specified value.

HG-JR 3000 r/min Series (Low Inertia, Medium Capacity) Specifications 400V

Servo Motor Model HG-JR_		534(B)	734(B)	1034(B)	1534(B)	2034(B)	3534(B)	5034(B)	7034(B)	9034(B)
Servo Amplifier Model	MR-J4-	Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide								
Power Supply Capacity (kVA) (*1)		1.0	1.3	1.7	2.5	3.5	5.5	7.5	10	13
Continuous Running Duty	Rated Output (kW)	0.5	0.75	1.0	1.5	2.0	3.3 <3.5> (Note 5)	5.0	7.0	9.0
	Rated Torque (N•m) (Note 3)	1.6	2.4	3.2	4.8	6.4	10.5 <11.1> (Note 5)	15.9	22.3	28.6
Maximum Torque (N•m) (Note 6)		4.8 <6.4>	7.2 <9.6>	9.6 <12.7>	14.3 <19.1>	19.1 <25.5>	32.0 <44.6>	47.2 <63.7>	66.8	85.8
Rated Speed (r/min)		3000								
Maximum Speed (r/min)		6000							5000	
Permissible Instantaneous Speed (r/min)		6900							5750	
Power Rate Continuous Rated Torque (kW/s)	Standard (kW/s)	16.7	27.3	38.2	60.2	82.4	83.5	133	115	147
	With Electromagnetic Brake (kW/s)	12.5	22.0	32.2	53.1	74.8	71.6	119	93.9	125
Rated Current (A)		1.5	2.8	2.8	5.4	5.4	8.3 <8.8> (Note 5)	14	17	21
Maximum Current (A) (Note 6)		4.5 <6.0>	8.4 <12>	8.4 <12>	17 <22>	17 <22>	26 <36>	41 <54>	52	67
Regenerative Braking Frequency (*2) (Note 6)	MR-J4- (times/min)	99 <100>	72 <489>	56 <382>	265 <275>	203 <209>	75 <98>	68 <89>	56	205 (Note 7)
Moment of Inertia J (x10^{-4}kg•m^2)	Standard	1.52	2.09	2.65	3.79	4.92	13.2	19.0	43.3	55.8
	With Electromagnetic Brake	2.02	2.59	3.15	4.29	5.42	15.4	21.2	52.9	65.4
Recommended Load/Motor Inertia Ratio (Note 1)		10 times or less								
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)								
Oil Seal		Attached								
Insulation Class		155 (F)								
Structure		Totally enclosed, natural cooling (IP rating: IP67) (Note 2)								
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)								
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)								
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust								
	Elevation	1000 m or less above sea level								
	Vibration (*4)	X: 24.5 m/s² Y: 24.5 m/s²							X: 24.5 m/s² Y: 29.4 m/s²	
Vibration Rank		V10 (*6)								
Permissible Load for the Shaft (*5)	L (mm)	40	40	40	40	40	55	55	79	79
	Radial (N)	323	323	323	323	323	980	980	2450	2450
	Thrust (N)	284	284	284	284	284	490	490	980	980
Weight (kg)	Standard	3.0	3.7	4.5	5.9	7.5	13	18	29	36
	With Electromagnetic Brake	4.4	5.1	5.9	7.3	8.9	15	20	35	42

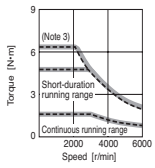
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-JR 3000 Series (400V) Electromagnetic Brake Specifications (*1)

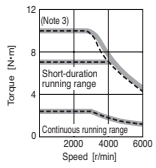
Servo Motor Model HG-JR_		534B	734B	1034B	1534B	2034B	3534B	5034B	7034B	9034B
Type		Spring actuated type safety brake								
Rated Voltage		24 VDC $^{0}_{-10}$ %								
Power Consumption (W) at 20°C		11.7	11.7	11.7	11.7	11.7	23	23	34	34
Electromagnetic Brake Static Friction Torque (N•m)		6.6	6.6	6.6	6.6	6.6	16	16	44	44
Permissible Braking Work	Per Braking (J)	64	64	64	64	64	400	400	4500	4500
	Per Hour (J)	640	640	640	640	640	4000	4000	45000	45000
Electromagnetic Brake Life (*2)	Number of Times (Times)	5000							20000	
	Work Per Braking (J)	64	64	64	64	64	400	400	1000	1000

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

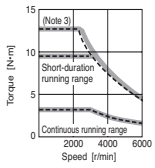
HG-JR534(B) (Note 1, 2)



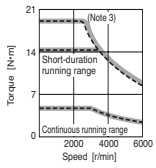
HG-JR734(B) (Note 1, 2)



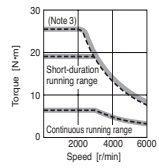
HG-JR1034(B) (Note 1, 2)



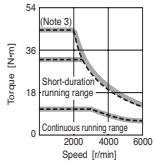
HG-JR1534(B) (Note 1, 2)



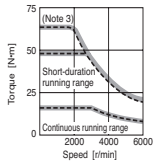
HG-JR2034(B) (Note 1, 2)



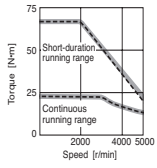
HG-JR3534(B) (Note 1, 2)



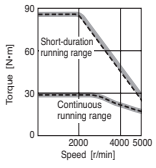
HG-JR5034(B) (Note 1, 2)



HG-JR7034(B) (Note 1, 2)



HG-JR9034(B) (Note 1, 2)



Notes: 1. ▬ : For 3-phase 400 V AC.
2. - - - - : For 3-phase 380 V AC.
3. This value is applicable when the torque is maximally increased. Refer to "Combinations of HG-JR Servo Motor Series and Servo Amplifier (400 V Class) for Increasing the Maximum Torque to 400% of the Rated Torque" on p. 2-6 in this catalog.
4. Torque drops when the power supply voltage is below the specified value.

HG-JR 1000 r/min Series (Low Inertia, Medium/Large Capacity) Specifications 200V

Servo Motor Model HG-JR_			601(B)	801(B)	12K1(B)	15K1	20K1	25K1	30K1	37K1
Servo Amplifier Model	MR-J4-		Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide.							
Power Supply Capacity (kVA) (*1)			8.6	12	18	22	30	38	48	59
Continuous Running Duty	Rated Output (kW)		6.0	8.0	12	15	20	25	30	37
	Rated Torque (N•m) (Note 3)		57.3	76.4	115	143	191	239	286	353
Maximum Torque (N•m)			172	229	345	429	573	717	858	1059
Rated Speed (r/min)			1000							
Maximum Speed (r/min)			2000			1500				
Permissible Instantaneous Speed (r/min)			2300			1725				
Power Rate at Continuous Rated Torque (kW/s)	Standard (kW/s)		187	265	420	418	582	748	594	761
	With Electromagnetic Brake (kW/s)		167	243	394	-	-	-	-	-
Rated Current (A)			31	47	60	67	94	95	121	152
Maximum Current (A)			108	165	208	231	318	313	399	495
Regenerative Braking Frequency (*2)	MR-J4- (times/min)		82	322 (Note 7)	224 (Note 7)	234 (Note 7)	183 (Note 7)	150 (Note 7)	-	-
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard		176	220	315	489	627	764	1377	1637
	With Electromagnetic Brake		196	240	336	-	-	-	-	-
Recommended Load/Motor Inertia Ratio (Note 1)			10 times or less							
Speed/Position Detector			Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)							
Oil Seal			Attached							
Insulation Class			155 (F)							
Structure (Note 2)			Totally enclosed, natural cooling (IP rating: IP67)			Totally enclosed, force cooling (IP rating: IP44)				
Environment (*3)	Ambient Temperature		0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)							
	Ambient Humidity		80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)							
	Atmosphere		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust							
	Elevation		1000 m or less above sea level							
	Vibration (*4)		X: 24.5 m/s² Y: 24.5 m/s²						X: 9.8 m/s² Y: 9.8 m/s²	
Vibration Rank			V10 (*6)							
Permissible Load for the Shaft (*5)	L (mm)		116	116	116	140	140	140	140	140
	Radial (N)		2940	2940	2940	3234	3234	3234	4900	4900
	Thrust (N)		980	980	980	1470	1470	1470	1960	1960
Weight (kg)	Standard		53	62	86	120	145	165	215	240
	With Electromagnetic Brake		65	74	97	-	-	-	-	-
Cooling Fan	Power Supply	Voltage/Frequency	-	-	-	3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz				
		Input (W)	-	-	-	65 (50 Hz)/85 (60 Hz)			120 (50 Hz)/175 (60 Hz)	
	Rated Current (A)		-	-	-	0.20 (50 Hz)/0.22 (60 Hz)			0.39 (50 Hz)/0.52 (60 Hz)	

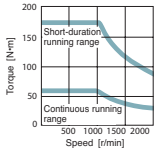
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-JR 1000 r/min Series (200 V Class) Electromagnetic Brake Specifications (*1)

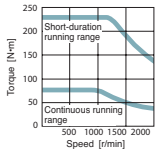
Servo Motor Model HG-JR_		601B	801B	12K1B
Type		Spring actuated type safety brake		
Rated Voltage		24 VDC $^{0}_{-10}$ %		
Power Consumption (W) at 20°C		32	32	32
Electromagnetic Brake Static Friction Torque (N•m)		126	126	126
Permissible Braking Work	Per Braking (J)	5000	5000	5000
	Per Hour (J)	45200	45200	45200
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000	20000	20000
	Work Per Braking (J)	400	400	400

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

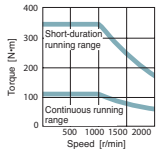
HG-JR601(B) (*1, 2)



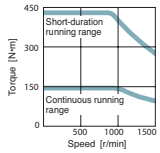
HG-JR801(B) (*1, 2)



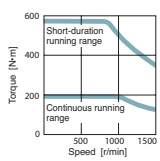
HG-JR12K1(B) (*1, 2)



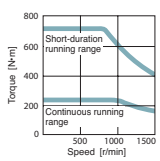
HG-JR15K1 (*1, 2)



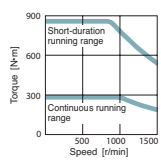
HG-JR20K1 (*1, 2)



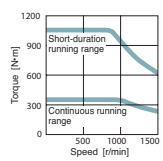
HG-JR25K1 (*1, 2)



HG-JR30K1 (*1, 2)



HG-JR37K1 (*1, 2)



Notes: 1. ▬ : For 3-phase 200 V AC.
2. Torque drops when the power supply voltage is below the specified value.

HG-JR 1000 r/min Series (Low Inertia, Medium/Large Capacity) Specifications 400V

Servo Motor Model HG-JR_			6014(B)	8014(B)	12K14(B)	15K14	20K14	25K14	30K14	37K14
Servo Amplifier Model	MR-J4-		Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide.							
Power Supply Capacity (kVA) (*1)			8.6	12	18	22	30	38	48	59
Continuous Running Duty	Rated Output (kW)		6.0	8.0	12	15	20	25	30	37
	Rated Torque (N•m) (Note 3)		57.3	76.4	115	143	191	239	286	353
Maximum Torque (N•m)			172	229	345	429	573	717	858	1059
Rated Speed (r/min)			1000							
Maximum Speed (r/min)			2000			1500				
Permissible Instantaneous Speed (r/min)			2300			1725				
Power Rate at Continuous Rated Torque (kW/s)	Standard (kW/s)		187	265	420	418	582	748	594	761
	With Electromagnetic Brake (kW/s)		167	243	394	-	-	-	-	-
Rated Current (A)			16	23	30	33	47	48	60	76
Maximum Current (A)			54	80	104	114	161	160	202	248
Regenerative Braking Frequency (*2)	MR-J4- (times/min)		83	331 (Note 7)	229 (Note 7)	239 (Note 7)	187 (Note 7)	152 (Note 7)	-	-
Moment of Inertia J (x10^{-4}kg•m^2)	Standard		176	220	315	489	627	764	1377	1637
	With Electromagnetic Brake		196	240	336	-	-	-	-	-
Recommended Load/Motor Inertia Ratio (Note 1)			10 times or less							
Speed/Position Detector			Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)							
Oil Seal			Attached							
Insulation Class			155 (F)							
Structure (Note 2)			Totally enclosed, natural cooling (IP rating: IP67)			Totally enclosed, force cooling (IP rating: IP44)				
Environment (*3)	Ambient Temperature		0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)							
	Ambient Humidity		80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)							
	Atmosphere		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust							
	Elevation		1000 m or less above sea level							
	Vibration (*4)		X: 24.5 m/s^2 Y: 24.5 m/s^2						X: 9.8 m/s^2 Y: 9.8 m/s^2	
Vibration Rank			V10 (*6)							
Permissible Load for the Shaft (*5)	L (mm)		116	116	116	140	140	140	140	140
	Radial (N)		2940	2940	2940	3234	3234	3234	4900	4900
	Thrust (N)		980	980	980	1470	1470	1470	1960	1960
Weight (kg)	Standard		53	62	86	120	145	165	215	240
	With Electromagnetic Brake		65	74	97	-	-	-	-	-
Cooling Fan	Power Supply	Voltage/Frequency	-	-	-	3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz			3-phase 380 VAC to 460 VAC, 50 Hz/60 Hz	
		Input (W)	-	-	-	65 (50 Hz)/85 (60 Hz)			110 (50 Hz)/150 (60 Hz)	
	Rated Current (A)		-	-	-	0.12 (50 Hz)/0.14 (60 Hz)			0.20 (50 Hz)/0.22 (60 Hz)	

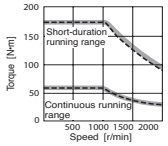
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-JR 1000 r/min Series (400 V Class) Electromagnetic Brake Specifications (*1)

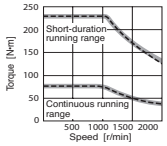
Servo Motor Model HG-JR_		6014B	8014B	12K14B
Type		Spring actuated type safety brake		
Rated Voltage		24 VDC $^{0}_{-10}$ %		
Power Consumption (W) at 20°C		32	32	32
Electromagnetic Brake Static Friction Torque (N•m)		126	126	126
Permissible Braking Work	Per Braking (J)	5000	5000	5000
	Per Hour (J)	45200	45200	45200
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000	20000	20000
	Work Per Braking (J)	400	400	400

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

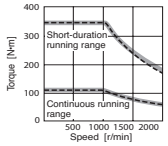
HG-JR6014(B) (Note 1, 2, 3)



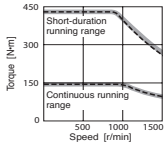
HG-JR8014(B) (Note 1, 2, 3)



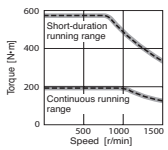
HG-JR12K14(B) (Note 1, 2, 3)



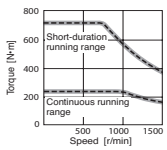
HG-JR15K14 (Note 1, 2, 3)



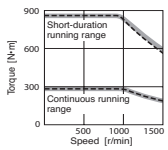
HG-JR20K14 (Note 1, 2, 3)



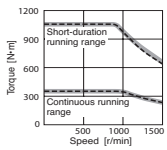
HG-JR25K14 (Note 1, 2, 3)



HG-JR30K14 (Note 1, 2, 3)



HG-JR37K14 (Note 1, 2, 3)



Notes: 1. ▬ : For 3-phase 400 V AC.
2. - - - - : For 3-phase 380 V AC.
3. Torque drops when the power supply voltage is below the specified value.

HG-JR 1500 r/min Series (Low Inertia, Large Capacity) Specifications 200V

Servo Motor Model HG-JR_		701M(B)	11K1M(B)	15K1M(B)	22K1M	30K1M	37K1M
Servo Amplifier Model	MR-J4-	Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide.					
Power Supply Capacity (kVA) (*1)		10	16	22	33	48	59
Continuous Running Duty	Rated Output (kW)	7.0	11	15	22	30	37
	Rated Torque (N•m) (Note 3)	44.6	70.0	95.5	140	191	236
Maximum Torque (N•m)		134	210	286	420	573	707
Rated Speed (r/min)		1500					
Maximum Speed (r/min)		3000			2500		
Permissible Instantaneous Speed (r/min)		3450			2875		
Power Rate Continuous Rated Torque (kW/s)	Standard (kW/s)	113	223	289	401	582	726
	With Electromagnetic Brake (kW/s)	101	204	271	-	-	-
Rated Current (A)		34	61	76	99	139	151
Maximum Current (A)		111	200	246	315	479	561
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	36	143 (Note 7)	162 (Note 7)	104 (Note 7)	-	-
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	176	220	315	489	627	764
	With Electromagnetic Brake	196	240	336	-	-	-
Recommended Load/Motor Inertia Ratio (Note 1)		10 times or less					
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)					
Oil Seal		Attached					
Insulation Class		155 (F)					
Structure (Note 2)		Totally enclosed, natural cooling (IP rating: IP67)			Totally enclosed, force cooling (IP rating: IP44)		
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)					
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)					
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust					
	Elevation	1000 m or less above sea level					
	Vibration (*4)	X: 24.5 m/s² Y: 24.5 m/s²					
Vibration Rank		V10 (*6)					
Permissible Load for the Shaft (*5)	L (mm)	116	116	116	140	140	140
	Radial (N)	2940	2940	2940	3234	3234	3234
	Thrust (N)	980	980	980	1470	1470	1470
Weight (kg)	Standard	53	62	86	120	145	165
	With Electromagnetic Brake	65	74	97	-	-	-
Cooling Fan	Voltage/Frequency	-	-	-	3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz		
	Input	-	-	-	65 (50 Hz)/85 (60 Hz)		
	Rated Current	-	-	-	0.20 (50 Hz)/0.22 (60 Hz)		

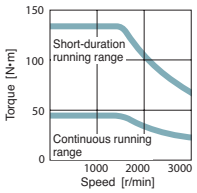
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-JR 1500 Series Electromagnetic Brake Specifications (*1)

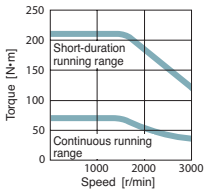
Servo Motor Model HG-JR_		701MB	11K1MB	15K1MB
Type		Spring actuated type safety brake		
Rated Voltage		24 VDC $^{0}_{-10}$ %		
Power Consumption (W) at 20°C		32		
Electromagnetic Brake Static Friction Torque (N•m)		126		
Permissible Braking Work	Per Braking (J)	5000		
	Per Hour (J)	45200		
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000		
	Work Per Braking (J)	400		

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications. 2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

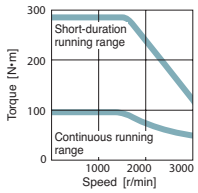
HG-JR701M(B) (*1, *2)



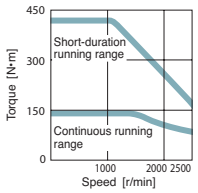
HG-JR11K1M(B) (*1, *2)



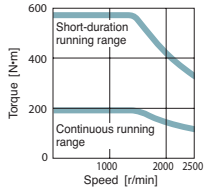
HG-JR15K1M(B) (*1, *2)



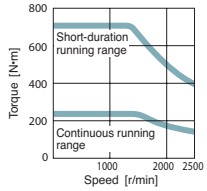
HG-JR22K1M (*1, *2)



HG-JR30K1M (*1, *2)



HG-JR37K1M (*1, *2)



Notes: 1. ▬ : For 3-phase 200 V AC.
2. Torque drops when the power supply voltage is below the specified value.

HG-JR 1500 r/min Series (Low Inertia, Medium/Large Capacity) Specifications 400V

Servo Motor Model HG-JR_		701M4(B)	11K1M4(B)	15K1M4(B)	22K1M4	30K1M4	37K1M4	45K1M4	55K1M4
Servo Amplifier Model	MR-J4-	Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide.							
Power Supply Capacity (kVA) (*1)		10	16	22	33	48	59	71	80
Continuous Running Duty	Rated Output (kW)	7.0	11	15	22	30	37	45	55
	Rated Torque (N•m) (Note *3)	44.6	70.0	95.5	140	191	236	286	350
Maximum Torque (N•m)		134	210	286	420	573	707	859	1050
Rated Speed (r/min)		1500							
Maximum Speed (r/min)		3000			2500				
Permissible Instantaneous Speed (r/min)		3450			2875				
Power Rate Continuous Rated Torque (kW/s)	Standard (kW/s)	113	223	289	401	582	726	596	749
	With Electromagnetic Brake (kW/s)	101	204	271	-	-	-	-	-
Rated Current (A)		17	31	38	50	68	79	85	110
Maximum Current (A)		56	100	123	170	235	263	288	357
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	36	143 (Note 7)	162 (Note 7)	104 (Note 7)	-	-	-	-
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	176	220	315	489	627	764	1377	1637
	With Electromagnetic Brake	196	240	336	-	-	-	-	-
Recommended Load/Motor Inertia Ratio (Note 1)		10 times or less							
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)							
Oil Seal		Attached							
Insulation Class		155 (F)							
Structure (Note 2)		Totally enclosed, natural cooling (IP rating: IP67)			Totally enclosed, force cooling (IP rating: IP44)				
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)							
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)							
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust							
	Elevation	1000 m or less above sea level							
	Vibration (*4)	X: 24.5 m/s² Y: 24.5 m/s²						X: 9.8 m/s² Y: 9.8 m/s²	
Vibration Rank		V10 (*6)							
Permissible Load for the Shaft (*5)	L (mm)	116	116	116	140	140	140	140	140
	Radial (N)	2940	2940	2940	3234	3234	3234	4900	4900
	Thrust (N)	980	980	980	1470	1470	1470	1960	1960
Weight (kg)	Standard	53	62	86	120	145	165	215	240
	With Electromagnetic Brake	65	74	97	-	-	-	-	-
Cooling Fan	Voltage/Frequency	-	-	-	3-phase 380 VAC to 480 VAC, 50 Hz/60 Hz			3-phase 380 VAC to 460 VAC, 50 Hz/60 Hz	
	Input	-	-	-	65 (50 Hz)/85 (60 Hz)			110 (50 Hz)/150 (60 Hz)	
	Rated Current	-	-	-	0.12 (50 Hz)/0.14 (60 Hz)			0.20 (50 Hz)/0.22 (60 Hz)	

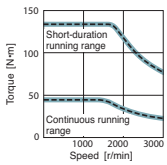
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-JR 1500 Series Electromagnetic Brake Specifications (*1)

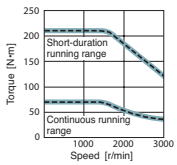
Servo Motor Model HG-JR_		701M4B	11K1M4B	15K1M4B
Type		Spring actuated type safety brake		
Rated Voltage		24 VDC $^{0}_{-10}$ %		
Power Consumption (W) at 20°C		32		
Electromagnetic Brake Static Friction Torque (N•m)		126		
Permissible Braking Work	Per Braking (J)	5000		
	Per Hour (J)	45200		
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000		
	Work Per Braking (J)	400		

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications. 2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

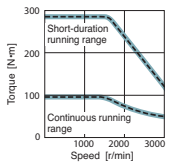
HG-JR701M4(B) (*1, 2, 3)



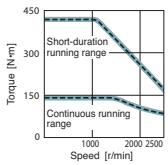
HG-JR11K1M4(B) (*1, 2, 3)



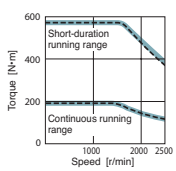
HG-JR15K1M4(B) (*1, 2, 3)



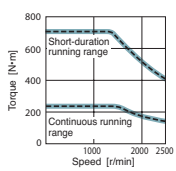
HG-JR22K1M4 (*1, 2, 3)



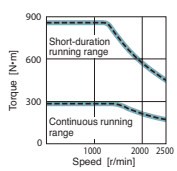
HG-JR30K1M4 (*1, 2, 3)



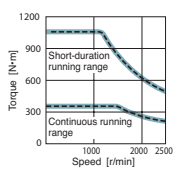
HG-JR37K1M4 (*1, 2, 3)



HG-JR45K1M4 (*1, 2, 3)



HG-JR55K1M4 (*1, 2, 3)



Notes: 1. ——— : For 3-phase 400 V AC.
2. - - - - : For 3-phase 380 V AC.
3. Torque drops when the power supply voltage is below the specified value.

HG-RR Series 3000 r/min (Ultra-Low Inertia, Medium Capacity) Specifications 200V

Servo Motor Model HG-RR_		103(B)	153(B)	203(B)	353(B)	503(B)
Servo Amplifier Model	MR-J4-_	Refer to "Combinations of Servo Motor and Servo Amplifier" in this selection guide				
Power Supply Capacity (kVA) (*1)		1.7	2.5	3.5	5.5	7.5
Continuous Running Duty	Rated Output (kW)	1.0	1.5	2.0	3.5	5.0
	Rated Torque (N•m) (Note 3)	3.2	4.8	6.4	11.1	15.9
Maximum Torque (N•m)		8.0	11.9	15.9	27.9	39.8
Rated Speed (r/min)		3000				
Maximum Speed (r/min)		4500				
Permissible Instantaneous Speed (r/min)		5175				
Power Rate Continuous Rated Torque	Standard (kW/s)	67.4	120	176	150	211
	With Electromagnetic Brake (kW/s)	54.8	101	153	105	163
Rated Current (A)		6.1	8.8	14	23	28
Maximum Current (A)		18	23	37	58	70
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	1090	860	710	174	125
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	1.5	1.90	2.30	8.30	12.0
	With Electromagnetic Brake	1.85	2.25	2.65	11.8	15.5
Recommended Load/Motor Inertia Ratio (Note 1)		5 times or less				
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)				
Oil Seal		Attached				
Insulation Class		155 (F)				
Structure		Totally enclosed, natural cooling (IP rating: IP65) (Note 2)				
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)				
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust				
	Elevation	1000 m or less above sea level				
	Vibration (*4)	X: 24.5 m/s² Y: 24.5 m/s²				
Vibration Rank		V10 (*6)				
Permissible Load for the Shaft (*5)	L (mm)	45	45	45	63	63
	Radial (N)	686	686	686	980	980
	Thrust (N)	196	196	196	392	392
Weight (kg)	Standard	3.9	5.0	6.2	12	17
	With Electromagnetic Brake	6.0	7.0	8.3	15	21

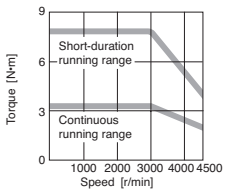
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-RR 3000 Series Electromagnetic Brake Specifications (*1)

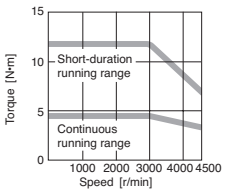
Servo Motor Model HG-RR_		103B	153B	203B	353B	503B
Type		Spring actuated type safety brake				
Rated Voltage		24 VDC $^{0}_{-10}$ %				
Power Consumption (W) at 20°C		19	19	19	23	23
Electromagnetic Brake Static Friction Torque (N•m)		7.0	7.0	7.0	17	17
Permissible Braking Work	Per Braking (J)	400				
	Per Hour (J)	4000				
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000				
	Work Per Braking (J)	200				

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

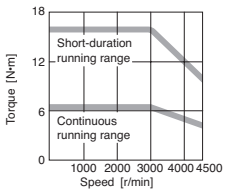
HG-RR103(B) (Note 1)



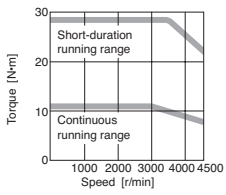
HG-RR153(B) (Note 1)



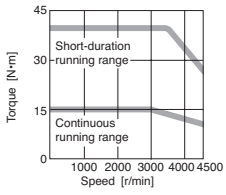
HG-RR203(B) (Note 1)



HG-RR353(B) (Note 1)



HG-RR503(B) (Note 1)



Notes: 1. ▬ : For 3-phase 200 V AC.
2. Torque drops when the power supply voltage is below the specified value.

HG-UR 2000 r/min Series (Flat Type, Medium Capacity) Specifications 200V

Servo Motor Model HG-UR_		72(B)	152(B)	202(B)	352(B)	502(B)
Servo Amplifier Model	MR-J4-_	Refer to "Combinations of Servo Motor and Servo Amplifier" in this selection guide				
	MR-J4W-_					
Power Supply Capacity (kVA) (*1)		1.3	2.5	3.5	5.5	7.5
Continuous Running Duty	Rated Output (kW)	0.75	1.5	2.0	3.5	5.0
	Rated Torque (N•m) (Note 3)	3.6	7.2	9.5	16.7	23.9
Maximum Torque (N•m)		10.7	21.5	28.6	50.1	71.6
Rated Speed (r/min)		2000				
Maximum Speed (r/min)		3000			2500	
Permissible Instantaneous Speed (r/min)		3450			2875	
Power Rate Continuous Rated Torque	Standard (kW/s)	12.3	23.2	23.9	36.5	49.6
	With Electromagnetic Brake (kW/s)	10.3	21.2	19.5	32.8	46.0
Rated Current (A)		5.4	9.7	14	23	28
Maximum Current (A)		16	29	42	69	84
Regenerative Braking Frequency (*2)	MR-J4- (times/min)	53	124	68	44	31
	MR-J4W_- (times/min)	107	-	-	-	-
Moment of Inertia J (x10^{-4}kg•m^2)	Standard	10.4	22.1	38.2	76.5	115
	With Electromagnetic Brake	12.5	24.2	46.8	85.1	124
Recommended Load/Motor Inertia Ratio (Note 1)		15 times or less				
Speed/Position Detector		Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev)				
Oil Seal		Attached				
Insulation Class		155 (F)				
Structure		Totally enclosed, natural cooling (IP rating: IP65) (Note 2)				
Environment (*3)	Ambient Temperature	0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)				
	Ambient Humidity	80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust				
	Elevation	1000 m or less above sea level				
	Vibration (*4)	X: 24.5 m/s² Y: 24.5 m/s²		X: 24.5 m/s² Y: 49 m/s²		
Vibration Rank		V10 (*6)				
Permissible Load for the Shaft (*5)	L (mm)	55	55	65	65	65
	Radial (N)	637	637	882	1176	1176
	Thrust (N)	490	490	784	784	784
Weight (kg)	Standard	8.0	11	16	20	24
	With Electromagnetic Brake	10	13	22	26	30

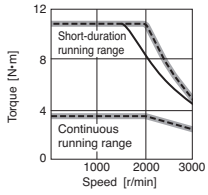
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-UR 2000 Series Electromagnetic Brake Specifications (*1)

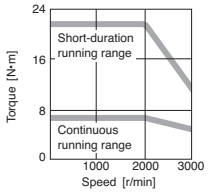
Servo Motor Model HG-UR_		72B	152B	202B	352B	502B
Type		Spring actuated type safety brake				
Rated Voltage		24 VDC $^{0}_{-10}$ %				
Power Consumption (W) at 20°C		19	19	34	34	34
Electromagnetic Brake Static Friction Torque (N•m)		8.5	8.5	44	44	44
Permissible Braking Work	Per Braking (J)	400	400	4500	4500	4500
	Per Hour (J)	4000	4000	45000	45000	45000
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000				
	Work Per Braking (J)	200	200	1000	1000	1000

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

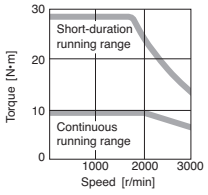
HG-UR72(B) (Note 1, 2, 3)



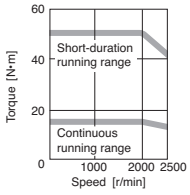
HG-UR152(B) (Note 1)



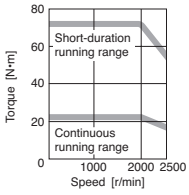
HG-UR202(B) (Note 1)



HG-UR352(B) (Note 1)



HG-UR502(B) (Note 1)



Notes: 1. ▬ : For 3-phase 200 V AC.
2. - - - : For 1-phase 230 V AC.
3. —— : For 1-phase 200 V AC.
This line is drawn only where differs from the other two lines.
4. Torque drops when the power supply voltage is below the specified value.

HG-AK Series (Ultra-compact Size, Ultra-small Capacity) Specifications (*4)

Servo Motor Model HG-AK		0136(B)	0236(B)	0336(B)
Servo Amplifier Model		Refer to "Combinations of Servo Motor and Servo Amplifier" in this selection guide		
Power Supply Capacity (kVA) (*1)		230	360	480
Continuous Running Duty	Rated Output (W)	10	20	30
	Rated Torque (N•m) (*3)	0.032	0.064	0.095
Maximum Torque (N•m)		0.095	0.191	0.286
Rated Speed (r/min)		3000		
Maximum Speed (r/min)	48 VDC [r/min]	6000		
	24 VDC [r/min]	6000		5000
Permissible Instantaneous Speed (r/min)	48 VDC [r/min]	6900		
	24 VDC [r/min]	6900		5750
Power Rate Continuous Rated Torque	Standard (kW/s)	3.54	9.01	14.95
	With Electromagnetic Brake (kW/s)	2.41	6.99	12.32
Rated Current (A)		2.1	2.1	2.2
Maximum Current (A)		6.3	6.3	6.6
Regenerative Braking Frequency [times/min] (*2)		1700	1200	900
Moment of Inertia J ($x10^{-4}$kg•m^2)	Standard	0.0029	0.0045	0.0061
	With Electromagnetic Brake	0.0042	0.0058	0.0074
Recommended Load/Motor Inertia Ratio (Note 1)		30 times or less		
Speed/Position Detector		Absolute/incremental 18-bit encoder (resolution: 262144 pulses/rev)		
Oil Seal		None		
Insulation Class		130 (B)		
Structure		Totally enclosed, natural cooling (IP rating: IP55) (Note 2)		
Environment (*3)	Ambient Temperature	Operation: 0°C to 40°C (non-freezing), storage: -15°C to 70°C (non-freezing)		
	Ambient Humidity	Operation: 80 %RH maximum (non-condensing), storage: 90 %RH maximum (non-condensing)		
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust		
	Elevation	1000 m or less above sea level		
	Vibration (*4)	X: 49 m/s² Y: 49 m/s²		
Vibration Rank		V10 (*6)		
Permissible Load for the Shaft (*5)	L (mm)	16	16	16
	Radial (N)	34	44	49
	Thrust (N)	14	14	14
Weight (kg)	Standard	0.12	0.14	0.16
	With Electromagnetic Brake	0.22	0.24	0.26

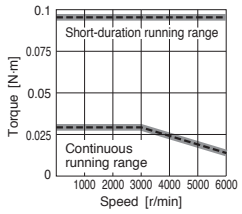
Notes: For MR-J4 Servo Motor notes, please go to page 395

HG-AK Series Electromagnetic Brake Specifications (*1)

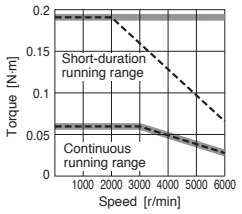
Servo Motor Model HG-AK		0136B	0236B	0336B
Type		Spring actuated type safety brake		
Rated Voltage		24 VDC $^{0}_{-10}$ %		
Power Consumption (W) at 20°C		1.8		
Electromagnetic Brake Static Friction Torque (N•m)		0.095		
Permissible Braking Work	Per Braking (J)	4.6		
	Per Hour (J)	46		
Electromagnetic Brake Life (*2)	Number of Times (Times)	20000		
	Work Per Braking (J)	1		

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

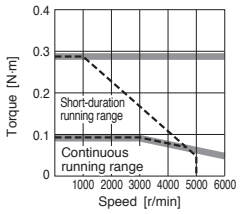
HG-AK0136(B) (Note 1, 2, 3, 4)



HG-AK0236(B) (Note 1, 2, 3, 4)



HG-AK0336(B) (Note 1, 2, 3, 4)



Notes: 1. ▬▬: For 48 V DC.
2. - - - -: For 24 V DC.
3. Torque drops when the power supply voltage is below the specified value.
4. The torque characteristics are applicable when optional MR-J4W03PWCBL5M-H or MR-J4W03PWBRCBL5M-H is used between the servo amplifier and the servo motor. When an option cable longer than 5 m is used, the torque characteristics in the short-duration running range may be lower because of voltage drop.

