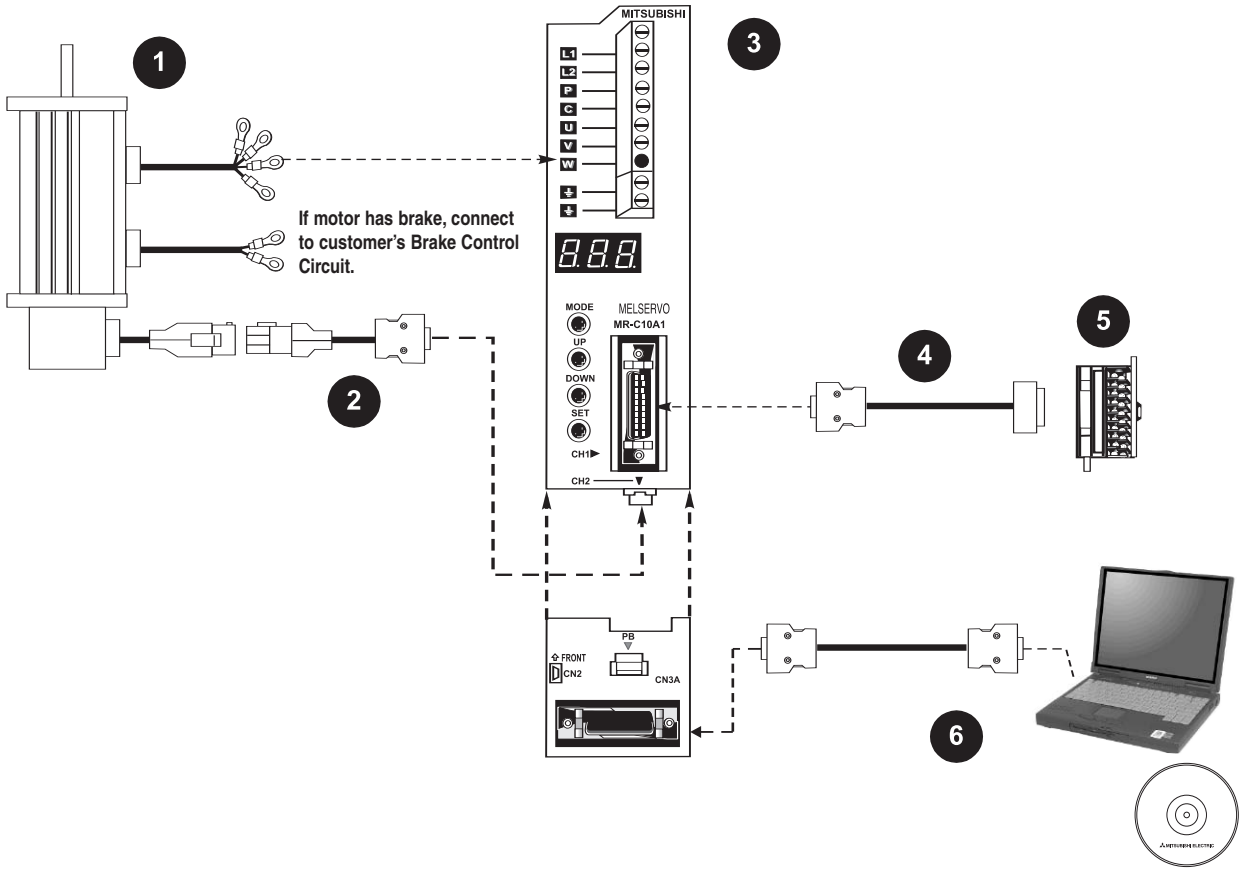
Servomotors and Amplifiers

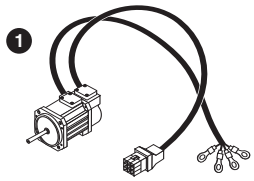
MR-C Servo Amplifiers
HC-PQ 3000 RPM Servomotors
30 to 400 Watts

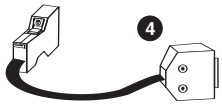
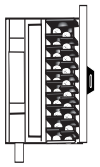
The ideal alternative to micro-stepper and 5-phase stepper motors with: patented Real-Time Adaptive Tuning; RS-232C serial interface for Windows® based set-up (MR-Configurator); and three standard pulse input formats.



FOR AN OPERATIONAL SYSTEM, SELECT:

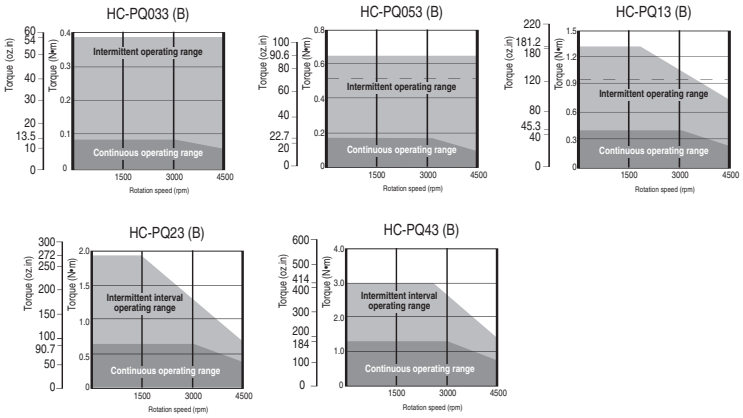
1. Motor
2. Encoder Cable
3. Amplifier
4. Terminal Block Cable
5. Terminal Block
6. Optional Accessories



Rated Torque oz-in	Power kW	Inertia oz-in²	❶ Motor Model No. (*1, *2, *3)	Encoder Cable Length	❷ Encoder Model No. (*4)	Input Voltage VAC, Ph	Command Pulse Voltage	❸ Amplifier Model No. (*5)	❹ Terminal Block Cable Model No. (0.5, 1m)	❺ Terminal Block Model No.
HC-PQ 3000 RPM Servomotors										
13.5	0.03	0.077	HC-PQ033-UE	2m	MR-JCCBL2M-L	110, 1	5 VDC	MR-C10A1-L-UE	MR-CTBL05M	MR-TB20
			HC-PQ033N-UE	5m	MR-JCCBL5M-L	110, 1	24 VDC	MR-C10A1-UE		
22.7	0.05	0.104	HC-PQ053-UE	10m	MR-JCCBL10M-L	230, 1	5 VDC	MR-C10A-L-UE		
			HC-PQ053N-UE			230, 1	24 VDC	MR-C10A-UE		
45.3	0.1	0.164	HC-PQ13-UE							
			HC-PQ13N-UE							
90.7	0.2	0.487	HC-PQ23K-UE	2m	MR-JCCBL2M-L	110, 1	5 VDC	MR-C20A1-L-UE	MR-CTBL05M	MR-TB20
			HC-PQ23NK-UE	5m	MR-JCCBL5M-L	110, 1	24 VDC	MR-C20A1-UE		
				10m	MR-JCCBL10M-L	230, 1	5 VDC	MR-C20A-L-UE		
						230, 1	24 VDC	MR-C20A-UE		
184	0.4	0.793	HC-PQ43K-UE	2m	MR-JCCBL2M-L	230, 1	5 VDC	MR-C40A-L-UE	MR-CTBL05M	MR-TB20
			HC-PQ43NK-UE	5m	MR-JCCBL5M-L	230, 1	24 VDC	MR-C40A-UE		
				10m	MR-JCCBL10M-L					
HC-PQ 3000 RPM Servomotors with Brake										
13.5	0.03	0.094	HC-PQ033B-UE	2m	MR-JCCBL2M-L	110, 1	5 VDC	MR-C10A1-L-UE	MR-CTBL05M	MR-TB20
			HC-PQ033NB-UE	5m	MR-JCCBL5M-L	110, 1	24 VDC	MR-C10A1-UE		
22.7	0.05	0.117	HC-PQ053B-UE	10m	MR-JCCBL10M-L	230, 1	5 VDC	MR-C10A-L-UE		
			HC-PQ053NB-UE			230, 1	24 VDC	MR-C10A-UE		
45.3	0.1	0.176	HC-PQ13B-UE							
			HC-PQ13NB-UE							
90.7	0.2	0.790	HC-PQ23BK-UE	2m	MR-JCCBL2M-L	110, 1	5 VDC	MR-C20A1-L-UE	MR-CTBL05M	MR-TB20
			HC-PQ23NBK-UE	5m	MR-JCCBL5M-L	110, 1	24 VDC	MR-C20A1-UE		
				10m	MR-JCCBL10M-L	230, 1	5 VDC	MR-C20A-L-UE		
						230, 1	24 VDC	MR-C20A-UE		
184	0.4	1.04	HC-PQ43BK-UE	2m	MR-JCCBL2M-L	230, 1	5 VDC	MR-C40A-L-UE	MR-CTBL05M	MR-TB20
			HC-PQ43NBK-UE	5m	MR-JCCBL5M-L	230, 1	24 VDC	MR-C40A-UE		
				10m	MR-JCCBL10M-L					

Notes:
1. Keyways with keys are only available and are STANDARD on 200W and 400W motors.
2. "N" indicates NEMA sized mounting adapter: 30 to 100 W are NEMA 23; 200 & 400 W are NEMA 34. (MOTOR SHAFT MAY NOT BE NEMA SIZE.) See manual for details.
3. Power to motor from amplifier must be provided by separate wires. Motor has pigtails (0.3m) with ring type connectors for power and optional brake connections. Motors with brakes require separate 24 VDC power supply.
4. MR-JCCBL☐M cable is rated IP20. No higher IP-rated cable is currently available.
5. The MR-C40A is not available in 110 VAC, 1 phase version.



Optional Accessories ❻	Model Number
6. Encoder Connector Kit (instead of MR-JCCBL☐M-L)	MR-J2CNM
7. CN1 I/O Connector Kit	MR-J2CN1
8. CN1 I/O Pigtail Cable	MR-CCN1CBL-3M (3 meter) MR-CCN1CBL-5M (5 meter)
9. Serial Interface (RS-232C) Adaptor	MR-C-T01
10. Serial Interface Cable (for use with "MR-Configurator" and customer's PC)	MR-CPCATCBL3M (3 meter)
11. Windows Communication Software "MR-Configurator"	MR-Configurator
12a. MR-C Instruction Manual	SH(NA)3167
12b. MR-C Installation Manual	IB(NA)67279
12c. EMC Installation Guide	IB(NA)67310

MR-C Amplifier Specifications

Item \ Servo Amplifier		MR-C10A	MR-C20A	MR-C40A	MR-C10A1	MR-C20A1
Power Supply (*3)	Voltage / Frequency	Single-phase 200 to 230 VAC 50/60 Hz			Single-phase 100 to 120 VAC 50/60 Hz	
	Permissible Voltage Fluctuation	Single-phase 170 VAC to 253 VAC			Single-phase 85 to 126 VAC	
	Permissible Frequency Fluctuation	Within ± 5%				
Control Method		Sine-wave PWM control, current controlled system				
Control Mode		Pulse train input position control				
Control Theory		Model adaptive control				
Auto Tuning		Real-time auto tuning				
Protective Functions		Over current protection, motor combination fault, overload shut off (electronic thermal relay) over voltage protection, encoder alarm protection, regenerative alarm protection, under voltage/ instantaneous power failure protection, over speed protection, excessive error protection				
Position Control Specifications	Max. Input Pulse Frequency	200kpps				
	Positioning Feedback Pulses	4000 pulse/rev servomotor revolution				
	Command Pulse Multiplication	Electronic gear A, B: 1 to 999 pulses 1/50 < A/B <20				
	Positioning Completion Width Setting	0 to 999 pulses				
	Excessive Error	± 50K pulses				
Interface Power Supply		24 VDC or 5 VDC power supplied from outside				
Communication with Personal Computer	Required	RS-232C option unit (MR-C-T01), communication cable, setup software				
	Functions	Status display, diagnostic display, alarm display, parameter setting, operation waveform monitor				
Structure		Open				
Environment Conditions		Refer to User Manual				
Weight	kg	0.6		1.0	0.6	
	lbs	1.32		2.20	1.32	

MR-C Motor Specifications

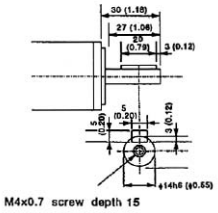
Item \ Servomotor			HC-PQ Series				
			033	053	13	23	43
Corresponding Servo Amplifier Model			MR-C10A (1)			MR-C20A (1)	MR-C40A
Continuous Characteristic (*2)	Rated Output (W)		30	50	100	200	400
	Rated Torque (*6)	(N • m)	0.095	0.16	0.32	0.64	1.27
		(kgf • cm)	0.97	1.62	3.25	6.5	13.0
		(oz • in)	13.45	22.66	45.32	90.63	184.1
Max. Torque (*2)		(N • m)	0.38	0.64	1.28	1.92	2.92
		(kgf • cm)	3.88	6.48	13	19.5	29.9
		(oz • in)	53.81	90.63	181.26	271.89	414
Rated Speed (r/min)			3000				
Max. Speed (r/min)			4500				
Instantaneous Permissible Speed (r/min)			5400				5175
Power Rate at Continuous Rated Torque (kW/s)			6.45	13.47	34.13	46.02	116.55
Moment of Inertia (*7)	J (kg • cm^2)		0.014	0.019	0.03	0.089	0.145
	GD^2 (kgf • cm^2)		0.057	0.074	0.12	0.35	0.57
	WK^2 (oz • in^2)		0.077	0.104	0.164	0.487	0.793
Recommended Load Inertia to Servomotor Shaft Inertia			30 or less times (*5)				
Rated Output Current (A)			0.85	0.85	0.85	1.5	2.8
Max. Output Current (A)			5.0	5.0	5.0	6.0	6.44
Regenerative Brake Duty (Times / Min) (*4)	Without Option		(*4-1)	(*4-1)	(*4-2)	(*4-3)	(*4-4)
	MR-RB013 (10W)		(*4-1)	(*4-1)	4660	1400	800
	MR-RB033 (30W)		(*4-1)	(*4-1)	(*4-1)	4300	2400
Power Facility Capacity (kVA)			0.1	0.2	0.3	0.5	0.9
Speed/Position Detector			Encoder (resolution 4000 (Pulse/rev))				
Accessories			Encoder (serial communication system)				
Structure			Totally enclosed, natural air cooling (protection degree: IP44 (*8))				
Environmental Condition (*1)			Refer to User Manual				
Weight (*7)	kg		0.32	0.37	0.50	0.96	1.42
	lbs		0.71	0.82	1.1	2.12	3.13

Notes:

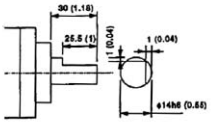
1. Special specifications are required for servomotor used in a site exposed to oil or rain.
2. The output torque and rated speed are not guaranteed during a power voltage drop.
3. The power facility capacity will differ according to the impedance.
4. The regenerative brake duty is the permissible duty applied when the servomotor under no load is decelerated to a stop from the rated speed. For those marked D, there are no limits to the regenerative duty if the effective torque is not more than the rated torque. When a load is applied, the value is 1/(m+1) of the value in the table. (m=load inertia/motor inertia). If the speed exceeds the rated speed, the permissible number of times is in inverse proportion to the square of (running speed / rated speed). When the running speed frequently varies or when the regeneration state is constantly established as in vertical motion applications, calculate the amount of regenerative heat generated during the operation so that the amount of heat generated will not be larger than the permissible value.
   - **4-1.** There are no limits to the regenerative duty if the effective torque is not more than the rated torque.
   - **4-2.** When the load inertia is 30 times or less, there is no limit to the regenerative brake duty, if the effective torque is not more than the rated torque.
   - **4-3.** When the load inertia is 10 times or less, there is no limit to the regenerative brake duty, if the effective torque is not more than the rated torque.
   - **4-4.** When the load inertia is 1 time or less, there is no limit to the regenerative brake duty, if the effective torque is not more than the rated torque.
5. Please consult Mitsubishi when the load inertia ratio exceeds the value noted above.
6. For servomotors with reduction gear, the ratio is 300% of the rated torque on the servomotor shaft.
7. For servomotors with reduction gear and electromagnetic brake, refer to the outline drawings.
8. Except the shaft and connector.