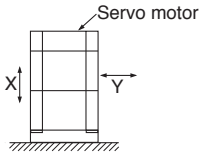
Servo Motor Notes:

1. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
2. The shaft-through portion is excluded. For geared Servo Motor, IP rating of the reducer portion is equivalent to IP44. Refer to the *7 below for the shaft-through portion.
3. When unbalanced torque is generated, such as in a vertical lift machine, keep the unbalanced torque of the machine under 70% of the Servo Motor rated torque.
4. When the Servo Motor decelerates to a stop from the rated speed, the regenerative frequency will not be limited if the effective torque is within the rated torque range. When the Servo Motor decelerates to a stop from the maximum speed, the regenerative frequency will not be limited if the following requirements are met.
   • HG-KR053(B): The load to motor inertia ratio is 8 times or less, and the effective torque is within the rated torque range.
   • HG-KR13(B): The load to motor inertia ratio is 4 times or less, and the effective torque is within the rated torque range.
   • HG-MR053(B): The load to motor inertia ratio is 24 times or less, and the effective torque is within the rated torque range.
   • HG-MR13(B): The load to motor inertia ratio is 12 times or less, and the effective torque is within the rated torque range.
5. The value in angle brackets is applicable when the Servo Motor is used with MR-J4-500B/MR-J4-500B-RJ/MR-J4-500B-RJ010/MR-J4-500A/MR-J4-500A-RJ.
6. The value in angle brackets is applicable when the maximum torque is increased. The maximum torque will be increased by changing the servo amplifier to be combined. Refer to "Combinations of HG-JR Servo Motor Series and Servo Amplifier (200 V Class) for Increasing the Maximum Torque to 400% of the Rated Torque" in the User's Guide for the available combinations.
7. The value is applicable when the external regenerative resistors, GRZG400-_Ω (standard accessory) are used with cooling fans (2 units of 92 mm x 92 mm, minimum airflow: 1.0 m^3/min). Note that [Pr. PA02] must be changed.

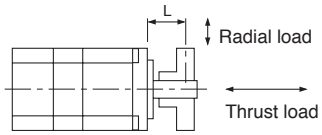
Annotations (*) for Servo Motor Specifications

1. The power supply capacity varies depending on the power supply impedance.
2. The regenerative braking frequency shows the permissible frequency when the Servo Motor, without a load and a regenerative option, decelerates from the rated speed to a stop. When a load is connected; however, the value will be the table value/(m+1), where m = Moment of inertia of load/Moment of inertia of Servo Motor. When the operating speed exceeds the rated speed, the regenerative braking frequency is inversely proportional to the square of (operating speed/rated speed). Take measures to keep the regenerative power [W] during operation below the tolerable regenerative power [W]. Use caution, especially when the operating speed changes frequently or when the regeneration is constant (as with vertical feeds). Select the most suitable regenerative option for your system with our capacity selection software. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
3. In the environment where the Servo Motor is exposed to oil mist, oil and/or water, a standard specification Servo Motor may not be usable. Contact your local sales office for more details.
4. The vibration direction is shown in the diagram below. The numerical value indicates the maximum value of the component (commonly the bracket in the opposite direction of the Servo Motor shaft).

   Fretting more likely occurs on the bearing when the Servo Motor stops. Thus, maintain vibration level at approximately one-half of the allowable value.

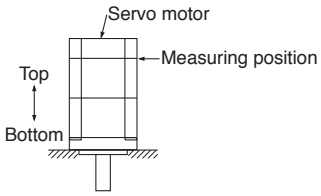


5. Refer to the diagram below for the permissible load for the shaft. Do not apply a load exceeding the value specified in the table on the shaft. The values in the table are applicable when each load is applied singly.

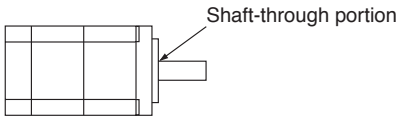


L: Distance between the flange mounting surface and the center of load.

6. V10 indicates that the amplitude of the Servo Motor itself is 10 μm or less. The following shows mounting posture and measuring position of the Servo Motor during the measurement:



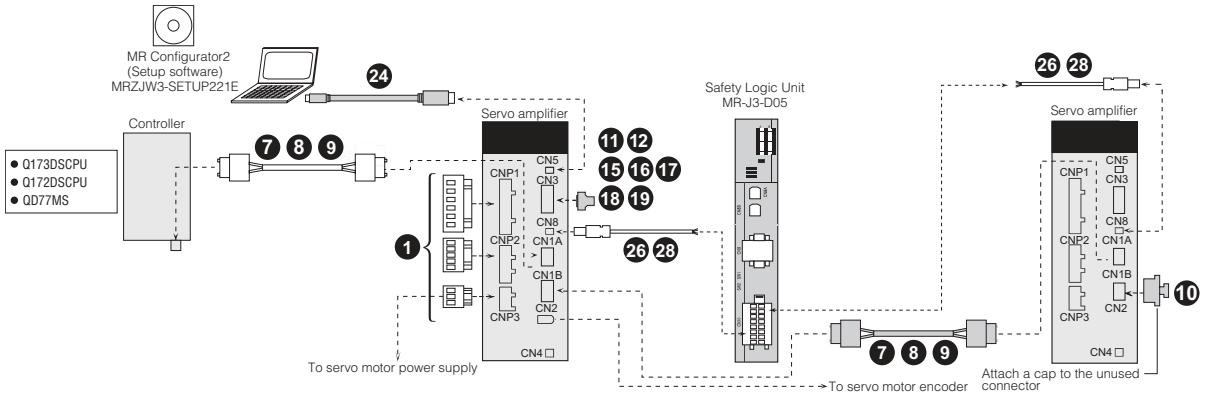
7. Refer to the diagram below for shaft-through portion.



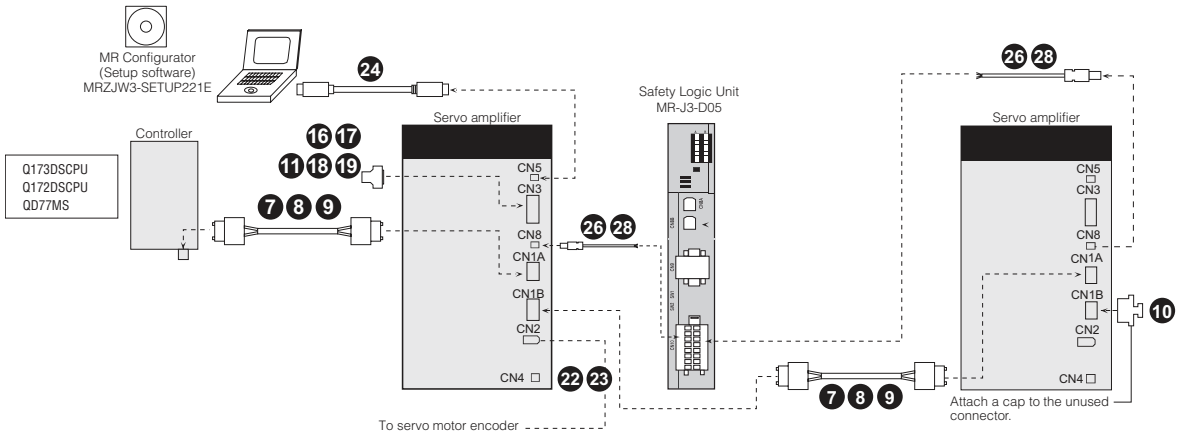
MR-J4 Servo Amplifier Cables and Connectors

MR-J4-B Type Amplifier Cables and Connectors

For 3.5 kW or smaller

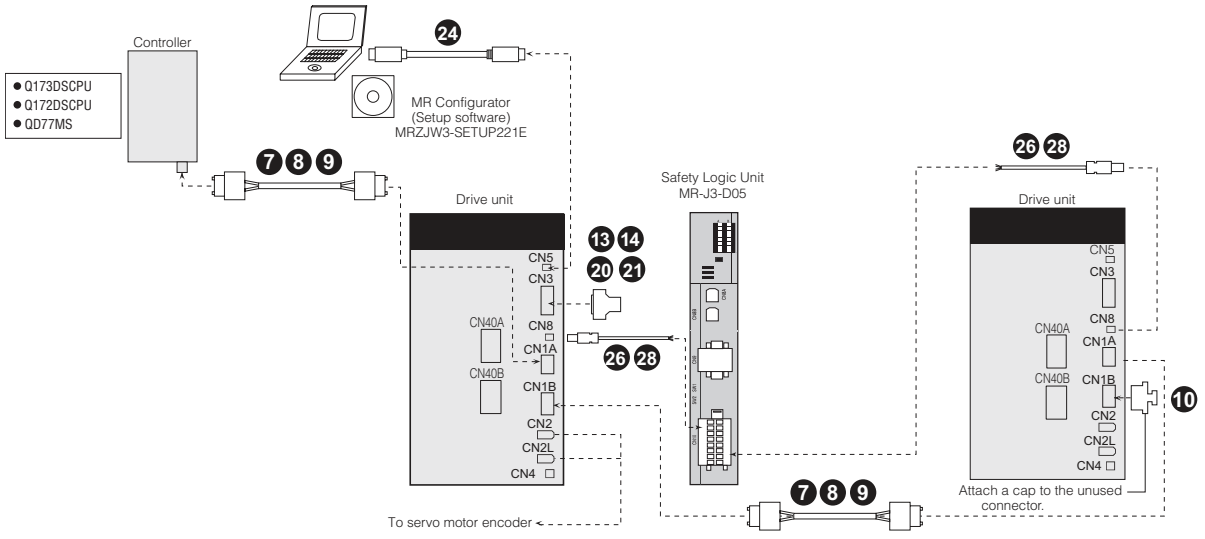


For 5 kW or larger



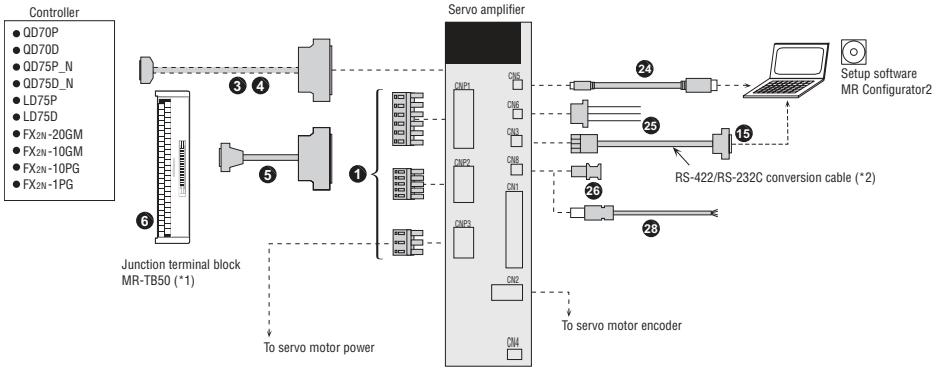
Note: Attach a SSCNET III connector cap to the unused connector.

MR-J4W2-B and MR-J4W3-B Type Amplifier Cables and Connectors

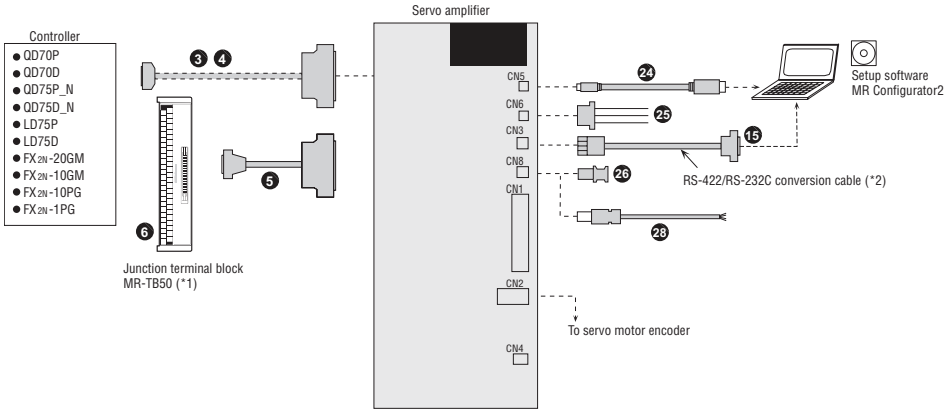


MR-J4-A Type Amplifier Cables and Connectors

For 3.5 kW or smaller

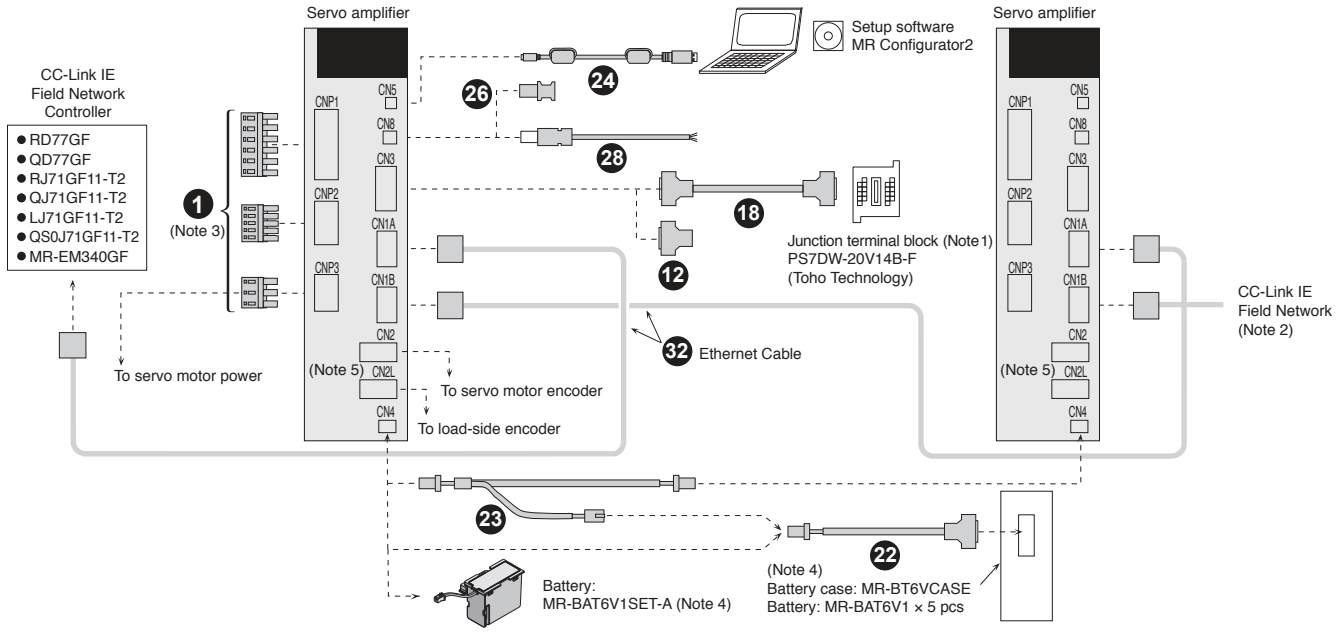


For 5 kW or larger



Notes:
1. Refer to "Junction Terminal Block" in this selection guide.
2. Refer to "Products on the Market for Servo Amplifiers" in the MR-J4 catalog.

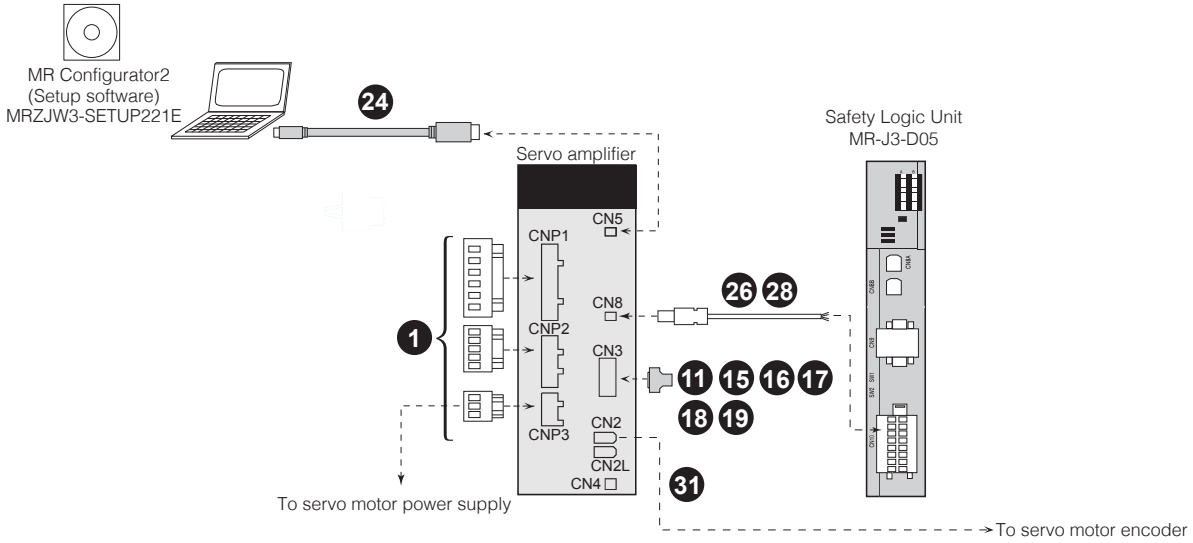
MR-J4-GF Type Amplifier Cables and Connectors



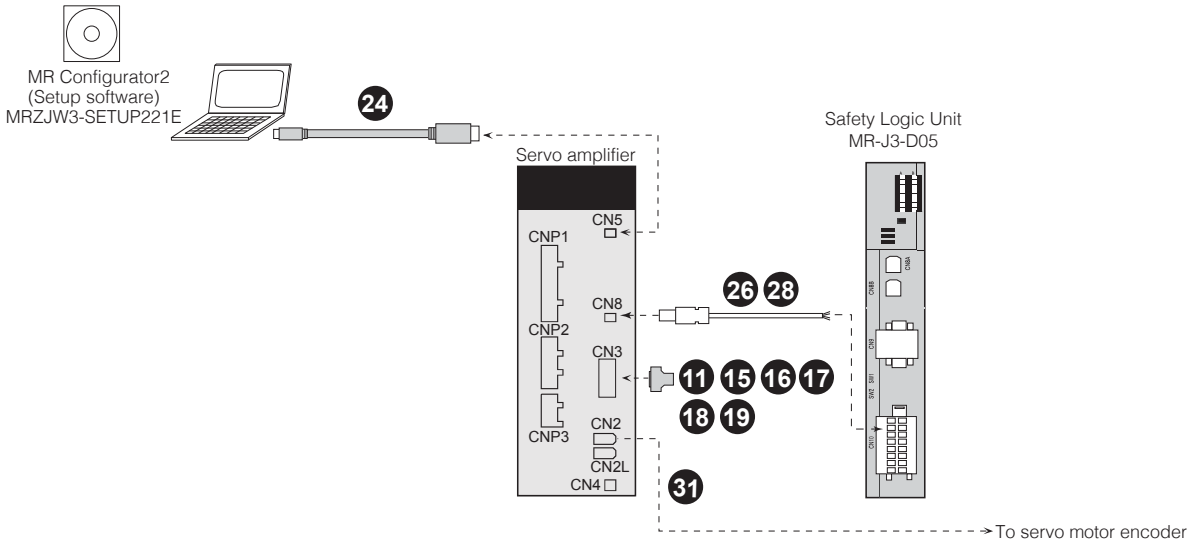
Notes:
1. Refer to "Junction Terminal Block" in this catalog.
2. When branching off CC-Link IE Field Network (synchronized communication function) with a switching hub, use NZ2MHG-T8F2 (Mitsubishi Electric Corporation) or DT135TX (Mitsubishi Electric System & Service Co., Ltd.).
3. The connectors are for 3.5 kW or smaller servo amplifiers. Terminal blocks are mounted for 5 kW or larger servo amplifiers.
4. Refer to "Battery" or "Battery Case and Battery" in this catalog. Battery and battery case are not required when the linear servo motor is used or when the servo amplifier is used in incremental system.
5. CN2L connector is available for MR-J4-_GF_-RJ servo amplifiers.

MR-J4-TM Type Amplifier Cables and Connectors

For 3.5 kW or smaller



For 5 kW or larger

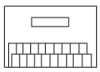


For CNP1, CNP2, CNP3

Figure Number	Item	Model Number	Stocked Item	Protection Level	Description
1	**Servo Amplifier Power Connector Set (Insertion Type) For MR-J4-100A or Smaller/MR-J4-100B or Smaller (*1, *2), MR-J40100TM or Smaller**	Supplied with Amplifier	-	-	CNP1 connector, CNP2 connector, CNP3 connector, Open tool 
	Servo Amplifier Power Connector Set (Insertion Type) For MR-J4-200A/MR-J4-200B/MR-J4-350A/ MR-J4-350B (*1, *2), MR-J4-350TM	Supplied with Amplifier	-	-	CNP1 connector, CNP2 connector, CNP3 connector, Open tool 
2	**Servo Amplifier Power Connector Set (Insertion Type) For MR-J4W2-B/MR-J4W3-B (*2, *3)**	Supplied with Amplifier	-	-	CNP1 connector, CNP2 connector, CNP3A/CNP3B/ CNP3C connector, Open tool 

Notes:
1. This connector set is not required for 5 kW or larger servo amplifiers since terminal blocks are mounted. Refer to servo amplifier dimensions in this catalog for more details.
2. The wire size shows wiring specification of the connector. Refer to "Selection Example in HIV Wires for Servo Motors" in this catalog for examples of wire size selection.
3. Press bonding type is also available. Refer to "MR-J4W_-_B Servo Amplifier Instruction Manual" for details.

For CN1

Figure Number	Item	Model Number	Stocked Lengths	Protection Level	Description
3	**Connector Set For MR-J4-A**	MR-J3CN1	S	-	
4	**CN1 Pigtail Cable (50 Pin)**	MR-J3CCN1CBL-_M (_ = cable length 3, 5m)	3, 5	-	
5	**Junction Terminal Block Cable (With Ground Clamp)**	MR-J2M-CN1TBL_M (_ = cable length 0.5, 1m) (For use with MR-TB50 and MR-TB50MIN Junction Terminal Block)	05, 1	-	
	Junction Terminal Block Cable (Without Ground Clamp)	MR-J2M-CN1TBL_M-G (_ = cable length 0.4, 1m) (For use with MR-TB50 and MR-TB50MIN Junction Terminal Block)	04, 1	-	
6	**Junction Terminal Block**	MR-TB50	S	-	
		MR-TB50MIN (reduced size - width = 145mm (5.71 in))	S	-	

For Controller, CN1A, CN1B

Figure Number	Item	Model Number	Stocked Lengths	Protection Level	Description
7	**SSCNET III Cable (Standard Cord for Inside Cabinet) Compatible With SSCNET III(/H) For MR-J4-B/MR-J4W2-B/MR-J4W3-B (*1)**	MR-J3BUS_M (_ = cable length 0.15, 0.3, 0.5, 1, 3m)	S	-	
8	**SSCNET III Cable (Standard Cable for Outside Cabinet) Compatible With SSCNET III(/H) For MR-J4-B/MR-J4W2-B/MR-J4W3-B (*1)**	MR-J3BUS_M-A (_ = cable length 5, 10, 20m)	S	-	
9	**SSCNET III Cable (Long Distance Cable, Long Bending Life) Compatible With SSCNET III(/H) For MR-J4-B/MR-J4W2-B/MR-J4W3-B (*1)**	MR-J3BUS_M-B (_ = cable length 30, 40, 50m)	S	-	
	SSCNET III/H Cable (Super High Flex Long Distance) Compatible with SSCNET III/H only (not SSCNET III)	SC-J3BUS_M-C(B) (_ = cable length 10, 20, 30, 40, 50, 60, 70, 80, 90, 100m)	-	-	
10	**SSCNET III Connector Cap. Compatible With SSCNET III(/H). For MR-J4-B/MR-J4W2-B/MR-J4W3-B**	Supplied with Amplifier	S	-	

Note 1: Read carefully through the precautions enclosed with the options before use.

For CN2L

Figure Number	Item	Model Number	Stocked Lengths	Protection Level	Description
31	**Flying Lead Cable for CN2L External Encoder Input, 1 Meter**	MR-CN2LABZ1M-H	S	-	

Ethernet Cable

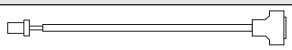
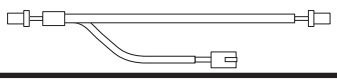
Figure Number	Item		Model Number	Stocked Lengths	Protection Level	Description
32	**Ethernet Cable for CC-Link IE Field Network**	**For Indoor**	SC-E5EW-S_M (_ = cable length 0.15, 0.3, 0.5, 1, 3m)		-	Double shielded cable (category 5e) for CC-Link IE Field Network
		For Moving Part, Indoor	SC-E5EW-S_M-MV (_ = cable length 0.15, 0.3, 0.5, 1, 3m)		-	
		For Indoor/Outdoor	SC-E5EW-S_M-L (_ = cable length 0.15, 0.3, 0.5, 1, 3m)		-	

For more details, please contact Mitsubishi Electric System & Service Co., Ltd.

For CN3

Figure Number	Item	Model Number	Stocked Item	Protection Level	Description
11	Connector Set For MR-J4-B	MR-J2CN1	-	-	
12	Connector Set (Qty: 1 pc) For MR-J4W2-B/ MR-J4W3-B	MR-J2CMP2	S	-	
13	Connector Set For MR-J4W2-B/MR-J4W3-B	MR-ECN1	S	-	
14	Junction Terminal Block Cable For Connecting MR-J4W2-B/MR-J4W3-B and MR-TB26A	MR-TBNATBL_M (_ = cable length 0.5, 1m)	S	-	
15	RS-232 to RS-485 Converter PC to CN3 (3M)	SC-FRPC (Cable length 3m)	S	-	
16	CN10 or CN3 Signal Connector (20 pin)	MR-J2CN1	S	-	
17	CN10 or CN3 Pigtail Cable (20 pin)	MR-CCN1CBL-_M (_ = cable length 3, 5m)	3, 5	-	
18	Cable for PS7DW-20V14B-F Terminal Block	MR-J2HBUS_M	05, 1, 3, 5	-	
19	20 Pin Terminal Block for J4-B (TB20 cannot be used)	PS7DW-20V14B-F	S	-	
20	CN6 Pigtail Cable (26 Pin)	MR-ECN1CBL-3M	S	-	
21	Junction Terminal Block (For use with Cable No. 14)	MR-TB26A	S	-	

For CN4

Figure Number	Item	Model Number	Stocked Lengths	Protection Level	Description
22	Battery Cable For Connecting MR-J4W2-B/ MR-J4W3-B and MR-BT6VCASE	MR-BT6V1CBL_M (_ = cable length 0.3, 1m)	S	-	
23	Junction Battery Cable For MR-J4W2-B/MR-J4W3-B	MR-BT6V2CBL_M (_ = cable length 0.3, 1m)	S	-	

For CN5 and CN6

Figure Number	Item	Model Number	Stocked Lengths	Protection Level	Description
24	CN5 Personal Computer Communication Cable (USB cable) For MR-J4-A/MR-J4-B/MR-J4W2-B/ MR-J4W3-B, MR-J4-DU, MR-J4-TM	MR-J3USBCBL3M	3m	-	
25	CN6 Monitor Cable For MR-J4-A	MR-J3CN6CBL1M	1m	-	

For CN8

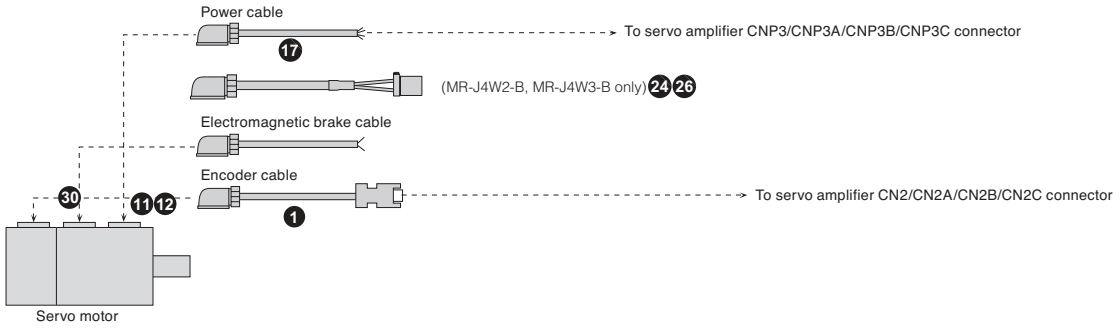
Figure Number	Item	Model Number	Stocked Lengths	Protection Level	Description
26	Short-Circuit Connector For MR-J4-A/MR-J4-B/ MR-J4W2-B/MR-J4W3-B, MR-J4-TM	1971153-1 (Supplied with Amplifier)	S	-	
28	STO Cable	MR-J4-D05UDL3M-B	3m	-	

For MR-J3-D05 CN9 and CN10

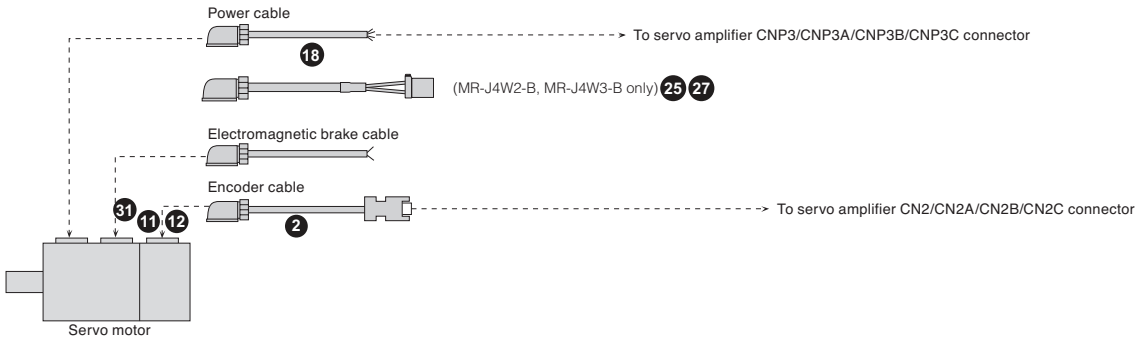
Figure Number	Item	Model Number	Stocked Lengths	Protection Level	Description
29	CN9 Connector	Supplied with MR-J3-D05	-	-	
30	CN10 Connector	Supplied with MR-J3-D05	-	-	

MR-J4 Servo Motor Cables and Connectors

For HG-KR/HG-MR Servo Motor Series: Encoder Cable Length 10m or Shorter
For leading the cables out in direction of load side (*1)

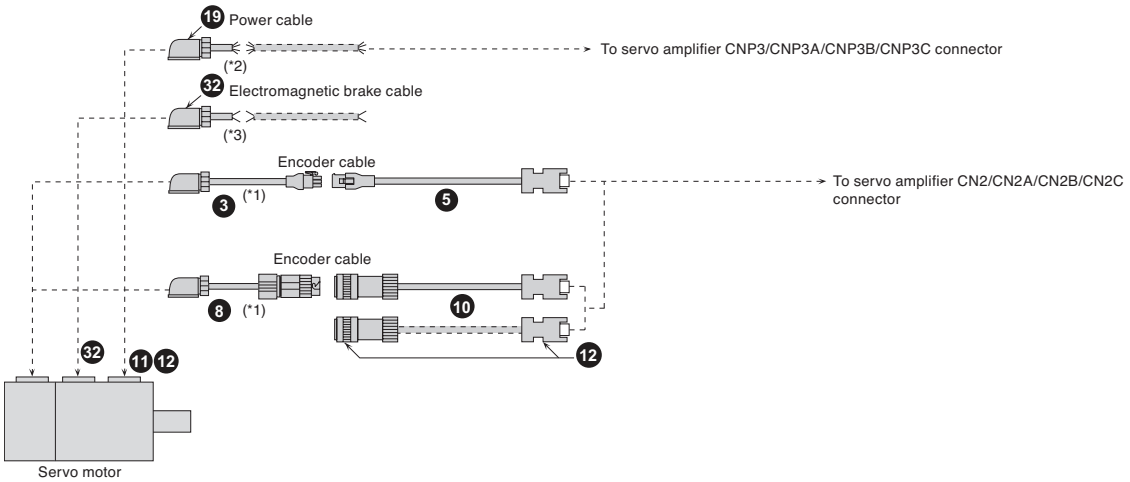


For HG-KR/HG-MR Servo Motor Series: Encoder Cable Length 10m or Shorter
For leading the cables out in opposite direction of load side (*1)



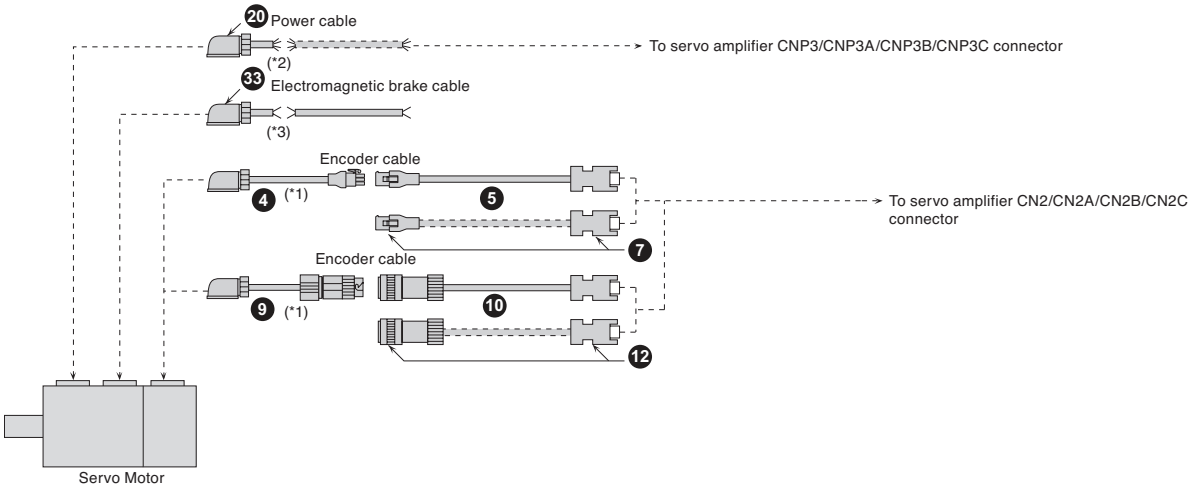
Note: Cables for leading two different directions may be used for one Servo Motor.