MR-C Shaft Dimensions

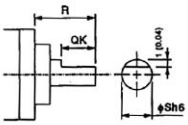
With Key



L Cut



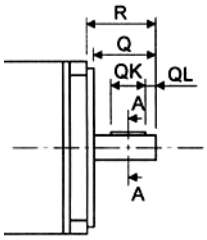
Servo Motor Model	Shaft Shape		
	With Key	D Cut	L Cut
HC-PQ033	—	X	—
HC-PQ053	—	X	—
HC-PQ13	—	X	—
HC-PQ23	X	X	X
HC-PQ43	X		X

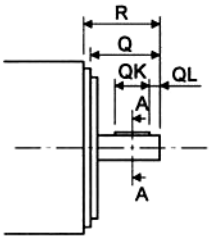


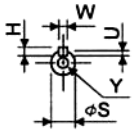
D Cut

Servo Motor Model	Variable Dimensions		
	R	QK	S
HC-PQ033 HC-PQ053 HC-PQ13	25 (0.98)	20.5 (0.81)	8 (0.31)
HC-PQ23 HC-PQ43	30 (1.18)	25.5 (1)	14 (0.55)

With Key



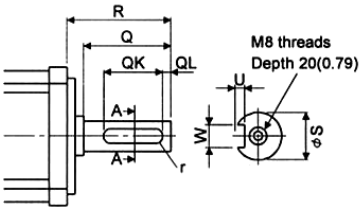




KFE23K to 43K KFE73K

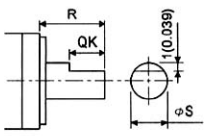
Servo Motor Model	Variable Dimensions								
	S	R	Q	W	QK	QL	U	H	Y
HC-KFE23K • 43K	14h6 (14)	30 (1.18)	27 (1.06)	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	5 (0.20)	M4 Depth 15 (0.59)
HC-KFE73K	19h6 (19)	40 (1.57)	37 (1.46)	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	6 (0.24)	M5 Depth 20 (0.79)

Without Key



Servo Motor Model	Variable Dimensions							
	S	R	Q	W	QK	QL	U	r
HC-SFE25K – 152K	24h6 (0.94)	55 (2.17)	50 (1.97)	$8^{0}_{-0.036}$ (0.31)	36 (1.42)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)
HC-SFE202K	35 (1.38)	79 (3.11)	75 (2.95)	$10^{0}_{-0.036}$ (0.39)	55 (2.17)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	5 (0.20)

D-Cut

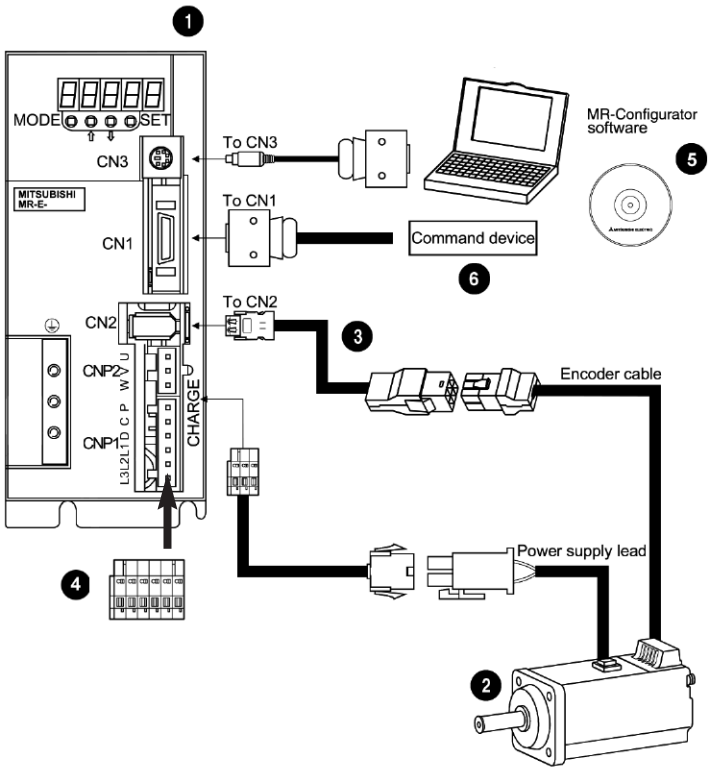


Servo Motor Model	Variable Dimensions		
	R	QK	S
HC-KFE053D • 13D	25 (0.98)	20.5 (0.81)	8h (0.32)

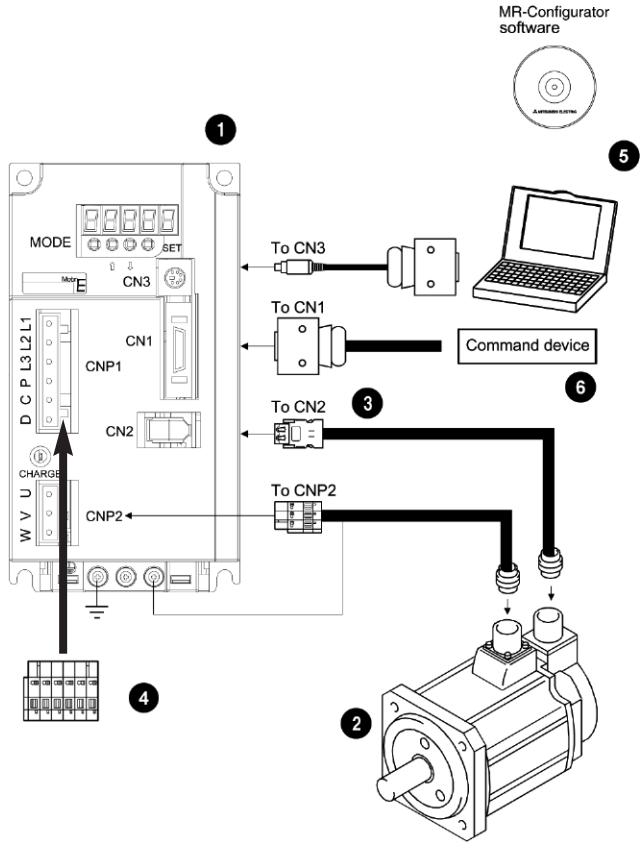
MR-E Servomotors and Amplifiers

High performance and compact, the MR-E is an excellent choice for applications up to 2kW. The MR-E is available in pulse-train position or analog speed/torque models. The amplifier features Mitsubishi Electric's legendary auto-tuning and vibration suppression functions, a 400 Hz analog frequency response, and accepts pulse commands up to 500 kHz. The motors are low to medium inertia up to 4500 rpm and are equipped with a 10,000 pulse per revolution encoder. Set-up and diagnosis is made easy with the MR-Configurator Windows® based software.

100W to 1kW



2kW



FOR AN OPERATIONAL SYSTEM, SELECT:

1. Amplifier
2. Motor
3. Cables
4. Connector (Power)
5. Software and Manuals
6. Optional Accessories

Servo Amplifier Selection:

MR-E-□□

Mitsubishi E-Series general purpose AC Servo Amplifier

Symbol	Description
A	General Pulse Train Interface
AG	Analog Input Interface

Conforms to the following standards: EN, UL, cUL

Symbol	Compatible Motor	
	HC-KFE	HC-SFE
10	13	—
20	23	—
40	43	—
70	73	52
100	—	102
200	—	152,202

Servo Standard Specifications

Item \ Servo Amplifier			10A	20A	40A	70A	100A	200A
Power Supply	Voltage / Frequency		3-phase 200 to 230VAC, 50/60Hz or 1-phase 230VAC, 50/60Hz				3-phase 200 to 230VAC, 50/60Hz	
	Permissible Voltage Fluctuation		3-phase 200 to 230 VAC: 170 to 253VAC 1-phase 230 VAC: 207 to 253VAC				3-phase 170 to 253VAC	
	Permissible Frequency Fluctuation		Within ±5%					
System			Sine-wave PWM control, current control system					
Dynamic Brake			Built-in					
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal relay), encoder error protection, regenerative brake error protection, undervoltage, instantaneous power failure protection, overspeed protection, excessive error protection					
Position Control Mode	Max. Input Pulse Frequency		500kpps (for differential receiver), 200kpps (for open collector)					
	Command Pulse Multiplying Factor		Electronic gear A:1 to 65535 B:1 to 65535, 1/50 < A/B < 50					
	In-Position Range Setting		0 to ± 10000 pulse (command pulse unit)					
	Error Excessive		±10 revolutions					
	Torque Limit		Set by parameter setting					
Internal Speed Control Mode	Speed Control Range		Internal speed command 1: 5000					
	Speed Fluctuation Ratio		±0.01% or less (load fluctuation 0 to 100%); 0% or less (power fluctuation ±10%)					
	Torque Limit		Set by parameter setting					
Structure			Self-cooled, open (IP00)					Force-cooling, open (IP00)
Environment	Ambient Temperature	Operation °C (°F)	0 to +55 (non-freezing) (32 to +131 (non-freezing))					
		Storage °C (°F)	-20 to +65 (non-freezing) (-4 to +149 (non-freezing))					
	Ambient Humidity	Operation	90%RH or less (non-condensing)					
		Storage						
	Ambient		Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt					
	Altitude		Max. 1000m (3280ft) above sea level					
	Vibration		5.9 [m/s²] or less; 19.4 [ft/s²] or less					
Weight kg (lb)			0.8 (1.8)	0.8 (1.8)	1.2 (2.6)	1.8 (4.0)	1.8 (4.0)	2.0 (4.4)

MR-E Amplifier Standard Specifications

Item \ Servo Amplifier			10AG	20AG	40AG	70AG	100AG	200AG
Power Supply	Voltage/Frequency		3-phase 200 to 230VAC, 50/60Hz or 1-phase 230VAC, 50/60Hz				3-phase 200 to 230VAC, 50/60Hz	
	Permissible Voltage Fluctuation		3-phase 200 to 230 VAC: 170 to 253VAC 1-phase 230 VAC: 207 to 253VAC				3-phase 170 to 253VAC	
	Permissible Frequency Fluctuation		Within ±5%					
System			Sine-wave PWM control, current control system					
Dynamic Brake			Built-in					
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal relay), encoder error protection, regenerative brake error protection, undervoltage, instantaneous power failure protection, overspeed protection					
Speed Control Mode	Speed Control Range		Analog speed command 1: 2000, internal speed command 1: 5000					
	Analog Speed Command Input		0 to ± 10 VDC / Rated speed					
	Speed Fluctuation Ratio		±0.01% or less (load fluctuation 0 to 100%); 0% or less (power fluctuation ±10%) ±0.2% max. (ambient temperature) 25 ±10°C for external speed setting only					
	Torque Limit		Set by parameter setting or external analog input (0 to +10 VDC / maximum torque)					
Torque Control Mode	Analog Torque Command Input		0 to ±8 VDC / Maximum torque (input impedance 10 to 12kΩ)					
	Speed Limit		Set by parameter setting or external analog input (0 to ±10 / Rated speed)					
Structure			Self-cooled, open (IP00)					Force-cooling, open (IP00)
Environment	Ambient Temperature	Operation °C (°F)	0 to +55 (non-freezing) (32 to +131 (non-freezing))					
		Storage °C (°F)	-20 to +65 (non-freezing) (-4 to +149 (non-freezing))					
	Ambient Humidity	Operation	90%RH or less (non-condensing)					
		Storage						
	Ambient		Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt					
	Altitude		Max. 1000m (3280 ft) above sea level					
	Vibration		5.9 [m/s^2] or less; 19.4 [ft/s^2] or less					
Weight kg (lb)			0.8 (1.8)	0.8 (1.8)	1.2 (2.6)	1.8 (4.0)	1.8 (4.0)	2.0 (4.4)

MR-E Servomotor Selection:

HC-KFE □ 3 □ □

10,000 pulse p/rev encoder for use in incremental systems (serial encoder)

Symbol	Shaft Shape
None	Standard (Straight Shaft)
K	With Keyway (Note)

Note: Key included.

Symbol	Electromagnetic Brake
None	Without Brake
B	With Brake

Rated Speed 3000 (r/min)

Symbol	Rated Output (W)
1	100
2	200
4	400
7	750

HC-SFE □ 2 □ □

10,000 pulse p/rev encoder for use in incremental systems (serial encoder)

Symbol	Shaft Shape
None	Standard (Straight Shaft)
K	With Keyway (Note)

Note: Key **not** included.