For HG-KR/HG-MR Servo Motor Series: Encoder Cable Length Over 10m
For leading the cables out in direction of load side (*4)



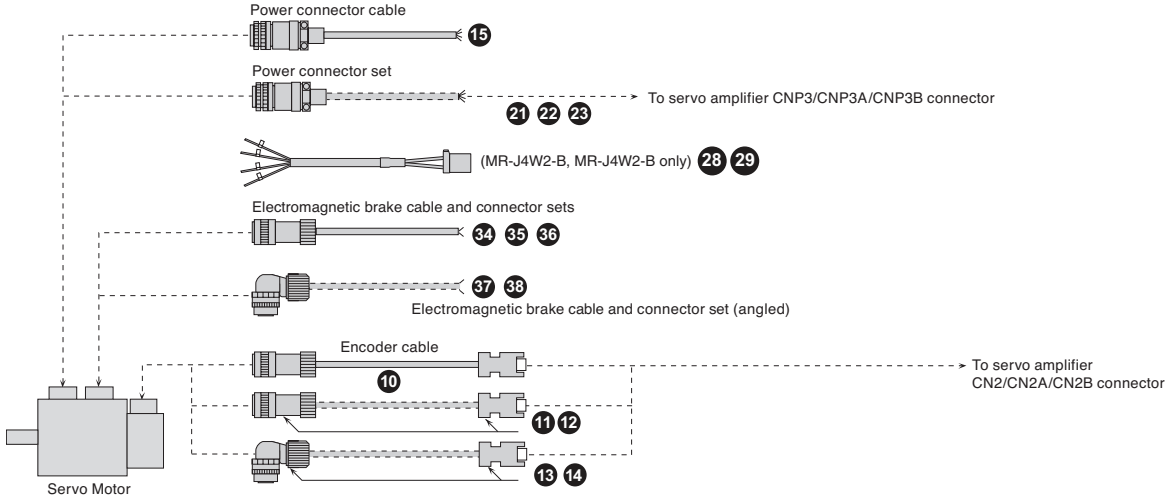
Notes:
1. This cable does not have a long bending life. Thus, be sure to fix the cable before using.
2. Relay a cable using MR-PWS2CBL03M-A1-L or MR-PWS2CBL03M-A2-L. This cable does not have a long bending life. Thus, be sure to fix the cable before using.
3. Relay a cable using MR-BKS2CBL03M-A1-L or MR-BKS2CBL03M-A2-L. This cable does not have a long bending life. Thus, be sure to fix the cable before using.
4. Cables for leading two different directions may be used for one Servo Motor.
5. Cables drawn with dashed lines need to be fabricated by user. Refer to relevant Servo Motor Instruction Manual for fabricating the cables.

For HG-KR/HG-MR Servo Motor Series: Encoder Cable Length Over 10m
For leading the cables out in opposite direction of load side (*4)

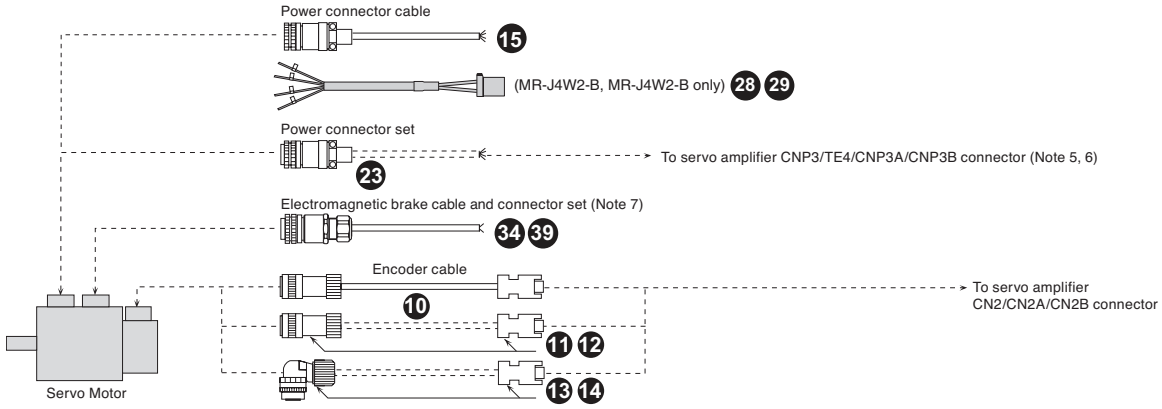


Notes:
1. This cable does not have a long bending life. Thus, be sure to fix the cable before using.
2. Relay a cable using MR-PWS2CBL03M-A1-L or MR-PWS2CBL03M-A2-L. This cable does not have a long bending life. Thus, be sure to fix the cable before using.
3. Relay a cable using MR-BKS2CBL03M-A1-L or MR-BKS2CBL03M-A2-L. This cable does not have a long bending life. Thus, be sure to fix the cable before using.
4. Cables for leading two different directions may be used for one Servo Motor.
5. Cables drawn with dashed lines need to be fabricated by user. Refer to relevant Servo Motor Instruction Manual for fabricating the cables.

For HG-SR Servo Motor Series

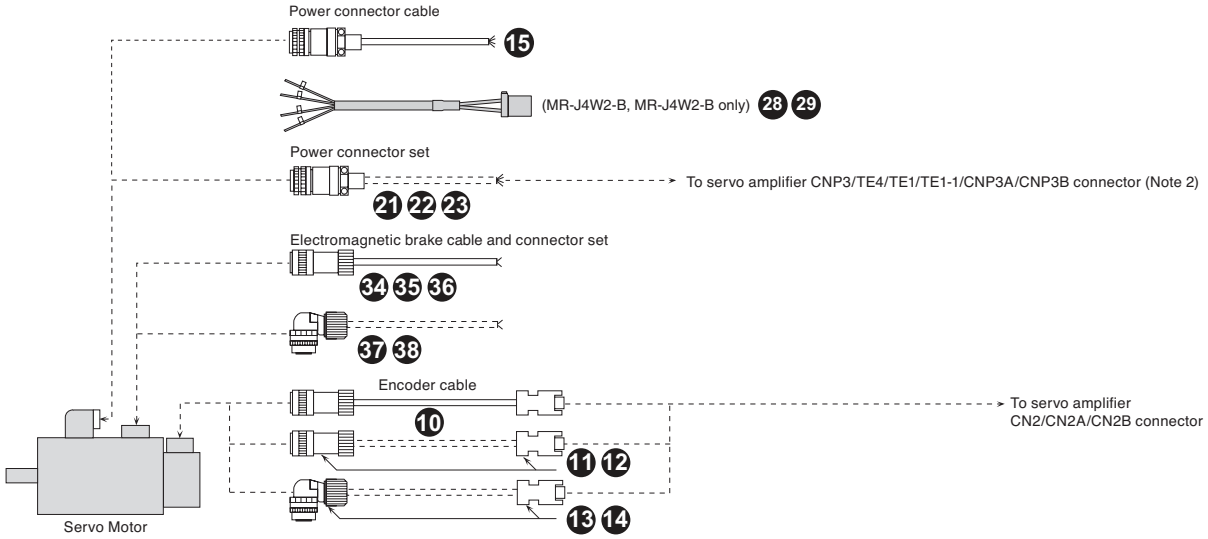


For HG-RR and HG-UR Servo Motor Series

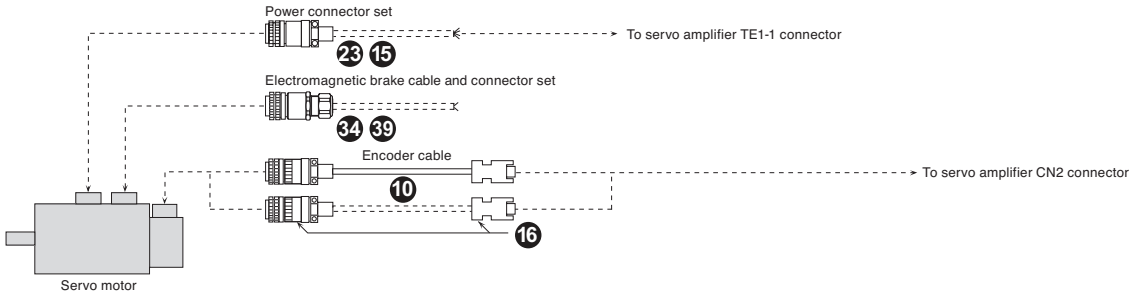


Notes:
1. Contact the relevant liner encoder manufacturers for connectors to connect with the head cables.
2. Cables drawn with dashed lines need to be fabricated by user. Refer to relevant Servo Motor Instruction Manual for fabricating the cables.
3. Connections other than mentioned are the same as those for each rotary Servo Motor. Refer to cables and connectors for relevant Servo Motors in this catalog.
4. Necessary encoder cables vary depending on the Servo Motor series. Refer to cables and connectors for relevant Servo Motors in this catalog.
5. The connector for U, V, and W varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant servo amplifier in this catalog for details.
6. HG-RR series is compatible only with the 1-axis servo amplifier.
7. An electromagnetic brake connector set is not required for HG-RR Series and 1.5 kW or smaller of HG-UR Series as the power connector has electromagnetic brake terminals.

For HG-JR Rotary Servo Motor 3000 r/min Series

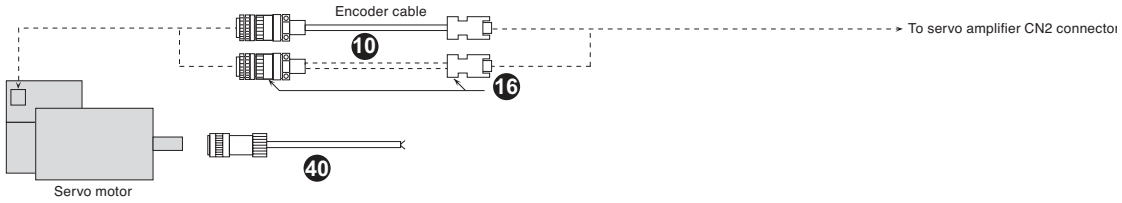


For HG-JR Rotary Servo Motor 1000 r/min Series (6 kW to 12 kW) and 1500 r/min series (7 kW to 15 kW)



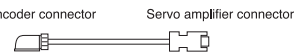
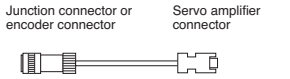
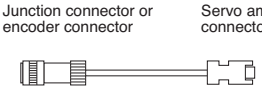
Note: Cables for leading two different directions may be used for one Servo Motor.

For HG-JR Rotary Servo Motor 1000 r/min Series (15 kW to 37 kW) and 1500 r/min series (22 kW to 55 kW)



Notes:
1. Cables drawn with dashed lines need to be fabricated by user. Refer to relevant Servo Motor Instruction Manual for fabricating the cables.
2. The connector for U, V, and W varies depending on the servo amplifier capacities. Refer to the dimensions of the relevant Servo Amplifier in this catalog for details.

Encoder Cables and Connectors

Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level	Description
1	Encoder Cable 10m or Shorter (Direct Connection Type) (*2)	Lead Out in Direction of Motor Shaft For HG-KR/HG-MR	MR-J3ENCBL_M-A1-H	2, 3, 5, 7, 8, 10	2, 3, 5, 10	IP65	
			MR-J3ENCBL_M-A1-L	2, 5, 10	2, 5, 10	IP65	
2		Lead Out in Opposite Direction of Motor Shaft For HG-KR/ HG-MR	MR-J3ENCBL_M-A2-H	1, 2, 5, 10	1, 2, 5, 10	IP65	
			MR-J3ENCBL_M-A2-L	1, 2, 5, 10	1, 2, 5, 10	IP65	
3	Encoder Cable. (Junction Type) Use This In Combination With (5) or (7). (*2)	Lead Out in Direction of Motor Shaft For HG-KR/HG-MR	MR-J3JCBL03M-A1-L	0.3	0.3	IP20	
4		Lead Out in Opposite Direction of Motor Shaft For HG-KR/ HG-MR	MR-J3JCBL03M-A2-L	0.3	0.3	IP20	
5	Encoder Cable. Use This In Combination With (3) or (4). (*2)	For HG-KR/HG-MR (Junction Type)	MR-EKCBL_M-H (*1, *3)	2, 5, 10, 15, 20, 30, 50	10, 20, 30, 50	IP20	
			MR-EKCBL_M-L (*1, *3)	2, 5, 10, 15, 20, 30	-	IP20	
7	Encoder Connector Set	For HG-KR/HG-MR (Junction Type) For Connecting Load-Side Encoder	MR-ECNM	-	S	IP20	
8	Exceeding 10m (Relay Type) Use this in Combination with (10) or (11). (*2)	For HG-KR/HG-MR (Junction Type)	MR-J3JSCBL03M-A1-L (*1, *3)	3	3	IP65 (*4)	
9		For HG-KR/HG-MR (Junction Type)	MR-J3JSCBL03M-A2-L (*1)	3	3	IP65 (*4)	
10	Encoder Cable (*2) For HG-KR/HG-MR (Junction Type, in Combination with (8) or (9)) For HG-SR (Direct Connection Type) For HG-SR Family For HG-JR53, 73, 103, 153, 203, 353, 503, 703, 903, 534, 734, 1034, 1534, 2034, 3534, 5034, 7034, 9034 For HG-RR Family For HG-UR Family		MR-J3ENSCBL_M-H (*1)	2, 5, 10, 15, 17, 20, 30, 40, 50, 60	2, 5, 10, 20, 30	IP67	
			MR-J3ENSCBL_M-L (*1)	2, 5, 10, 20, 30	2, 5	IP67	
	For HG-SR Family For HG-RR Family For HG-UR Family For HG-JR53, 534, 73, 734, 103, 1034, 153, 1534, 203, 2034, 353, 3534, 503, 5034, 703, 7034, 903, 9034		MR-J3ENS4CBL_M-H	50, 60, 70, 80, 90, 100	-	IP67	
	Encoder Cable (*2) For HG-JR601, 801, 12K1, 15K1, 20K1, 25K1, 30K1, 37K1, 701M, 11K1M, 15K1M, 22K1M, 30K1M, 37K1M, 6014, 8014, 12K14, 15K14, 20K14, 25K14, 30K14, 37K14, 701M4, 11K1M4, 15K1M4, 22K1M4, 30K1M4, 37K1M4, 45K1M4, 55K1M4		MR-ENECBL_M-H-MTH	2, 5, 10, 15, 20, 30, 40, 50	5, 10, 20	IP67	
	For HG-JR701M, 701M4, 11K1M, 11K1M4, 15K1M, 15K1M4, 22K1M, 22K1M4, 30K1M, 30K1M4, 37K1M, 37K1M4, 45K1M4, 55K1M4, 601, 6014, 801, 8014, 12K1, 12K14, 15K1, 15K14, 20K1, 20K14, 25K1, 25K14, 30K1, 30K14, 37K1, 37K14		MR-ENE4CBL_M-H-MTH	50, 60, 70, 80, 90, 100	-	IP67	
11	Encoder Connector Set (*5) (One-touch Connection Type) For HG-KR/HG-MR (junction type) For HG-SR Family For HG-RR Family For HG-UR (Angle Type) Family For HG-JR53, 73, 103, 153, 203, 353, 503, 703, 903, 534, 734, 1034, 1534, 2034, 3534, 5034, 7034, 9034		MR-J3SCNS	-	S	IP67	
12	Encoder Connector Set (*3, *5) (screw type) For HG-SR Family For HG-JR53, 73, 103, 153, 203, 353, 503, 703, 903, 534, 734, 1034, 1534, 2034, 3534, 5034, 7034, 9034/ For HG-RR Family For HG-UR (straight type) Family		MR-ENCNS2	-	S	IP67	
13	Encoder Connector Set (*5) (one-touch connection type) For HG-SR Family HG-JR53, 73, 103,153, 203, 353, 503, 703, 903,534, 734, 1034,1534, 2034, 3534,5034, 7034, 9034 HG-RR Family HG-UR (angle type) Family		MR-J3SCNSA	-	S	IP67	
14	Encoder Connector Set (*3, *5) (screw type) For HG-SR Family HG-JR53, 73, 103,153, 203, 353, 503, 703, 903,534, 734, 1034,1534, 2034, 3534,5034, 7034, 9034 HG-RR Family HG-UR (angle type) Family		MR-ENCNS2A	-	S	IP67	

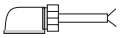
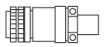
Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/Servo Motor. If the IP rating of the servo amplifier/Servo Motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. -H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.
3. This encoder cable is available in four-wire type. Parameter setting is required to use the four-wire type encoder cable. Refer to relevant Servo Amplifier Instruction Manual for details.
4. The encoder cable is rated IP65 while the junction connector itself is rated IP67.
5. Use MR-EKCBL_M-H and MR-ECNM to connect to an output cable for AT343A, AT543A-SC or AT545A-SC scales manufactured by Mitutoyo Corporation.

Motor Power Supply Cables

Figure Number	Item	Motor Model Number	Cable Number	Available Lengths	Stocked Lengths	Protection Level	Description
15	Standard-Flex, Unshielded Type Cables (Straight Type Connector Only)	HG-SR51(B), 52(B), 81(B), 102(B), 152(B), 524(B), 1024(B), 1524(B); HG-JR53(B), 534(B), 73(B), 734(B), 103(B), 1034(B), 153(B), 1534(B), 203(B), 2034(B), 3534(B) (*1)	MR-J3P2-_M	2, 3, 5, 10, 15, 20, 25, 30, 40, 50	2, 5, 10, 15, 20, 30	IP65	
		HG-SR121(B), 201(B), 202(B), 301(B), 352(B), 3524(B) HG-JR353(B), HG-SR2024(B)	MR-J3P4-_M	2, 5, 10, 15, 20, 25, 30, 40, 50, 100	2, 5, 10, 15, 20, 30		
		HG-SR421(B), 702(B), 7024(B); HG-JR601(B), 6014(B), 701M(B), 701M4(B),703(B), 7034(B) (*1)	MR-J3P7-_M	2, 5, 7, 10, 15, 20, 25, 30, 50	2, 5, 10, 20, 30		
		HG-SR502(B), 5024(B) HG-JR503(B)	MR-J3P10-_M	2, 5, 10, 15, 20, 25, 30	5, 10		
		HG-JR5034(B)	MR-J3P11-_M	2, 5, 10, 15, 20, 25, 30, 50	5, 10		
		HG-JR801(B), 8014(B), 903(B), 9034(B), 11K1M(B), 11K1M4(B), 12K1(B), 12K14(B), 15K1M(B), 15K1M4(B) (*1)	MR-J3P12-_M	2, 5, 10, 15, 20, 25, 30, 50	-		
		HG-RR103, 153, 203; HG-UR72, 152	MR-J3HC3S-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 20, 30		
		HG-RR103B, 153B, 203B; HG-UR72B, 152B	MR-J3HC3SB-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 20, 30		
		HG-RR353, 503; HG-UR352, 502	MR-J3HC5S-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 20, 30		
		HG-RR353B, 503B; HG-UR352B, 502B	MR-J3HC5SB-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 20, 30		
	High-Flex, Shielded Type Cables (Straight Type Connector Only) (*2)	HG-SR51(B), 52(B), 81(B), 102(B), 152(B), 524(B), 1024(B), 1524(B); HG-JR53(B), 534(B), 73(B), 734(B), 103(B), 1034(B), 153(B), 1534(B), 203(B), 2034(B), 3534(B) (*1)	MR-J3PWS2-_M	2, 5, 10, 15, 17, 20, 25, 30, 40	2, 5, 10, 15, 20, 30	IP67	
		HG-SR121(B), 201(B), 202(B), 301(B), 352(B), 3524(B) HG-JR353(B), HG-SR2024(B)	MR-J3PWS4-_M	2, 5, 10, 15, 20, 25, 30, 40, 50	2, 5, 10, 20, 30		
		HG-SR421(B), 702(B), 7024(B); HG-JR601(B), 6014(B), 701M(B), 701M4(B),703(B), 7034(B) (*1)	MR-J3PWS7-_M	2, 5, 10, 15, 20, 25, 30, 40, 50	5, 10, 15, 20, 30		
		HG-SR502(B), 5024(B) HG-JR503(B)	MR-J3PWS10-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 30		
		HG-JR5034(B)	MR-J3PWS11-_M	2, 5, 10, 15, 20, 25, 30, 50	5, 10, 20, 30		
		HG-JR801(B), 8014(B), 903(B), 9034(B), 11K1M(B), 11K1M4(B), 12K1(B), 12K14(B), 15K1M(B), 15K1M4(B) (*1)	MR-J3PWS12-_M	2, 5, 10, 15, 20, 25, 30	-		
		HG-RR103, 153, 203; HG-UR72, 152	MR-J3HC3S-SH-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 20, 30		
		HG-RR103B, 153B, 203B; HG-UR72B, 152B	MR-J3HC3SB-SH-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 15, 20, 25, 30		
		HG-RR353, 503; HG-UR352, 502	MR-J3HC5S-SH-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 20, 30		
		HG-RR353B, 503B; HG-UR352B, 502B	MR-J3HC5SB-SH-_M	2, 5, 10, 15, 20, 25, 30	2, 5, 10, 20, 30		
16	CN2 Connector Only		MR-J3CN2	-	S	IP67	
16	Encoder Connector Set	HG-JR601(4), 801(4), 12K1(4), 15K1(4), 20K1(4), 25K1(4), 30K1(4), 37K1(4), 701M(4), 11K1M(4), 15K1M(4), 22K1M(4), 30K1M(4), 37K1M(4), 45K1M4, 55K1M4	MR-ENECNS	-	S	IP67	

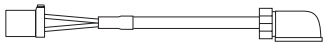
Note 1: Must order separate brake cable for these motors.

Motor Power Supply Cables

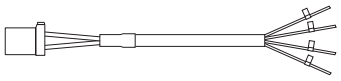
Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level (*1)	Description
17	10m Or Shorter (Direct Connection Type	Power Supply Cable For HG-KR/ HG-MR. Lead Out In Direction Of Motor Shaft (Non-Shielded) (*2)	MR-PWS1CBL_M-A1-H (*1)	2, 3, 5, 7, 8, 10	2, 3, 5, 10	IP65	
			MR-PWS1CBL_M-A1-L (*1)	2, 3, 5, 10	2, 5, 10	IP65	
		Power Supply Cable for HG-MR / HG-KR Series Motor, Lead Out in Direction of Motor Shaft (Shielded)	MR-J3PS_M-A1	0.3, 5, 10	0.3, 5	IP65	
18		Power Supply Cable For HG-MR / HG-KR Series Motor. Lead Out In Opposite Direction of Motor Shaft (Shielded)	MR-J3PS_M-A2	0.3, 5, 10	0.3, 5, 10	IP65	
		Power Supply Cable For HG-KR/ HG-MR. Lead Out In Opposite Direction of Motor Shaft (Non-Shielded) (*2)	MR-PWS1CBL_M-A2-H (*1)	1, 2, 5, 5, 10, 15	1, 2, 5, 5, 10	IP65	
			MR-PWS1CBL_M-A2-L (*1)	1, 2, 5, 10	2, 5, 10	IP65	
19	Exceeding 10m (Relay Type)	Power Supply Cable For HG-KR/ HG-MR (Junction Type) Motor Lead Out In Direction Of Motor Shaft (Non-Shielded) (*2)	MR-PWS2CBL03M-A1-L	0.3	0.3	IP55	
20		Power Supply Cable For HG-KR/ HG-MR (Junction Type) Motor Lead Out In Opposite Direction Of Motor Shaft (Non-Shielded) (*2)	MR-PWS2CBL03M-A2-L	0.3	0.3	IP55	
21	Power Connector Set For HG-SR51, 81, 52, 102, 152, 524,1024, 1524 HG-JR53, 73, 103, 153, 203, 534, 734, 1034, 1534, 2034, 3534, 5034		MR-PWCNS4	-	S	IP67	
22	Power Connector Set For HG-SR121, 201, 301, 202, 352, 502, 2024,3524, 5024 HG-JR353, 503		MR-PWCNS5	-	S	IP67	
23	Power Connector Set For HG-SR421, 702, 7024/HG-JR703, 903, 601, 801, 12K1, 701M, 11K1M, 15K1M, 7034, 9034, 6014, 8014, 12K14, 701M4, 11K1M4, 15K1M4/TM-RFM240J10		MR-PWCNS3	-	S	IP67	
	Power Connector Set For HG-UR202, 352, 502 HG-RR353, 503		MR-PWCNS2	-	S	IP67	
	Power Connector Set For HG-UR72, 152 HG-RR103, 153, 203		MR-PWCNS1	-	S	IP67	

Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/Servo Motor. If the IP rating of the servo amplifier/Servo Motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. -H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.

Motor Power Cable for HG-KR/HG-MR Rotary Servo Motor Series to MR-J4W2/MR-J4W3 (Direct Connection Type)

Figure Number	Item	Model Number	Available Lengths	Stocked Lengths	Description
24	Lead Out in Direction of Motor Shaft Standard Bending Life	SC-EPWS1CBL_M-A1-L	2, 5	5	
25	Lead Out in Opposite Direction of Motor Shaft Standard Bending Life	SC-EPWS1CBL_M-A2-L	2, 5	2, 5	
26	Lead Out in Direction of Motor Shaft Long Bending Life	SC-EPWS1CBL_M-A1-H	2, 5	2, 5	
27	Lead out in Opposite Direction of Motor Shaft Long Bending Life	SC-EPWS1CBL_M-A2-H	2, 5	2, 5	

Motor Power Cable for HG-SR/HG-JR/HG-UR Rotary Servo Motor Series to MR-J4W2/MR-J4W3

Figure Number	Item	Model Number (*1)	Available Lengths	Stocked Lengths	Description
28	Standard Bending Life	SC-EPWS2CBL_M-L	2, 5, 10, 20, 30	5, 10	
29	Long Bending Life	SC-EPWS2CBL_M-H	2, 5, 10, 20, 30	5, 10	

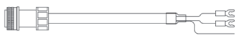
Note 1. A separate motor-side power supply connector is required.

Motor Brake Cables for HG-KR/HG-MR Rotary Servo Motors

Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level (*1)	Description‹
30	Brake Cable for HG-KR/HG-MR Series 10m or Shorter (Direct Connection Type) (*2)	Lead Out in Direction of Motor Shaft	MR-BKS1CBL_M-A1-H (*1)	2, 5, 7, 10	2, 5, 10	IP65	
			MR-BKS1CBL_M-A1-L (*1)	2, 5, 10	-	IP65	
31		Lead Out in Opposite Direction of Motor Shaft	MR-BKS1CBL_M-A2-H (*1)	2, 5, 10	2, 5, 10	IP65	
			MR-BKS1CBL_M-A2-L (*1)	2, 5, 10	-	IP65	
32	Brake Cable for HG-KR/HG-MR Series Exceeding 10m (Relay Type) (*2)	Lead Out in Direction of Motor Shaft	MR-BKS2CBL03M-A1-L (*1)	0.3	0.3	IP55	
33		Lead Out in Opposite Direction of Motor Shaft	MR-BKS2CBL03M-A2-L (*1)	0.3	0.3	IP55	

Notes:
1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/Servo Motor. If the IP rating of the servo amplifier/Servo Motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. -H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.

Brake Cables for HG-SR/JR/RR/UR Servo Motor Series

Figure Number	Item		Model Number	Available Lengths	Stocked Lengths	Protection Level	Description
34	Standard-Flex, Unshielded	HG-SR(4)B, HG-JR(4)B 3000 RPM	MR-J3BK-_M	2, 3.5, 5, 10, 15, 20, 25, 30, 40, 50	2, 5, 10, 20, 30	IP67	
		HG-JR601(4)B, 804(4)B, 12K1(4)B, 701M(4)B, 11K1M(4)B, 15K1M(4)B	MR-J3HCBKS-_M	2, 5, 10, 15, 20, 25, 30	5, 10, 20	IP65	
		HG-UR202B, 352B, 502B					
	High-Flex, Shielded	HG-SR(4)B, HG-JR(4)B 3000 RPM	MR-J3BRKS1-_M	2, 5, 10, 15, 20, 25, 30, 40, 50	2, 5, 10, 15, 20, 30	IP67	
		HG-JR601(4)B, 804(4)B, 12K1(4)B, 701M(4)B, 11K1M(4)B, 15K1M(4)B	MR-J3HCBKS-SH-_M	2, 5, 10, 15, 20, 25, 30, 50	-	IP65	
		HG-UR202B, 352B, 502B					

Brake Connector Set

Figure Number	Item	Model Number	Stocked Item	Protection Level (*1)	Description
35	Electromagnetic Brake Connector Set (One-Touch Connection, Straight) For HG-SR(4)B and HG-JR53(4)B, 73(4)B, 103(4)B, 153(4)B, 203(4)B, 353(4)B, 503(4)B, 703(4)B, 903(4)B	MR-BKCNS1	S	IP67	
36	Electromagnetic Brake Connector Set (Screw Connection, Straight) For HG-SR(4)B and HG-JR53(4)B, 73(4)B, 103(4)B, 153(4)B, 203(4)B, 353(4)B, 503(4)B, 703(4)B, 903(4)B	MR-BKCNS2	S	IP67	
37	Electromagnetic Brake Connector Set (One-Touch Connection, Angled) For HG-SR(4)B and HG-JR53(4)B, 73(4)B, 103(4)B, 153(4)B, 203(4)B, 353(4)B, 503(4)B, 703(4)B, 903(4)B	MR-BKCNS1A	S	IP67	
38	Electromagnetic Brake Connector Set (Screw Connection, Angled) For HG-SR(4)B and HG-JR53(4)B, 73(4)B, 103(4)B, 153(4)B, 203(4)B, 353(4)B, 503(4)B, 703(4)B, 903(4)B	MR-BKCNS2A	S	IP67	
39	Electromagnetic Brake Connector Set (Straight Type) For HG-JR601(4)B, 801(4)B, 12K1(4)B, 701M(4)B, 11K1M(4)B, 15K1M(4)B, HG-UR202B, 352B, 502B	MR-BKCN	S	IP67	

Note 1: The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/servo motor. If the IP rating of the servo amplifier/servo motor differs from that of these connectors, the overall IP rating depends on the lowest of all.

Cooling Fan Power Connector Set

Figure Number	Item	Model Number	Stocked Item	Protection Level (*1)	Description
40	Cooling Fan Power Connector Set for HG-JR15K1(4), 20K1(4), 25K1(4), 30K1(4), 37K1(4), 22K1M(4), 30K1M(4), 38K1M(4), 45K1M4, 55K1M4	MR-PWCNF	S	IP67	

Note 1: The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/servo motor. If the IP rating of the servo amplifier/servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.

Software

Servo Support Software • MR-CONFIGURATOR2

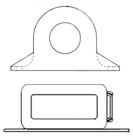
This software makes it easy to perform setup, tuning, monitor display, diagnostics, reading and writing of parameters, and test operations with a personal computer. User-friendly functions that enable the balance with the machine system, optimum control and short start up time are available.

- This software can set up and tune your servo system easily with a personal computer.
- Multiple monitor functions. Graphic display functions are provided to display the Servo Motor status with the input signal triggers, such as the command pulse, droop pulse and speed.
- Test operations with a personal computer. Test operation of the Servo Motors can be performed with a personal computer using multiple test mode menus.
- Further advanced tuning is possible with the improved advanced functions.

Description	Model Number	Stocked Item
Windows Communication Software	MR-CONFIG2-C1	S
	MR-CONFIG2-C5	S
	MR-CONFIG2-C10	S
	MR-CONFIG2-C1-SMA	-
	MR-CONFIG2-C5-SMA	-
	MR-CONFIG2-C10-SMA	-
Communication Cable	MR-J3USBCBL3M	S

Optional Accessories

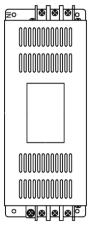
Line Noise Filter

Servo Amplifier Type	Model Number	Stocked Item	Description
MR-J4_ For Wire Size 3.5mm² (AWG12) or Smaller	FR-BSF01	S	
MR-J4_ For Wire Size 5.5mm² (AWG10) or Larger	FR-BLF	S	

Extension I/O Unit

Servo Amplifier Type	Model Number	Stocked Item	Description
MR-J4-B Only	MR-J3-D05	S	
MR-J4-B-RJ	MR-D30	S	

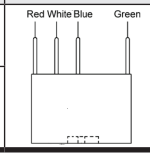
EMC Filter (*1)

Servo Amplifier Type	Model Number	Stocked Item	Description
MR-J4-10B(-RJ) ~ MR-J4-100B(-RJ), MR-J4W2-22B, MR-J4W2-44B, MR-J4W3-222B	MF3F480-010.233MF	S	
MR-J4-200B(-RJ), MR-J4W2-77B, MR-J4W3-444B	MF3F480-015.230MF3	S	
MR-J4-350B(-RJ), MR-J4W2-1010B	MF3F480-025.230MF3	S	
MR-J4-500B(-RJ), MR-J4-700B(-RJ)	MF3F480-050.230MF3	S	
MR-J4-11KB(-RJ)	MF-3F480-035.230	-	
MR-J4-15KB(-RJ)	MF-3F480-035.230	-	
MR-J4-22KB(-RJ)	MF-3F480-050.230MF3	-	
MR-J4-60B4/A4, MR-J4-100B4/A4	MF3F480-010.233MF	S	
MR-J4-200B4/A4	MF3F480-015.230MF3	S	
MR-J4-350B4/A4	MF3F480-015.233MF	S	
MR-J4-500B4/A4 MR-J4-700B4/A4	MF3F480-025.230MF3	S	
MR-J4-11KB4/A4	MF-3F480-035.230	-	
MR-J4-15KB4/A4	MF-3F480-035.230	-	
MR-J4-22KB4/A4	MF-3F480-050.230MF3	-	

Note: Contact MEAU for additional filter opportunities.

1. HF3100A-UN and larger EMC filters are manufactured by Soshin Electric Co., Ltd. A surge protector is separately required to use this EMC filter. Refer to EMC Installation Guidelines.