Symbol	Electromagnetic Brake
None	Without Brake
B	With Brake

Rated Speed 2000 (r/min)

Symbol	Rated Output (W)
5	500
10	1000
15	1500
20	2000

	Motor Series	Rated Speed (Max. r/min)	Rated Output Capacity (kW)	Servomotor Brake (B)	Protective Rating	Features	Application Examples
Small Capacity	HC-KFE Series 	3000 (4500)	4 Types 0.1, 0.2, 0.4, 0.75	Available	IP55 Excluding the shaft-through portion and connector	Low inertia	Belt Drive Robots Mounters Sewing Machines X-Y Tables Food Processing Machines
Medium Capacity	HC-SFE Series 	2000 (3000: 0.5~1.5kW) 2500: 2kW	4 Types 0.5, 1.0, 1.5, 2.0	Available	IP65	Medium inertia	Conveyor Machines Robots X-Y Tables

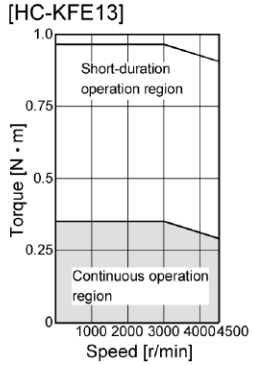
MR-E HC-KFE 3000 r/min Series Servomotor Specifications

Item \ Servomotor			13	23	43	73
Applicable Servo Amplifier/Drive Unit		MR-E-□-A / AG	10	20	40	70
Continuous Duty (*1)	Rated Output [kW]		0.1	0.2	0.4	0.75
	Rated Torque	N • m	0.32	0.64	1.3	204
		oz • in	45.3	90.7	184	340
Rated Speed (*1) (r/min)			3000			
Maximum Speed (r/min)			4500			
Permissible Instantaneous Speed (r/min)			5175			
Maximum Torque		N • m	0.95	1.9	3.8	7.2
		oz • in	135	269	538	1020
Power Rate at Continuous Rated Torque (kW/s)			12.1	9.65	24.2	37.7
Inertia Moment (*3)	J (x 10^{-4} kg • m^2)		0.084	0.42	0.67	1.51
	WK^2 (oz • in^2)		0.459	2.296	3.663	8.26
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2)			10 times or less			
Regenerative Brake Duty [times/min] (*4, *10)		Servo Amplifier Built-In Regenerative Brake Resistor	(*5)	(*9)	220	190
		MR-RB032 (30W)	(*5)	(*5)	660	280
		MR-RB12 (100W)	(*5)	(*5)	2200	940
Power Supply Capacity			Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.			
Rated Current (A)			0.83	1.1	2.3	5.8
Maximum Current (A)			2.5	3.4	6.9	18.6
Speed/Position Detector			Encoder (resolution : 10000 pulse/rev)			
Accessories			Encoder, V ring			
Insulation Class			Class B			
Structure			Totally-enclosed, self-cooled (protection type: IP55 (* 3, *6, *8))			
Environmental Conditions			(*7)			
Weight (*3)		kg	0.53	0.99	1.45	3.0
		lb	1.168	2.18	3.20	6.61

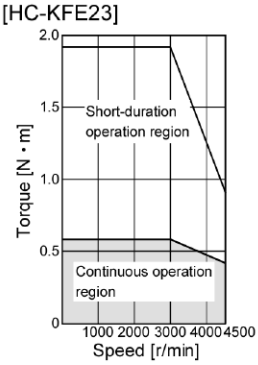
Notes:

1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult Mitsubishi Electric.
3. When the servomotor is equipped with electromagnetic brake, refer to manuals. When the servomotor is equipped with reduction gear, please consult Mitsubishi Electric.
4. The regenerative brake duty indicated is the permissible duty when the servomotor running without load at the rated speed is decelerated to a stop. When a load is connected, the value in the table is multiplied by 1/(m 1), where m load inertia moment/motor inertia moment. At a speed higher than rated, the permissible number of times is in inverse proportion to the square of (running speed/rated speed). When the running speed varies frequently or when the regenerative mode continues as in vertical feed, calculate regenerative heat generated during operation. Provisions must be made to keep generated heat below the permissible value.
5. If the effective torque is within the rated torque range, there are no restrictions on the regenerative duty. Note that the recommended load inertia moment ratio is 15 times or less.
6. Except for the shaft-through portion and connector end.
7. When the equipment is to be used in places where it is subjected to oil and/or water, such as on machine field sites, optional features apply to the equipment. Please contact Mitsubishi Electric.
8. When the servomotor is provided with the reduction gear, the protection type of the reduction gear section is IP44.
9. At the load inertia moment ratio of 5 times or less, there are no restrictions on the regenerative duty if the effective torque is within the rated torque range.
10. The regenerative brake duty of the 400W or less servo amplifier may vary under the influence of the power supply voltage because of the large ratio of the energy for charging the electrolytic capacitor in the servo amplifier.

[HC-KFE13]



[HC-KFE23]



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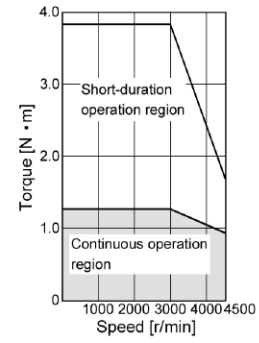
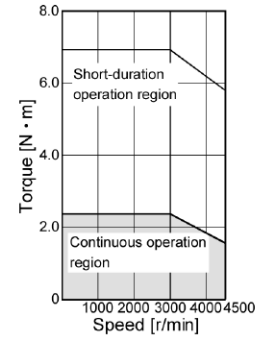


[HC-KFE73]



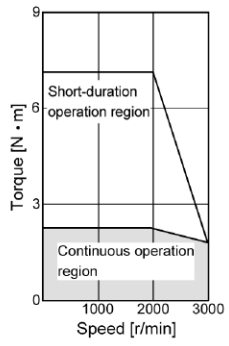
Note: For machines which produce unbalanced torque, e.g. vertical lift applications, it is recommended to use the servomotor so that the unbalance torque will be within 70% of the rated torque.

MR-E HC-SFE 2000 r/min Series Servomotor Specifications

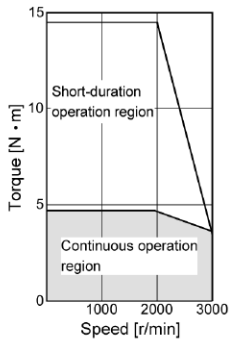
Item \ Servomotor			52	102	152	202
Applicable Servo Amplifier/Drive Unit		MR-E-□-A / AG	70	100	200	200
Continuous Duty (*1)	Rated Output [kW]		0.5	1.0	1.5	2.0
	Rated Torque	N • m	2.39	4.78	7.16	9.55
		oz • in	339	677	1015	1353
Rated Speed (*1) (r/min)			2000			
Maximum Speed (r/min)			3000			2500
Permissible Instantaneous Speed (r/min)			3450			2850
Maximum Torque		N • m	7.16	14.4	21.6	28.5
		oz • in	1015	2041	3061	4039
Power Rate at Continuous Rated Torque (kW/s)			8.7	16.7	25.6	21.5
Inertia Moment (*3)	J (x 10^{-4} kg • m^2)		6.6	13.7	20.0	4.5
	WK^2 (oz • in^2)		36.1	74.9	109	232
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2)			15 times or less			
Regenerative Brake Duty [times/min] (*4)		Servo Amplifier Built-In Regenerative Brake Resistor	56	54	136	64
		MR-RB032 (30W)	165	80	—	—
		MR-RB12 (100W)	560	270	—	—
		MR-RB32 (300W)	—	810	—	—
		MR-RB30 (300W)	—	—	408	192
		MR-RB50 (500W)	—	—	680	320
Power Supply Capacity			Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.			
Rated Current (A)			3.2	6	9	11
Maximum Current (A)			9.6	18	27	33
Speed/Position Detector			Encoder (resolution: 10000 pulse/rev)			
Accessories			Encoder • oil seal			
Insulation Class			Class F			
Structure			Totally enclosed, self-cooled (protection type: IP65 (*6))			
Environmental Conditions			(*5)			
Weight (*3)		kg	5.0	7.0	9.0	12.0
		lb	11.0	15.4	19.8	26.5

Notes:
1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult Mitsubishi Electric.
3. When the servomotor is equipped with electromagnetic brake, refer to manual. When the servomotor is equipped with reduction gear, please consult Mitsubishi Electric.
4. The regenerative brake duty indicated is the permissible duty when the servomotor running without load at the rated speed is decelerated to a stop. When a load is connected, the value in the table is multiplied by 1/(m 1), where m load inertia moment/motor inertia moment. At the speed higher than the rated, the permissible number of times is in inverse proportion to the square of (running speed/rated speed). When the running speed varies frequently or when the regenerative mode continues as in vertical feed, calculate regenerative heat generated during operation. Provisions must be made to keep this generated heat below the permissible value.
5. When the equipment is to be used in places where it is subjected to oil and/or water, such as on machine field sites, optional features apply to the equipment. Please contact Mitsubishi Electric.
6. When the servo motor is provided with the reduction gear, the protection type of the reduction gear section is IP44.

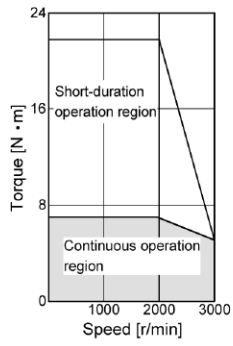
[HC-SFE52]



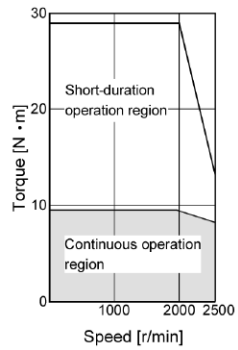
[HC-SFE102]



[HC-SFE152]



[HC-SFE202]



Note: For machines which produce unbalanced torque, e.g. vertical lift applications, it is recommended to use the servomotor so that the unbalance torque will be within 70% of the rated torque.

MR-E Power, Encoder and Brake Cable Selection

HC-KFE Series Motors

Motor Type (IP55) (*2)	Standard Power Cable Model No.	Standard Encoder Cable Model No. (*1)
HC-KFE13	MR-EPW1-☐M	MR-EKCBL☐M-H
HC-KFE23		
HC-KFE43		
HC-KFE73		
HC-KFE13B	MR-EPW1B-☐M	
HC-KFE23B		
HC-KFE43B		
HC-KFE73B		

☐ = 2, 5, 10, 20 or 30 where 2 = 2 meter length, 5 = 5 meter length, etc.

Notes:
1. -L = Standard Flexibility; H = Extended Flexibility
   The flex type shown is standard, opposing flex type is also available.
2. Shaft through portion and connectors on the HC-KFE are NOT IP55.

HC-SFE Series Motors

Motor Type (IP65)	IP65 Power Cable (Unshielded) Model No.	IP65 Encoder Cable Model No. (*1)
HC-SFE52	MR-EP2-☐M	MR-ENECBL☐M-H
HC-SFE102	MR-EP3-☐M	
HC-SFE152	MR-EP4-☐M	
HC-SFE202	MR-EP5-☐M	
HC-SFE52B	MR-EP2B-☐M	
HC-SFE102B	MR-EP3B-☐M	
HC-SFE152B	MR-EP4B-☐M	
HC-SFE202B	MR-EP5-☐M*	

*= Must order separate brake cable listed below.
☐ = 2, 5, 10, 20 or 30 where 2 = 2 meter length, 5 = 5 meter length, etc.

Brake Cable

Motor Brake Cable	IP65 Brake Cable (Unshielded) Model No.
Brake Cable	MR-EBRKW-☐M

☐ = 2, 5, 10, 20 or 30 where 2 = 2 meter length, 5 = 5 meter length, etc.

Power Connector

Description	View	Model Type	Model Number
Amplifier Power Supply Connector Set (Insert)		MR-E-10 to 100 Only	MR-ECNP1-B
		MR-E-200 Only	MR-ECNP1-B1

Setup Software

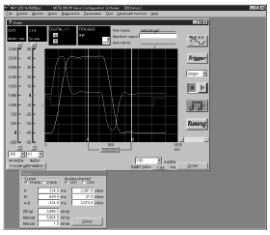
MR-Configurator

This Windows®-based software package is used to setup, program and test the amplifier. Initial setup and programming is easy and quick with the user-friendly software, which has extensive help functions and drop-downs. MR-Configurator also has many diagnostic functions such as a machine simulator to aid in mechanical design, a machine analyzer to find resonant frequencies of the load and set notch filters, an alarm monitor with history data, and the ability to assign and monitor I/O.

Features:

- Can be set up using a personal computer. Works on Windows 95/98/NT/ME/2000 Professional, XP Professional*.
- Provides numerous monitor functions. Provides graph display function that enables display of servomotor status upon input signal triggers such as command pulses, droop pulses, and r/min.
- Allows servomotors to be tested easily from a personal computer.

* Windows is a registered trademark of the Microsoft Corporation.



Software Selection

Description	Model Number
Windows Communication Software	MR-CONFIGURATOR
Communications Cable	SC-Q

Manual Selection

Hardware Description	Model Number
MR-E-A/AG Instruction Manual	SH(NA)030031
EMC Guidelines (Servo) Manual	IB(NA)67310

Optional Accessories

System Options

Description	Model Type	Model Number
CN1 I/O Connector Kit	All MR-E Models	MR-ECN1
CN1 I/O Pigtail Cable	All MR-E Models	MR-ECN1CBL-☐M
Line Noise Filter	All MR-E Models	FR-BSF01
230V RF Filter	All MR-E Models	FR-BIF
EMC Filter	MR-E-10 to 70	SF1252
EMC Filter	MR-E-100	MF-3F480-010.230
EMC Filter	MR-E-200	MF-3F480-025.230

Note: ☐ = 3, 5 where 3 = meter length, 5 = 5 meter length.

Regenerative Brake Options

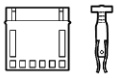
Servo Amplifier	Model Number – Regenerative power [W]					
	Built-In Regen. Resistor	MR-RB032 [40ohm]	MR-RB12 [40ohm]	MR-RB32 [40ohm]	MR-RB30 [40ohm]	MR-RB50 [40ohm] (Note)
MR-E-10	—	30	—	—	—	—
MR-E-20	—	30	100	—	—	—
MR-E-40	10	30	100	—	—	—
MR-E-70	20	30	100	300	—	—
MR-E-100	20	30	100	300	—	—
MR-E-200	100	—	—	—	300	500

Note: Always install a cooling fan when using MR-RB50.

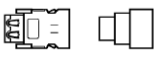
AC Power Improving Reactor Options

Model Type	Model Number
MR-E-10 and 20	MRL-00402
MR-E-40	MRL-00402
MR-E-70	MRL-00802
MR-E-100	MRL-01202
MR-E-200	MRL-01802

Amplifier Connection Options

Description	View	Applicable Amps	Model Number
Communication Cable		All MR-E Amplifiers	SC-Q
Analog Monitor RS-232C Connector		All MR-E Amplifiers	MR-ECN3
Analog Monitor RS-232C Branch Cable		All MR-E Amplifiers	MR-E3CBL15-P
CN1 Connector Set		All MR-E Amplifiers	MR-ECN1
CN1 Pigtail Cable		All MR-E Amplifiers	MR-ECN1CBL-☐M ☐ = 3, 5m
Amplifier Power Supply Connector Set (Crimp)		MR-E-10 to 100 Only	MR-ECNP1-A
		MR-E-200 Only	MR-ECNP1-A1
Motor Power Supply Connector (Crimp)		MR-E-10 to 100 Only	MR-ECNP2-A
		MR-E-200 Only	MR-ECNP2-A1
Motor Power Supply Connector (Insert)		MR-E-10 to 100 Only	MR-ECNP2-B
		MR-E-200 Only	MR-ECNP2-B1

Motor Connection Options

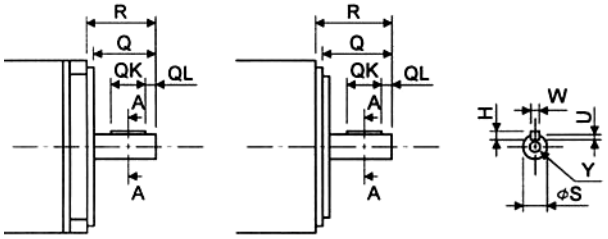
Description	View	Applicable Motors	Model Number
Motor Power Connector Set (IP65) (Straight Plug)		HC-SFE52(B), 102(B), 152(B)	MR-PWCNS1
		HC-SFE202(B)	MR-PWCNS2
Motor Power Connector Set (IP20)		All HC-KFE (No Brake)	MR-PWCNK1
Motor Power Connector Set with Brake (IP20)		All HC-KFE (With Brake)	MR-PWCNK2
Separate Brake Connector Set (IP65)		HC-SFE202B	MR-BKCN
Encoder Connector Set (IP20)		All HC-KFE	MR-ECNM
Encoder Connector Set (IP20)		All HC-SFE	MR-ECNS
Encoder Connector Set (IP65)		All HC-SFE	MR-ENECNS

MR-E Shaft Detail

Servo Motor Model	Shaft Shape		
	With Key	D Cut	L Cut
HC-SFE52 – 202	✔ (*2)	—	✔ (*3)
HC-KFE13	—	✔	✔ (*3)
HC-KFE23 – 73	✔ (*1)	—	✔ (*3)

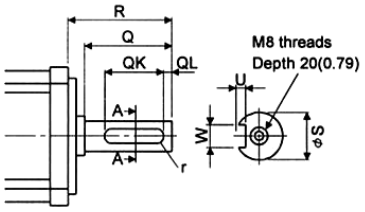
Notes:
1. With a key.
2. Without a key.
3. This is a standard. For shape refer to manual.

With Key



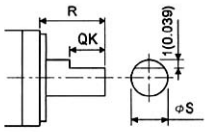
Servo Motor Model	Variable Dimensions								
	S	R	Q	W	QK	QL	U	H	Y
HC-KFE23K • 43K	14h6 (14)	30 (1.18)	27 (1.06)	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	5 (0.20)	M4 Depth 15 (0.59)
HC-KFE73K	19h6 (19)	40 (1.57)	37 (1.46)	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	6 (0.24)	M5 Depth 20 (0.79)

Without Key



Servo Motor Model	Variable Dimensions									
	S	R	Q	W	QK	QL	U	r	Key Dimension	Model Number
HC-SFE25K – 152K	24h6 (0.94)	55 (2.17)	50 (1.97)	$8^{0}_{-0.036}$ (0.31)	36 (1.42)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)	8 x 7 x 28	MTR KEY 8-7-28
HC-SFE202K	35 (1.38)	79 (3.11)	75 (2.95)	$10^{0}_{-0.036}$ (0.39)	55 (2.17)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	5 (0.20)	10 x 8 x 45	MTR KEY 10-8-45

D-Cut



Servo Motor Model	Variable Dimensions		
	R	QK	S
HC-KFE053D • 13D	25 (0.98)	20.5 (0.81)	8h (0.32)

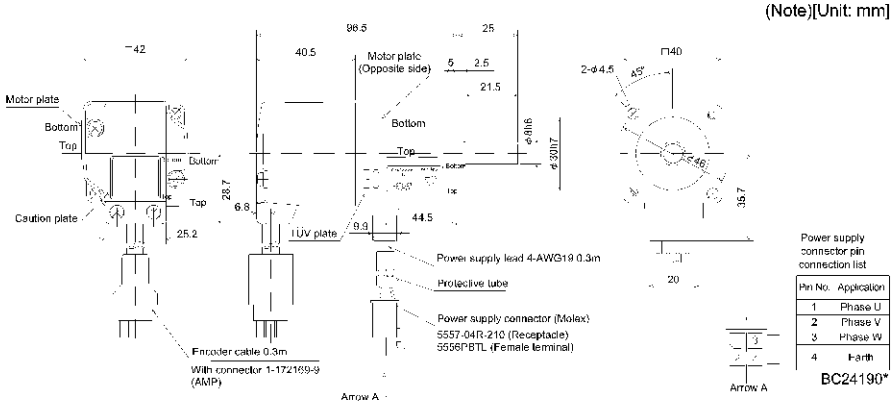
Unit of Measure: mm (in)

Servomotor Dimensions:
MR-E HC-KFE Series

(1) Standard (without electromagnetic brake, without reduction gear)

Model	Output [W]	Inertia Moment J[×10^{-4}kg・m^2]	Weight [kg]
HC-KFE13	100	0.084	0.53

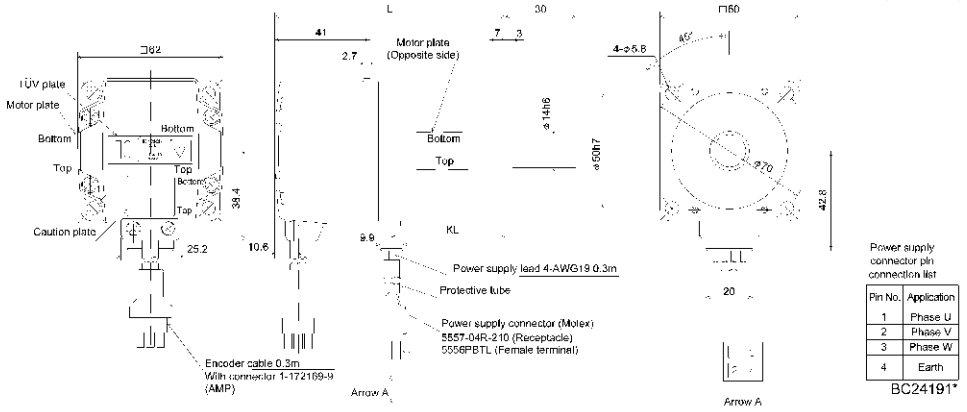
(Note)[Unit: mm]



Note: The dimensions without tolerances are reference dimensions.

Model	Output [W]	Variable Dimensions L	Variable Dimensions KL	Inertia Moment J[×10^{-4}kg・m^2]	Weight [kg]
HC-KFE23	200	93.5	49.1	0.42	0.99
HC-KFE43	400	124.5	72.1	0.67	1.45

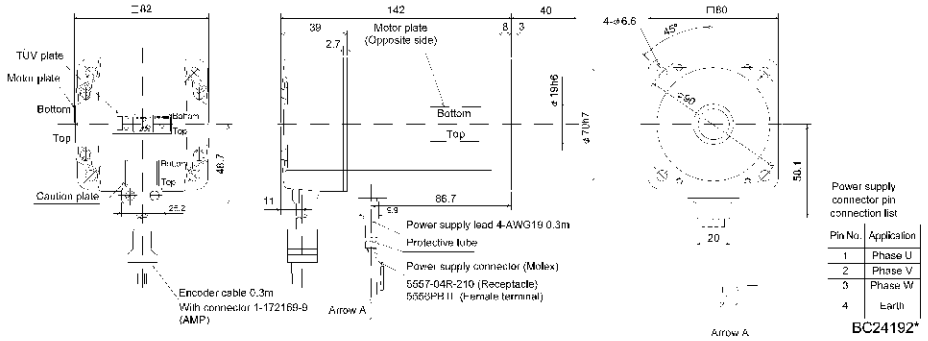
(Note)[Unit: mm]



Note: The dimensions without tolerances are reference dimensions.

Model	Output [W]	Inertia Moment J[×10^{-4}kg・m^2]	Weight [kg]
HC-KFK73	750	1.51	3

(Note)[Unit: mm]



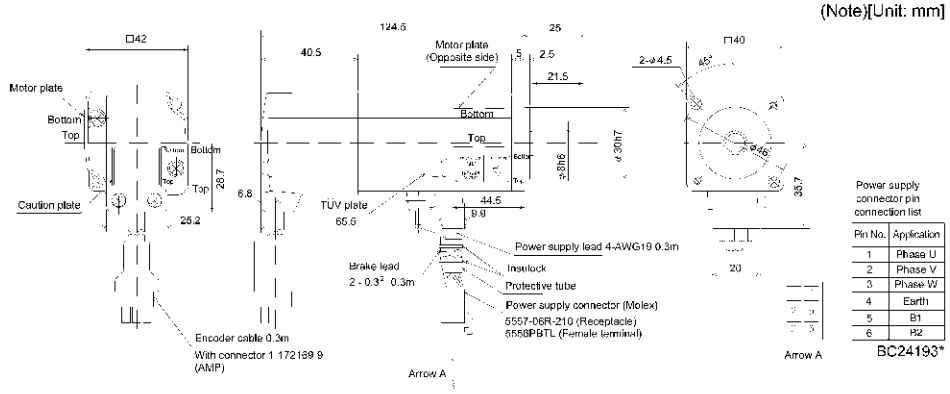
Note: The dimensions without tolerances are reference dimensions.

MR-E HC-KFE Series

With electromagnetic brake

Model	Output [W]	Braking Force [N・m]	Inertia Moment J[×10^{-4}kg・m^2]	Weight [kg]
HC-KFE13B	100	0.32	0.087	0.89

(Note)[Unit: mm]



Power supply connector pin connection list

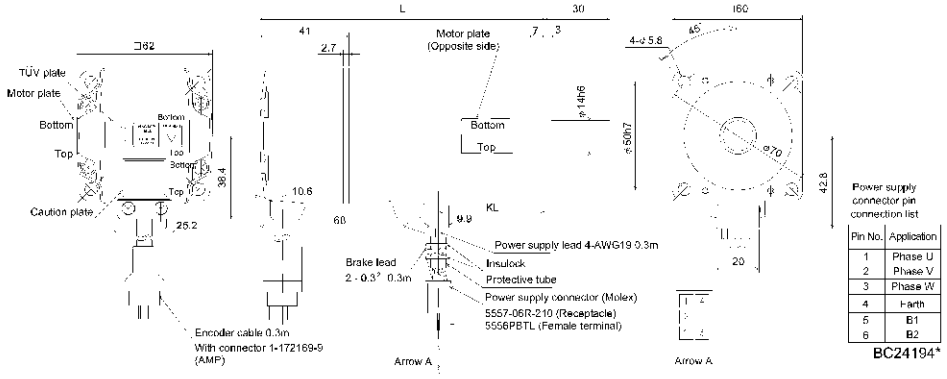
Pin No.	Application
1	Phase U
2	Phase V
3	Phase W
4	Earth
5	B1
6	B2

BC24193*

Note: The dimensions without tolerances are reference dimensions.

Model	Output [W]	Variable Dimensions L	Variable Dimensions KL	Braking Force [N・m]	Inertia Moment J[×10^{-4}kg・m^2]	Weight [kg]
HC-KFE23B	200	131.5	49.1	1.3	0.47	1.6
HC-KFE43B	400	156.5	72.1	1.3	0.72	2.1

(Note)[Unit: mm]



Power supply connector pin connection list

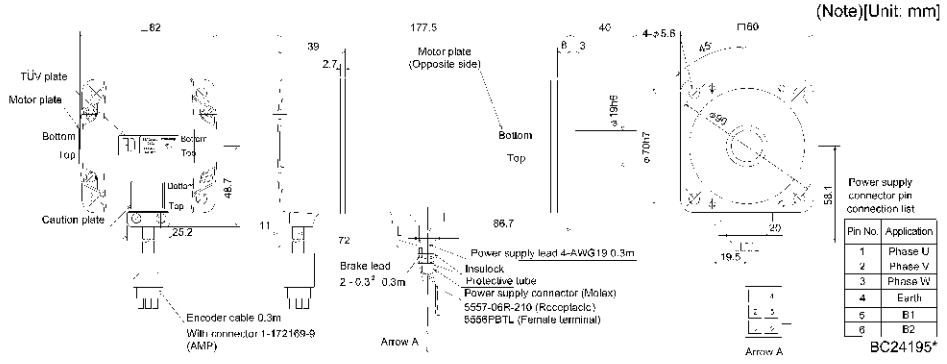
Pin No.	Application
1	Phase U
2	Phase V
3	Phase W
4	Earth
5	B1
6	B2

BC24194*

Note: The dimensions without tolerances are reference dimensions.

Model	Output [W]	Braking Force [N・m]	Inertia Moment J[×10^{-4}kg・m^2]	Weight [kg]
HC-KFE73B	750	2.4	1.635	4.0

(Note)[Unit: mm]



Power supply connector pin connection list

Pin No.	Application
1	Phase U
2	Phase V
3	Phase W
4	Earth
5	B1
6	B2

BC24195*

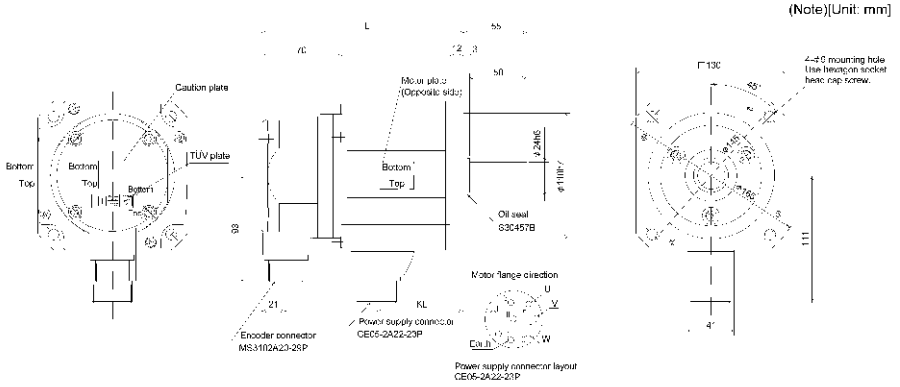
Note: The dimensions without tolerances are reference dimensions.

MR-E HC-SFE Series

(1) Standard (without electromagnetic brake, without reduction gear)

Model	Output [kW]	Variable dimensions L	Variable dimensions KL	Inertia Moment J[×10⁻⁴kg・m²]	Weight [kg]
HC-SF352	0.5	150.5	51.5	6.7	5.5
HC-SF3102	1.0	175.5	76.5	13.8	7.5
HC-SF3152	1.5	200.5	101.5	20.1	9.5

(Note)[Unit: mm]

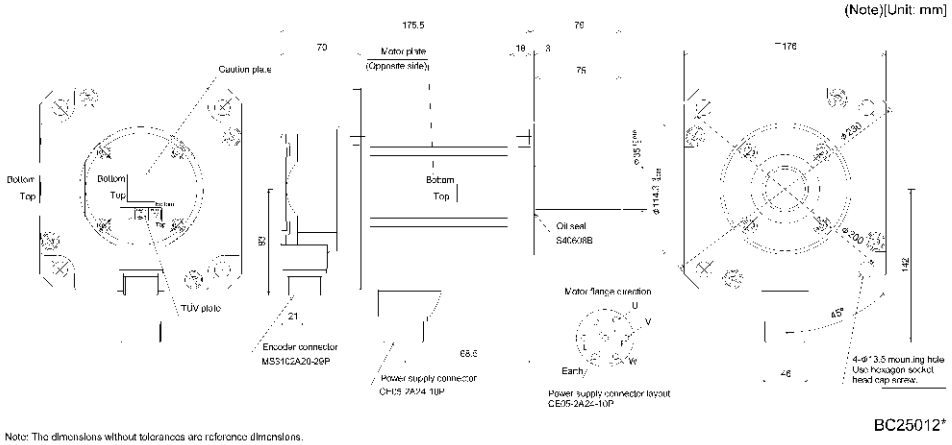


Note: The dimensions without tolerances are reference dimensions.

BC25010*

Model	Output [kW]	Inertia Moment J[×10⁻⁴kg・m²]	Weight [kg]
HC-SFB202	2.0	42.6	12.5

(Note)[Unit: mm]



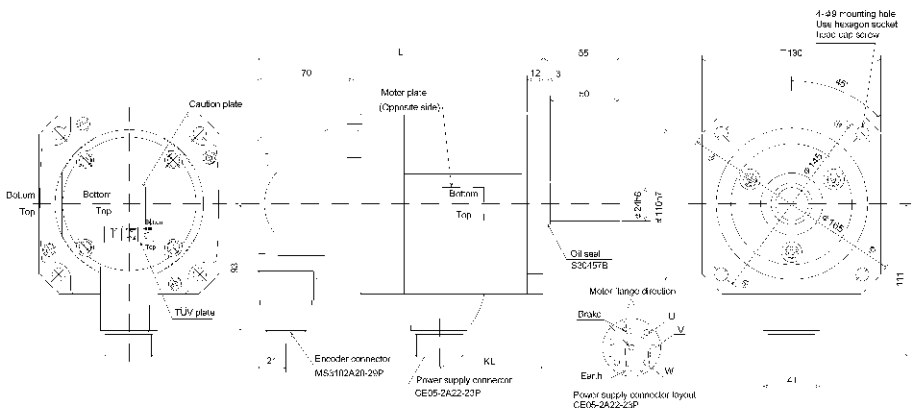
Note: The dimensions without tolerances are reference dimensions.