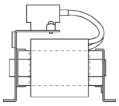
Radio Noise Filter

Servo Amplifier Type	Model Number	Stocked Item	Description
J4 200V/100V Amps	FR-BIF	S	
J4 400V Amps	FR-BIF-H	-	

Manual Pulse Generator

Servo Amplifier Type	Model Number	Stocked Item	Description
MR-J4-A Only	MR-HDP01	S	

Power Factor Improving DC Reactor

Servo Amplifier Type	Model Number	Stocked Item	Description
MR-J4-10B/A MR-J4-20B/A	FR-HEL-0.4K	-	
MR-J4-40B/A	FR-HEL-0.75K	-	
MR-J4-60B/A MR-J4-70B/A	FR-HEL-1.5K	-	
MR-J4-100B/A	FR-HEL-2.2K	-	
MR-J4-200B/A	FR-HEL-3.7K	-	
MR-J4-350B/A	FR-HEL-7.5K	-	
MR-J4-500B/A	FR-HEL-11K	-	
MR-J4-700B/A MR-J4-11KB/A	FR-HEL-15K	-	
MR-J4-15KB/A	FR-HEL-22K	-	
MR-J4-22KB/A	FR-HEL-30K	-	
MR-J4-60B4/A4	FR-HEL-H1.5K	-	
MR-J4-100B4/A4	FR-HEL-H2.2K	-	

Servo Amplifier Type	Model Number	Stocked Item
MR-J4-350B4/A4	FR-HEL-H7.5K	-
MR-J4-500B4/A4	FR-HEL-1K	-
MR-J4-700B4/A4 MR-J4-11KB4/A4	FR-HEL-H15K	-
MR-J4-15KB4/A4	FR-HEL-H22K	-
MR-J4-22KB4/A4	FR-HEL-H30K	-

Converter Unit EMC Filter

Converter Unit	Model Number	EMC Filter Model Number	Stocked Item
MR-CR55K	MR-J4-DU30KB/A	HF3200A-UN (*1)	-
	MR-J4-DU37KB/A		
MR-CR55K4	MR-J4-DU30KB4/A4	MF-3F480-125.230	-
	MR-J4-DU37KB4/A4		
	MR-J4-DU45KB4/A4		
	MR-J4-DU55KB4/A4		

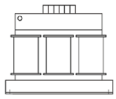
Note 1: Please contact Soshin Denki to purchase.

20 Pin Terminal Block (*1)

Servo Amplifier Type	Model Number	Stocked Item
MR-J3-B Safety Only	PS7DW-20V14B-F	S

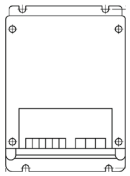
Note 1: MR-TB20 terminal block cannot be used for MR-J3-B Safety.

Power Factor Improving AC Reactor

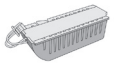
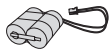
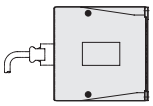
Servo Amplifier Type	Model Number	Stocked Item	Description
MR-J4-10A/B, MR-J4-20A/B	FR-HAL-0.4K	-	
MR-J4-40A/B	FR-HAL-0.75K	-	
MR-J4-60A/B, MR-J4-70A/B	FR-HAL-1.5K	-	
MR-J4-100A/B	FR-HAL-2.2K	-	
MR-J4-200A/B	FR-HAL-3.7K	-	
MR-J4-350A/B	FR-HAL-7.5K	-	
MR-J4-500A/B	FR-HAL-11K	-	
MR-J4-700A/B	FR-HAL-15K	-	

Converter Unit Model	Drive Unit Model	Power Factor Improving DC Reactor Model	Stocked Item
MR-CR55K	MR-J4-DU30KB/A	MR-DCL30K	-
	MR-J4-DU37KB/A	MR-DCL37K	-
MR-CR55K4	MR-J4-DU30KB4/A4	MR-DCL30K-4	-
	MR-J4-DU37KB4/A4	MR-DCL37K-4	-
	MR-J4-DU45KB4/A4	MR-DCL45K-4	-
	MR-J4-DU55KB4/A4	MR-DCL55K-4	-

Dynamic Brake

Servo Amplifier Type	Model Number	Stocked Item	Description
MR-J4-11KB/A	DBU-11K	-	
MR-J4-15KB/A	DBU-15K	-	
MR-J4-22KB/A	DBU-22K-R1	-	
MR-J4-11KB4/A4	DBU-11K-4	-	
MR-J4-15KB4/A4 MR-J4-22KB4/A4	DBU-22K-4	S	
MR-J4-DU30KB/A	DBU-37K-R1	-	
MR-J4-DU37KB/A			
MR-J4-DU30KB4/A4	DBU-55K-4-R5	-	
MR-J4-DU37KB4/A4			
MR-J4-DU45KB4/A4			
MR-J4-DU55KB4/A4			

Battery

Item Number	Model Number	Description	Stocked Item	Description
Battery	MR-BAT6V1SET	The Servo Motor's absolute value can be maintained by installing the battery in the servo amplifier. The battery is not required when the servo system is used in an incremental mode.	S	
Battery	MR-BAT6V1	The battery case and the batteries are required when configuring absolute position detection system using the rotary Servo Motor or the direct drive motor. MR-BT6VCASE is a case that stores 5 pieces of MR-BAT6V1 batteries by connecting the connectors. Up to 8 axes of MR-J4W_-_B servo amplifiers are able to be connected to this battery case. Use optional MR-BT6V2CBL_M junction battery cable for branching off the connection when connecting multiple servo amplifiers. MR-BT6VCASE and MR-BAT6V1 are not required when using the linear Servo Motor or when configuring incremental system with the MR-J4W_-B servo amplifier. MR-BAT6V1 is not included with MR-BT6VCASE. Please purchase the batteries separately.	S	
Battery Case	MR-BT6VCASE		S	

Optional Regeneration Resistors 200/100V

Servo Amplifier Model MR-J4-_	Built-in Regenerative Resistor	Optional Regeneration Resistors/Tolerable Regenerative Power (W) (*2, *3)													
		MR-RB													
		032	12	30	3N	31	32	50 (*1)	5N (*1)	51 (*1)	5R (*2)	9F (*2)	9T (*2)	14	34
		40Ω	40Ω	13Ω	9Ω	6.7Ω	40Ω	13Ω	9Ω	6.7Ω	3.2Ω	3 Ω	2.5Ω	26Ω	26Ω
Stocked Item	-	S	S	S	S	S	S	S	S	S				-	-
MR-J4-10A/B MR-J4-10B1/A1	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-
MR-J4-20A/B MR-J4-20B1/A1	10	30	100	-	-	-	-	-	-	-	-	-	-	-	-
MR-J4-40A/B MR-J4-40B1/A1	10	30	100	-	-	-	-	-	-	-	-	-	-	-	-
MR-J4-60A/B	10	30	100	-	-	-	-	-	-	-	-	-	-	-	-
MR-J4-70A/B	20	30	100	-	-	-	300	-	-	-	-	-	-	-	-
MR-J4-100A/B	20	30	100	-	-	-	300	-	-	-	-	-	-	-	-
MR-J4-200A/B	100	-	-	300	-	-	-	500	-	-	-	-	-	-	-
MR-J4-350A/B	100	-	-	-	300	-	-	-	500	-	-	-	-	-	-
MR-J4-500A/B	130	-	-	-	-	300	-	-	-	500	-	-	-	-	-
MR-J4-700A/B	170	-	-	-	-	300	-	-	-	500	-	-	-	-	-
MR-J4-11KB/A	-	-	-	-	-	-	-	-	-	-	500 (800)	-	-	-	-
MR-J4-15KB/A	-	-	-	-	-	-	-	-	-	-	-	850 (1300)		-	-
MR-J4-22KB/A	-	-	-	-	-	-	-	-	-	-	-	-	850 (1300)	-	-
MR-J4W2-22B	20	-	-	-	-	-	-	-	-	-	-	-	-	100	-
MR-J4W2-44B	20	-	-	-	-	-	-	-	-	-	-	-	-	100	-
MR-J4W2-77B	100	-	-	-	300	-	-	-	-	-	-	-	-	-	-
MR-J4W2-1010B	100	-	-	-	300	-	-	-	-	-	-	-	-	-	-
MR-J4W3-222B	30	-	-	-	-	-	-	-	-	-	-	-	-	100	300
MR-J4W3-444B	30	-	-	-	-	-	-	-	-	-	-	-	-	100	300

Notes:
1. Be sure to cool the unit forcibly with a cooling fan (92 mm x 92 mm, minimum air flow: 1.0 m^3/min). The cooling fan must be prepared by user.
2. The power values in this table are resistor-generated powers, not rated powers
3. MR-J4 amplifiers include the regeneration resistors as a standard accessory, with the exception of the PX and RZ models.

Converter Unit Model	Drive Unit Model	Tolerable Regenerative Power [W] of Regenerative Option (*1)			
		MR-RB139	MR-RB137	MR-RB137-4	MR-RB13V-4
		1.3 Ω	1.3 Ω (*2)	4 Ω	4 Ω (*2)
Stocked Item	-	-	-	-	-
MR-CR55K	MR-J4-DU30KB/A MR-J4-DU37KB/A	1300	3900	-	-
MR-CR55K4	MR-CR55K4 MR-J4-DU30KB4/A4 MR-J4-DU37KB4/A4 MR-J4-DU45KB4/A4 MR-J4-DU55KB4/A4	-	-	1300	3900

Notes:
1. The power values in this table are resistor-generated powers, not rated powers.
2. This is the resultant resistance when three units of MR-RB137 are connected in parallel.

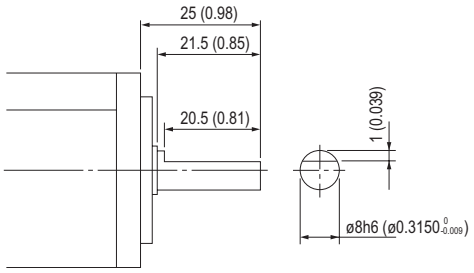
Optional Regeneration Resistors 400

Servo Amplifier Model MR-J4-_	Built-in Regenerative Resistor	Optional Regeneration Resistors/Tolerable Regenerative Power (W) (*4)								
		MR-RB								
		1H-4	3M-4 (*1)	3G-4 (*1)	34-4 (*1)	3U-4 (*1)	5G-4 (*1)	54-4 (*1)	5U-4 (*1)	5K-4 (*1)	6K-4 (*1)
		82Ω	120Ω	47Ω	26Ω	22Ω	47Ω	26Ω	22Ω	10Ω	10Ω
Stocked Item	-	-	S	S	S	-	S	S	-	-	-
MR-J4-60B4/A4	15	100	300	-	-	-	-	-	-	-	-
MR-J4-100B4/A4	15	100	300	-	-	-	-	-	-	-	-
MR-J4-200B4/A4	100	-	-	300	-	-	500	-	-	-	-
MR-J4-350B4/A4	100	-	-	300	-	-	500	-	-	-	-
MR-J4-500B4/A4	130 (*3)	-	-	-	300	-	-	500	-	-	-
MR-J4-700B4/A4	170 (*3)	-	-	-	-	300	-	-	500	-	-
MR-J4-11KB4/A4	-	-	-	-	-	-	-	-	-	500 (800)	-
MR-J4-15KB4/A4	-	-	-	-	-	-	-	-	-	-	850 (1300)
MR-J4-22KB4/A4	-	-	-	-	-	-	-	-	-	-	850 (1300)

Notes:
1. Be sure to cool the unit forcibly with a cooling fan (92 mm × 92 mm, minimum air flow: 1.0 m^3/min). The cooling fan must be prepared by user.
2. The value in brackets is applicable when cooling fans (2 units of 92 mm x 92 mm, minimum air flow: 1.0 m3/min) are installed, and then [Pr. PA02] is changed.
3. The servo amplifier built-in regenerative resistor is compatible with the maximum torque deceleration when the Servo Motor is used within the rated speed and the recommended load to motor inertia ratio. Contact your local sales office if the operating motor speed or the load to motor inertia ratio exceeds the rated speed or the recommended ratio.

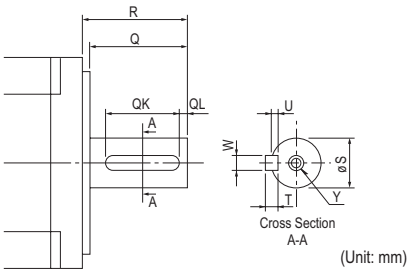
MR-J4 Motor Shaft Details and Servo Motor Dimensions

HG-KR / HG-MR Series: D-Cut Shaft (50W & 100W Motors Only)



Unit: mm (inch)

Keyway With Key Included



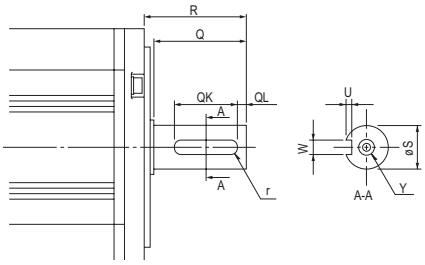
(Unit: mm)

Motor Model	Capacity (W)	Variable Dimensions								
		T	S	R	Q	W	QK	QL	U	Y
HG-KR_K	23(B) 43(B)	5 (0.20)	14h6 (0.554)	30 (1.18)	26	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	M4 Depth 15 (0.59)
	73(B)	6 (0.24)	19h6 (0.7480)	40 (1.57)	36	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	M5 Depth 20 (0.79)

Motor Model	Capacity (W)	Variable Dimensions								
		T	S	R	Q	W	QK	QL	U	Y
HG-MR_K	23(B) 43(B)	5 (0.20)	14h6 (0.554)	30 (1.18)	26	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	M4 Depth 15 (0.59)
	73(B)	6 (0.24)	19h6 (0.7480)	40 (1.57)	36	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	M5 Depth 20 (0.79)

HG-SR Series 200V

Keyway With No Key Supplied (Customer must supply key or order key part separately below)

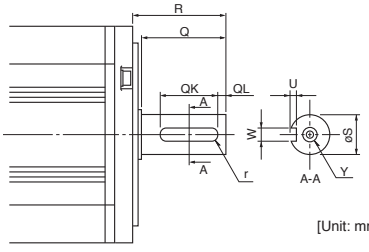


Motor Model	Capacity (W)	Variable Dimensions											
		S	R	Q	W	QK	QL	U	r	Y	Key Dimensions	Key Model Number	Stocked Item
HG-SR_K	51(B) 81(B)	24h6 (0.554)	55	50	8 0 -0.036	36	5 (0.20)	4 +0.2 0	4	M8 screw depth 20	8x7x28	MTR KEY 8-7-28	S
	121(B) 201(B) 301(B) 421(B)	35 +0.01 0	79	75	10 0 -0.036	55	5 (0.20)	5 +0.2 0	5		10x8x45	MTR KEY 10-8-45	S

Motor Model	Capacity (W)	Variable Dimensions											
		S	R	Q	W	QK	QL	U	r	Y	Key Dimensions	Key Model Number	Stocked Item
HG-SR_K	52(B) 102(B) 152(B)	24h6 (0.554)	55	50	8 0 -0.036	36	5 (0.20)	4 +0.2 0	4	M8 screw depth 20	8x7x28	MTR KEY 8-7-28	S
	202(B) 352(B) 502(B) 702(B)	35 +0.01 0	79	75	10 0 -0.036	55	5 (0.20)	5 +0.2 0	5		10x8x45	MTR KEY 10-8-45	S

HG-SR Series 400V

Keyway With No Key Supplied (Customer must supply key or order key part separately below)



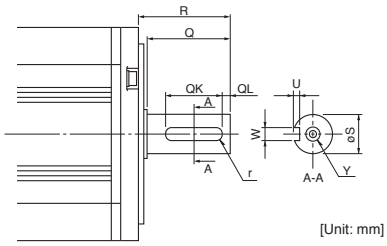
[Unit: mm]

Motor Model	Capacity (W)	Variable Dimensions											
		S	R	Q	W	QK	QL	U	r	Y	Key Dimensions	Key Model Number	Stocked Item
HG-SR_K	524(B) 1024(B) 1524(B)	24h6 (0.554)	55	50	8 0 -0.036	36	5 (0.20)	4 +0.2 0	4	M8 screw depth 20	8x7x28	MTR KEY 8-7-28	S
	2024(B) 3524(B) 5024(B) 7024(B)	35 +0.01 0	79	75	10 0 -0.036	55	5 (0.20)	5 +0.2 0	5		(N/A) Key to be supplied by customer.		

General Notes:

1. The Servo Motors with special shaft end are not suitable for frequent start/stop applications.
2. A key is not supplied with the Servo Motor. The key shall be installed by the user.

HG-JR 3000 Series 200V
Keyway With No Key Supplied (Customer must supply key or order key part separately below)



[Unit: mm]

Motor Model	Capacity (W)	Variable Dimensions									Key Dimensions	Key Model Number	Stocked Item
		S	R	Q	W	QK	QL	U	r	Y			
HG-JR_K	53(B) 73(B) 103(B) 153(B) 203(B)	16h6	40	30	5 $^{0}_{-0.030}$	25	2	3 $^{+0.1}_{0}$	2.5	M4 screw depth 15	(N/A) Key to be supplied by customer.		
	353(B) 503(B)	28h6	55	50	8 $^{0}_{-0.036}$	36	5	4 $^{+0.2}_{0}$	4	M8 screw depth 20	8x7x28	MTR KEY 8-7-28	S
	703(B) 903(B)	35 $^{+0.01}_{0}$	79	75	10 $^{0}_{-0.036}$	55	5	5 $^{+0.2}_{0}$	5		(N/A) Key to be supplied by customer.		

HG-JR 3000 Series 400V
Keyway With No Key Supplied (Customer must supply key or order key part separately below)

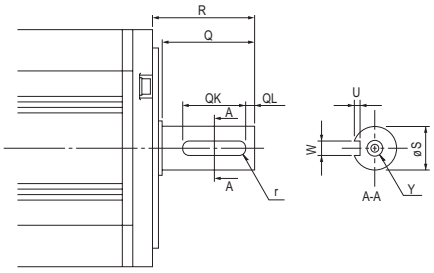


Figure A (Unit: mm)

Motor Model	Capacity (W)	Variable Dimensions									Key Dimensions	Key Model Number	Stocked Item
		S	R	Q	W	QK	QL	U	r	Y			
HG-JR_K	534(B) 734(B) 1034(B) 1534(B) 2034(B)	16h6	40	30	5 $^{0}_{-0.030}$	25	2	3 $^{+0.1}_{0}$	2.5	M4 screw depth 15	(N/A) Key to be supplied by customer.		
	3534(B) 5034(B)	28h6	55	50	8 $^{0}_{-0.036}$	36	5	4 $^{+0.2}_{0}$	4	M8 screw depth 20	8x7x28	MTR KEY 8-7-28	S
	7034(B) 9034(B)	35 $^{+0.01}_{0}$	79	75	10 $^{0}_{-0.036}$	55	5	5 $^{+0.2}_{0}$	5		(N/A) Key to be supplied by customer.		

HG-JR 1500 Series 200/400V
Keyway With No Key Supplied (Customer must supply key or order key part separately below)

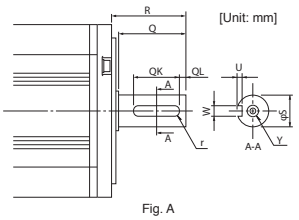


Fig. A

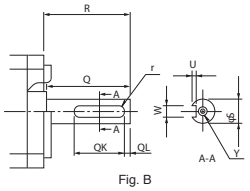


Fig. B

[Unit: mm]

Motor Model	Capacity (W)	Variable Dimensions										Key Dimensions	Key Model Number	Stocked Item
		S	R	Q	W	QK	QL	U	r	Y	Figure			
HG-JR_K	701M(B) 701M4(B)	42h6	85	79	12 $^{0}_{-0.040}$	70	5	5 $^{+0.2}_{0}$	6	M8 screw depth 19.8	A	(N/A) Key to be supplied by customer.		
	11K1M(B) 15K1M(B) 11K1M4(B) 15K1M4(B)	55m6	116	110	16 $^{0}_{-0.040}$	90	5 (0.20)	6 $^{+0.2}_{0}$	8	M10 screw depth 27	A	(N/A) Key to be supplied by customer.		
	22K1M 30K1M 37K1M 22K1M4 30K1M4 37K1M4	65m6	140	130	18 $^{0}_{-0.040}$	120	5 (0.20)	7 $^{+0.2}_{0}$	9	M12 screw depth 25	A	(N/A) Key to be supplied by customer.		
	45K1M4 55K1M4	80m6	140	140	22 $^{0}_{-0.040}$	132	7	9 $^{+0.2}_{0}$	11	M16 screw depth 30	B	(N/A) Key to be supplied by customer.		

General Notes:

1. The Servo Motors with special shaft end are not suitable for frequent start/stop applications.
2. A key is not supplied with the Servo Motor. The key shall be installed by the user.

HG-JR 1000 Series 200/400V
Keyway With No Key Supplied (Customer must supply key or order key part separately below)

Key shaft (without key) (*1, *2)

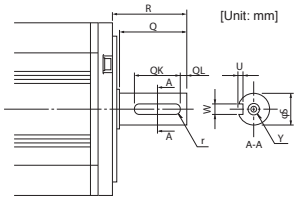


Fig. A

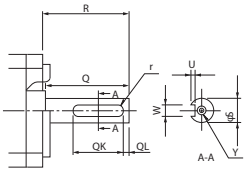
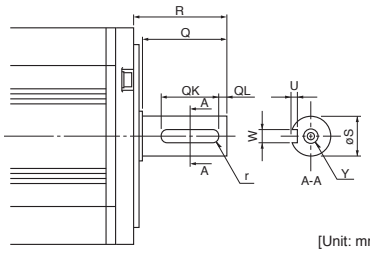


Fig. B

Motor Model	Capacity (W)	Variable Dimensions										
		S	R	Q	W	QK	QL	U	r	Y	Figure	Model Number
HG-JR_K	601(B) 6014(B)	42h6	85	79	12 $^{0}_{-0.040}$	70	5	5 $^{+0.2}_{0}$	6	M8 screw depth 19.8	A	(N/A) Key to be supplied by customer.
	801(B) 8014(B) 12K1(B) 12K14(B)	55m6	116	110	16 $^{0}_{-0.040}$	90	5	6 $^{+0.2}_{0}$	8	M10 screw depth 27	A	
	15K1 15K14 20K1 20K14 25K1 25K14	65m6	140	130	18 $^{0}_{-0.040}$	120	5	7 $^{+0.2}_{0}$	9	M12 screw depth 25	A	
	30K1 30K14 37K1 37K14	80m6	140	140	22 $^{0}_{-0.040}$	132	7	9 $^{+0.2}_{0}$	11	M16 screw depth 30	B	

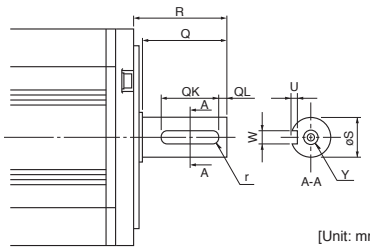
HG-RR Series 200V
Keyway With No Key Supplied (Customer must supply key or order key part separately below)



[Unit: mm]

Motor Model	Capacity (W)	Variable Dimensions											
		S	R	Q	W	QK	QL	U	r	Y	Key Dimensions	Key Model Number	Stocked Item
HG-RR_K	103(B) 153(B) 203(B)	24h6	45	40	8 $^{0}_{-0.036}$	25	5	4 $^{+0.2}_{0}$	4	M8 screw depth 20	8x7x16	MTR KEY 8-7-16	S
	353(B) 503(B)	28h6	63	58	8 $^{0}_{-0.036}$	53	3	4 $^{+0.2}_{0}$	4		8x7x45	MTR KEY 8-7-45	S

HG-UR Series 200V
Keyway With No Key Supplied (Customer must supply key or order key part separately below)



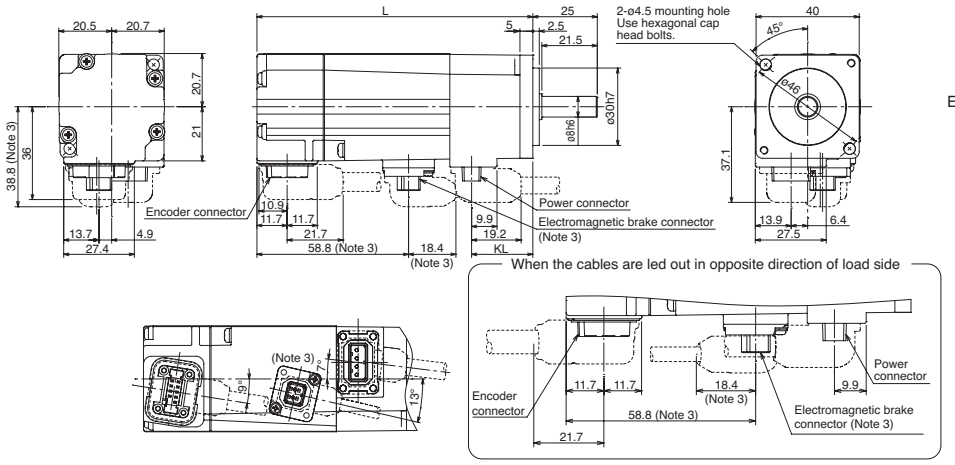
[Unit: mm]

Motor Model	Capacity (W)	Variable Dimensions											
		S	R	Q	W	QK	QL	U	r	Y	Key Dimensions	Key Model Number	Stocked Item
HG-UR_K	72(B)	22h6	55	50	6 $^{0}_{-0.036}$	42	3	3.5 $^{+0.1}_{0}$	3	M8 screw depth 20	6x6x36	MTR KEY 6-6-36	S
	152(B)	28h6	55	50	8 $^{0}_{-0.036}$	40	3	4 $^{+0.2}_{0}$	4		8x7x36	MTR KEY 8-7-36	S
	202(B) 352(B) 502(B)	35 $^{+0.01}_{0}$	65	60	10 $^{0}_{-0.036}$	50	5	5 $^{+0.2}_{0}$	5		10x8x45	MTR KEY 10-8-45	S

General Notes:
1. The Servo Motors with special shaft end are not suitable for frequent start/stop applications.
2. A key is not supplied with the Servo Motor. The key shall be installed by the user.

HG-KR/HG-MR Series Dimensions (*1, *5, *6)

HG-KR053(B), HG-KR13(B)
HG-MR053(B), HG-MR13(B)



Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

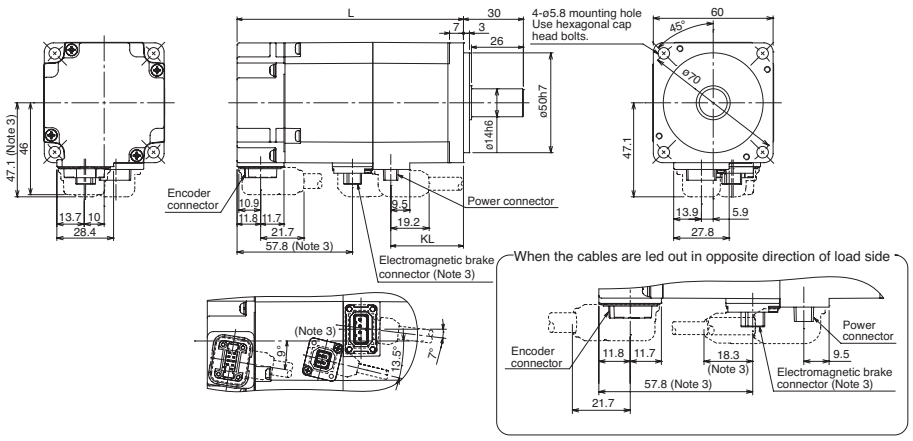
Electromagnetic brake connector (Note 2)

Pin No.	Signal name
1	B1
2	B2

Model	Variable dimensions (Note 4)	
	L	KL
HG-KR053(B) HG-MR053(B)	66.4 (107)	23.8
HG-KR13(B) HG-MR13(B)	82.4 (123)	39.8

[Unit: mm]

HG-KR23(B), HG-KR43(B))
HG-MR23(B), HG-MR43(B)



Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

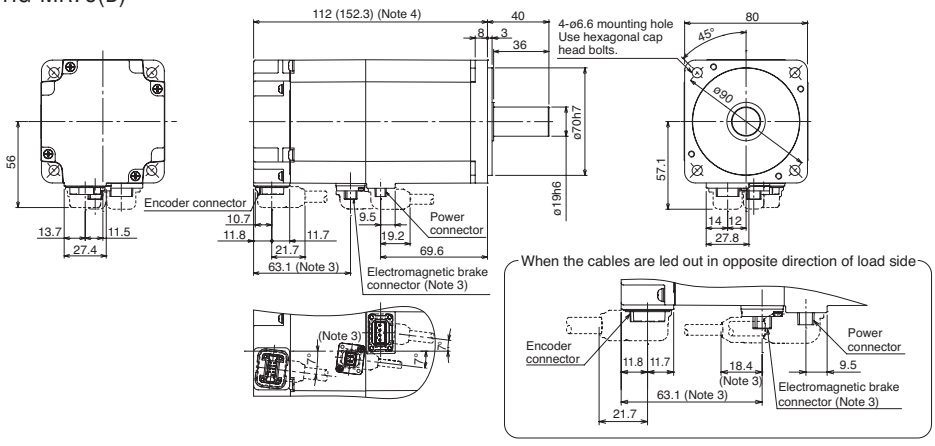
Electromagnetic brake connector (Note 2)

Pin No.	Signal name
1	B1
2	B2

Model	Variable dimensions (Note 4)	
	L	KL
HG-KR23(B) HG-MR23(B)	76.6 (113.4)	36.4
HG-KR43(B) HG-MR43(B)	98.3 (135.1)	58.1

[Unit: mm]

HG-KR73(B)
HG-MR73(B)



Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

Electromagnetic brake connector (Note 2)

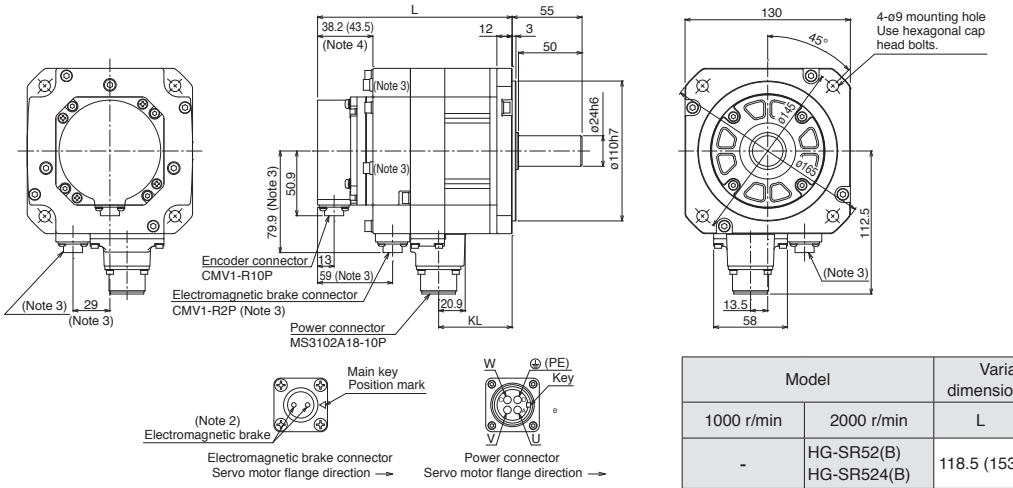
Pin No.	Signal name
1	B1
2	B2

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.
6. Servo motors with oil seal (HG-KR_J and HG-MR_J) have different dimensions. Contact your local sales office for more details.

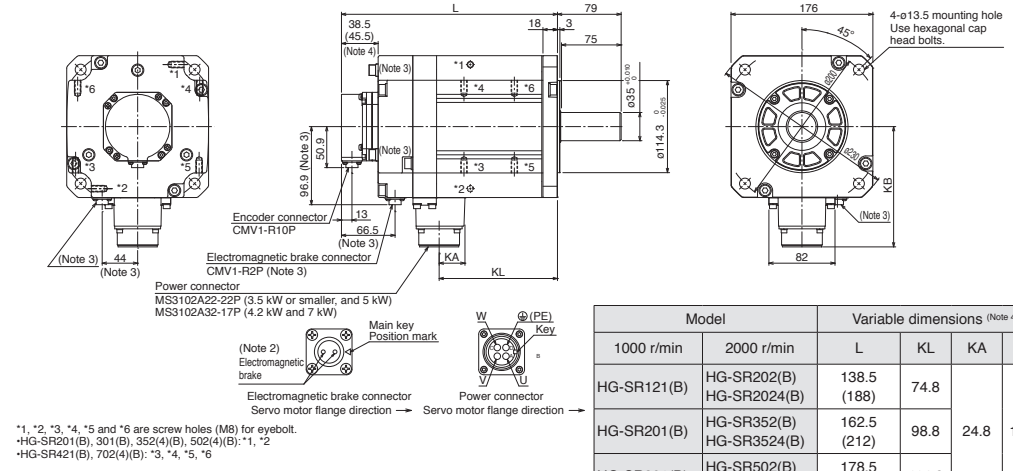
HG-SR Series Dimensions (*1, *5)

HG-SR51(B), HG-SR81(B)
HG-SR52(B), HG-SR102(B), HG-SR152(B)
HG-SR524(B), HG-SR1024(B), HG-SR1524(B)



Model		Variable dimensions (Note 4)	
1000 r/min	2000 r/min	L	KL
-	HG-SR52(B) HG-SR524(B)	118.5 (153)	57.8
HG-SR51(B)	HG-SR102(B) HG-SR1024(B)	132.5 (167)	71.8
HG-SR81(B)	HG-SR152(B) HG-SR1524(B)	146.5 (181)	85.8

HG-SR121(B), HG-SR201(B), HG-SR301(B), HG-SR421(B)
HG-SR202(B), HG-SR352(B), HG-SR502(B), HG-SR702(B)
HG-SR2024(B), HG-SR3524(B), HG-SR5024(B), HG-SR7024(B)



*1, *2, *3, *4, *5 and *6 are screw holes (M8) for eyebolt.
•HG-SR201(B), 301(B), 352(4)(B), 502(4)(B): *1, *2
•HG-SR421(B), 702(4)(B): *3, *4, *5, *6

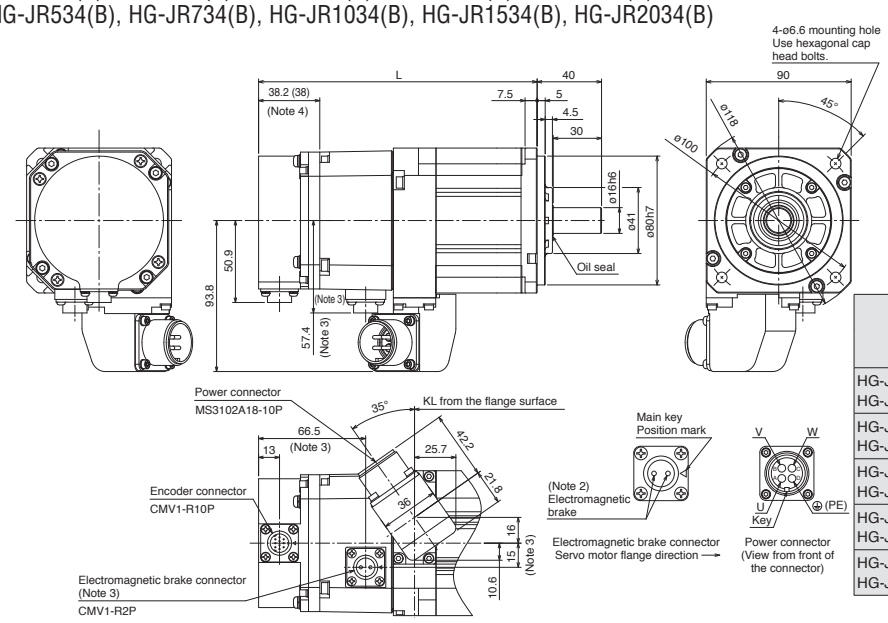
Model		Variable dimensions (Note 4)			
1000 r/min	2000 r/min	L	KL	KA	KB
HG-SR121(B)	HG-SR202(B) HG-SR2024(B)	138.5 (188)	74.8	24.8	140.9
HG-SR201(B)	HG-SR352(B) HG-SR3524(B)	162.5 (212)	98.8		
HG-SR301(B)	HG-SR502(B) HG-SR5024(B)	178.5 (228)	114.8		
HG-SR421(B)	HG-SR702(B) HG-SR7024(B)	218.5 (268)	146.8	32	149.1

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.

HG-JR Series Dimensions (*1, *5)

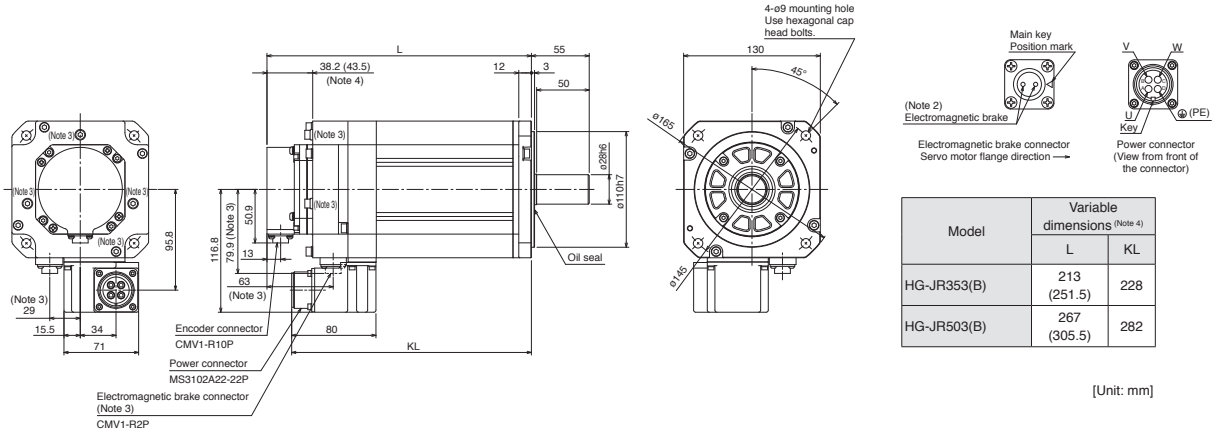
HG-JR53(B), HG-JR73(B), HG-JR103(B), HG-JR153(B), HG-JR203(B)
HG-JR534(B), HG-JR734(B), HG-JR1034(B), HG-JR1534(B), HG-JR2034(B)



Model	Variable dimensions (Note 4)	
	L	KL
HG-JR53(B) HG-JR534(B)	127.5 (173)	76
HG-JR73(B) HG-JR734(B)	145.5 (191)	94
HG-JR103(B) HG-JR1034(B)	163.5 (209)	112
HG-JR153(B) HG-JR1534(B)	199.5 (245)	148
HG-JR203(B) HG-JR2034(B)	235.5 (281)	184

[Unit: mm]

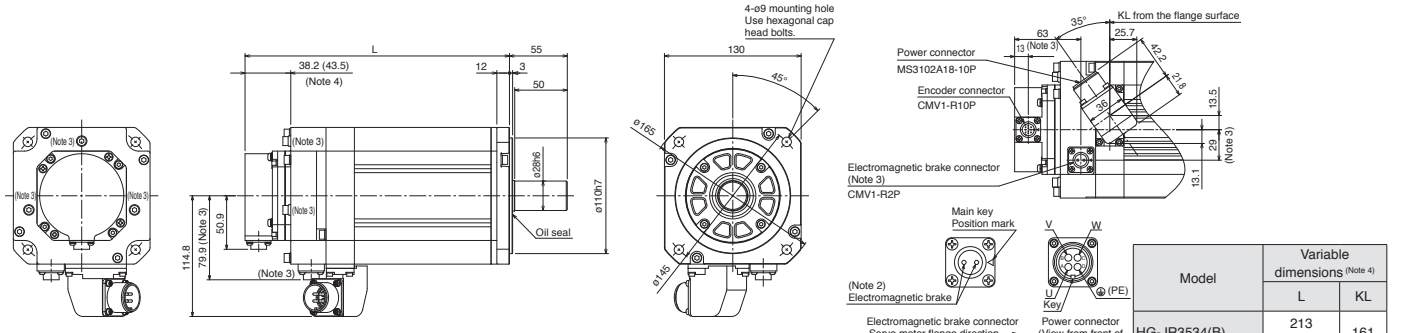
HG-JR353(B), HG-JR503(B)



Model	Variable dimensions (Note 4)	
	L	KL
HG-JR353(B)	213 (251.5)	228
HG-JR503(B)	267 (305.5)	282

[Unit: mm]

HG-JR3534(B), HG-JR5034(B)



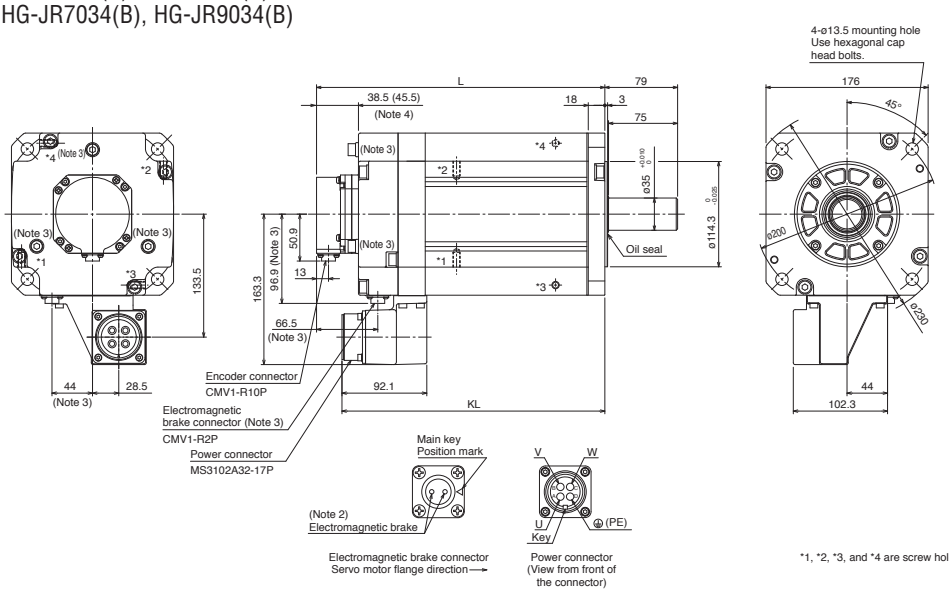
Model	Variable dimensions (Note 4)	
	L	KL
HG-JR3534(B)	213 (251.5)	161
HG-JR5034(B)	267 (305.5)	215

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.

HG-JR Series Dimensions (*1, *5)

HG-JR703(B), HG-JR903(B)
HG-JR7034(B), HG-JR9034(B)



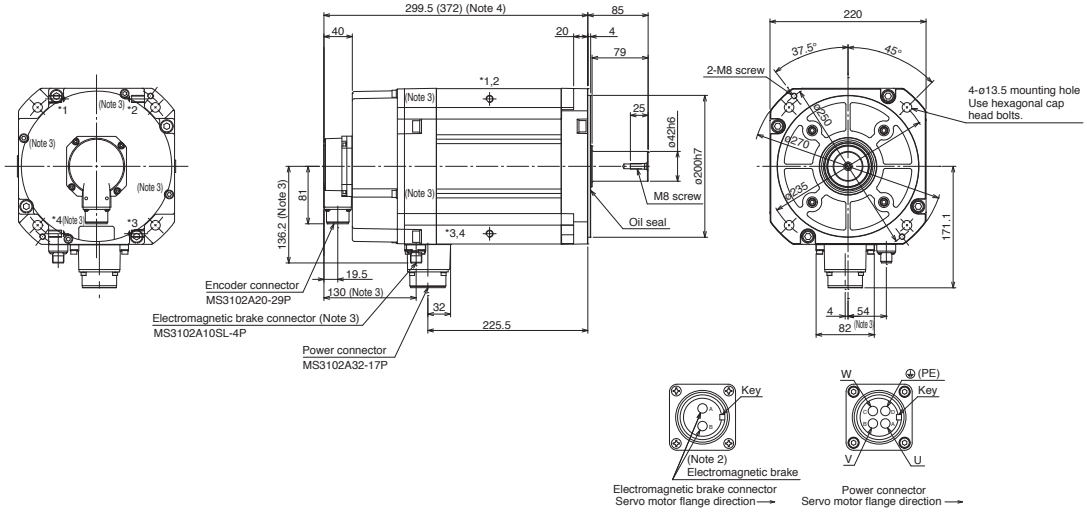
Model	Variable dimensions (Note 4)	
	L	KL
HG-JR703(B) HG-JR7034(B)	263.5 (313)	285.4
HG-JR903(B) HG-JR9034(B)	303.5 (353)	325.4

[Unit: mm]

*1, *2, *3, and *4 are screw holes (M8) for eyebolt.

HG-JR Series Dimensions (*1, *5)

HG-JR601(B), HG-JR701M(B), HG-JR6014(B), HG-JR701M4(B)

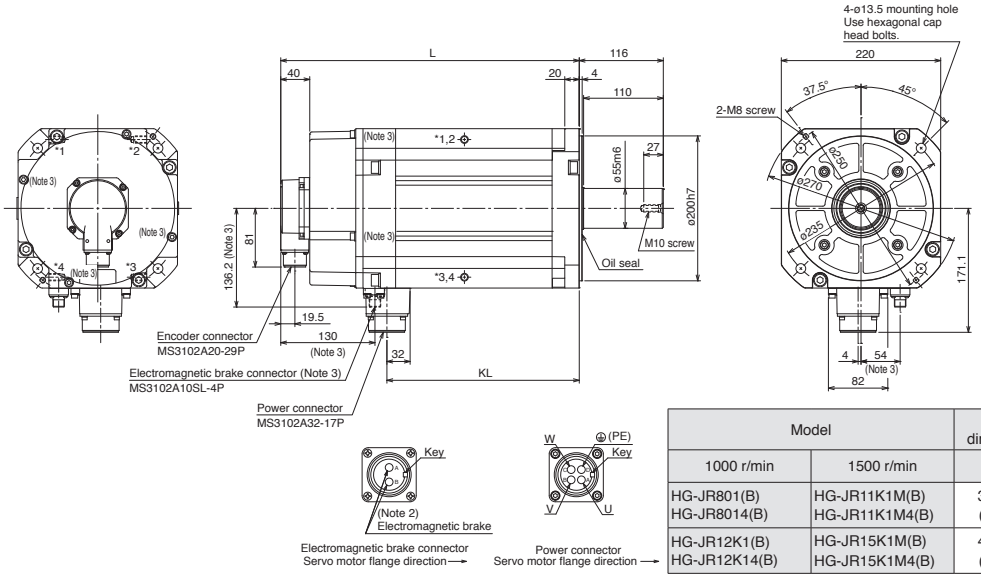


*1, *2, *3, and *4 are screw holes (M10) for eyebolt.

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.
6. Leave a clearance of at least 150 mm between the intake side of the Servo Motor and wall.
7. Prevent oil, water, dust, and other foreign matter from entering the Servo Motor through the lead hole.
8. A washer is placed between the eyebolt and the Servo Motor to adjust the bolt angle.

HG-JR801(B), HG-JR12K1(B), HG-JR8014(B), HG-JR12K14(B)
HG-JR11K1M(B), HG-JR15K1M(B), HG-JR11K1M4(B), HG-JR15K1M4(B)



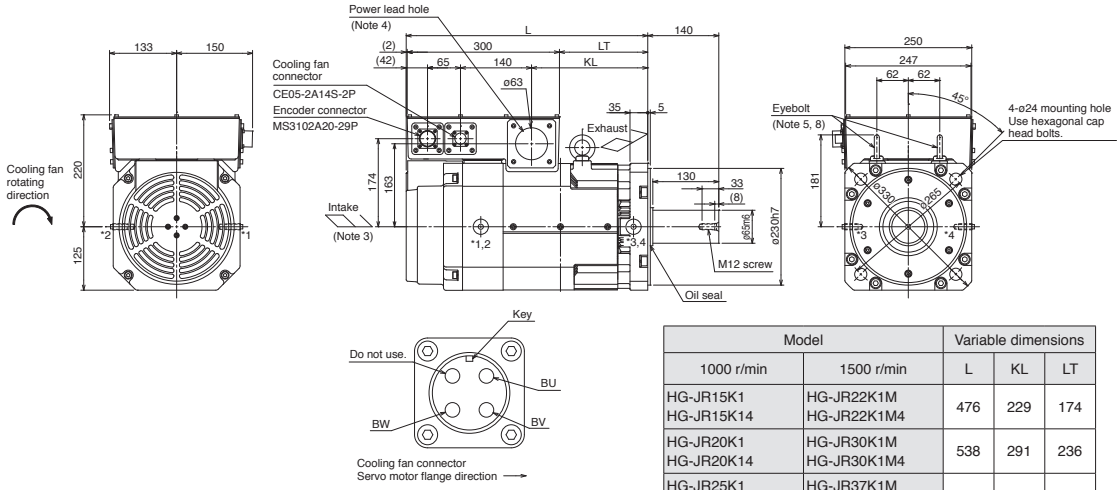
Model		Variable dimensions (Note 4)	
1000 r/min	1500 r/min	L	KL
HG-JR801(B) HG-JR8014(B)	HG-JR11K1M(B) HG-JR11K1M4(B)	339.5 (412)	265.5
HG-JR12K1(B) HG-JR12K14(B)	HG-JR15K1M(B) HG-JR15K1M4(B)	439.5 (512)	365.5

*1, *2, *3, and *4 are screw holes (M10) for eyebolt.

[Unit: mm]

HG-JR Series Dimensions (*1, *2, *6)

HG-JR15K1, HG-JR20K1, HG-JR25K1, HG-JR15K14, HG-JR20K14, HG-JR25K14
HG-JR22K1M (*7), HG-JR30K1M, HG-JR37K1M, HG-JR22K1M4 (*7), HG-JR30K1M4, HG-JR37K1M4



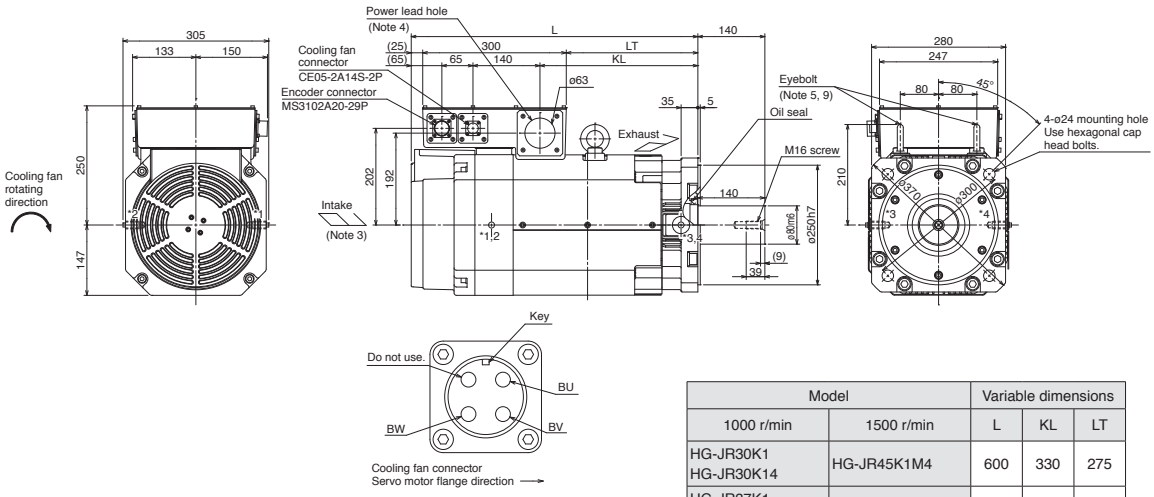
Model		Variable dimensions		
1000 r/min	1500 r/min	L	KL	LT
HG-JR15K1 HG-JR15K14	HG-JR22K1M HG-JR22K1M4	476	229	174
HG-JR20K1 HG-JR20K14	HG-JR30K1M HG-JR30K1M4	538	291	236
HG-JR25K1 HG-JR25K14	HG-JR37K1M HG-JR37K1M4	600	353	298

*1, *2, *3, and *4 are screw holes (M12) for eyebolt.

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. Use a friction coupling to fasten a load.
3. Leave a clearance of at least 150 mm between the intake side of the servo motor and wall.
4. Prevent oil, water, dust, and other foreign matter from entering the servo motor through the lead hole.
5. A washer is placed between the eyebolt and the servo motor to adjust the bolt angle.
6. The terminal block in the terminal box consists of M10 screws for the motor power input (U, V, and W).
7. HG-JR22K1M/HG-JR22K1M4 have been modified from September 2014 production. Refer to "Servo Motor Instruction Manual (Vol. 3)" for the previous dimensions.
8. When using the servo motor without the eyebolt, plug the threaded hole with a bolt of M12 × 20 or shorter.
9. When using the servo motor without the eyebolt, plug the threaded hole with a bolt of M16 × 20 or shorter.

HG-JR30K1, HG-JR37K1, HG-JR30K14, HG-JR37K14
HG-JR45K1M4, HG-JR55K1M4



Model		Variable dimensions		
1000 r/min	1500 r/min	L	KL	LT
HG-JR30K1 HG-JR30K14	HG-JR45K1M4	600	330	275
HG-JR37K1 HG-JR37K14	HG-JR55K1M4	664	394	339

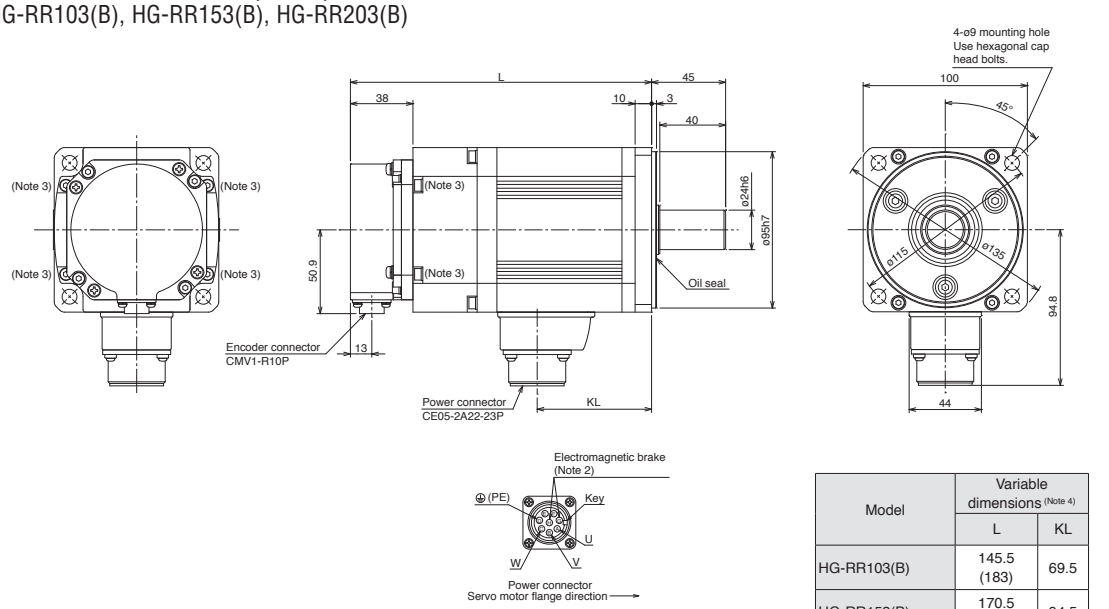
*1, *2, *3, and *4 are screw holes (M16) for eyebolt.

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. Use a friction coupling to fasten a load.
3. Leave a clearance of at least 150 mm between the intake side of the servo motor and wall.
4. Prevent oil, water, dust, and other foreign matter from entering the servo motor through the lead hole.
5. A washer is placed between the eyebolt and the servo motor to adjust the bolt angle.
6. The terminal block in the terminal box consists of M10 screws for the motor power input (U, V, and W).
7. HG-JR22K1M/HG-JR22K1M4 have been modified from September 2014 production. Refer to "Servo Motor Instruction Manual (Vol. 3)" for the previous dimensions.
8. When using the servo motor without the eyebolt, plug the threaded hole with a bolt of M12 × 20 or shorter.
9. When using the servo motor without the eyebolt, plug the threaded hole with a bolt of M16 × 20 or shorter.

HG-RR Series Dimensions (*1, *5)

HG-RR103(B), HG-RR153(B), HG-RR203(B)

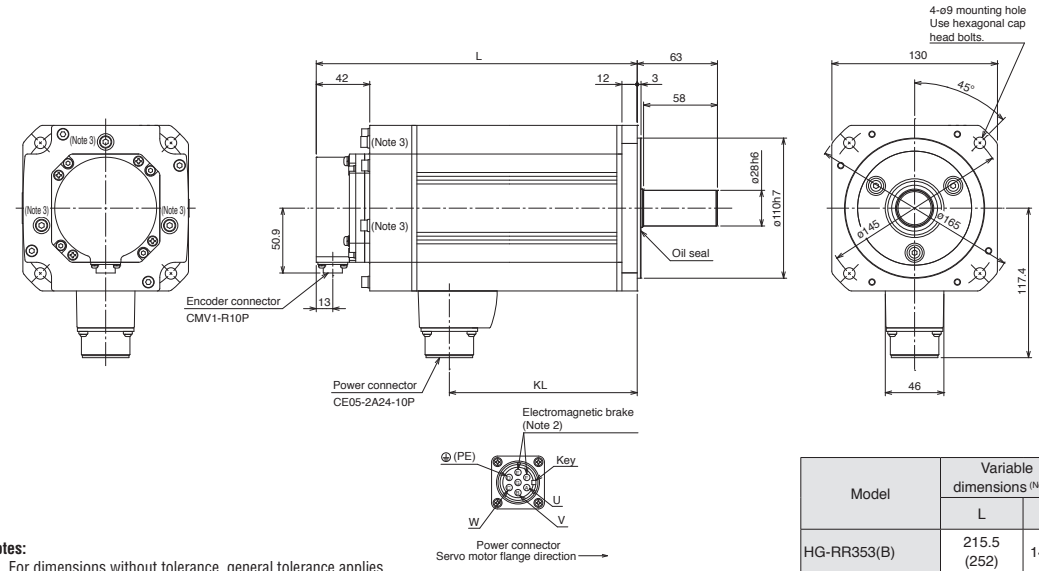


Model	Variable dimensions (Note 4)	
	L	KL
HG-RR103(B)	145.5 (183)	69.5
HG-RR153(B)	170.5 (208)	94.5
HG-RR203(B)	195.5 (233)	119.5

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.

HG-RR353(B), HG-RR503(B)



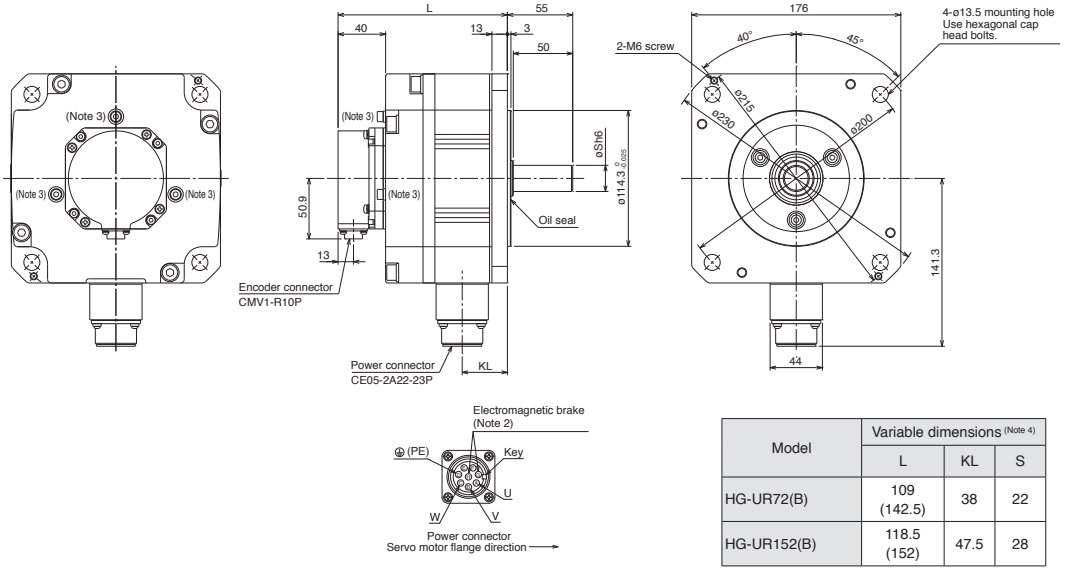
Model	Variable dimensions (Note 4)	
	L	KL
HG-RR353(B)	215.5 (252)	147.5
HG-RR503(B)	272.5 (309)	204.5

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.

HG-UR Series Dimensions (*1, *5)

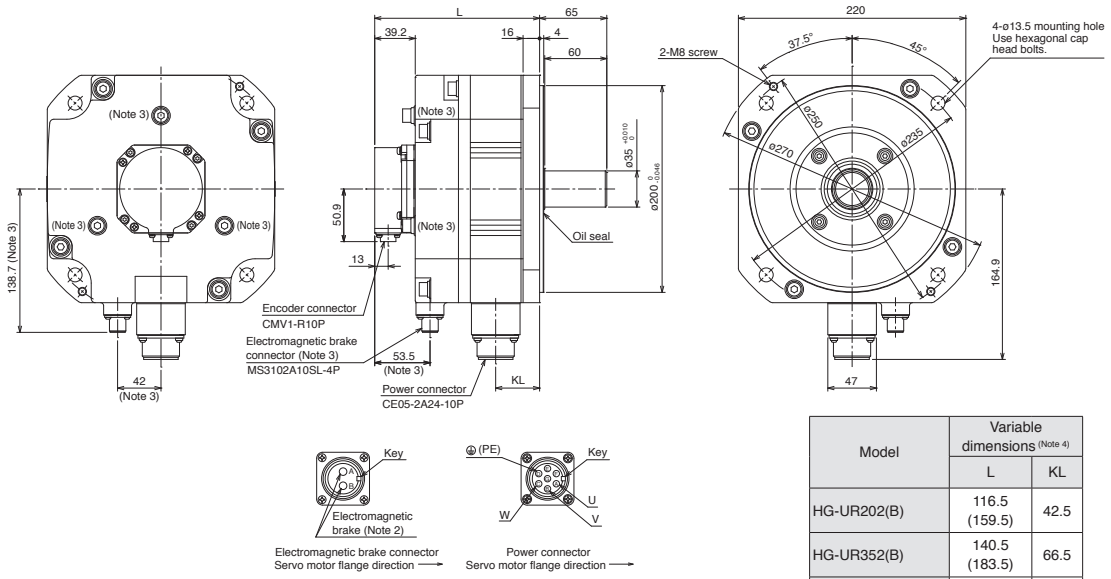
HG-UR72(B), HG-UR152(B)



Model	Variable dimensions (Note 4)		
	L	KL	S
HG-UR72(B)	109 (142.5)	38	22
HG-UR152(B)	118.5 (152)	47.5	28

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load



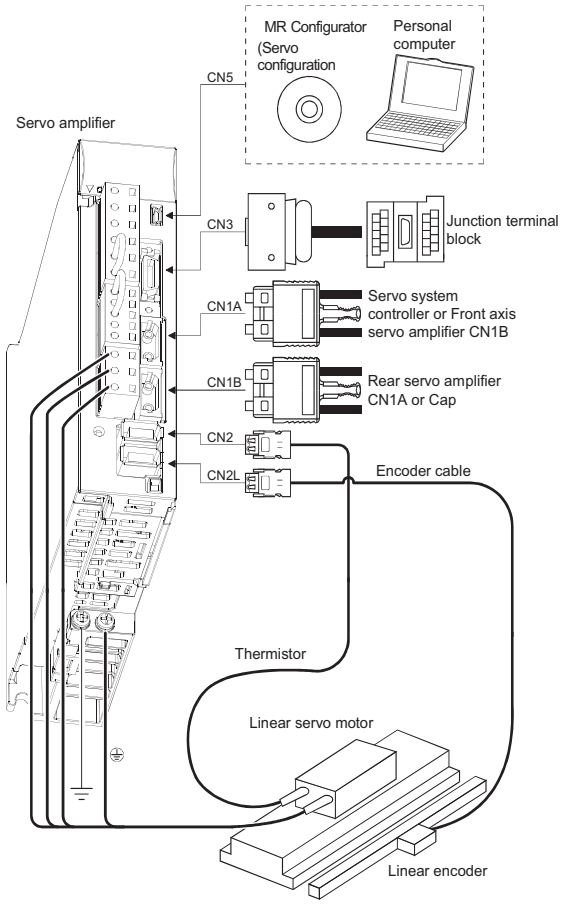
Model	Variable dimensions (Note 4)	
	L	KL
HG-UR202(B)	116.5 (159.5)	42.5
HG-UR352(B)	140.5 (183.5)	66.5
HG-UR502(B)	164.5 (207.5)	90.5

[Unit: mm]

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.

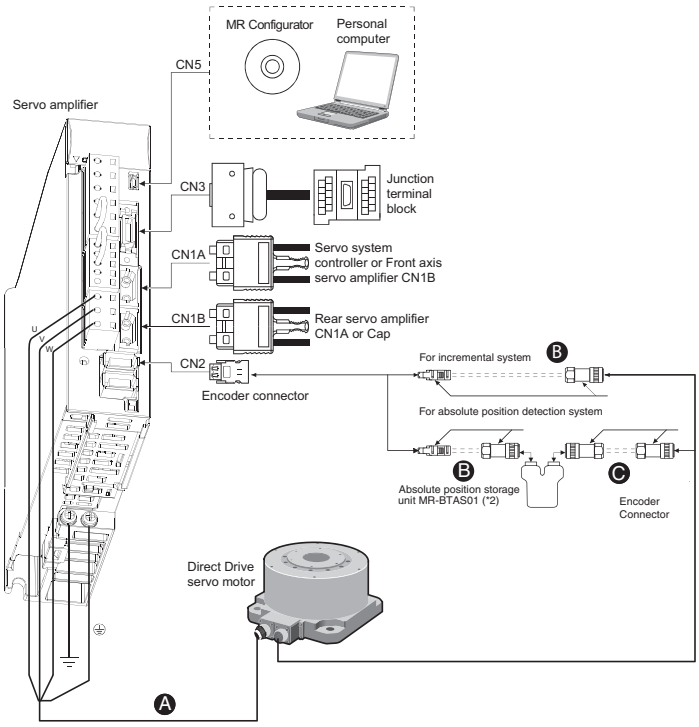
MR-J4 Linear Servo Motors and Amplifiers

Note:
Please consult product marketing for all linear amplifier and motor opportunities.



MR-J4 Direct Drive Servo Motors and Amplifiers

Direct Drive motors combine the accuracy and control of a servo motor with the axial and lateral load capacity of a traditional mechanical support system. This direct connection provides higher rigidity, lower noise, increased efficiency, accurate positioning, and removes sources of mechanical wear in a drive system. The motor's low profile design and performance allow customers to build more compact, stable, and precise machines. This motor is suitable for index tables used in semiconductor manufacturing, liquid crystal manufacturing, and machine tool applications. The direct drive motor and servo amplifier confirm to global standards (EN, UL, and cUL standards).



TM-R□2M-□□□

Symbol	Mounting Method
G	Flange type
U	Table type

Symbol	Rated Torque [N•m]
002	2.2
004	4.5
009	9

Symbol	Motor Outer Diameter [mm] (Frame Dimensions)
C	ø130
E	ø180
G	ø230

Symbol	Rated speed [r/min]
30	300

Note:
Please consult product marketing for all direct drive motor opportunities.