BC25012*

With electromagnetic brake

Model	Output [kW]	Variable dimensions L	Variable dimensions KL	Braking Force [N・m]	Inertia Moment J[×10⁻⁴kg・m²]	Weight [kg]
HC-SFB52B	0.5	183.5	51.5	8.3	8.7	7.5
HC-SFB102B	1.0	208.5	76.5	8.3	15.8	9.5
HC-SFB152B	1.5	233.5	101.5	8.3	22.1	11.5

(Note)[Unit: mm]



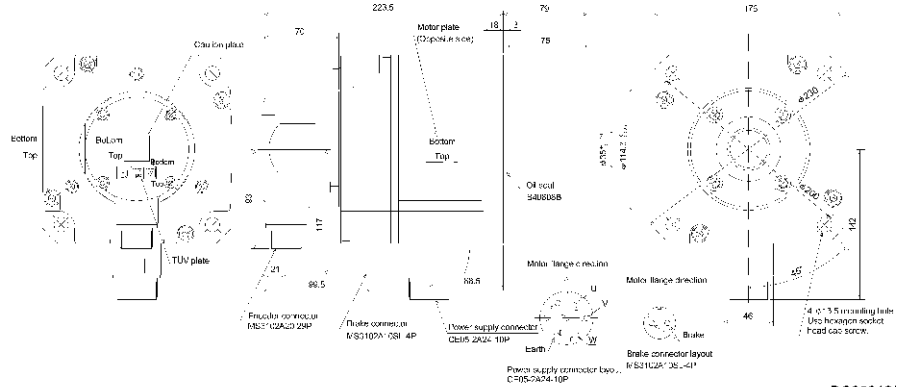
Note: The dimensions without tolerances are reference dimensions.

BC25011*

MR-E HC-SFE Series

Model	Output [kW]	Braking Force [N・m]	Inertia Moment J[×10^{-4}kg・m^2]	Weight [kg]
HC-SFE202B	2.0	43.1	52.6	18.3

(Note)[Unit: mm]

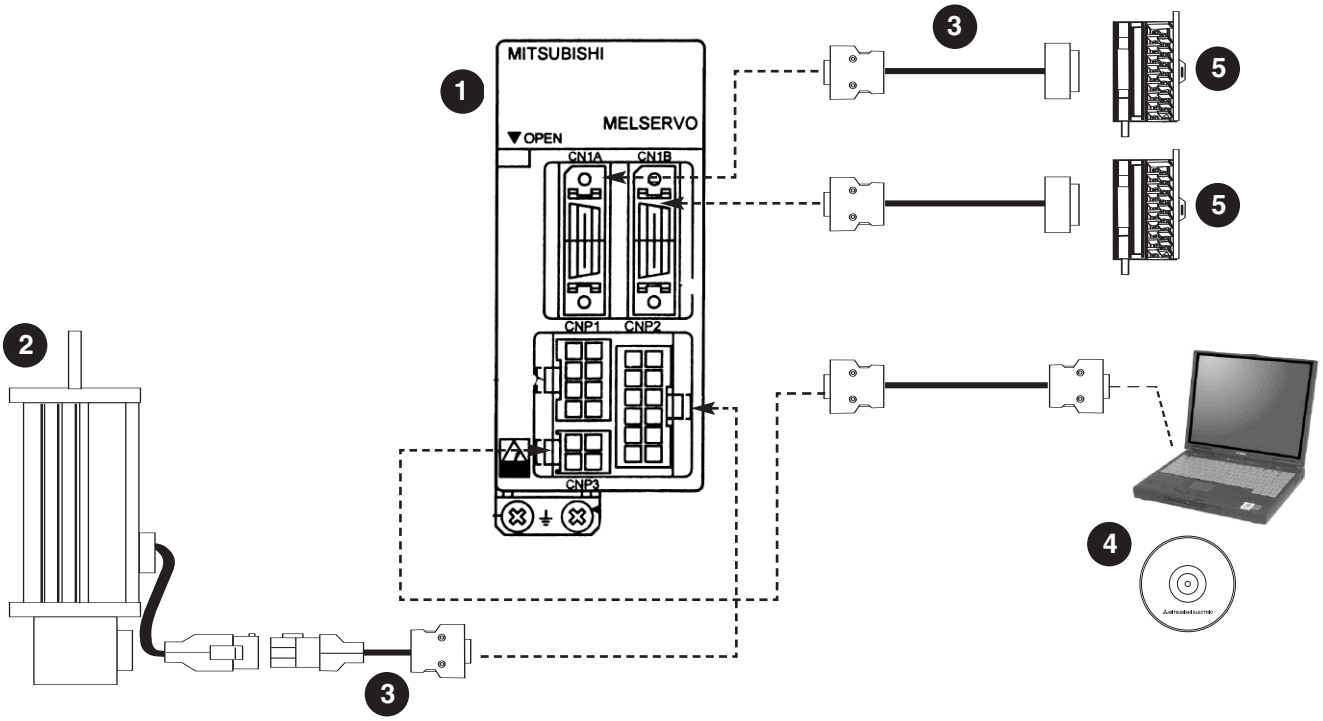


Note: The dimensions without tolerances are reference dimensions.

BC25013*

MR-J2-JR Servomotors and Amplifiers

The ultimate servo system using the latest in servo technology operating at 24 VDC input with: patented Real-Time Adaptive Tuning; RS-232C serial interface for Windows based set-up speed, positioning, and torque modes; low acoustic noise and a built-in parameter unit.



FOR AN OPERATIONAL SYSTEM, SELECT:

1. Amplifier
2. Motor
3. Cables
4. Software and Manuals
5. Optional Accessories

MR-J2-JR Servo Motor Selection:

HC-AQ0□35□D

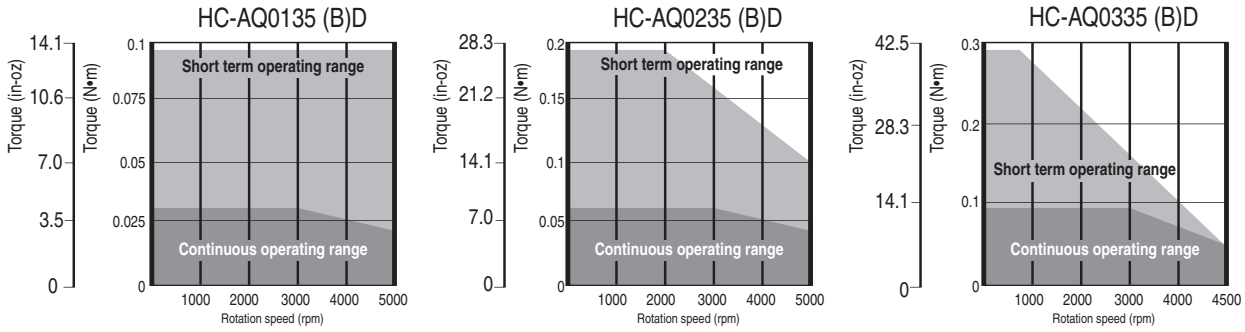
Symbol	Description
1	10 Watts
2	20 Watts
3	30 Watts

Symbol	Description
None	No brake installed
B	With an electromagnetic brake installed

Item		Servomotor	HC-AQ0135	HC-AQ0235	HC-AQ0335
Continuous Characteristics (*1, *2)	Rated Output	kW	0.01	0.02	0.03
	Rated Torque	N · m (oz · in)	0.0318 (4.503)	0.0637 (9.021)	0.0955 (13.524)
Rated Speed (*1)		r/min	3000		
Maximum Speed		r/min	5000		4500
Instantaneous Permissible Speed		r/min	5750		5175
Maximum Torque		N · m (oz · in)	0.0955 (13.524)	0.191 (27.048)	0.287 (40.643)
Power at Continuous Rated Torque		kW/s	2.0	5.6	9.7
Inertia Moment (*4)		J [x 10^4kg · m^2]	0.0050	0.0072	0.0094
		WK² [oz · in^2]	0.027	0.039	0.051
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment			30 times or less		
Power Supply Capacity			Refer to "Power supply capacity and generated loss of servo amplifier" in the Servo Amplifier Instruction Manual		
Rated Current (Maximum Current)		A	2.4 (7.7)	2.4 (7.7)	2.3 (7.4)
Speed/Position Detector			Encoder (resolution: 8192 pulses/rev)		
Accessory			Encoder		
Insulation Class			Class B		
Structure			Totally-enclosed self-cooling (protection type: IP55 (*6))		
Environmental Conditions (*5)			Refer to Section 2.1 in the Servo Motor Instruction Manual		
Weight (*3)	kg (lb)		0.19 (0.419)	0.22 (0.485)	0.25 (0.551)

Notes:

1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. 80% ED at low noise.
   80% ED: Indicates the condition in which operation time at read torque accounts for 80% and the other no load time accounts for 20% in a single operation cycle.
3. When the servo motor is equipped with reduction gear or electromagnetic brake, refer to the corresponding outline dimension drawing. For the EN Standard and UL/cUL Standard compliant models, please contact Mitsubishi.
4. If the load inertia moment ratio exceeds the indicated value, please contact Mitsubishi.
5. When the equipment is to be used in places where it is subjected to oil and/or water, such as on machine field sites, optional features apply to the equipment.
6. Except for the shaft-through portion and connector end.



MR-J2-JR Servo Amplifier Selection:
MR-J2-03□5

Symbol	Description
A	Analog Speed, Analog Torque and Pulse Train Position
B	SSCNET high speed serial network
C	Built-in motion control (point table)

Item \ Servo Amplifier				MR-J2-03A5	MR-J2-03B5	MR-J2-03C5
Circuit Power Supply (Note)	Voltage			21.6 to 30VDC (instantaneous permissible voltage 34V)		
	Power Supply Capacity	HC-AQ0135D		Continuous 0.8A, Max. 2.4A		
		HC-AQ0235D		Continuous 1.6A, Max. 4.8A		
		HC-AQ0335D		Continuous 2.4A, Max. 7.2A		
Control Circuit Power Supply (Note)				24VDC+10% 200mA (400mA when using the servo motor equipped with electromagnetic brake)		
System				Sine-wave PWM control, current control system		
Dynamic Brake				Built-in		
Protective Functions				Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off, (electronic thermal relay), servo motor overheat protection, encoder fault protection, undervoltage, instantaneous power failure protection, overspeed protection, excessive error protection		
Speed Frequency Response				250Hz or more		
Structure				Open (IP00)		
Environment	Ambient Temperature	Operation	°C (°F)	0 to +55 (non-freezing) (32 to +131 (non-freezing))		
		Storage	°C (°F)	-20 to +65 (non-freezing) (-4 to +149 (non-freezing))		
	Ambient Humidity	Operation (Storage)		90%RH or less (non-condensing)		
	Atmosphere			Indoors (no direct sunlight), Free from corrosive gas, flammable gas, oil mist, dust and dirt		
	Altitude			Max. 1000m (3280 ft) above sea level		
	Vibration	m/s^2 (ft/s^2)		5.9 or less (19.4 or less)		
Weight	kg (lb)			0.2 (0.44)		

Note: To comply with the low voltage directive, use a reinforced insulation stabilizing power supply.

Cables

Motor Type	Power/Encoder Cable Length	Power/Encoder Cable Model Number
HC-AQ0135D or HC-AQ0135BD	2 Meter	MR-JRCBL2M-H
HC-AQ0135D or HC-AQ0135BD	5 Meter	MR-JRCBL5M-H
HC-AQ0135D or HC-AQ0135BD	10 Meter	MR-JRCBL10M-H
HC-AQ0235D or HC-AQ0235BD	2 Meter	MR-JRCBL2M-H
HC-AQ0235D or HC-AQ0235BD	5 Meter	MR-JRCBL5M-H
HC-AQ0235D or HC-AQ0235BD	10 Meter	MR-JRCBL10M-H
HC-AQ0335D or HC-AQ0335BD	2 Meter	MR-JRCBL2M-H
HC-AQ0335D or HC-AQ0335BD	5 Meter	MR-JRCBL5M-H
HC-AQ0335D or HC-AQ0335BD	10 Meter	MR-JRCBL10M-H

Software

Description	Model Number
Windows Communication Software	MR-Configurator
Communication Cable	MR-JRPCATCBL3M

Manuals

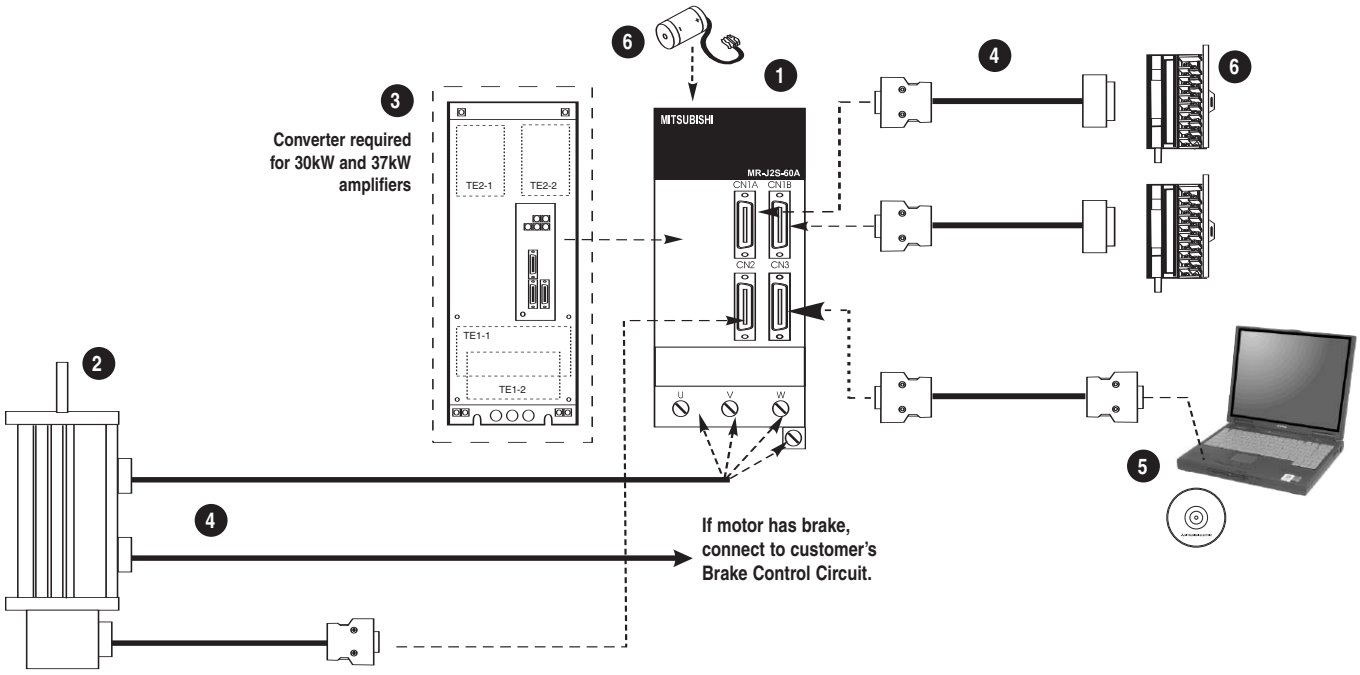
Description	Model Number
MR-J2-03A5 Instruction Manual	SH(NA)3200
MR-J2-03B5 Instruction Manual	SH(NA)030005
MR-J2-03C5 Instruction Manual	SH(NA)3209
ServoMotor Instruction Manual	SH(NA)3181

System Options

Description	Model Number
Terminal Block	MR-TB20
Terminal Block Cable 0.5 Meter	MR-J2TBL05M
Terminal Block Cable 1.0 Meter	MR-J2TBL1M
Encoder Connector Kit (instead of MR-JRCBL□M-H Cable)	MR-JRCNM
CN1-I/O Connector Kit (contains 2 connectors, one each for CN1A & CN1B)	MR-J2CN1
CN1-I/O Pigtail Cables (one each optional for CN1A & CN1B)	MR-CCN1CBL-3M (3m length) MR-CCN1CBL-5M (5m length)

MR-J2S Servomotors and Amplifiers 200~230 VAC

Now even higher performance with the MR-J2S: motor with 131,072 pulses per revolution encoder, higher frequency response to 550 Hz and the capability to accept pulse commands up to 500 kHz along with patented Real-Time Adaptive Tuning; RS-232C serial interface for Windows based set-up; absolute positioning; speed, positioning, and torque modes; low acoustic noise; and a built-in parameter unit.