TM-RG2M/TM-RU2M Series Specifications

Direct Drive Motor Model		TM-RG2M-002C30 TM-RU2M-002C30	TM-RG2M-004E30 TM-RU2M-004E30	TM-RG2M-009G30 TM-RU2M-009G30
Compatible Servo Amplifier Model	MR-J4-	Refer to Direct Drive Motor and Servo Amplifier Catalog for more information.		
	MR-J4W_-			
Stocked Item		TM-RG2M-002C30	TM-RG2M-004E30	TM-RG2M-009G30
Motor Outer Diameter (Frame Dimensions) (mm)		ø130	ø180	ø230
Power Supply Capacity (kVA) (*1)		0.25	0.5 (0.7)	0.9
Continuous Running Duty	Rated Output (W)	69	141 (188)	283
	Rated Torque (N•m) (*3)	2.2	4.5 (6)	9
Maximum Torque (N•m)		8.8	13.5 (18)	27
Rated Speed (r/min)		300		
Maximum Speed (r/min)		600		
Permissible Instantaneous Speed (r/min)		690		
Power Rate at Continuous Rated Torque (kW/s)		6.1	3.4 (6.0)	5.5
Rated Current (A)		1.2	1.3 (1.7)	2.2
Maximum Current (A)		4.9	4.0 (5.3)	6.7
Regenerative Braking Frequency	MR-J4- (times/min)	1317	166 (167)	68
	MR-J4-W_- (times/min)	1317		
Moment of Inertia J (x10^{-4} kg•m^2)		7.88	60.2	147
Recommended Load to Motor Inertia Ratio		50 times or less	20 times or less	
Absolute Accuracy (s)		±15	±12.5	
Speed/Position Detector	Absolute/Incremental (*3)	21-bit encoder; 2097152 pulses/rev	22-bit encoder; 4194304 pulses/rev	
Thermistor		Built-in		
Insulation Class		155 (F)		
Structure		Totally enclosed, natural cooling (IP rating: IP40) (*2)		
Environment	Ambient Temperature	Operation: 0 °C to 40 °C (non-freezing), storage: -15 °C to 70 °C (non-freezing)		
	Ambient Humidity	Operation: 10 %RH to 80 %RH (non-condensing), storage: 10 %RH to 90 %RH (non-condensing)		
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, dust or splash of oil or water		
	Attitude	2000 m or less above sea level		
	Vibration Resistance	X: 49 m/s^2 Y: 49 m/s^2		
Vibration Rank		V10		
Compliance with Global Standards		Refer to the Compliance with Global Standards and Regulations in the TM-RG catalog		
Rotor Permissible Load	Moment Load (N•m)	15	49	65
	Axial Load (N)	770	2300	3800
Weight (kg)		2.7	5.5	8.3

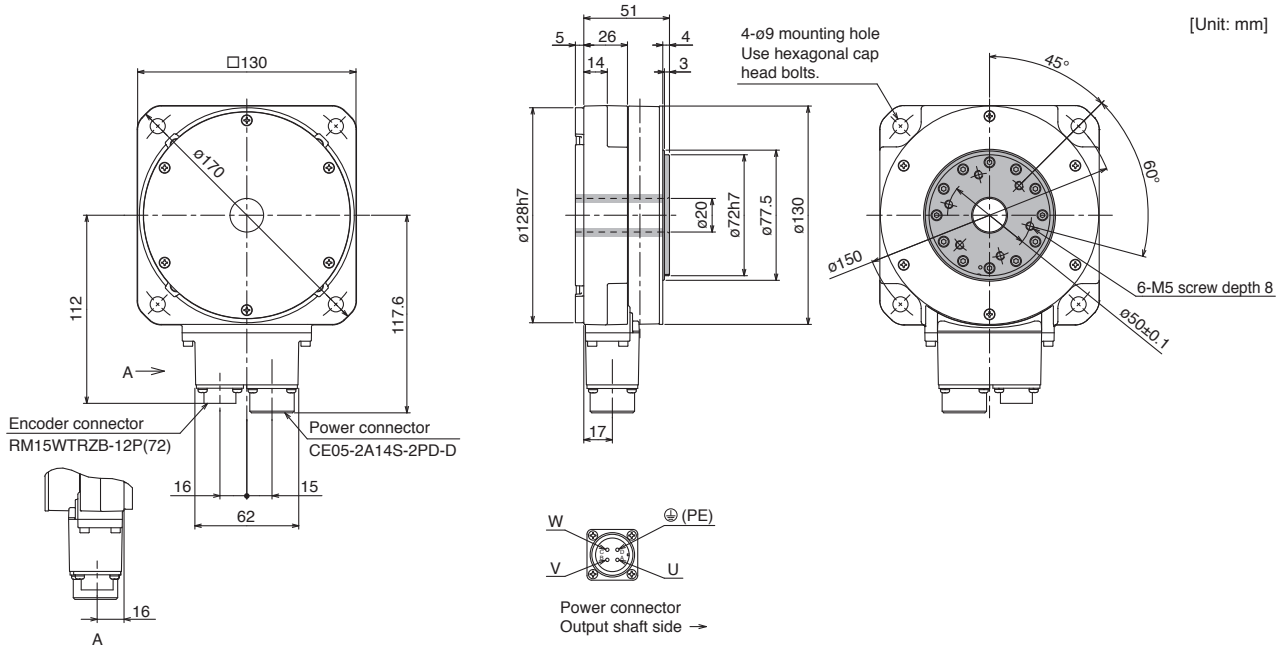
Notes:
1. Any combination of the servo motors is available for MR-J4W2/MR-J4W3 servo amplifiers. Refer to "MELSERVO-J4 catalog (L(NA)03058)" for the combinations with rotary servo motors, linear servo motors, and direct drive motors.
2. This combination increases the rated and maximum torque.
3. Use MR-J4-B(-RJ)/MR-J4-A(-RJ)/MR-J4W2/MR-J4W3 servo amplifiers with software version C8 or later.

Power and Encoder Cables

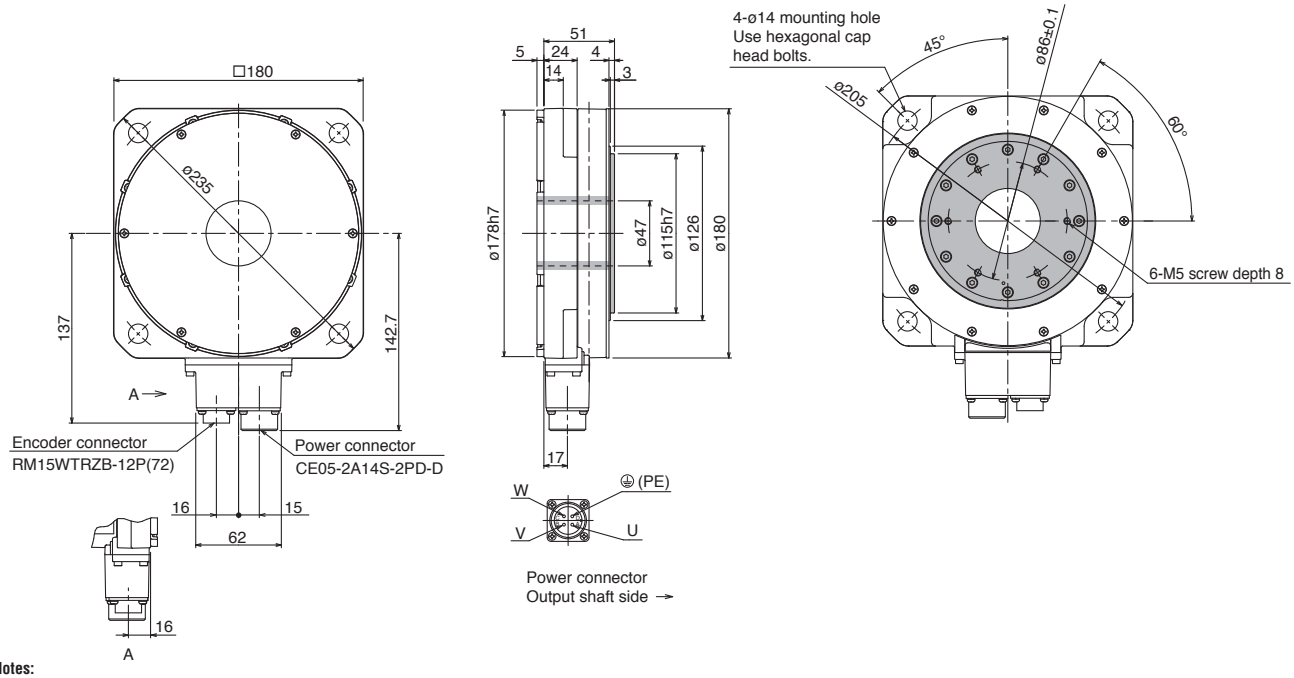
Figure Number	Item	Model Number	Available Lengths [m]	Stocked Length	Protection Level	Description
A	Power	MR-PWD1CBL_M-H	2, 5, 10	2, 5	-	
B	Encoder	MR-J3DDCNLCBL-_M	03, 05, 2, 5, 10	0.5, 2, 5	-	
C	Encoder	MR-J3DDSPLCBL-_M	2, 5, 10	2, 5, 10	-	

TM-RG2M Series Dimensions (*1, *2)

TM-RG2M002C30



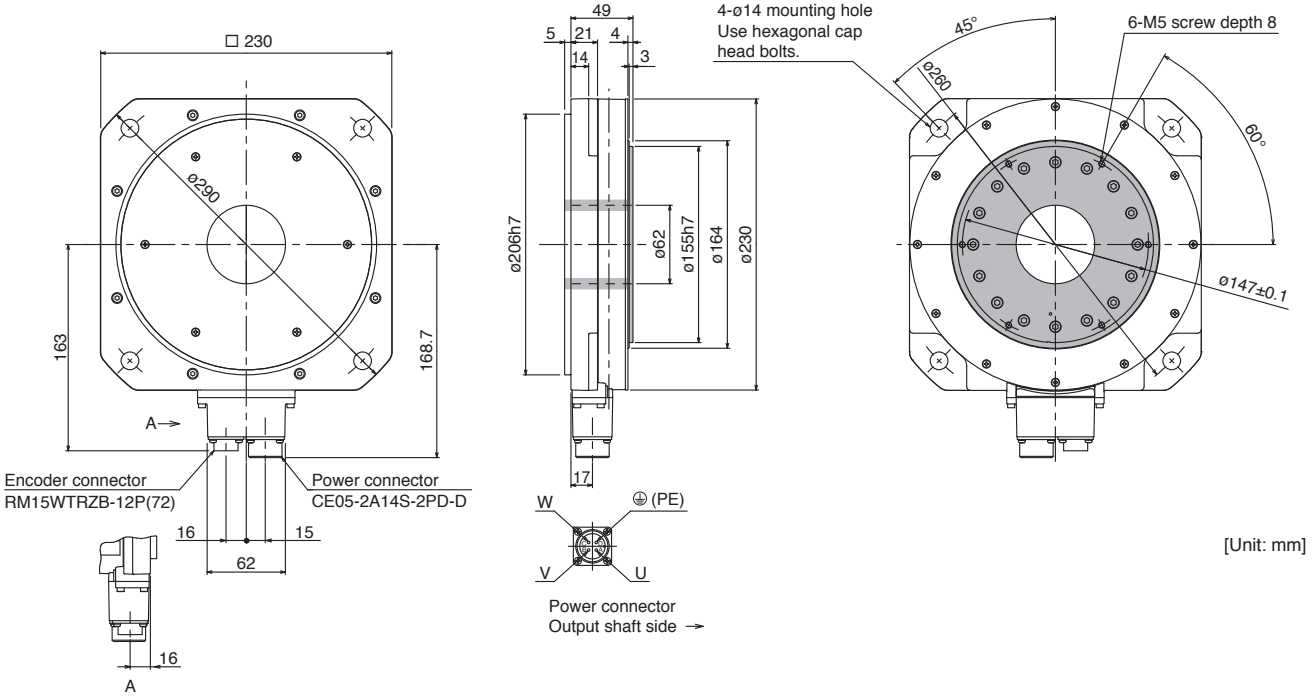
TM-RG2M004E30



Notes:
1. For dimensions without tolerance, general tolerance applies.
2. ▬ indicates rotor.

TM-RG2M Series Dimensions (*1, *2)

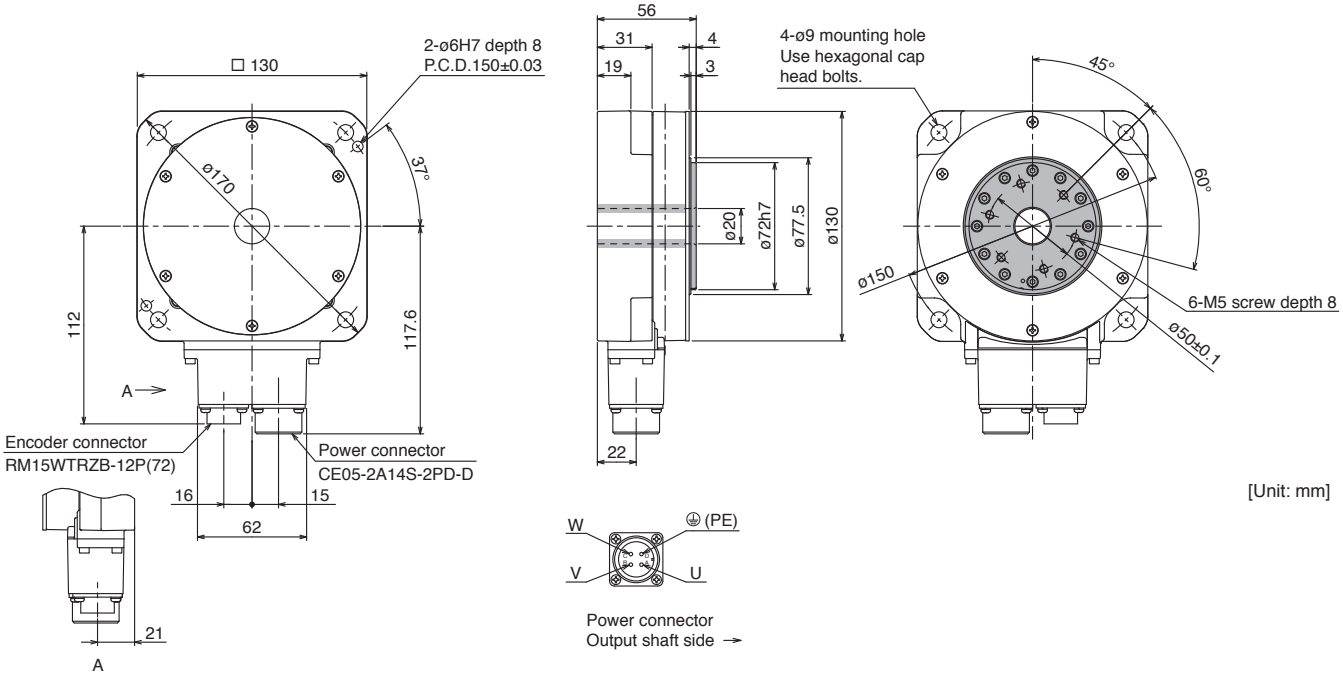
TM-RG2M009G30



[Unit: mm]

TM-RU2M Series Dimensions (*1, *2)

TM-RU2M002C30

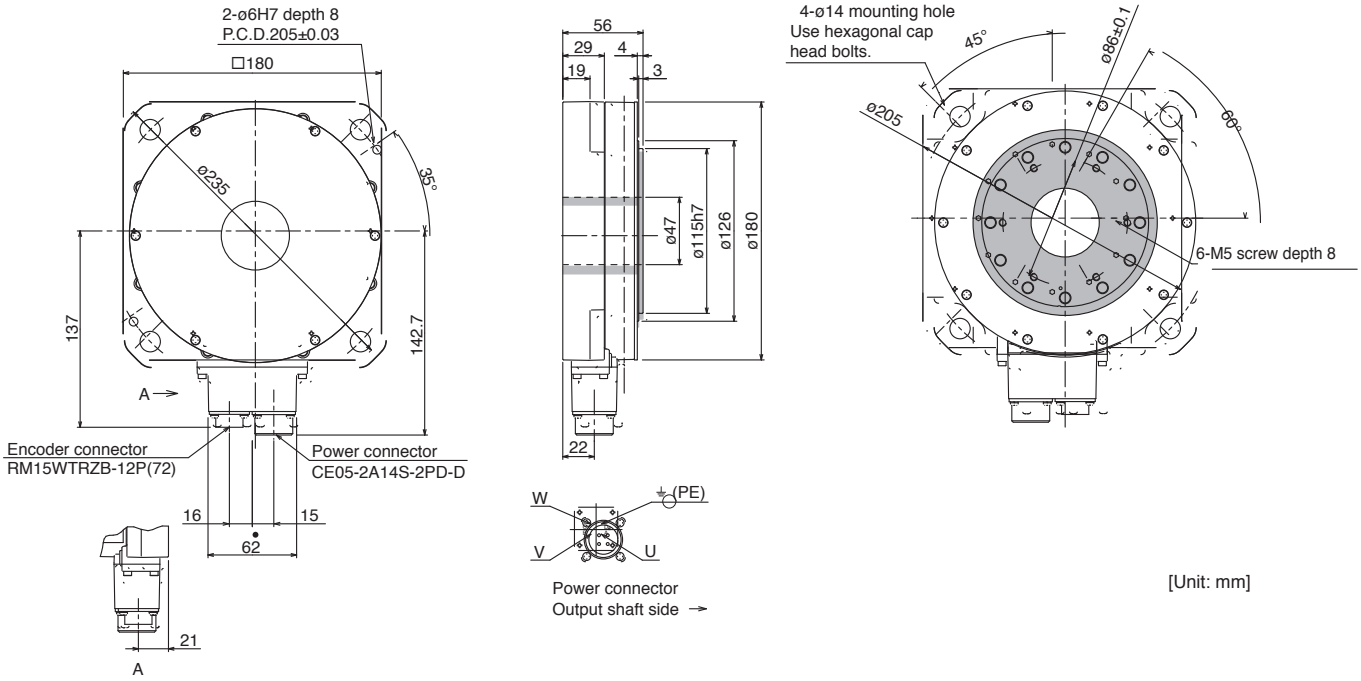


[Unit: mm]

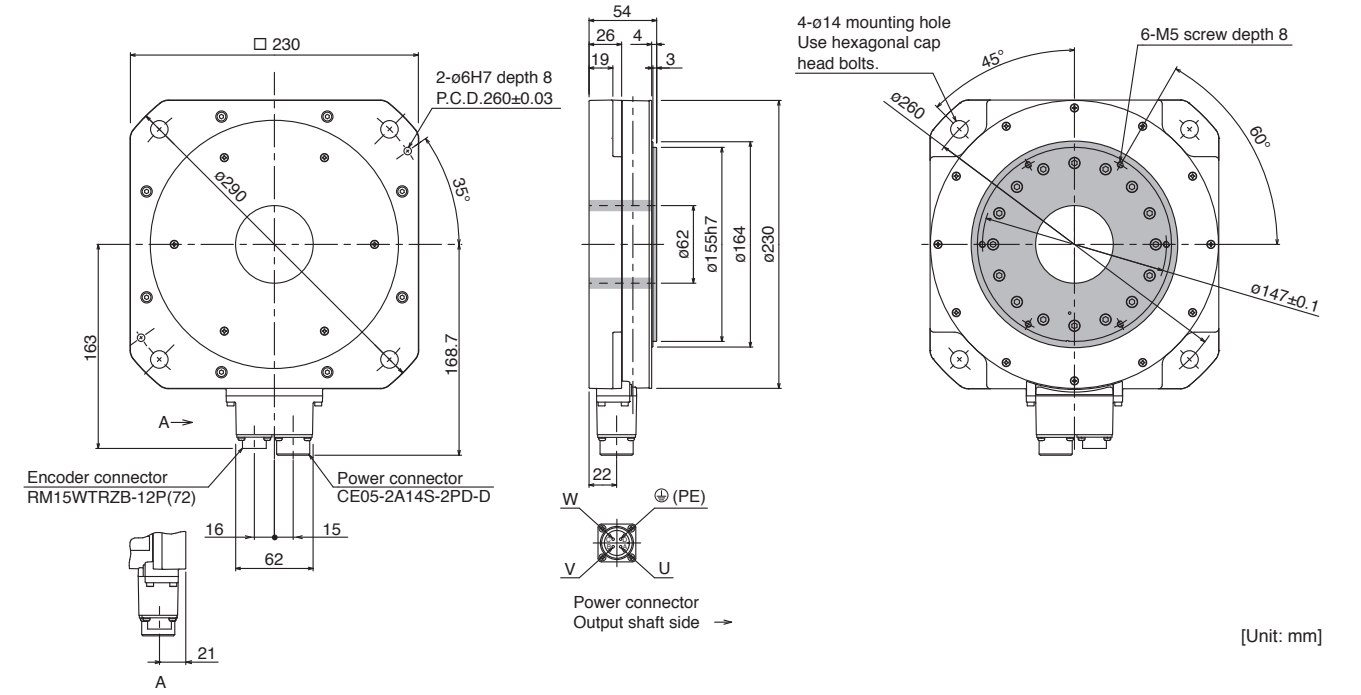
Notes:
1. For dimensions without tolerance, general tolerance applies.
2. ▬ indicates rotor.

TM-RU2M Series Dimensions (*1, *2)

TM-RU2M004E30



TM-RU2M009G30



Notes:
1. For dimensions without tolerance, general tolerance applies.
2. ▬ indicates rotor.

MR-JE Servo Motors and Amplifiers

MR-JE family of products leverages advanced functionality such as true one-touch auto-tuning, vibration suppression, and machine diagnosis functionality in an easy-to-use servo solution.

MR-JE Amplifiers

Amplifier Selection

MR-JE - □ □

Mitsubishi General Purpose AC Servo Amplifier

Symbol	Interface
A	General Purpose
BF	SSCNET III/H
C	Ethernet

Symbol	Rated Output (kW)
10	0.1
20	0.2
40	0.4
70	0.75
100	1
200	2
300	3

Servo Amplifier Model MR-JE-		10A	20A	40A	70A	100A	200A	300A
Stocked Item		S	S	S	S	S	S	S
Output	Rated Voltage	3-phase 170 VAC						
	Rated Current (A)	1.1	1.5	2.8	5.8	6.0	11.0	11.0
Power Supply Input	Voltage/Frequency (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz				3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz		
	Rated Current (A) (*7)	0.9	1.5	2.6	3.8	5.0	10.5	14.0
	Permissible Voltage Fluctuation	3-phase or 1-phase 170 VAC to 264 VAC				3-phase 170 VAC to 264 VAC		
	Permissible Frequency Fluctuation	±5% maximum						
Interface Power Supply		24 V DC ± 10% (required current capacity: 0.3 A)						
Control Method		Sine-wave PWM control/current control method						
Tolerable Regenerative Power of the Built-In Regenerative Resistor (W) (*2, 3)		-	-	10	20	20	100	100
Dynamic Brake		Built-in (*4)						
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible) RS-422: Connect a controller (1:n communication up to 32 axes) (*6)						
Encoder Output Pulse		Compatible (A/B/Z-phase pulse)						
Analog Monitor		2 channels						
Position Control Mode	Maximum Input Pulse Frequency	4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open-collector)						
	Positioning Feedback Pulse	Encoder resolution: 131072 pulses/rev						
	Command Pulse Multiplying Factor	Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000						
	Positioning Complete Width Setting	0 pulse to ±65535 pulses (command pulse unit)						
	Error Excessive	±3 rotations						
	Torque Limit	Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)						
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000						
	Analog Speed Command Input	0 V DC to ±10 VDC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)						
	Speed Fluctuation Rate	±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command						
	Torque Limit	Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)						
Torque Control Mode	Analog Torque Command Input	0 VDC to ±8 VDC/maximum torque (input impedance: 10 kΩ to 12 kΩ)						
	Speed Limit	Set by parameters or external analog input (0 V DC to ± 10 V DC/rated speed)						
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, lost motion compensation function.						
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection						
Compliance to Standards		EN 61800-3, EN 61800-5-1, RoHS compliant, UL: UL 508C, KC compliant						
Structure (IP Rating)		Natural cooling, open (IP20)					Force cooling, open (IP20)	
Close Mounting		Possible (*5)						
Environment	Ambient Temperature	0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)						
	Ambient Humidity	90 %RH maximum (non-condensing), storage: 90 %RH maximum (non-condensing)						
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Altitude	1000 m or less above sea level						
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)						
Weight (kg)		0.8	0.8	0.8	1.5	1.5	2.1	2.1

Notes:

1. Rated output and speed of a Servo Motor are applicable when the servo amplifier, combined with the Servo Motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-JE-_A Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio.
5. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use them with 75% or less of the effective load ratio.
6. RS-422 communication function is available with the servo amplifiers manufactured on December 2013 or later. Refer to "MR-JE-_A Servo Amplifier Instruction Manual" for how to verify the manufacturing date of the products.
7. This value is applicable when a 3-phase power supply is used.

MR-JE-BF (SSCNET III/H Interface) Specifications

Servo Amplifier Model MR-JE-		10BF	20BF	40BF	70BF	100BF	200BF	300BF
Stocked Item		S	S	S	S	S	S	S
Output	Rated Voltage	3-phase 170 VAC						
	Rated Current (A)	1.1	1.5	2.8	5.8	6.0	11.0	11.0
Power supply Input	Voltage/Frequency (*1)	3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz				3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz (*8)		3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz
	Rated Current (A) (*7)	0.9	1.5	2.6	3.8	5.0	10.5	14.0
	Permissible Voltage Fluctuation	3-phase or 1-phase 170 VAC to 264 VAC				3-phase or 1-phase 170 VAC to 264 VAC (*8)		3-phase 170 VAC to 264 VAC
	Permissible Frequency Fluctuation	±5% maximum						
Interface Power Supply		24 VDC ±10% (required current capacity: 0.1 A)						
Control Method		Sine-wave PWM control/current control method						
Tolerable Regenerative Power of the Built-In Regenerative Resistor (W) (*2, *3)		-	-	10	20	20	100	100
Dynamic Brake		Built-in (*4)						
SSCNET III/H Command Communication Cycle (*6)		0.444 ms, 0.888 ms						
Communication Function		USB: Connect a personal computer (MR Configurator2 compatible)						
Servo Function		Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, tightening & press-fit function, machine diagnosis function, power monitoring function, lost motion compensation function, STO and SS1 (*10) (optional) function.						
Protective Functions		Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), Servo Motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, hotline forced stop function (*9)						
Compliance to Standards		EN 61800-3, EN 61800-5-1, RoHS compliant, UL: UL 508C, KC compliant						
Structure (IP Rating)		Natural cooling, open (IP20)					Force cooling, open (IP20)	
Close Mounting (*5)	3-Phase Power Supply Input	Possible						
	1-Phase Power Supply Input	Possible				Not possible		-
Environment	Ambient Temperature	0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)						
	Ambient Humidity	Operation/Storage: 90%RH maximum (non-condensing)						
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Altitude	1000 m or less above sea level						
	Vibration Resistance	5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y and Z axes)						
Weight (kg)		0.8	0.8	0.8	1.5	1.5	2.1	2.1

Notes:
1. Rated output and speed of a Servo Motor are applicable when the servo amplifier, combined with the Servo Motor, is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
4. When using the built-in dynamic brake, refer to "MR-JE-_B Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio.
5. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use them with 75% or less of the effective load ratio.
6. The command communication cycle depends on the controller specifications and the number of axes connected.
7. This value is applicable when a 3-phase power supply is used.
8. When a 1-phase 200 V AC to 240 VAC power supply is used, use the servo amplifiers with 75% or less of the effective load ratio.
9. When an alarm occurs on MR-JE-B servo amplifier, the hot line forced stop signal will be sent to other servo amplifiers through a controller, and all the Servo Motors that are operated normally by MR-JE-B servo amplifiers decelerate to a stop. Refer to "MR-JE-_B Servo Amplifier Instruction Manual" for details.
10. For SS1, MR-J3-D05 Safety Logic unit and cable is required. (Refer to MR-J4 section for CN8 section)

MR-JE-C (Ethernet Interface) Specifications

Servo Amplifier Model MR-JE-			10C	20C	40C	70C	100C	200C	300C
Stocked Item			S	S	S	S	S	S	S
Output	Rated Voltage		3-phase 170 VAC						
	Ratted Current [A]		1.1	1.5	2.8	5.8	6.0	11.0	11.0
Power Supply Input	Voltage/Frequency (*1)		3-phase or 1-phase 200 VAC to 240 VAC, 50 Hz/60 Hz				3-phase or 1-phase; 200 VAC to 240 VAC, 50 Hz/60 Hz (*7)		3-phase 200 VAC to 240 VAC, 50 Hz/60 Hz
	Rated Current [A] (*6)		0.9	1.5	2.6	3.8	5.0	10.5	14.0
	Permissible Voltage Fluctuation		3-phase or 1-phase 170 VAC to 264 VAC				3-phase or 1-phase 170 VAC to 264 VAC (*7)		3-phase 170 VAC to 264 VAC
	Permissible Frequency Fluctuation		±5% maximum						
Interface Power Supply			24 VDC ± 10% (required current capacity: 0.3 A)						
Control Method			Sine-wave PWM control/current control method						
Permissible Regenerative Power of the Built-in Regenerative Resistor (*2, *3)			-	-	10	20	20	100	100
Dynamic Brake (*4)			Built-in						
Communication Function	Ethernet (*8)		Connect a master station (controller), etc.						
	USB		Connect a personal computer (MR Configurator2 compatible)						
	RS-485 (*11)		Connect a master station (controller), etc. (1:n communication up to 32 axes)						
Encoder Output Pulse			Compatible (A/B/Z-phase pulse)						
Position Control Mode	Maximum Input Pulse Frequency		4 Mpulses/s (when using differential receiver), 200 kpulses/s (when using open-collector)						
	Positioning Feedback Pulse		Encoder resolution: 131072 pulses/rev						
	Command Pulse Multiplying Factor		Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/10 < A/B < 4000						
	In-Position Range Setting		0 pulse to ±65535 pulses (command pulse unit)						
	Error Excessive		±3 rotations						
	Torque Limit		Set by parameters or external analog input (0 VDC to +10 VDC/maximum torque)						
Speed Control Mode	Speed Control Range		Analog speed command 1:2000, internal speed command 1:5000						
	Analog Speed Command Input		0 VDC to ±10 VDC/rated speed (Speed at 10 V is changeable with [Pr. PC12].)						
	Speed Fluctuation Rate		±0.01% maximum (load fluctuation: 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command						
	Torque Limit		Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque)						
Torque Control Mode	Analog Torque Command Input		0 VDC to ±8 V DC/maximum torque (input impedance: 10 kΩ to 12 kΩ)						
	Speed Limit		Set by parameters						
Profile Mode	Profile Position Mode	Command Position Range	Set by object/register; Setting range of feed length: -999999 to 999999 [pulse]; Setting range of rotation angle: -360.000 to 360.000 [degree]						
		Command Multiplying Factor	Electronic gear A/B multiple, A: 1 to 16777215, B: 1 to 16777215, 1/27649 < A/B < 8484						
		In-Position Range Setting	0 pulse to ±65535 pulses (command pulse unit)						
		Error Excessive	±3 rotations						
		Torque Limit	Set by parameters, or object/register						
	Profile Velocity Mode	Command Speed Range	-21474836.48 r/min to 21474836.47 r/min (Fixed to the permissible speed)						
		Torque Limit	Set by parameters, or object/register (Fixed to the maximum torque)						
	Speed Limit	Command Torque Range	-3276.8% to 3276.7% (Fixed to the maximum torque)						
		Speed Limit	Set by parameters, or object/register (Fixed to the permissible speed)						
Homing Mode	Mitsubishi Electric Original Method		Dog type, count type, data set type, stopper type, home position ignorance (servo-on position as home position), dog type rear end reference, count type front end reference, dog cradle type, dog type adjacent Z-phase reference, dog type front end reference, dogless Z-phase reference						
	CiA 402 Method		Homing on positive home switch and index pulse (method 3, 4); Homing on negative home switch and index pulse (method 5, 6); Homing on home switch and index pulse (method 7, 8, 11, 12); Homing without index pulse (method 19, 20, 21, 22, 23, 24, 27, 28); Homing on index pulse (method 33, 34); Homing on current position (method 35, 37)						
Positioning Mode (*10)			Point table method, indexer method						
Servo Functions			Advanced vibration suppression control II, adaptive filter II, robust filter, auto tuning, one-touch tuning, tough drive function, drive recorder function, machine diagnosis function, power monitoring function, lost motion compensation function						
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection						
Compliance with Global Standards			Refer to “Compliance with Global Standards and Regulations” in the product manual						
Structure (IP Rating)			Natural cooling, open (IP20)					Force cooling, open (IP20)	
Close Mounting (*5)	3-Phase Power Supply Input		Possible						
	1-Phase Power Supply Input		Possible				Not possible		-
Environment	Ambient Temperature		Operation: 0 °C to 55 °C (non-freezing), storage: -20 °C to 65 °C (non-freezing)						
	Ambient Humidity		Operation/storage: 5 %RH to 90 %RH (non-condensing)						
	Ambience		Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Altitude		2000 m or less above sea level (*5)						
	Vibration Resistance		5.9 m/s² at 10 Hz to 55 Hz (directions of X, Y, and Z axes)						
Weight (kg)			0.8	0.8	0.8	1.5	1.5	2.1	2.1

Notes:

1. Rated output and speed of a servo motor are applicable when the servo amplifier is operated within the specified power supply voltage and frequency.
2. Select the most suitable regenerative option for your system with our capacity selection software.
3. Refer to "Regenerative Option" in this catalog for the permissible regenerative power [W] when a regenerative option is used.
4. When using the dynamic brake, refer to "MR-JE-_C Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio.
5. When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use the servo amplifiers at 75% or less of the effective load ratio.
6. This value is applicable when a 3-phase power supply is used.
7. When a 1-phase 200 VAC to 240 VAC power supply is used, use the servo amplifiers at 75% or less of the effective load ratio.
8. CC-Link IE Field Network Basic, SLMP, and MODBUS®/TCP are supported. MR Configurator2 is also connectable. MODBUS®/TCP and MR Configurator2 are supported by the servo amplifiers with software version A3 or later. Use MR Configurator2 with software version 1.68W or later.
9. Refer to "MR-JE-_C Servo Amplifier Instruction Manual" for the restrictions when using the servo amplifiers at altitude exceeding 1000 m and up to 2000 m above sea level.
10. Positioning mode is supported by servo amplifiers with software version A4 or later.
11. MODBUS® RTU is supported by the servo amplifiers with software version A4 or later.

MR-JE Servo Motors

HG- □□□□□

Symbol	Oil Seal
J	Installed (*5)
None	None (*6)

Symbol	Electromagnetic Brake
None	None
B	Installed (*1)

Symbol	Rated Speed (r/min)
2	2000 (*2)
3	3000 (*3)

Symbol	Rated Output (kW)
1	0.1
2	0.2
4	0.4
5	0.5
7	0.75
10	1.0
15	1.5
20	2.0
30	3.0

Symbol	Inertia/Capacity
HG-KN	Low inertia, small capacity
HG-SN	Medium inertia, medium capacity

Symbol	Shaft End
None	Standard (Straight shaft)
K	Key shaft (with/without key) (*4)
D	D-cut shaft (*4)

Notes:
1. Refer to electromagnetic brake specifications of each Servo Motor series in this catalog for the available models and detailed specifications.
2. 2000 r/min is for HF-SN series only.
3. 3000 r/min is for HF-KN series only.
4. Refer to special shaft end specifications of each Servo Motor series in this catalog for the available models and detailed specifications.
5. An oil seal is attached as a standard for all Servo Motors.
6. Available in HF-KN13 to HF-KN43.