FOR AN OPERATIONAL SYSTEM, SELECT:

1. Amplifier
2. Motor
3. Converter
   (Required for 30kW and 37kW amplifiers)
4. Cables
5. Software and Manuals
6. Optional Accessories

Servo Amplifier Type *2	Interface						Control Mode					Setup S/W	Model	Power Supply Spe.	Capacity (kW) *1	Compatible Motor Series					
	Pulse Train	Analog	DIO	SSCNET	RS-422 Multi-Drop	CC-Link	Position	Speed	Torque	Positioning Function	Fully Closed Loop Control Compatible					HC-KFS	HC-MFS	HC-SFS	HC-RFS	HA-LFS	HC-UFS
General-Purpose Interface MR-J2S- A 	●	●	●		●		●	●	●		○ *3	●	MR-J2S-A	3-phase 200VAC	0.05 to 37	●	●	●	●	●	●
													MR-J2S-A1	1-phase 100VAC	0.05 to 0.4	●	●				●
													MR-J2S-A4	3-phase 400VAC	0.5 to 55			●		●	
SSCNET, High-Speed Serial Bus Compatible MR-J2S- B 			●	●			●				○ *3	●	MR-J2S-B	3-phase 200VAC	0.05 to 37	●	●	●	●	●	●
													MR-J2S-B1	1-phase 100VAC	0.05 to 0.4	●	●				●
													MR-J2S-B4	3-phase 400VAC	0.5 to 55			●		●	
With Built-In Positioning Function MR-J2S- CP 	● *4	● *6	●		●	○ *5				●		●	MR-J2S-CP	3-phase 200VAC	0.05 to 7	●	●	●	●	●	●
													MR-J2S-CP1	1-phase 100VAC	0.05 to 0.4	●	●				●
With Built-In Program Operation Function MR-J2S- CL 	● -4	● *6	●		●					●		●	MR-J2S-CL	3-phase 200VAC	0.05 to 7	●	●	●	●	●	●
													MR-J2S-CL1	1-phase 100VAC	0.05 to 0.4	●	●				●

Notes:
1. The capacity selection software (MSIZE2) can be obtained for free. Contact Mitsubishi for details.
2. indicates compliance with standard parts. indicates compliance with special parts.
3. For further details of the fully closed loop control compatible servo amplifier, refer to "Fully Closed Loop Control Compatible INSTRUCTION MANUAL".
4. Use the manual pulse generator (MR-HDP01).
5. Compatible with MR-J2S- CP-S084.
6. This indicates "Override" and "Analog torque limit" command.

Servo Amplifier Selection:

MR-J2S- □ □ □ □

MELSERVO-J2-Super Series

• Conforms to following standards: EN, UL, cUL

Symbol	Description
A	General purpose interface (analog speed, analog torque, pulse train)
B	SSCNET
CP	Motion point table
CL	Motion program

Note: CP & CL available up to MR-J2S-700 □

Symbol	Description
None	Standard specification
-S084	CC-Link for CP Type only*
-Sxxx	Special specifications

* Must use CC-Link Interface Module MR-J2S-T01 for CC-Link communication

Symbol	Power Supply
None	3-phase 200V AC or 1-phase 230V AC *
1	1-phase AC 100V **

* Only servo-amplifier for MR-J2S-70 □ or less.
** Only servo-amplifier for MR-J2S-40 □ or less.

	Compatible Motor Model					
Symbol	HC-MFS	HC-KFS	HC-SFS	HC-RFS	HC-UFS	HA-LFS
10	053, 13	053, 13	—	—	13	—
20	23	23	—	—	23	—
40	43	43	—	—	43	—
60	—	—	52, 53	—	—	—
70	73	73	—	—	72, 73	—
100	—	—	81, 102, 103	—	—	—
200	—	—	121, 201, 152, 202, 153, 203	103, 153	152	—
350	—	—	301, 352, 353	203	202	—
500	—	—	502	353, 503	352, 502	502
700	—	—	702	—	—	601, 701, 702
11K	—	—	—	—	—	801, 12K1, 11K1M, 11K2
15K	—	—	—	—	—	15K1, 15K1M, 15K2
22K	—	—	—	—	—	20K1, 25K1, 22K1M, 22K2
30K	—	—	—	—	—	30K2
37K	—	—	—	—	—	37K2

Servo Amplifier Model MR-J2S-□□□□		10A/B/ CP/CL	20A/B/ CP/CL	40A/B/ CP/CL	60A/B/ CP/CL	70A/B/ CP/CL	100A/B/ CP/CL	200A/B/ CP/CL	350A/B/ CP/CL	500A/B/ CP/CL	700A/B/ CP/CL	11KA/B	15KA/B	22KA/B	30KA/B	37KA/B	10A1/B1 CP1/CL1	20A1/B1 CP1/CL1	40A1/B1 CP1/CL1
Power Supply	Voltage/ Frequency (*1)	3-phase 200 to 230V AC 50/60Hz or 1-phase 230V AC 50/60Hz (*2)					3-phase 200 to 230V AC 50/60Hz (*2)					3-phase 200 to 230V AC 50/60Hz (*3)					1-phase 100 to 120V AC 50/60Hz		
	Permissible Volt. Fluctuation	3-phase 170 to 253V AC 50/60Hz or 1-phase 207 to 253V AC 50/60Hz					3-phase 170 to 253V AC 50/60Hz					3-phase 170 to 253V AC 50/60Hz					1-phase 85 to 127V AC 50/60Hz		
	Permissible Freq. Fluctuation	±5% max.																	
Control System		Sine-wave PWM control/current control system																	
Dynamic Brake		Built-in										External Option					Built-in		
Speed Frequency Response		550Hz or more																	
Safety Features		Overcurrent shutdown, regeneration overvoltage shutdown, overload shutdown (electronic thermal), servomotor overheat protection, encoder fault protection, regeneration fault protection, undervoltage/sudden power outage protection, overspeed protection, excess error protection																	
Maximum Command Input at the Position Control		Approximately 10M pps																	
Structure		Self-cooling, open (IP00)					Fan cooling, open (IP00)					Fan cooling, open (IP00)					Self-cooling, open (IP00)		
Environment	Ambient Temperature	0 to 55°C (32 to 131°F) (non-freezing), storage: –20 to 65°C (–4 to 149°F) (non-freezing)																	
	Ambient Humidity	90% RH max. (non-condensing), storage: 90% RH max. (non-condensing)																	
	Atmosphere	Inside control panel; no corrosive gas, inflammable gas, oil mist, or dust																	
	Elevation	1000 meters or less above sea level																	
	Oscillation	5.9 m/s^2 max.																	
Weight kg (lb)		0.7 (1.5)	0.7 (1.5)	1.1 (2.4)	1.1 (2.4)	1.7 (3.7)	1.7 (3.7)	2.0 (4.4)	2.0 (4.4)	4.9 (10.8)	7.2 (15.87)	16 (35.3)	16 (35.3)	20 (44.1)	47 (103.6)	47 (103.6)	0.7 (1.5)	0.7 (1.5)	1.1 (2.4)

Notes:
1. Rated output capacity and rated speed of the servomotor used in combination with the servo-amp are as indicated when using the power-supply voltage and frequency listed. The output capacity and speed cannot be guaranteed when the power-supply voltage is less than specified.
2. When combined with a servomotor, torque characteristics are those in the case of 3-Phase 200~230V AC or 1-Phase 230V AC.
3. 30 and 37 kW amplifiers require separate converter unit MR-HP30KA.

	Motor Series	Rated Speed (Maximum Speed) (r/min)	Rated Output (kW)	Servomotor Type (*1)	Overseas Standards (*1)		Protective Degree (* 2)	Feature	Application Examples
				With Electro-Magnetic Brake (B)	EN	UL, cUL			
Small Capacity Series	**HC-KFS Series** 	3000 (4500)	5 types 0.05, 0.1, 0.2, 0.4, 0.75	●	●	●	IP55 Excluding the shaft-through portion and connector (IP65 *3)	**Low inertia** Perfect for general industrial machines. High velocity motors, 6000 or 10000r/min, have been prepared.	-Belt drive -Robots -Mounters -Sewing machines -X-Y tables -Food processing machines -Semiconductor manufacturing devices -Knitting and embroidery machines
		6000 (6000)	1 type 0.4	—	●	●	IP55 Excluding the shaft-through portion and connector		
		10000 (10000)	1 type 0.4	—	●	●			
	HC-MFS Series 	3000 (4500)	5 types 0.05, 0.1, 0.2, 0.4, 0.75	●	●	●	IP55 Excluding the shaft-through portion and connector (IP65 *3)	**Ultra-low inertia** Well suited for high-frequency operation.	-Inserters -Mounters
Medium Capacity Series	**HC-SFS Series** 	1000 (1500 : 0.85kW, 1200 : 1.2~3kW)	4 types 0.85, 1.2, 2.0, 3.0	●	●	●	IP65 (IP67)	**Medium inertia** Suitable for variable applications three models from low to high-speed are available.	-Conveyor machines -Robots -X-Y tables
		2000 (3000 : 0.5~1.5kW, 2500 : 2, 3.5kW, 2000 : 5, 7kW)	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 (*5)	●	●	●	IP65 (IP67)		
		3000 (3000)	5 types 0.5, 1.0, 1.5, 2.0, 3.5	●	●	●	IP65 (IP67)		
	HC-RFS Series 	3000 (4500)	5 types 1.0, 1.5, 2.0, 3.5, 5.0	●	●	●	IP65 (IP67)	**Ultra-low inertia** Well suited for high-frequency operation.	-Ultra-high-frequency conveyor machines
Medium/Large Capacity Series	**HA-LFS Series** 	1000 (1200)	15 types 6.0, 8.0, 12, 15, 20, 25, 30, 37 8.0, 12, 15, 20, 25 (* 7) 30, 37 (*5)	● (For only 6.0kW to 12kW)	●	●	IP44	**Low inertia** Suitable for variable applications three models from low to medium-speed are available. As a standard, 30kW and larger capacities are compatible with flange mounting or foot mounting. (* 6)	-Injection molding machines -Semiconductor manufacturing devices -Large conveyor machines
		1500 (2000)	13 types 7.0, 11, 15, 22, 30, 37 11, 15, 22, 30, 37, 45, 50 (*5)	● (For only 7.0kW to 15kW)	●	●	IP44		
		2000 (2000)	14 types 5.0, 7.0, 11, 15, 22, 30, 37 11, 15, 22, 30, 37, 45, 55 (*5)	● (For only 11kW to 22kW)	●	●	IP44 IP65 for HA-LFS502 or HA-LFS702		
Flat Small/Medium Capacity Series	**HC-UFS Series** 	2000 (3000 : 0.75~2kW, 2500 : 3.5, 5kW)	5 types 0.75, 1.5, 2.0, 3.5, 5.0	●	●	●	IP65 (IP67)	**Flat Type** The flat design makes this unit well suited for situations where the installation space is restricted.	-Robots -Food processing machines
		3000 (4500)	4 types 0.1, 0.2, 0.4, 0.75	●	●	●	IP65 Excluding the connector (* 4)		

Notes:
1. A • mark shows production range.
2. Compliance is possible with special products for items inside ( ) of the protective degree. Consult Mitsubishi for details.
3. Motor capacity 50W is excluded.
4. IP65-compliant product (HC-UFS -S1) including connector components have been prepared.
5. Shaded entries are for 400V type.
6. Some motors from 15kW to 25kW capacities can be foot-mount style. Refer to "Motor Dimensions" shown in this catalog.
7. The HA-LFS 1000r/min 400V 8.0 to 25kW capacities are special-order products. Contact Mitsubishi for details on the delivery schedule.

MR-J2S Servomotor Selection:

HC-□FS□□□□

Symbol	Motor Series
M	Ultra-low inertia, small capacity
K	Low inertia, small capacity
S	Medium inertia, medium capacity
R	Low inertia, medium capacity
U	Low profile type, small-medium capacity

Symbol	Electromagnetic Brake
None	—
B	Installed

Symbol	Shaft
None	Special Order
K	Keyway (*1) (Standard)
D	D-cut (*2) (Special Order)

Notes:
1. Key not available for HC-KFS, HC-MFS and HC-UFS (3000 r/min) models under 200W.
2. The D-cut is available only for the HC-KFS, HC-MFS and HC-UFS models of 100W or less.

- **Conforms to following standards: EN, UL, cUL**

131072 pulse p/rev encoder for use in absolute and incremental systems (serial encoder)

Symbol	Rated Output Capacity (kW)*
05	0.05
1 to 8	0.1 to 0.85
10 to 70	1.0 to 7.0

* Check specifications for all available motor size capabilities.

Symbol	Rated Speed (r/min)
1	1000
2	2000
3	3000

HA-LFS□□□□

131072 pulse p/rev encoder for use in absolute and incremental systems (serial encoder)

Symbol	Rated Output Capacity (kW)*
50 to 80	5 to 8
11k to 37k	11 to 37

Symbol	Electromagnetic Brake
None	—
B	Installed

- **Conforms to following standards: EN, UL, cUL**

Symbol	Rated Speed (r/min)
1	1000
1M	1500
2	2000

* The HA-LFS 1000 r/min 8.0 to 25 kW capacities are special-order products

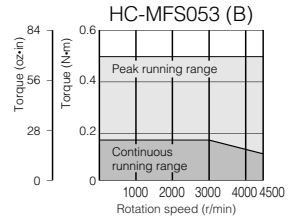
Symbol	Shaft
None	Straight
K	Keyway (Standard)

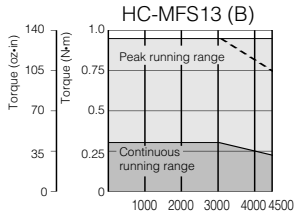
MR-J2S HC-MFS Series Servomotor Specifications

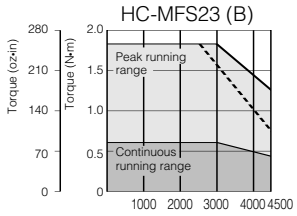
Servomotor Series		HC-MFS Series				
Models / Specifications	Servomotor Model HC-	MFS053 (B)	MFS13 (B)	MFS23 (B)	MFS43 (B)	MFS73 (B)
	Servo-Amp Model MR-	J2S-10A/A1/B/B1/ CP/CP1/CL/CL1		J2S-20A/A1/B/B1/ CP/CP1/CL/CL1	J2S-40A/A1/B/B1/ CP/CP1/CL/CL1	J2S-70A/B/CP/CL
Power Facility Capacity (kVA) (*2)		0.3	0.3	0.5	0.9	1.3
Continuous Running Duty	Rated Output (W)	50	100	200	400	750
	Rated Torque (N·m [oz·in])	0.16 (22.7)	0.32 (45.3)	0.64 (90.6)	1.3 (184.1)	2.4 (339.8)
Maximum Torque (N·m [oz·in])		0.48 (68.0)	0.95 (134.5)	1.9 (269.0)	3.8 (538.1)	7.2 (1019.5)
Rated Rotation Speed (r/min)		3000				
Maximum Rotation Speed (r/min)		4500				
Permissible Instantaneous Rotation Speed (r/min)		5175				
Power Rate at Continuous Rated Torque (kW/s)		13.47	34.13	46.02	116.55	94.43
Rated Current (A)		0.85	0.85	1.5	2.8	5.1
Maximum Current (A)		2.6	2.6	5.0	9.0	18
Regeneration Braking Frequency (times/min) (*3)	With No Options	(*4)	(*4)	(*4)	1010	400
	MR-RB032 (30W)	(*4)	(*4)	(*4)	3000	600
	MR-RB12 (100W)	–	–	(*4)	(*4)	2400
Moment of Inertia J ($\times 10^{-4}$ kg·m^2) [WK^2 (oz·in^2)]	Standard	0.019 (0.104)	0.03 (0.164)	0.088 (0.481)	0.143 (0.782)	0.6 (3.28)
	With Electromagnetic Brake	0.022 (0.12)	0.032 (0.175)	0.136 (0.744)	0.191 (1.044)	0.725 (3.964)
Recommended Load/Motor Inertia Moment Ratio		Less than 30-times the servomotor's inertia moment (*5)				
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev				
Attachments		17 bit encoder				
Structure		Totally enclosed non-ventilated (protection degree: IP55) (*6)				
Environment (*1)	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: –15 to 70°C (5 to 158°F) (non-freezing)				
	Ambient Humidity	80% RH max. (non-condensing), storage: 90% RH max. (non-condensing)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust				
	Elevation/Vibration (*7)	1000 meters or less above sea level; X, Y: 49 m/s^2				
Weight kg (lb)	Standard	0.4 (0.88)	0.53 (1.17)	0.99 (2.18)	1.45 (3.20)	3.0 (6.61)
	With Electromagnetic Brake	0.75 (1.65)	0.89 (1.96)	1.6 (3.53)	2.1 (4.63)	4.0 (8.82)

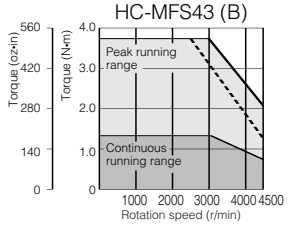
Notes:

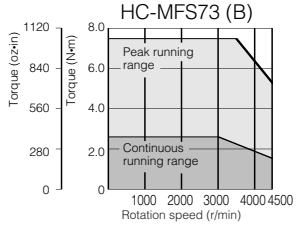
1. If used in location such as actual site of machinery where oil or water may contact the product, special specifications apply, contact Mitsubishi Electric.
2. The power facility capacity varies depending on the power supply's impedance.
3. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
4. There are no limits on regeneration frequency as long as the effective torque is within the rated torque range. However, the load/motor of inertia ratio must be 30 times or less.
5. Contact Mitsubishi if the load/motor of inertia moment ratio exceeds the figure in the table.
6. The shaft-through portion and connector for cable terminal are excluded.
7. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.











*Remarks:
1. Solid lines show torque characteristics for 3-phase 200-230V operation.
2. Torque characteristics are same for single-phase 230V operation.
3. For single-phase 100V operation, torque characteristics that are different from above-mentioned 1 and 2, are shown in broken lines.

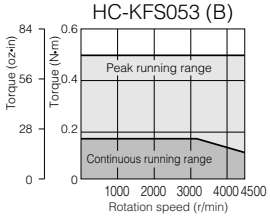
MR-J2S HC-KFS Series Servomotor Specifications

Servomotor Series		HC-KFS Series				
Models / Specifications	Servomotor Model HC-	KFS053 (B)	KFS13 (B)	KFS23 (B)	KFS43 (B)	KFS73 (B)
	Servo-Amp Model MR-	J2S-10A/A1/B/B1/ CP/CP1/CL/CL1		J2S-20A/A1/B/B1/ CP/CP1/CL/CL1	J2S-40A/A1/B/B1/ CP/CP1/CL/CL1	J2S-70A/B/CP/CL
Power Facility Capacity (kVA) (*2)		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 [oz·in])	0.16 (22.7)	0.32 (45.3)	0.64 (90.6)	1.3 (184.1)	2.4 (340)
Maximum Torque (N·m [oz·in])		0.48 (68.0)	0.95 (134.5)	1.9 (269.0)	3.8 (538.1)	7.2 (1020)
Rated Rotation Speed (r/min)		3000				
Maximum Rotation Speed (r/min)		4500				
Permissible Instantaneous Rotation Speed (r/min)		5175				
Power Rate at Continuous Rated Torque (kW/s)		4.78	12.1	9.65	24.2	37.7
Rated Current (A)		0.83	0.71	1.1	2.3	5.8
Maximum Current (A)		2.5	2.2	3.4	6.9	18.6
Regeneration Braking Frequency (times/min) (*3)	With No Options	(*4)	(*4)	(*4)	220	190
	MR-RB032 (30W)	(*4)	(*4)	(*4)	660	280
	MR-RB12 (100W)	—	—	(*4)	2200	940
Moment of Inertia J (×10^{-4} kg·m^2) [WK^2 (oz·in^2)]	Standard	0.053 (0.29)	0.084 (0.459)	0.42 (2.296)	0.67 (3.663)	1.51 (8.26)
	With Electromagnetic Brake	0.056 (0.306)	0.087 (0.476)	0.47 (2.57)	0.72 (3.937)	1.56
Recommended Load/Motor Inertia Moment Ratio		Less than 15-times the servomotor's inertia moment (*5)				
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev				
Attachments		17 bit encoder				
Structure		Totally enclosed non-ventilated (protection degree: IP55) (*6)				
Environment (*1)	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: -15 to 70°C (5 to 158°F) (non-freezing)				
	Ambient Humidity	80% RH max. (non-condensing), storage: 90% RH max. (non-condensing)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust				
	Elevation/Vibration (*7)	1000 meters or less above sea level; X: 49m/s^2 Y: 49m/s^2				
Weight kg (lb)	Standard	0.4 (0.88)	0.53 (1.17)	0.99 (2.18)	1.45 (3.20)	3.0 (6.61)
	With Electromagnetic Brake	0.75 (1.65)	0.89 (1.96)	1.6 (3.53)	2.1 (4.63)	4.0 (8.82)

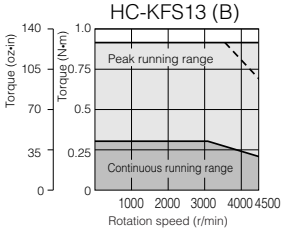
Notes:

1. If used in location such as actual site of machinery where oil or water may contact the product, special specifications apply, contact Mitsubishi Electric.
2. The power facility capacity varies depending on the power supply's impedance.
3. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (Operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
4. There are no limits on regeneration frequency as long as the effective torque is within the rated torque range. However, the load/motor of inertia ratio must be 15 times or less.
5. Contact Mitsubishi if the load/motor of inertia moment ratio exceeds the figure in the table.
6. The shaft-through portion and connector for cable terminal are excluded.
7. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.

HC-KFS053 (B)



HC-KFS13 (B)



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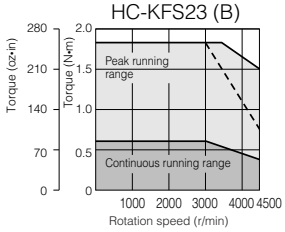

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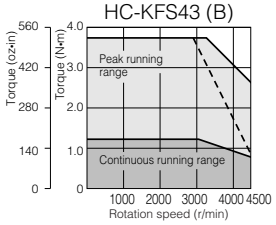

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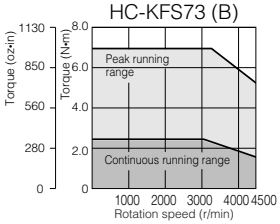
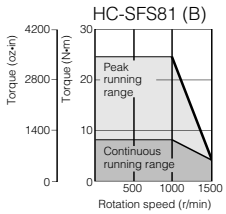


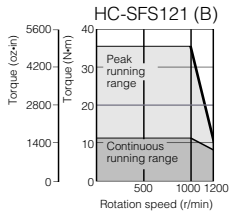
✻Remarks:
1. Solid lines show torque characteristics for 3-phase 200-230V operation.
2. Torque characteristics are same for single-phase 230V operation.
3. For single-phase 100V operation, torque characteristics that are different from above-mentioned 1 and 2, are shown in broken lines.

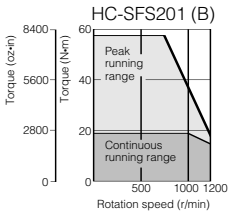
MR-J2S HC-SFS Series Servomotor Specifications

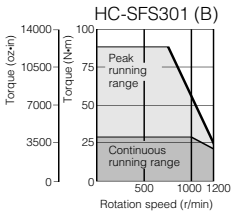
Servomotor Series		HC-SFS 1000				HC-SFS 2000						
Models / Specifications	Servomotor Model HC-	SFS81(B)	SFS121(B)	SFS201(B)	SFS301(B)	SFS52(B)	SFS102(B)	SFS152(B)	SFS202(B)	SFS352(B)	SFS502(B)	SFS702(B)
	Servo-Amp Model MR-	J2S-100A/ B/CP/CL	J2S-200A/ B/CP/CL	J2S-200A/ B/CP/CL	J2S-350A/ B/CP/CL	J2S-60A/ B/CP/CL	J2S-100A/ B/CP/CL	J2S-200A/ B/CP/CL	J2S-200A/ B/CP/CL	J2S-350A/ B/CP/CL	J2S-500A/ B/CP/CL	J2S-700A/ B/CP/CL
Power Facility Capacity (kVA) (*1)		1.5	2.1	3.5	4.8	1.0	1.7	2.5	3.5	5.5	7.5	10.0
Continuous Running Duty	Rated Output (kW)	0.85	1.2	2.0	3.0	0.5	1.0	1.5	2.0	3.5	5.0	7.0
	Rated Torque (N·m [oz·in])	8.12 (1149.8)	11.5 (1628.4)	19.1 (2704.5)	28.6 (4049.4)	2.39 (338.4)	4.78 (676.8)	7.16 (1013.8)	9.55 (1352.3)	16.7 (2364.7)	23.9 (3384.5)	33.4 (4729.9)
Maximum Torque (N·m [oz·in])		24.4 (3455.0)	34.4 (4871.0)	57.3 (8113.5)	85.9 (12163.2)	7.16 (1013.8)	14.4 (2039.0)	21.6 (3058.5)	28.5 (4035.5)	50.1 (7094.0)	71.6 (10139.4)	100 (14161.2)
Rated Rotation Speed (r/min)		1000				2000						
Maximum Rotation Speed (r/min)		1500	1200			3000			2500		2000	
Permissible Instantaneous Rotation Speed (r/min)		1725	1380			3450			2850		2300	
Power Rate at Continuous Rated Torque (kW/s)		32.9	30.9	44.5	81.3	8.7	16.7	25.6	21.5	34.1	56.5	69.7
Rated Current (A)		5.1	7.1	9.6	16	3.2	6	9	11	17	28	35
Maximum Current (A)		15.3	21.3	28.8	48	9.6	18	27	33	51	84	105
Regeneration Braking Frequency (times/min) (*2)	With No Options	140	240	100	84	56	54	136	64	31	39	32
	MR-RB032 (30W)	220	—	—	—	165	80	—	—	—	—	—
	MR-RB12 (100W)	740	—	—	—	560	270	—	—	—	—	—
	MR-RB32 (300W)	2220	—	—	—	—	810	—	—	—	—	—
	MR-RB30 (300W)	—	730	330	250	—	—	408	192	95	90	—
	MR-RB50 (500W)	—	1216	550	430	—	—	680	320	150	150	—
	MR-RB31 (300W)	—	—	—	—	—	—	—	—	—	—	57
	MR-RB51 (500W)	—	—	—	—	—	—	—	—	—	—	95
Moment of Inertia J ($\times 10^{-4}$ kg·m^2) [WK^2 (oz·in^2)] (*3)	Standard	20.0 (109.0)	42.5 (232)	82.0 (448)	101 (552)	6.6 (36.1)	13.7 (74.9)	20.0 (109.0)	42.5 (232)	82.0 (448)	101 (552)	160 (875)
	With Electromagnetic Brake	22.0 (120.0)	52.5 (287)	92.0 (503)	111 (607)	8.6 (47.0)	15.7 (85.8)	22.0 (120)	52.5 (287)	92.0 (503)	111 (607)	170 (929)
Recommended Load/Motor Inertia Moment Ratio		Less than 15-times the servomotor's inertia moment (*3)										
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev										
Attachments		17 bit encoder, oil seal										
Structure		Totally enclosed non-ventilated (protection degree: IP65)										
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: –15 to 70°C (5 to 158°F) (non-freezing)										
	Ambient Humidity	80% RH max. (non-condensing), storage: 90% RH max. (non-condensing)										
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust										
	Elevation	1000 meters or less above sea level										
	Vibration (*4)	X, Y: 24.5m/s^2	X: 24.5m/s^2 Y: 49m/s^2		X: 24.5m/s^2 Y: 29.4m/s^2	X, Y: 24.5m/s^2			X: 24.5m/s^2 Y: 49m/s^2		X: 24.5m/s^2 Y: 29.4m/s^2	
Weight kg (lb)	Standard	9 (19.8)	12 (26.5)	19 (41.9)	23 (50.7)	5 (11.0)	7 (15.4)	9 (19.8)	12 (26.5)	19 (41.9)	23 (50.7)	32 (70.5)
	With Electromagnetic Brake	11 (24.3)	18 (39.7)	25 (55.1)	29 (63.9)	7 (15.4)	9 (19.8)	11 (24.3)	18 (39.7)	25 (55.1)	29 (63.9)	38 (83.8)

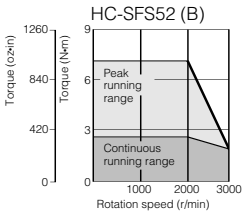
Notes: See next page.