Combinations of Servo Motor and Servo Amplifier

Servo Motor		Servo Amplifier
HG-KN Series	HG-KN13(B)J	MR-JE-10B/MR-JE-10A
	HG-KN23(B)J	MR-JE-20B/MR-JE-20A
	HG-KN43(B)J	MR-JE-40B/MR-JE-40A
	HG-KN73(B)J	MR-JE-70B/MR-JE-70A
HG-SN Series	HG-SN52(B)J	MR-JE-70B/MR-JE-70A
	HG-SN102(B)J	MR-JE-100B/MR-JE-100A
	HG-SN152(B)J	MR-JE-200B/MR-JE-200A
	HG-SN202(B)J	MR-JE-200B/MR-JE-200A
	HG-SN302(B)J	MR-JE-300B/MR-JE-300A

Stocked Motors	
HG-KN	HG-KN13J
	HG-KN13JD
	HG-KN13BJ
	HG-KN13BJD
	HG-KN23JK
	HG-KN23BJK
	HG-KN43JK
	HG-KN43BJK
	HG-KN73JK
	HG-KN73BJK
HG-SN	HG-SN52JK
	HG-SN52BJK
	HG-SN102JK
	HG-SN102BJK
	HG-SN152JK
	HG-SN152BJK
	HG-SN202JK
	HG-SN202BJK
	HG-SN302JK
	HG-SN302BJK

HG-KN Series (Low Inertia, Small Capacity) Specifications

Servo Motor Model HG-KN		13(B)J	23(B)J	43(B)J	73(B)J
Compatible Servo Amplifier Model		Refer to MR-JE Amplifier section in this manual			
Power Supply Capacity (kVA) (*6)		0.3	0.5	0.9	1.3
Continuous Running Duty	Rated Output (W)	100	200	400	750
	Rated Torque (N•m) (Note 3)	0.32	0.64	1.3	2.4
Maximum Torque (N•m)		0.95	1.9	3.8	7.2
Rated Speed (r/min)		3000			
Maximum Speed (r/min)		5000			
Permissible Instantaneous Speed (r/min)		5750			
Power Rate at Continuous Rated Torque	Standard (kW/s)	12.9	18.0	43.2	44.5
	With electromagnetic brake (kW/s)	12.0	16.4	40.8	41.0
Rated Current (A)		0.8	1.3	2.6	4.8
Maximum Current (A)		2.4	3.9	7.8	14
Regenerative Braking Frequency (Times/Min) (*6)		(Note 4)	(Note 5)	276	159
Moment of Inertia J	Standard (x 10-4 kg•m^2)	0.0783	0.225	0.375	1.28
	With Electromagnetic Brake (x 10-4 kg•m^2)	0.0843	0.247	0.397	1.39
Recommended Load to Motor Inertia Ratio (Note 1)		15 times or less			
Speed/Position Detector		Incremental 17-bit encoder (resolution: 131072 pulses/rev)			
Oil Seal		Installed, without oil seal is also available			Installed
Insulation Class		130 (B)			
Structure		Totally enclosed, natural cooling (IP rating: IP65) (Note 2)			
Environment (*4)	Ambient Temperature	0 °C to 40 °C (non-freezing), storage: -15 °C to 70 °C (non-freezing)			
	Ambient Humidity	80%RH maximum (non-condensing), storage: 90%RH maximum (non-condensing)			
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust			
	Altitude	1000 m or less above sea level			
	Vibration Resistance (*6)	X: 49 m/s^2 Y: 49 m/s^2			
Vibration Rank		V10 (*6)			
Compliance to Standards		CE: EN 60034-1, RoHS compliant, UL: 1004-1/UL 1004-6			
Permissible Load for the Shaft (*6)	L (mm)	25	30	30	40
	Radial (N)	88	245	245	392
	Thrust (N)	59	98	98	147
Weight (kg)	Standard	0.6	0.98	1.5	3.0
	With Electromagnetic Brake	0.8	1.4	1.9	4.0

Notes:
1. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
2. The shaft-through portion is excluded. Refer to the end of this section for information on the shaft-through portion.
3. When unbalanced torque is generated, such as in a vertical lift machine, it is recommended that the unbalanced torque of the machine be kept under 70% of the Servo Motor rated torque.
4. When the Servo Motor decelerates to a stop from the rated speed, the regenerative frequency will not be limited. When the Servo Motor decelerates to a stop from the maximum speed, the regenerative frequency will not be limited if the load to motor inertia ratio is 11 times or less.
5. When the Servo Motor decelerates to a stop from the rated speed, the regenerative frequency will not be limited if the load to motor inertia ratio is 9 times or less. When the Servo Motor decelerates to a stop from the maximum speed, the regenerative frequency will not be limited if the load to motor inertia ratio is 3 times or less.

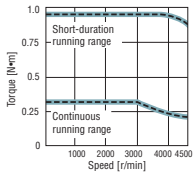
Refer to end of the section for the notes for asterisks (*) 1 to 7.

HG-KN Series Electromagnetic Brake Specifications (Note 1)

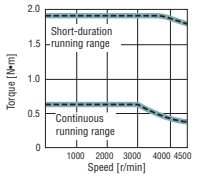
Servo Motor Model HG-KN		13BJ	23BJ	43BJ	73BJ
Type		Spring actuated type safety brake			
Rated Voltage		24 VDC 0/-10%			
Power Consumption [W] at 20 °C		6.3	7.9	7.9	10
Electromagnetic Brake Static Friction Torque [N•m]		0.32	1.3	1.3	2.4
Permissible Braking Work	Per Braking [J]	5.6	22	22	64
	Per Hour [J]	56	220	220	640
Electromagnetic Brake Life (Note 2)	Number of Braking (Times)	20000			
	Work Per Braking (J)	5.6	22	22	64

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

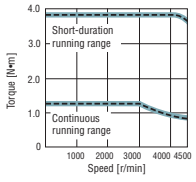
HG-KN13(B)J (*1, *2, *3)



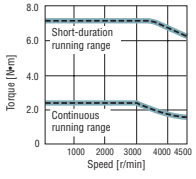
HG-KN23(B)J (*1, *2, *3)



HG-KN43(B)J (*1, *2, *3)



HG-KN73(B)J (*1, *2, *3)



1. ▬ : For 3-phase 200 V AC.
2. - - - : For 1-phase 230 V AC.
3. Torque drops when the power supply voltage is below the specified value.

HG-SN Series (Medium Inertia, Medium Capacity) Specifications

Servo Motor Model HG-SN		52(B)J	102(B)J	152(B)J	202(B)J	302(B)J
Compatible Servo Amplifier Model		See MR-JE Amplifiers				
Power Supply Capacity (kVA) (*4)		1.0	1.7	2.5	3.5	4.8
Continuous Running Duty	Rated Output (kW)	0.5	1.0	1.5	2.0	3.0
	Rated Torque (N•m) (Note 3)	2.39	4.77	7.16	9.55	14.3
Maximum Torque (N•m)		7.16	14.3	21.5	28.6	42.9
Rated Speed (r/min)		2000				
Maximum Speed (r/min)		3000				2500
Permissible Instantaneous Speed (r/min)		3450				2875
Power Rate at Continuous Rated Torque	Standard (kW/s)	7.85	19.7	32.1	19.5	26.1
	With Electromagnetic Brake (kW/s)	6.01	16.5	28.2	16.1	23.3
Rated Current (A)		2.9	5.6	9.4	9.6	11
Maximum Current (A)		9.0	17	29	31	33
Regenerative Braking Frequency (times/min) (*4)		62	38	139	47	28
Moment of Inertia J	Standard (x 10^{-4} kg•m^2)	7.26	11.6	16.0	46.8	78.6
	With Electromagnetic Brake (x 10^{-4} kg•m^2)	9.48	13.8	18.2	56.5	88.2
Recommended Load to Motor Inertia Ratio (Note 1)		15 times or less				
Speed/Position Detector		Incremental 17-bit encoder (resolution: 131072 pulses/rev)				
Oil Seal		Installed				
Insulation Class		155 (F)				
Structure		Totally enclosed, natural cooling (IP rating: IP67) (Note 2)				
Environment (*4)	Ambient Temperature	0 °C to 40 °C (non-freezing), storage: -15 °C to 70 °C (non-freezing)				
	Ambient Humidity	Operation: 80%RH maximum (non-condensing), storage: 90%RH maximum (non-condensing)				
	Ambience	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust				
	Altitude	1000 m or less above sea level				
	Vibration Resistance (*4)	X: 24.5 m/s^2 Y: 24.5 m/s^2			X: 24.5 m/s^2 Y: 49 m/s^2	
Vibration Rank		V10 (*4)				
Compliance to Standards		EN 60034-1, EN 60034-1, RoHS compliant, UL: UL 1004-1 / UL 1004-6				
Permissible Load for the Shaft (*4)	L (mm)	55	55	55	79	79
	Radial (N)	980	980	980	2058	2058
	Thrust (N)	490	490	490	980	980
Environment	Standard (kg)	4.8	6.2	7.3	11	16
	With Electromagnetic Brake (kg)	6.7	8.2	9.3	17	22

Notes:
1. Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
2. The shaft-through portion is excluded. Refer to the end of this section for information on the shaft-through portion.
3. When unbalanced torque is generated, such as in a vertical lift machine, it is recommended that the unbalanced torque of the machine be kept under 70% of the Servo Motor rated torque.

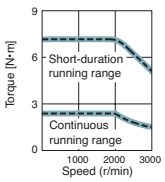
Refer to end of the section for the notes for asterisks (*) 1 to 7.

HG-SN Series Electromagnetic Brake Specifications (*1)

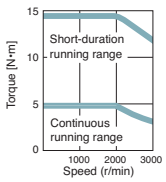
Servo Motor Model HG-SN		52BJ	102BJ	152BJ	202BJ	302BJ
Type		Spring actuated type safety brake				
Rated Voltage		24 VDC 0/-10%				
Power Consumption [W] at 20 °C		20	20	20	34	34
Electromagnetic Brake Static Friction Torque [N•m]		8.5	8.5	8.5	44	44
Permissible Braking Work	Per Braking [J]	400	400	400	4500	4500
	Per Hour [J]	4000	4000	4000	45000	45000
Electromagnetic Brake Life (Note 2)	Number of Braking (Times)	20000				
	Work per Braking (J)	200	200	200	1000	1000

Notes:
1. The electromagnetic brake is for holding. It should not be used for deceleration applications.
2. Brake gap is not adjustable. Electromagnetic brake life is defined as the time period until the readjustment is needed.

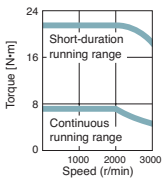
HG-SN52(B)J(*1, *2, *3)



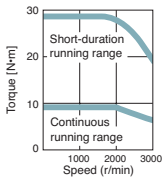
HG-SN102(B)J(*1, *3)



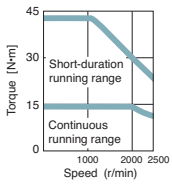
HG-SN152(B)J(*1, *3)



HG-SN202(B)J(*1, *3)



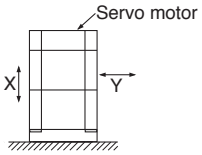
HG-SN302(B)J(*1, *3)



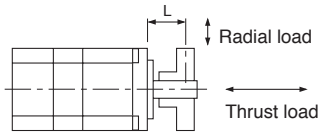
Notes: 1. ——— : For 3-phase 200 V AC.
2. - - - - : For 1-phase 230 V AC.
3. Torque drops when the power supply voltage is below the specified value.

Annotations for Servo Motor Specifications

1. The power supply capacity varies depending on the power supply impedance.
2. The regenerative braking frequency shows the permissible frequency when the Servo Motor, without a load and a regenerative option, decelerates from the rated speed to a stop. When a load is connected; however, the value will be the table value/(m+1), where m = Moment of inertia of load/Moment of inertia of Servo Motor. When the operating speed exceeds the rated speed, the regenerative braking frequency is inversely proportional to the square of (operating speed/rated speed). Take measures to keep the regenerative power [W] during operation below the tolerable regenerative power [W]. Use caution, especially when the operating speed changes frequently or when the regeneration is constant (as with vertical feeds). Select the most suitable regenerative option for your system with our capacity selection software. Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
3. For 400 W or smaller servo amplifiers, the regenerative braking frequency may change affected by the power supply voltage due to the large ratio of the energy charged into the electrolytic capacitor in the servo amplifier.
4. In the environment where the Servo Motor is exposed to oil mist, oil and/or water, a standard specification Servo Motor may not be usable. Contact your local sales office for more details.
5. The vibration direction is shown in the diagram below. The numerical value indicates the maximum value of the component (commonly the bracket in the opposite direction of the Servo Motor shaft). Fretting more likely occurs on the bearing when the Servo Motor stops. Thus, maintain vibration level at approximately one-half of the allowable value.

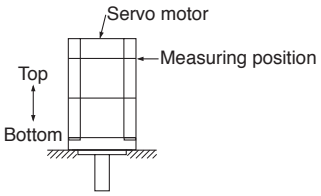


6. Refer to the diagram below for the permissible load for the shaft. Do not apply a load exceeding the value specified in the table on the shaft. The values in the table are applicable when each load is applied singly.

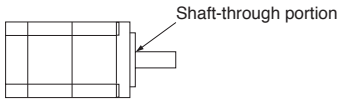


L: Distance between the flange mounting surface and the center of load.

7. V10 indicates that the amplitude of the Servo Motor itself is 10 µm or less. The following shows mounting posture and measuring position of the Servo Motor during the measurement:



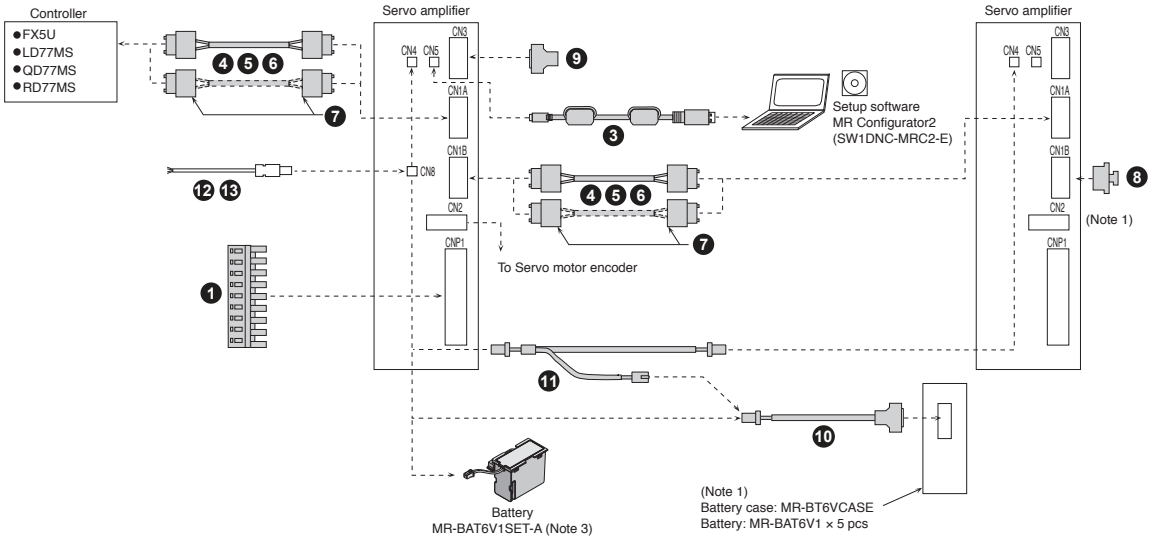
8. Refer to the diagram below for shaft-through portion.



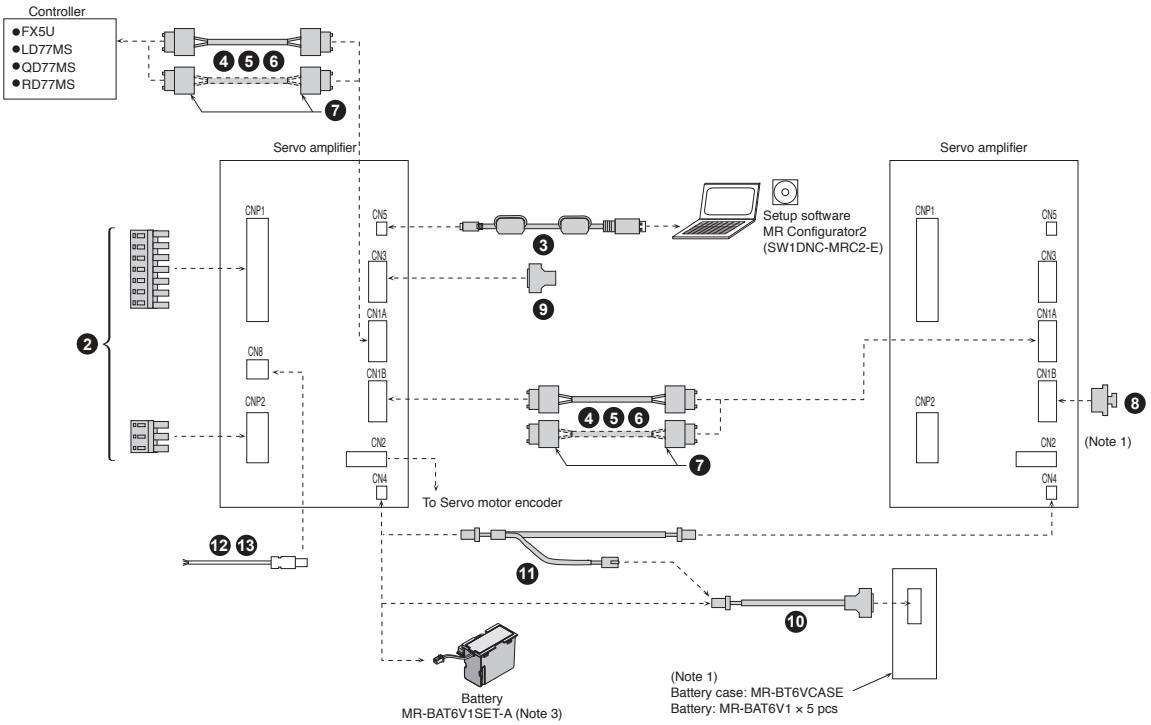
Cables and Connectors

MR-JE Amplifiers Cables and Connectors

MR-JE-BF Servo Amplifier 1 kW or smaller



Servo amplifier 2 kW and 3 kW



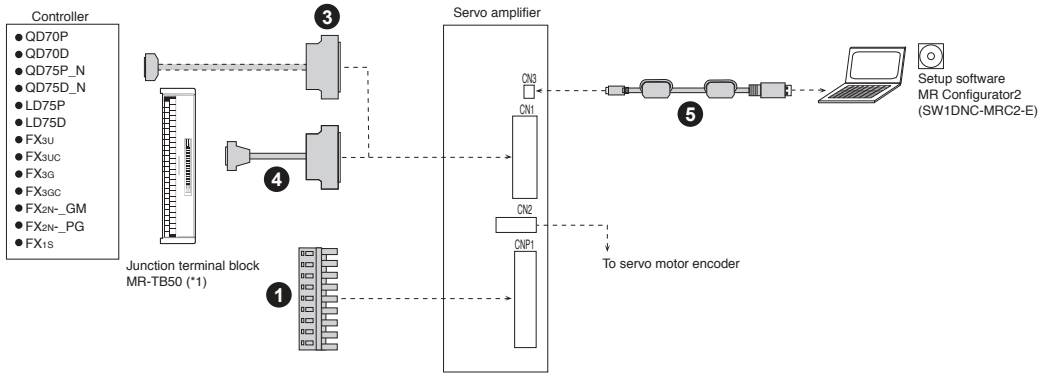
MR-JE-BF Cables and Connectors for Servo Amplifiers

Figure Number	Item	Model	Stocked Lengths (m)	Protection Level	Description
1	**Servo Amplifier CNP1 Power Connector (*2) For MR-JE-100B or Smaller (Insertion Type)**	MR-JECNP1-01	-	S	CNP1 connector / Open tool Applicable wire size (*1) : AWG 18 to 14 Insulator OD: up to 3.9 mm
2	**Servo Amplifier CNP1 Power Connector For MR-JE-200B/MR-JE-300B (*2) (Insertion Type)**	MR-JECNP1-02	-	S	CNP1 connector / Open tool Applicable wire size (*1) : AWG 16 to 10 Insulator OD: up to 4.7 mm
	Servo Amplifier CNP2 Power Connector For MR-JE-200B/MR-JE-300B (*2) (Insertion Type)	MR-JECNP2-02	-	S	CNP2 connector Applicable wire size (*1) : AWG 16 to 10 Insulator OD: up to 4.7 mm
3	**Personal Computer Communication Cable (USB Cable)**	MR-J3USBCBL3M	S	-	Servo amplifier connector mini-B connector (5-pin) / Personal computer connector A connector * Do not use this cable for SSCNET III(/H) compatible controller.
4	**SSCNET III Cable (Standard Cord Inside Cabinet) Compatible with SSCNET III(/H) (*3) For Controller/CN1A/CN1B**	MR-J3BUS_M (_ = 015, 03, 05, 1, 3)	0.15, 0.3, 0.5, 1, 3	-	
5	**SSCNET III Cable (Standard Cable Outside Cabinet) Compatible with SSCNET III(/H) (*3) For Controller/CN1A/CN1B**	MR-J3BUS_M-A (_ = 5, 10, 20)	5, 10, 20	-	
6	**SSCNET III Cable (Long Distance Cable, Long Bending Life) Compatible with SSCNET III(/H) (*3) For Controller/CN1A/CN1B**	MR-J3BUS_M-B (_ = 30, 40, 50)	-		
	SSCNET III/H Cable (Super High Flex Long Distance) Compatible with SSCNET III/H only (not SSCNET III)	SC-J3BUS_M-C(B) (_ = cable length 60, 70, 80, 90, 100)	-	-	
7	**SSCNET III Connector Set. Compatible with SSCNET III(/H). For controller/CN1A/CN1B (*3, *4)**	MR-J3BCN1	-	-	
8	**SSCNET III Connector Cap. Compatible with SSCNET III(/H). For CN1B**	(Standard accessory)	-	-	
9	**Connector Set**	MR-J2CN1	-	-	
10	**Battery Cable Connecting MR-JE-B and MR-BT6VCASE**	MR-BT6V1CBL_M (_ = 0.3, 1)	0.3, 1	-	
11	**Junction Battery Cable**	MR-BT6V2CBL_M (_ = 0.3, 1)	0.3, 1	-	
12	**Short-Circuit Connector For MR-J4-A/MR-J4-B/ MR-J4W2-B/MR-J4W3-B, MR-J4-TM. For CN8**	1971153-1 (Supplied with Amplifier)	S	-	
13	**STO Cable For CN8**	MR-J4-D05UDL3M-B	3m	-	

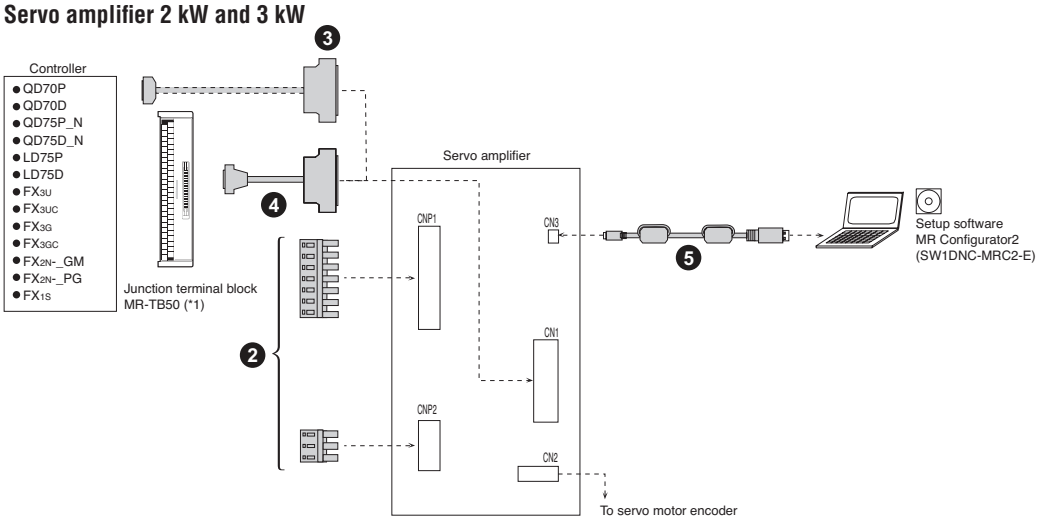
Notes:
1. The wire size shows wiring specification of the connector. Refer to "Selection Example in HIV Wires for Servo Motors" in this catalog for examples of wire size selection.
2. 2CNP1 and CNP2 connectors, and open tool are supplied with the servo amplifier.
3. Read carefully through the precautions enclosed with the options before use.
4. Dedicated tools are required. Contact your local sales office for more details.

MR-JE Amplifiers Cables and Connectors

MR-JE-A Servo amplifier 1 kW or smaller



Servo amplifier 2 kW and 3 kW



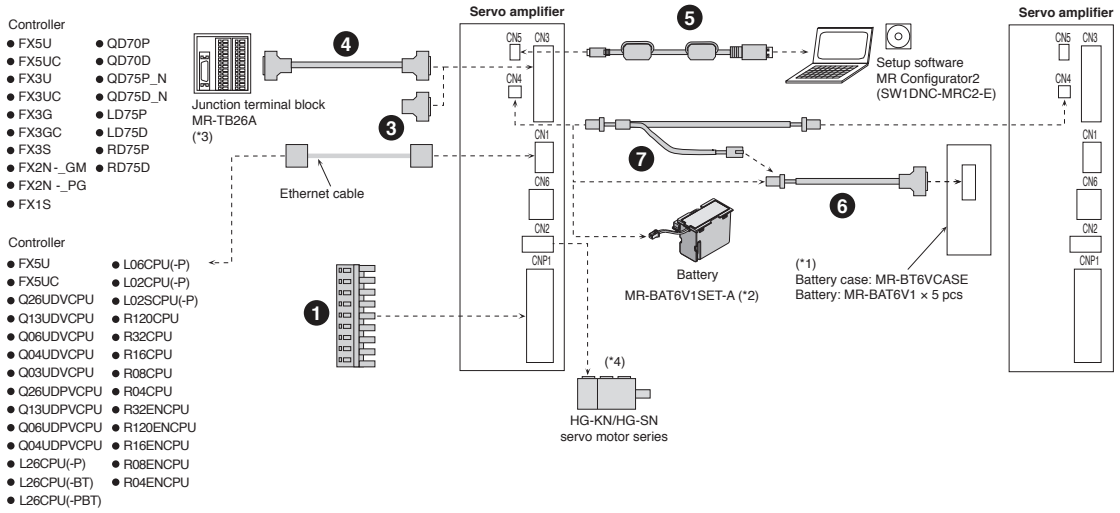
MR-JE-A Cables and Connectors for Servo Amplifiers

Figure Number	Item	Model	Stocked Lengths	Protection Level	Description
1	**Servo Amplifier CNP1 Power Connector (*2) (Insertion Type)**	MR-JECNP1-01	-	-	CNP1 connector / Open tool Applicable wire size (*1) : AWG 18 to 14 Insulator OD: up to 3.9 mm
2	**Servo Amplifier CNP1 Power Connector (*2) (Insertion Type)**	MR-JECNP1-02	-	-	CNP1 connector / Open tool Applicable wire size (*1) : AWG 16 to 10 Insulator OD: up to 4.7 mm
	Servo Amplifier CNP2 Power Connector (*2) (Insertion Type)	MR-JECNP2-02	-	-	CNP2 connector Applicable wire size (*1) : AWG 16 to 10 Insulator OD: up to 4.7 mm
3	**Connector Set**	MR-J3CN1	S	-	
4	**Junction Terminal Block Cable**	MR-J2M-CN1TBL_M	_= 0.5M, 1M	-	
5	**Personal Computer Communication Cable (USB Cable)**	MR-J3USBCBL3M	3M	-	

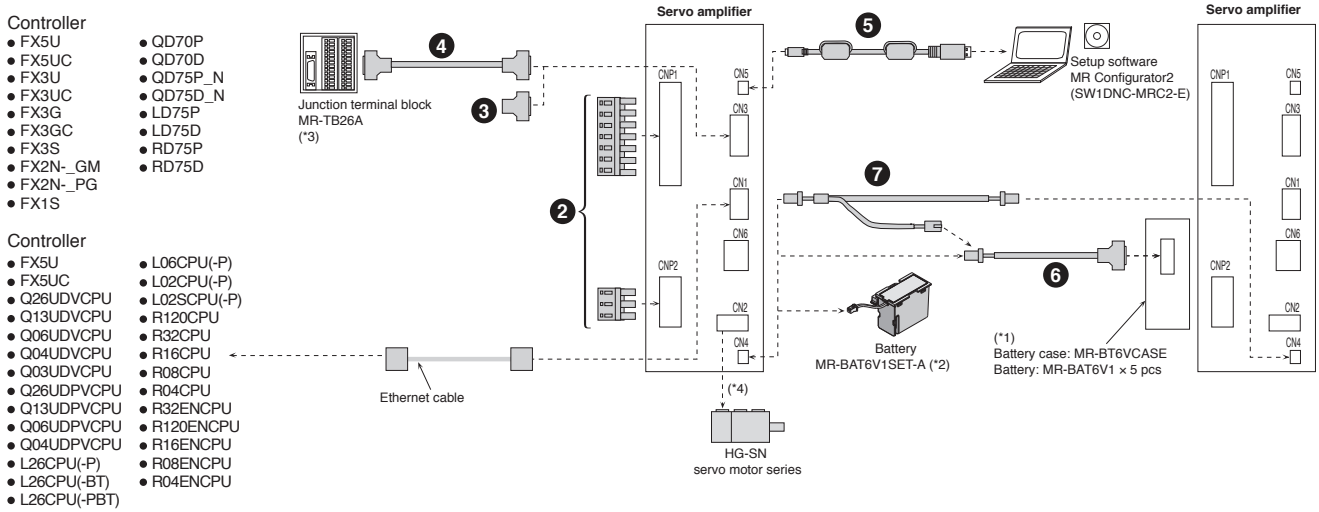
Notes:
1. The wire size shows wiring specification of the connector. Refer to User Guide for examples of wire size selection.
2. CNP1 and CNP2 connectors, and open tool are supplied with the servo amplifier.

MR-JE Amplifiers Cables and Connectors

MR-JE-C Servo amplifier 1 kW or smaller



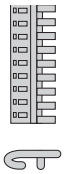
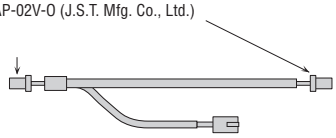
Servo amplifier 2 kW and 3 kW



Notes:

1. Refer to “Batter Case and Battery” in this brochure. MR-BT6VCASE and MR-BAT 6V1 are not required when configuring incremental system with the MR-JE-C servo anplifier.
2. Refer to “Battery” in this brochure. MR-BAT6V1SET-A is not required when configuring incrememntal system with the MR-JE-C servo amplifier.
3. Refer to “Junction Terminal Block” in the MR-JE-C brochure.
4. Refer to “MELSERVO-JE catalog (L(NA)03086(ENG)” for the encoder cable, the power cable, and the electromagnetic cable.

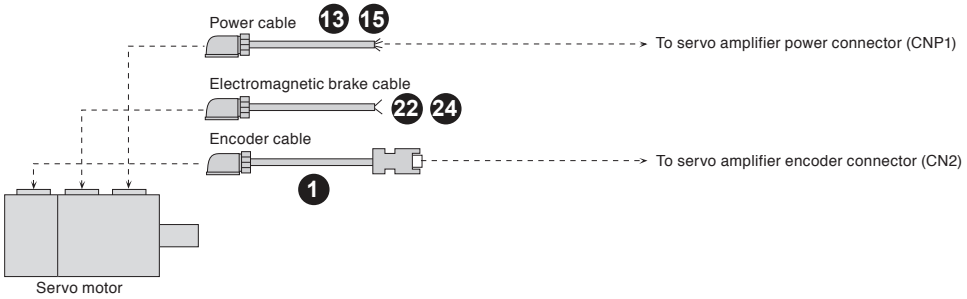
MR-JE-C Cables and Connectors for Servo Amplifiers

		Item	Model	Cable Length	IP Rating	Application	Stocked Item	Description
For CNP1	1	**Servo Amplifier CNP1 Power Connector (Insertion Type)**	MR-JECNP1-01 (Standard accessory)	-	-	For MR-JE-100C or smaller	S	 CNP1 connector 09JFAT-SAXGDK-H5.0 Applicable wire size (Note 1): AWG 18 to 14 Insulator OD: 3.9 mm or smaller (J.S.T. Mfg. Co., Ltd.) Open tool J-FAT-OT (N) (J.S.T. Mfg. Co., Ltd.)
For CNP1/CNP2	2	**Servo Amplifier CNP1 Power Connector (Insertion Type)**	MR-JECNP1-02 (Standard accessory)	-	-	For MR-JE-200C/ MR-JE-300C	S	 CNP1 connector 06(7-4)JFAT-SAXGFK-XL Applicable wire size (Note 1): AWG 16 to 10 Insulator OD: 4.7 mm or smaller (J.S.T. Mfg. Co., Ltd.) Open tool J-FAT-OT-EXL (J.S.T. Mfg. Co., Ltd.)
		Servo Amplifier CNP2 Power Connector (Insertion Type)	MR-JECNP2-02 (Standard accessory)	-	-		S	 CNP2 connector 03JFAT-SAXGFK-XL Applicable wire size (Note 1): AWG 16 to 10 Insulator OD: 4.7 mm or smaller (J.S.T. Mfg. Co., Ltd.)
For CN3	3	**Connector Set (Qty: 1 pc)**	MR-J2CMP2	-	-	For MR-JE-C	-	 Servo amplifier connector Connector: 10126-3000PE Shell kit: 10326-52F0-008 (3M)or an equivalent product
		Connector Set / (Qty: 20 pcs)	MR-ECN1	-	-		S	
	4	**Junction Terminal Block Cable**	MR-TBNATBL05M	0.5 m	-	For connecting MR-JE-C and MR-TB26A	S	Junction terminal block connector Connector: 10126-6000EL Shell kit: 10326-3210-000 (3M) or an equivalent product Servo amplifier connector Connector: 10126-6000EL Shell kit: 10326-3210-000 (3M) or an equivalent product 
			MR-TBNATBL1M	1 m	-		S	
For CN5	5	**Personal Computer Communication Cable (USB Cable)**	MR-J3USBCBL3M	3 m	-	For MR-JE-C	S	Servo amplifier connector mini-B connector (5-pin) Personal computer Connector A connector 
For CN4	6	**Battery Cable**	MR-BT6V1CBL03M	0. 3 m	-	For connecting MR-JE-C and MR-BT6VCASE	S	Servo amplifier connector Contact: SPHD-001G-P0.5 Housing: PAP-02V-0 (J.S.T. Mfg. Co., Ltd.) 
			MR-BT6V1CBL1M	1 m	-		S	
	7	**Junction Battery Cable**	MR-BT6V2CBL03M	0.3 m	-	For MR-JE-C	S	Servo amplifier connector Contact: SPHD-001G-P0.5 Housing: PAP-02V-0 (J.S.T. Mfg. Co., Ltd.)  Junction connector Contact: SPAL-001GU-P0.5 Housing: PALR-02VF-0 (J.S.T. Mfg. Co., Ltd.)
			MR-BT6V2CBL1M	1 m	-		S	

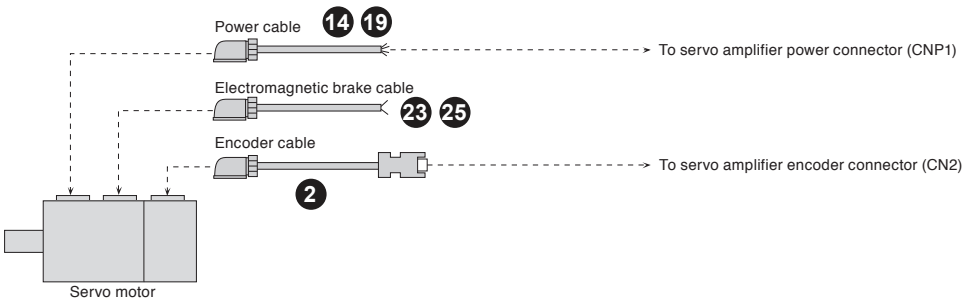
Notes:
1. The wire size shows wiring specification of the connector. Refer to "MELSERVO-JE catalog (L(NA)03086ENG)" for examples of wire size selection.
2. This is for solder type. Press bonding type (connector: 10114-6000EL and shell kit: 10314-3210-000) (3M) is also usable. Contact the manufacturer directly.

MR-JE Servo Cables and Connectors

For HG-KN Servo Motor encoder cable length 10m or shorter
For leading the cables out in direction of load side (*1)

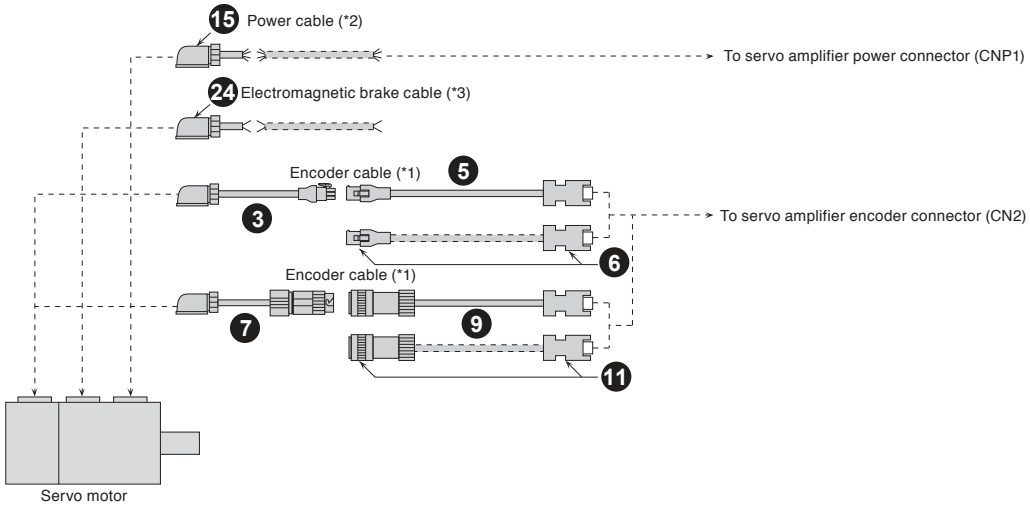


For leading the cables out in opposite direction of load side (*1)

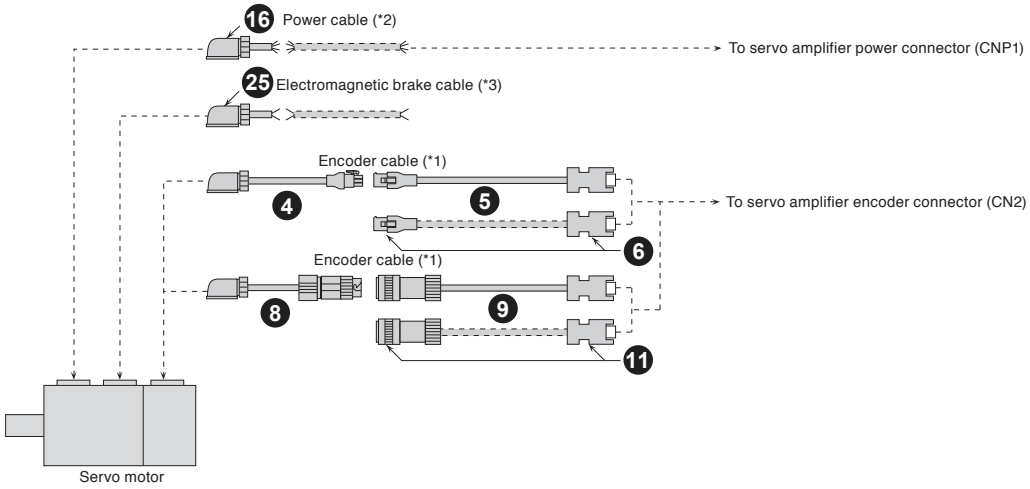


Note:
1. Cables for leading two different directions may be used for one Servo Motor.

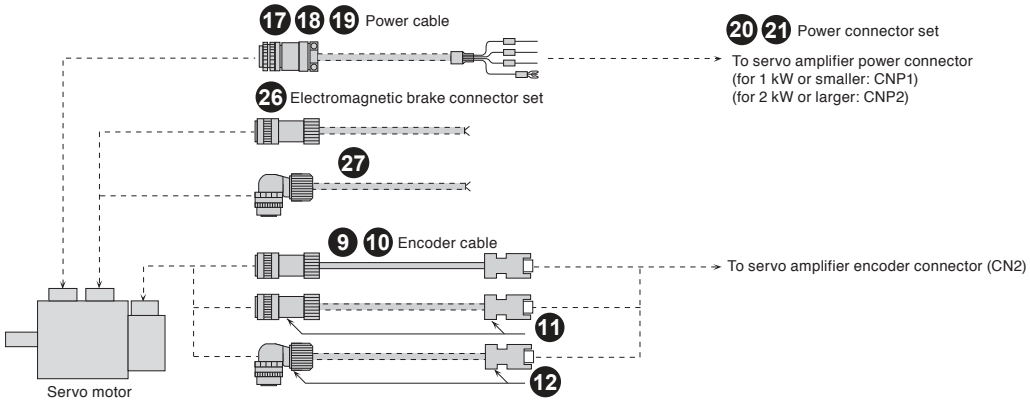
For HG-KN Servo Motor Series: Encoder Cable Length over 10m
For Leading the Cables out in Direction of Load Side (*4)



For Leading the Cables out in Opposite Direction of Load Side (*4)

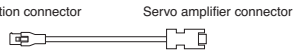


For HG-SN Servo Motor Series



Notes:
1. This cable does not have a long bending life, be sure to fix the cable before using.
2. Relay a cable using MR-PWS2CBL03M-A1-L or MR-PWS2CBL03M-A2-L. This cable does not have a long bending life, be sure to fix the cable before using.
3. Relay a cable using MR-BKS2CBL03M-A1-L or MR-BKS2CBL03M-A2-L. This cable does not have a long bending life, be sure to fix the cable before using.
4. Cables for leading two different directions may be used for one Servo Motor.
5. Cables drawn with dashed lines need to be fabricated by user. Refer to "HF-KN HF-SN Servo Motor Instruction Manual" for fabricating the cables.

MR-JE Cables and Connectors (Refer to Chart on Previous Page)

Figure Number	Item	Model	Stocked Lengths	Protection Level (*1)	Description
1	Encoder Cable (Load-Side Lead) (*2) For HG-KN13, 23, 43, 73 (Direct Connection Type)	MR-J3ENCBL_M-A1-H (_= 2, 5, 10)	2, 5, 10	IP65	
		MR-J3ENCBL2M-A1-L (_= 2, 5, 10)	2, 5, 10		
2	Encoder Cable (Opposite to Load-Side Lead) For HG-KN13, 23, 43, 73 (Direct Connection Type)	MR-J3ENCBL_M-A2-H (_= 2, 5, 10)	2, 5, 10	IP65	
		MR-J3ENCBL_M-A2-L (_= 2, 5, 10)	2, 5, 10		
3	Encoder Cable (Load-Side Lead) For HG-KN13, 23, 43, 73 (Junction Type) (*2)	MR-J3JCBL03M-A1-L	S	IP20	
4	Encoder Cable (Opposite to Load-Side Lead) For HG-KN13, 23, 43, 73 (Junction Type) (*2)	MR-J3JCBL03M-A2-L	S		
5	Encoder Cable For HG-KN (Junction Type) (*2)	MR-EKCBL_M-H (_= 20, 30, 40, 50) (*3)	20, 30	IP20	
		MR-EKCBL_M-L (_= 20, 30)	20, 30		
6	Encoder Connector Set For HG-KN (Junction Type)	MR-ECNM	S	IP20	
7	Encoder Cable (Load-Side Lead) For HG-KN (Junction Type) (*2)	MR-J3JSCBL03M-A1-L	S	IP65 (*4)	
8	Encoder Cable (Opposite to Load-Side Lead) For HG-KN (Junction Type) (*2) Use This In Combination With Numbers 9 or 10	MR-J3JSCBL03M-A2-L	S	IP65 (*4)	
9	Encoder Cable For HG-KN (Junction Type) For HG-SN (Direct Connection Type) (*2)	MR-J3ENSCBL_M-H (_= 2, 5, 10, 20, 30, 40, 50	2, 5, 10, 20, 30	IP67	
		MR-J3ENSCBL_M-L (_= 2, 5, 10, 20, 30)	2, 5		
10	Encoder Cable For HG-SN52, 102, 152, 202~302	MR-J3ENSCBL_M-H (_= 2, 5, 10, 20, 30, 40, 50) (*3)	2, 5, 10, 20, 30		
		MR-J3ENSCBL_M-L (_= 2, 5, 10, 20, 30)	2, 5		
11	Encoder Connector Set (One-Touch Connection Type) For HG-KN (Junction Type) (*5) For HG-SN (Direct Connection Type) (Straight Type)	MR-J3SCNS	S	IP67	
12	Encoder Connector Set (One-Touch Connection Type) For HG-SN (Angle Type) (*5)	MR-J3SCNSA	S	IP67	
13	Power Cable (Load-Side Lead) For HG-KN13, 23, 43, 73 (Direct Connection Type) (*2)	MR-PWS1CBL_M-A1-H (_= 2, 5, 10)	2, 5, 10	IP65	
		MR-PWS1CBL_M-A1-L (_= 2, 5, 10) (*6)	2, 5, 10		
14	Power Cable (Opposite to Load-Side Lead) For HG-KN13, 23, 43, 73 (Direct Connection Type)	MR-PWS1CBL_M-A2-H (_= 2, 5, 10)	2, 5, 10		
		MR-PWS1CBL_M-A2-L (_= 2, 5, 10) (*6)	2, 5, 10		
15	Power Cable (Load-Side Lead) For HG-KN (Junction Type)	MR-PWS2CBL03M-A1-L	S	IP55	
16	Power Cable (Opposite to Load-Side Lead) For HG-KN (Junction Type) (*2)	MR-PWS2CBL03M-A2-L	S		
17	Power Cable For HG-SN52	MR-J3P2-_M	2, 5, 10, 20, 30	IP65	
		MR-J3PWS2-_M	2, 5, 10, 15, 20, 30	IP67	
18	Power Cable For HG-SN102, 152	MR-J3P2-_M	2, 5, 10, 20, 30	IP65	
		MR-J3PWS2-_M	2, 5, 10, 15, 20, 30	IP67	
19	Power Cable For HG-SN202~302	MR-J3P4-_M	2, 5, 10, 20, 30	IP65	
		MR-J3PWS4-_M	2, 5, 10, 15, 20, 30	IP67	
20	Power Connector Set For HG-SN52J, 102J, 152J Wire Size: 2mm² to 3.5mm² (AWG 14 to 12) Cable OD: 10.5mm to 14.1mm	MR-PWCNS4	-	IP67	
21	Power Connector Set For HG-SN202J, 302J Wire Size: 5.5mm² to 8mm² (AWG 10 to 8) Cable OD: 12.5mm to 16mm	MR-PWCNS5	-		
22	Electromagnetic Brake Cable (Load-Side Lead) For HG-KN13, 23, 43, 73, (Direct Connection Type) (Not Shielded) High Flex (*2)	MR-BKS1CBL_M-A1-H (_= 2, 5, 10)	2, 5, 10	IP65	
	Electromagnetic Brake Cable (Load-Side Lead) For HG-KN13, 23, 43, 73, (Direct Connection Type) (Not Shielded) Standard Flex (*2)	MR-BKS1CBL_M-A1-L (_= 2, 5, 10)	-		
	Electromagnetic Brake Cable (Load-Side Lead) For HG-SN (Direct Connection Type) Standard Flex (*2)	MR-J3BK-_M	2, 5, 10, 15, 20, 30, 40, 50		
	Electromagnetic Brake Cable (Load-Side Lead) For HG-SN (Direct Connection Type) High Flex (Shielded) (*2)	MR-J3BRKS1-_M	2, 5, 10, 15, 20, 30, 40, 50		
23	Electromagnetic Brake Cable (Opposite to Load-Side Lead) For HG-KN13, 23, 43, 73, (*2)	MR-BKS1CBL_M-A2-H (_= 2, 5, 10)	2, 5, 10		
		MR-BKS1CBL2M-A2-L (_= 2, 5, 10)	-		

Notes:

1. The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/Servo Motor. If the IP rating of the servo amplifier/Servo Motor differs from that of these connectors, overall IP rating depends on the lowest of all.
2. -H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.
3. This encoder cable is available in four-wire type. Parameter setting is required to use the four-wire type encoder cable. Refer to "MR-JE-_A Servo Amplifier Instruction Manual" for details.
4. The encoder cable is rated IP65 while the junction connector itself is rated IP67.
5. Cable clamps and bushings for cable OD of 5.5 mm to 7.5 mm and of 7.0 mm to 9.0 mm are included in the set.
6. Shielded power cable MR-PWS3CBL_M-A_-L is also available. Contact your local sales office.

MR-JE Cables and Connectors (Refer to Chart on Previous Page)

Item		Model	Stocked Lengths	Protection Level (*1)	Description
24	Electromagnetic Brake Cable (Load-Side Lead) For HG-KN (Junction Type) Not Shielded	MR-BKS2CBL03M-A1-L	S	IP55	
25	Electromagnetic Brake Cable (Opposite to Load-Side Lead) For HG-KN (Junction Type) Not Shielded	MR-BKS2CBL03M-A2-L	S		
26	Electromagnetic Brake Connector Set (One-Touch Connection Type) For HG-SN (Straight Type). Wire size: 1.25mm² (AWG 16) or Smaller Cable OD: 9.0mm to 11.6mm	MR-BKCNS1	S	IP67	
27	Electromagnetic Brake Connector Set (One-Touch Connection Type) For HG-SN (Angle Type) Wire Size: 1.25mm² (AWG 16) or Smaller Cable OD: 9.0mm to 11.6mm	MR-BKCNS1A	S	IP67	

Note 1: The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/Servo Motor. If the IP rating of the servo amplifier/Servo Motor differs from that of these connectors, overall IP rating depends on the lowest of all.

Software

MR Configurator2

MR Configurator2 can be obtained by either of the following:

- Purchase MR Configurator2 alone.
- Purchase MT Works2: MR Configurator2 is included in MT Works2 with software version 1.34L or later.
- Download MR Configurator2: If you have GX Works2 or MT Works2 with software version earlier than 1.34L, you can download MR Configurator2 from website free of charge.

Description	Model Number	Stocked Item
Windows Communication Software	MR-CONFIG2-C1	S
	MR-CONFIG2-C5	S
	MR-CONFIG2-C10	S
	MR-CONFIG2-C1-SMA	-
	MR-CONFIG2-C5-SMA	-
	MR-CONFIG2-C10-SMA	-
Communication Cable	MR-J3USBCBL3M	S

Specifications

Item	Description
Project	Create/read/save/delete project, system setting, print
Parameter	Parameter setting, axis name setting, parameter converter
Monitor	Display all, I/O monitor, graph
Diagnosis	Alarm display, alarm onset data, drive recorder, no motor rotation, system configuration, life diagnosis, machine diagnosis
Test mode	JOG mode, positioning mode, motor-less operation, DO forced output, program operation, test mode information
Adjustment	One-touch tuning, tuning, machine analyzer
Others	Servo assistant, parameter setting range update, help display

System Requirements

IBM PC/AT compatible model running with the following requirements.

Components	MR Configurator2 (*3)
OS (*1, *2)	Microsoft® Windows® 8 Enterprise Operating System Microsoft® Windows® 8 Pro Operating System Microsoft® Windows® 8 Operating System Microsoft® Windows® 7 Enterprise Operating System Microsoft® Windows® 7 Ultimate Operating System Microsoft® Windows® 7 Professional Operating System Microsoft® Windows® 7 Home Premium Operating System Microsoft® Windows® 7 Starter Operating System Microsoft® Windows Vista® Enterprise Operating System Microsoft® Windows Vista® Ultimate Operating System Microsoft® Windows Vista® Business Operating System Microsoft® Windows Vista® Home Premium Operating System Microsoft® Windows Vista® Home Basic Operating System Microsoft® Windows® XP Professional Operating System, Service Pack 2 or later Microsoft® Windows® XP Home Edition Operating System, Service Pack 2 or later Microsoft® Windows® 2000 Professional Operating System, Service Pack 4 or later
CPU (Recommended)	Desktop PC: Intel® Celeron® processor 2.8 GHz or more Laptop PC: Intel® Pentium® M processor 1.7 GHz or more
Memory (Recommended)	512 MB or more (32-bit OS), 1 GB or more (64-bit OS)
Free Hard Disk Space	1 GB or more
Communication Interface	Use USB port
Browser	Windows® Internet Explorer® 4.0 or later
Monitor	Resolution 1024 × 768 or more, 16-bit high color, Compatible with above personal computers.
Keyboard, Mouse, Printer	Compatible with above personal computers.
Communication Cable	MR-J3USBCBL3M

Notes:
1. This software may not run correctly, depending on a personal computer being used.
2. For 64-bit operating system, this software is compatible with Windows® 7 and Windows® 8.
3. Software version 1.19V or later is compatible with MR-JE Series.

Options

Optional Regeneration Resistors

Servo Amplifier	Built-in Regenerative Resistor (*1)	Tolerable Regenerative Power (W)				
		Optional Regeneration Unit (*2)				
		MR-RB032 (40Ω)	MR-RB12 (40Ω)	MR-RB30 (13Ω)	MR-RB32 (40Ω)	MR-RB50 (13Ω)(*1)
Stocked Item	-	S	S	S	S	S
MR-JE-10A	-	30	-	-	-	-
MR-JE-20A	-	30	100	-	-	-
MR-JE-40A	10	30	100	-	-	-
MR-JE-70A	20	30	100	-	300	-
MR-JE-100A	20	30	100	-	300	-
MR-JE-200A	100	-	-	300	-	500
MR-JE-300A	100	-	-	300	-	500

Notes:
1. Be sure to cool the unit forcibly with a cooling fan (92 mm × 92 mm, minimum air flow: 1.0 m3/min). The cooling fan must be prepared by user.
2. The power values in this table are resistor-generated powers, not rated powers.

Junction Terminal Block

Model Number	Stocked Item	Description
MR-TB50	S	Connect all signals via the junction terminal block

Radio Noise Filter

Model Number	Stocked Item	Description
FR-BIF	S	This filter suppresses noise from the power supply side of the servo amplifier, especially effective for the radio frequency bands of 10 MHz or lower. The FR-BIF is designed to be installed on the input side.

Line Noise Filter

Model Number	Stocked Item	Description
FR-BSF01	S	This filter suppresses radio noise from the power supply side and the output side of the servo amplifier. The FR-BSF01 is also effective in suppressing high-frequency leakage current (zero-phase current), especially the range of 0.5 MHz and 5 MHz.

EMC Filter

Amplifier Model Number	EMC Filter Model (*2)	Rated Current [A]	Rated Voltage [VAC]	Stocked Item
MR-JE-10A to 100A	MF3F480-010.233MF (*1)	10	250	S
MR-JE-200A, 300A	MF3F480-015.230MF3 (*1)	30	250	S

Notes:
1. Manufactured by Soshin Electric Co., Ltd. A surge protector is separately required to use this EMC filter. Refer to MR-JE Manual.
2. When using the EMC filter, install one EMC filter for each servo amplifier.

Power Factor Improving AC Reactor

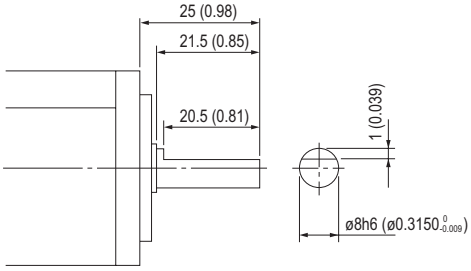
This boosts the power factor of servo amplifier and reduces the power supply capacity.

Amplifier Model Number	Stocked Item	Power Factor Improving AC Reactor Model (*1)
MR-JE-10A MR-JE-20A	-	FR-HAL-0.4K
MR-JE-40A	-	FR-HAL-0.75K
MR-JE-70A	-	FR-HAL-1.5K
MR-JE-100A	-	FR-HAL-2.2K
MR-JE-200A	-	FR-HAL-3.7K
MR-JE-300A	-	FR-HAL-5.5K

Note 1: When using the power factor improving AC reactor, install one reactor for each servo amplifier.

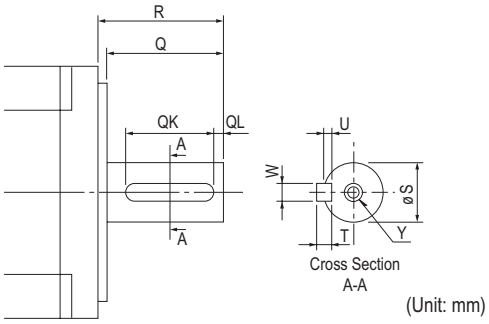
MR-JE Motor Shaft Details

HG-KN Series: D-Cut Shaft (100W Motors Only)



Unit: mm (inch)

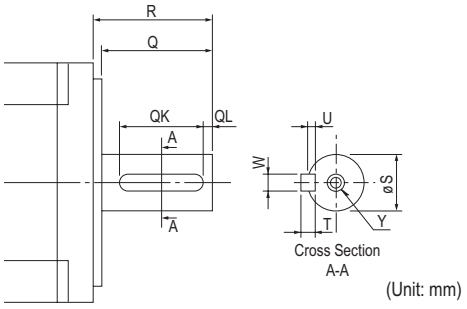
Keyway With Key Included (200W, 400W and 750W)



(Unit: mm)

Motor Model	Variable Dimensions								
	T	S	R	Q	W	QK	QL	U	Y
HG-KN23(B)JK, 43(B)JK	5 (0.20)	14h6 (0.554)	30 (1.18)	27 (1.06)	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	M4 Depth 15 (0.59)
HG-KN73(B)JK	6 (0.24)	19h6 (0.7480)	40 (1.57)	37 (1.46)	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	M5 Depth 20 (0.79)

HG-SN Series: Key Shaft (without key) (*1, *2)



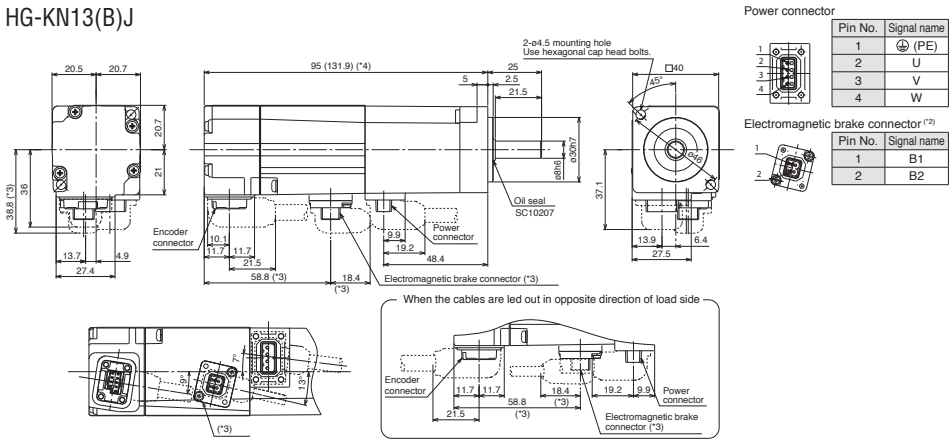
(Unit: mm)

Motor Model	Variable Dimensions mm (in)								
	S	R	Q	W	QK	QL	U	r	Y
HG-SN52(B)JK, 102(B)JK, 152(B)JK	24h6 (0.9449 0 -0.0005)	55 (2.17)	50 (1.91)	8 0 -0.036 (0.315 -0.001 0)	36 (1.42)	5 (0.20)	4 +0.2 0 (0.16 +0.008 0)	4 (0.16)	M8 Depth 20 (0.79)
HG-SN202(B)JK, 302(B)JK	35 +0.1 0 (1.3780 +0.0004 0)	79 (3.11)	75 (2.95)	10 0 -0.036 (0.394 0 -0.001)	55 (2.17)	5 (0.20)	5 +0.2 0 (0.20 +0.008 0)	5 (0.20)	

Notes:
1. The Servo Motors with special shaft end are not suitable for frequent start/stop applications.
2. A key is not supplied with the Servo Motor. The key shall be installed by the user.

HG-KN Series Dimensions

HG-KN13(B)J



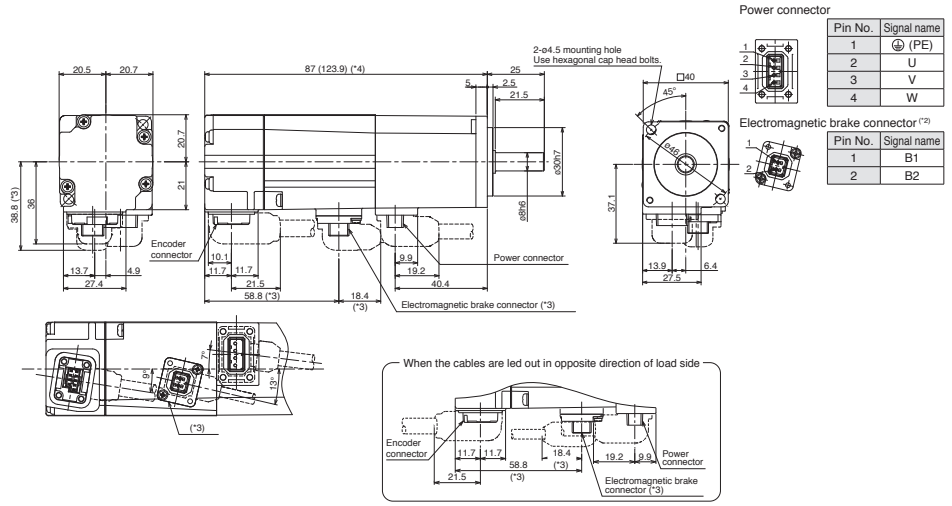
Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

Electromagnetic brake connector (*2)

Pin No.	Signal name
1	B1
2	B2

HG-KN13(B)



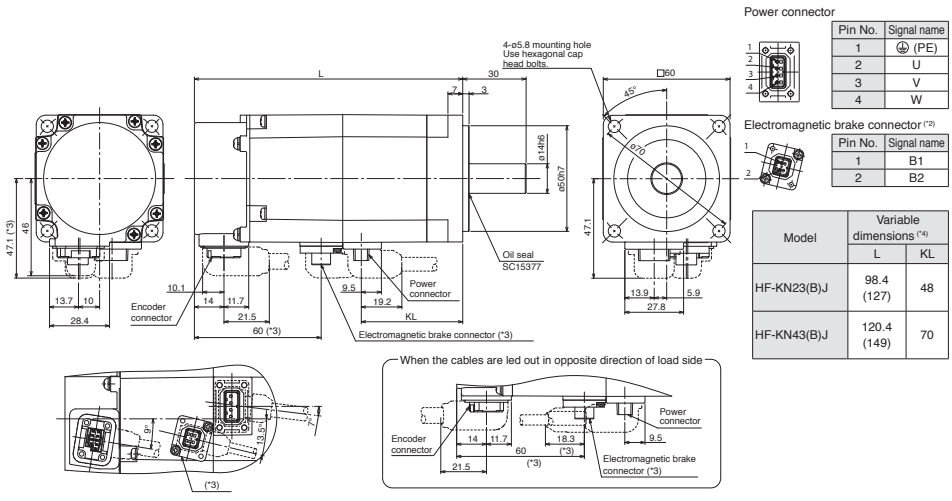
Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

Electromagnetic brake connector (*2)

Pin No.	Signal name
1	B1
2	B2

HG-KN23(B)J, HG-KN43(B)J



Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

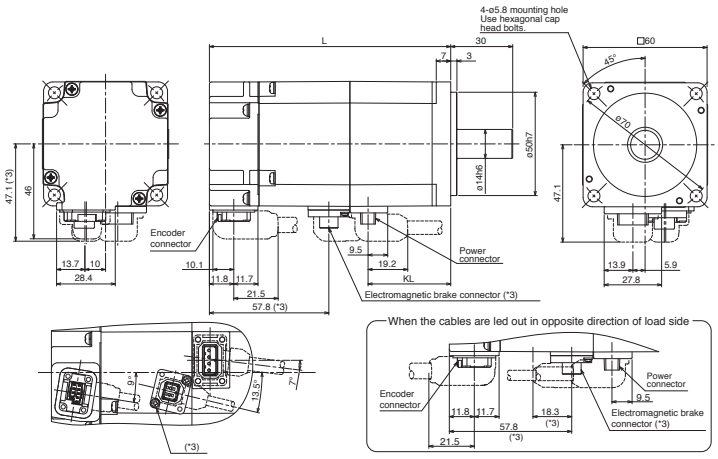
Electromagnetic brake connector (*2)

Pin No.	Signal name
1	B1
2	B2

Model	Variable dimensions (*4)	
	L	KL
HF-KN23(B)J	98.4 (127)	48
HF-KN43(B)J	120.4 (149)	70

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.

HG-KN23(B), HG-KN43(B)



Power connector

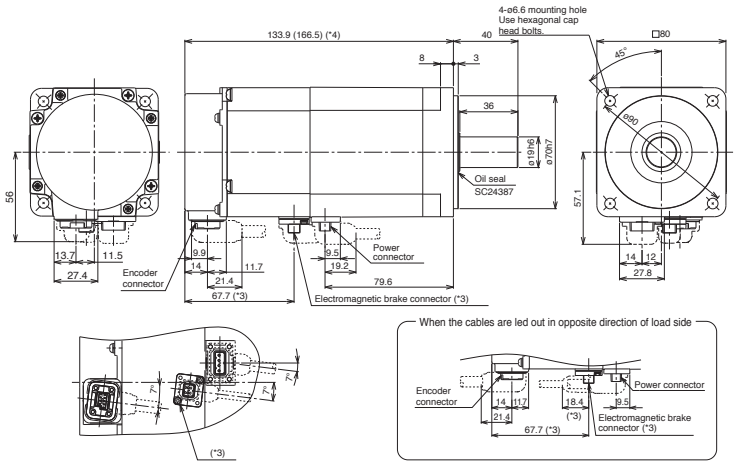
Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

Electromagnetic brake connector (*2)

Pin No.	Signal name
1	B1
2	B2

Model	Variable dimensions (*4)	
	L	KL
HF-KN23(B)	88.2 (116.8)	40
HF-KN43(B)	110.2 (138.8)	62

HG-KN73(B)J



Power connector

Pin No.	Signal name
1	⏚ (PE)
2	U
3	V
4	W

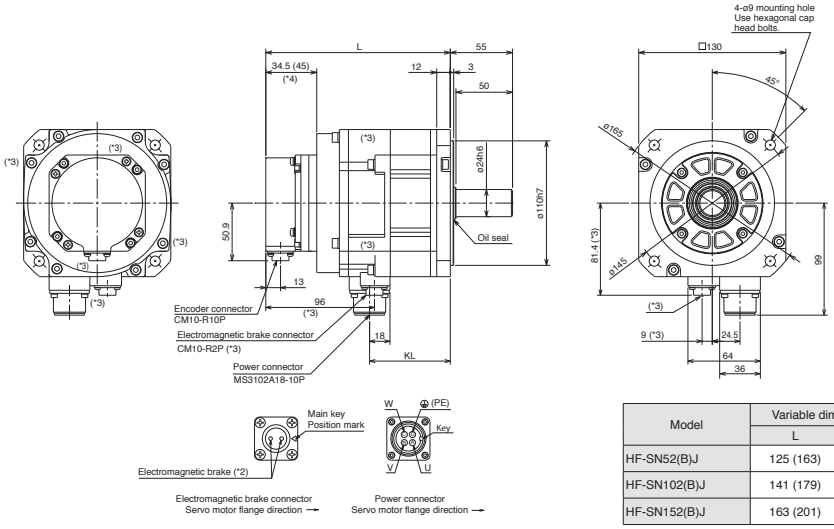
Electromagnetic brake connector (*2)

Pin No.	Signal name
1	B1
2	B2

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.

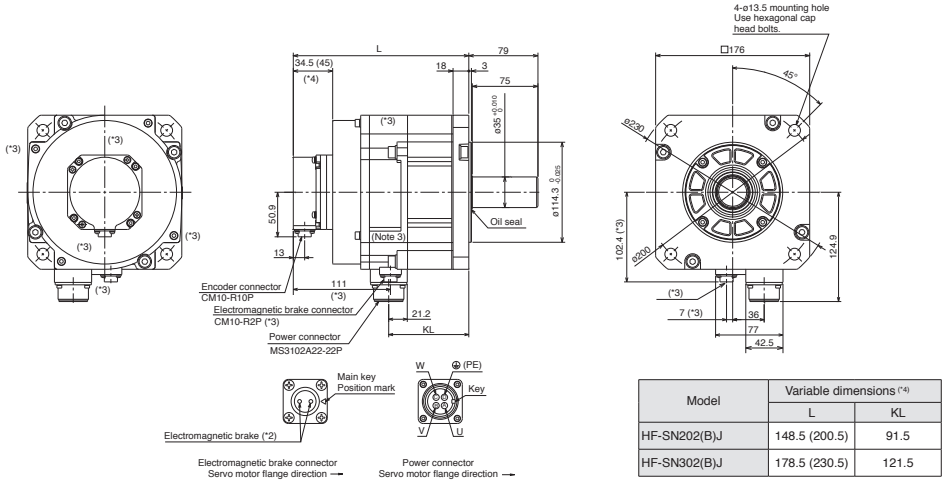
HG-SN Series Dimensions

HG-SN52(B)J, HG-SN102(B)J, HG-SN152(B)J



Model	Variable dimensions (*4)	
	L	KL
HF-SN52(B)J	125 (163)	71.3
HF-SN102(B)J	141 (179)	87.3
HF-SN152(B)J	163 (201)	109.3

HG-SN202(B)J, HG-SN302(B)J



Model	Variable dimensions (*4)	
	L	KL
HF-SN202(B)J	148.5 (200.5)	91.5
HF-SN302(B)J	178.5 (230.5)	121.5

Notes:
1. For dimensions without tolerance, general tolerance applies.
2. The electromagnetic brake terminals (B1, B2) do not have polarity.
3. Only for the models with electromagnetic brake.
4. Dimensions in brackets are for the models with electromagnetic brake.
5. Use a friction coupling to fasten a load.