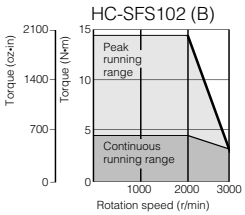


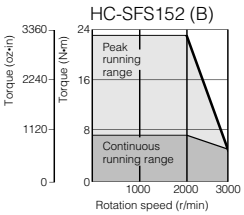












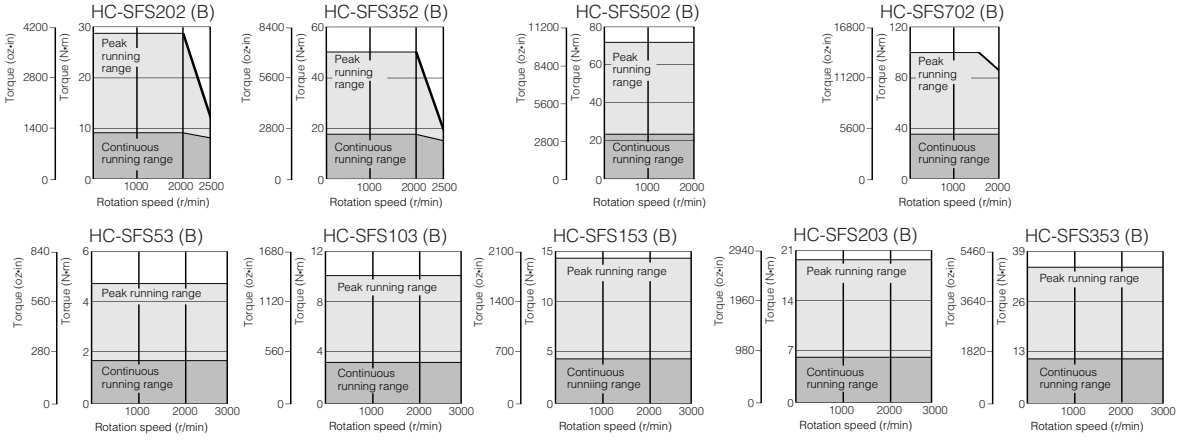
*Remarks:
1. Solid lines show torque characteristics for 3-phase 200-230V operation.
2. Torque characteristics are same for single-phase 230V operation.

MR-J2S HC-SFS Series Servomotor Specifications

Servomotor Series		HC-SFS 3000 Series				
Models / Specifications	Servomotor Model HC-	SFS53 (B)	SFS103 (B)	SFS153 (B)	SFS203 (B)	SFS353 (B)
	Servo-Amp Model MR-	J2S-60A/B/CP/CL	J2S-100A/B/CP/CL	J2S-200A/B/CP/CL	J2S-200A/B/CP/CL	J2S-350A/B/CP/CL
Power Facility Capacity (kVA) (*1)		1.0	1.7	2.5	3.5	5.5
Continuous Running Duty	Rated Output (kW)	0.5	1.0	1.5	2.0	3.5
	Rated Torque (N·m [oz·in])	1.59 (225.1)	3.18 (450.3)	4.78 (676.8)	6.37 (901.9)	11.1 (1571.6)
Maximum Torque (N·m [oz·in])		4.77 (675.4)	9.55 (1352.3)	14.3 (2024.8)	19.1 (2704.5)	33.4 (4729.3)
Rated Rotation Speed (r/min)		3000				
Maximum Rotation Speed (r/min)		3000				
Permissible Instantaneous Rotation Speed (r/min)		3450				
Power Rate at Continuous Rated Torque (kW/s)		3.8	7.4	11.4	9.5	15.1
Rated Current (A)		3.2	5.3	8.6	10.4	16.4
Maximum Current (A)		9.6	15.9	25.8	31.2	49.2
Regeneration Braking Frequency (times/min) (*2)	With No Options	25	24	82	24	14
	MR-RB032 (30W)	73	36	—	—	—
	MR-RB12 (100W)	250	120	—	—	—
	MR-RB32 (300W)	—	360	—	—	—
	MR-RB30 (300W)	—	—	250	70	42
	MR-RB50 (500W)	—	—	410	110	70
Moment of Inertia J ($\times 10^{-4}$ kg·m^2) [WK^2 (oz·in^2)] (*3)	Standard	6.6 (36.1)	13.7 (74.9)	20.0 (109)	42.5 (232)	82.0 (448)
	With Electromagnetic Brake	8.6 (47.0)	15.7 (85.8)	22.0 (120)	52.5 (287)	92.0 (503)
Recommended Load/Motor Inertia Moment Ratio		Less than 15-times the servomotor's inertia moment (*3)				
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev				
Attachments		17 bit encoder, oil seal				
Structure		Totally enclosed non-ventilated (protection degree: IP65)				
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: –15 to 70°C (5 to 158°F) (non-freezing)				
	Ambient Humidity	80% RH max. (non-condensing), storage: 90% RH max. (non-condensing)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust				
	Elevation	1000 meters or less above sea level				
	Vibration *4	X, Y: 24.5m/s^2			X: 24.5m/s^2; Y: 49m/s^2	
Weight kg (lb)	Standard	5 (11)	7 (15.4)	9 (19.8)	12 (26.5)	19 (41.9)
	With Electromagnetic Brake	7 (15.4)	9 (19.8)	11 (24.3)	18 (39.7)	25 (55.1)

Notes:

1. The power facility capacity varies depending on the power supply's impedance.
2. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
3. Contact Mitsubishi Electric if the load/motor of inertia moment ratio exceeds the figure in the table.
4. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.

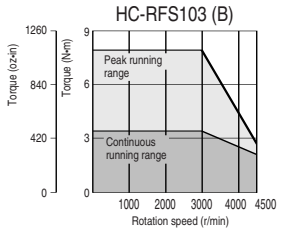


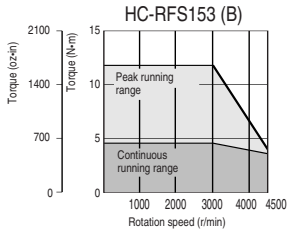
MR-J2S HC-RFS Series Servomotor Specifications

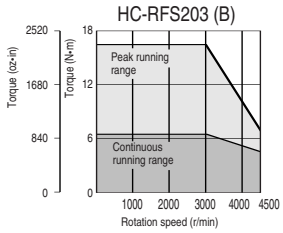
Servomotor Series		HC-RFS Series				
Models / Specifications	Servomotor Model HC-	RFS103 (B)	RFS153 (B)	RFS203 (B)	RFS353 (B)	RFS503 (B)
	Servo-Amp Model MR-	J2S-200A/B/CP/CL		J2S-350A/B/CP/CL	J2S-500A/B/CP/CL	
Power Facility Capacity (kVA) (*1)		1.7	2.5	3.5	5.5	7.5
Continuous Running Duty	Rated Output (kW)	1.0	1.5	2.0	3.5	5.0
	Rated Torque (N·m [oz·in])	3.18 (450.3)	4.78 (676.8)	6.37 (902.1)	11.1 (1571.9)	15.9 (2251.6)
Maximum Torque (N·m [oz·in])		7.95 (1125.7)	11.9 (1685.0)	15.9 (2251.4)	27.9 (3951.0)	39.7 (5622.0)
Rated Rotation Speed (r/min)		3000				
Maximum Rotation Speed (r/min)		4500				
Permissible Instantaneous Rotation Speed (r/min)		5175				
Power Rate at Continuous Rated Torque (kW/s)		67.4	120	176	150	211
Rated Current (A)		6.1	8.8	14	23	28
Maximum Current (A)		18.4	23.4	37	58	70
Regeneration Braking Frequency (times/min) (*2)	With No Options	1090	860	710	174	125
	MR-RB30 (300W)	3270	2580	2130	401	288
	MR-RB50 (500W)	5450	4300	3550	669	479
Moment of Inertia J ($\times 10^{-4}$ kg·m^2) [WK^2 (oz·in^2)] (*3)	Standard	1.5 (8.20)	1.9 (10.4)	2.3 (12.6)	8.6 (47.0)	12.0 (65.6)
	With Electromagnetic Brake	1.85 (10.1)	2.25 (12.3)	2.65 (14.5)	11.8 (64.5)	15.5 (84.7)
Recommended Load/Moment of Inertia Moment Ratio		Less than 5-times the servomotor's inertia moment (*3)				
Speed/Position Encoder		Resolution per encoder/servomotor rotation: 131072 p/rev				
Attachments		17 bit encoder, oil seal				
Structure		Totally enclosed non-ventilated (protection degree: IP65)				
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: –15 to 70°C (5 to 158°F) (non-freezing)				
	Ambient Humidity	80% RH max. (non-condensing), storage: 90% RH max. (non-condensing)				
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust				
	Elevation/Vibration (*4)	1000 meters or less above sea level				
Weight kg (lb)	Standard	3.9 (8.6)	5.0 (11.0)	6.2 (13.7)	12 (26.5)	17 (37.5)
	With Electromagnetic Brake	6.0 (13.2)	7.0 (15.4)	8.3 (18.3)	15 (33.1)	21 (46.3)

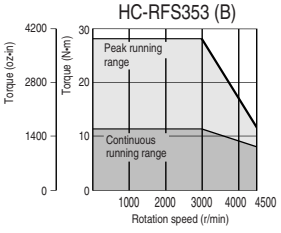
Notes:

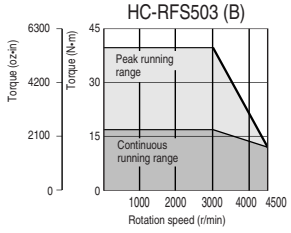
1. The power facility capacity varies depending on the power supply's impedance.
2. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (Operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
3. Contact Mitsubishi Electric if the load/motor of inertia ratio exceeds the figure in the table.
4. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.











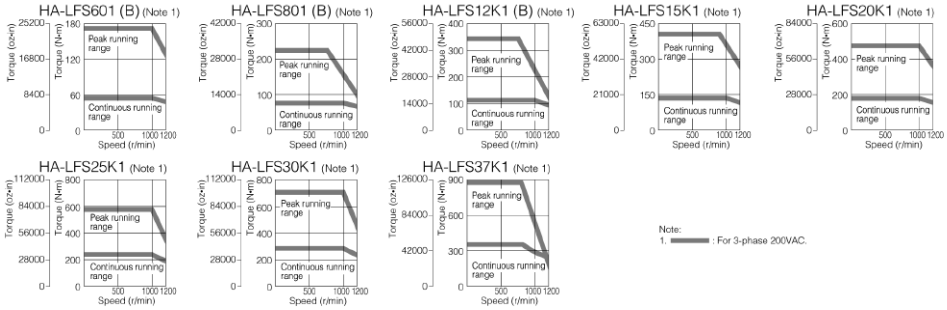
Remarks: Solid lines show torque characteristics for 3-phase 200-230V operation.

MR-J2S HA-LFS 1000 r/min Series Servomotor Specifications (200 VAC Type)

Servomotor Series		HA-LFS 1000 r/min Series							
Models	Servomotor Model HA-LFS	601(B)	801(B)	12K1(B)	15K1	20K1	25K1	30K1	37K1 (*1)
	Servo-Amp Model MR-J2S	700A/B/CP/CL-U058 (*8)	11KA/B (*9)		15KA/B (*9)	22KA/B (*9)		30KA/B (*9)	37KA/B-U039
	Converter Unit Model	—						MR-HP30KA	
Power Facility Capacity kVA (*2)		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 (75% ED)
	Rated Torque (N•m [oz•in])	57.3 (8113.7)	76.4 (10818.2)	115 (16284)	143 (20248.8)	191 (27045.6)	239 (33842.4)	286 (40497.6)	353 (49984.8)
Maximum Torque (N•m [oz•in])		172 (24355.2)	229 (32426.4)	344 (48710.4)	415 (58764)	477 (67543.2)	597 (84535.2)	716 (101385.6)	883 (125032.8)
Rated Speed r/min		1000							
Maximum Speed r/min		1200							
Permissible Instantaneous Speed r/min		1380							
Power Rate at Continuous Rated Torque kW/s		313	265	445	373	561	528	626	668
Rated Current (A)		34	42	61	83	118	118	154	188
Maximum Current (A)		102	126	183	249	295	295	385	470
Regeneration Braking Frequency (times/min) (*3)	With No Options	158	—	—	—	—	—	—	—
	MR-RB31 (300W)	278	—	—	—	—	—	—	—
	MR-RB51 (500W) (*4)	464	—	—	—	—	—	—	—
	GRZG400-2Ω (4) MR-RB65 (800W) (*5)	—	354	264	—	—	—	—	—
	GRZG400-1Ω (5) MR-RB66 (1300W) (*5)	—	—	—	230	—	—	—	—
	GRZG400-0.8Ω (5) MR-RB67 (1300W) (*5)	—	—	—	—	195	117	—	—
	MR-RB139 (1300W)	—	—	—	—	—	—	97	68
	MR-RB137 (3900W)	—	—	—	—	—	—	290	203
Moment of Inertia J (×10^{-4} kg·m^2) [J (oz·in^2)]	Standard	105 (574.0)	220 (1202.7)	295 (1612.6)	550 (3006.6)	650 (3553.3)	1080 (5903.9)	1310 (7161.2)	1870 (10222.5)
	With Electromagnetic Brake	113 (617.7)	293 (1601.7)	369 (2017.2)	—	—	—	—	—
Recommended Load/Motor Inertia Moment Ratio		10-times the servomotor's inertia moment max. (*6)							
Speed/Position Detector		17-bit encoder (Resolution per encoder/servomotor rotation: 131072 p/rev)							
Attachments		Oil seal							
Structure		Totally enclosed ventilated (protection degree: IP44)							
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: -15 to 70°C (5 to 158°F) (non-freezing)							
	Ambient Humidity	80% RH max. (non-condensing), storage 90% RH max. (non-condensing)							
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust							
	Elevation	1000 meters (3280 ft.) or less above sea level							
	Vibration (*7)	X: 11.7 m/s^2 • Y: 29.4 m/s^2			X: 9.8 m/s^2 • Y: 9.8 m/s^2				
Weight kg (lb)	Standard	55 (121.2)	95 (209.3)	115 (253.4)	160 (352.5)	180 (396.6)	230 (506.7)	250 (550.8)	335 (738)
	With Electromagnetic Brake	70 (154.2)	126 (277.6)	146 (321.7)	—	—	—	—	—
Cooling Fan Power	Voltage, Frequency	1-ph 200 - 220 VAC 50/Hz 1-ph 200 - 230 VAC 60/Hz	3-phase 200 to 220 VAC 50Hz • 3-phase 200 to 230 VAC 60Hz						
	Input (W)	42 (50Hz) / 54 (60Hz)	32 (50Hz) / 40 (60Hz)		45 (50Hz) / 63 (60Hz)		120 (50Hz) / 175 (60Hz)	120 (50Hz) / 175 (60Hz)	
Cooling Fan Rated Current (A)		0.21 (50Hz) / 0.25 (60Hz)	0.30 (50Hz) / 0.25 (60Hz)		0.32 (50Hz) / 0.35 (60Hz)		0.65 (50Hz) / 0.80 (60Hz)	0.65 (50Hz) / 0.80 (60Hz)	

Notes:

1. Make sure that the effective torque is less than 75% of the 37kW capacity during the power factor improvement. Always use a DC reactor (MR-DCL37K).
2. The power facility capacity varies depending on the power supply's impedance.
3. The regenerative brake frequency shows the permissible frequency for decelerating the motor without a load from rated speed to a stop. When a load is connected, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated speed is exceeded, the regenerative brake frequency is inversely proportional to the square of (Operating speed/rated speed). When the operating speed varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
4. Install a cooling fan (approx. 1.0m3/min, □ 92).
5. The values apply when the parameter No.0 (for MR-J2S-A type) or No.2 (for MR-J2S-B type) is changed, and cooling fans (approx. 1.0m^3/min, □ 92 x 2 units) are installed. The GRZG400-□ Ω is a standard accessory.
6. Contact Mitsubishi if the load/motor of inertia moment ratio exceeds the value in the table.
7. The vibration direction is shown in the right side diagram. The numeric value indicates the maximum value of the component (commonly the bracket in the opposite direction of the motor shaft.) Fretting of the bearing occurs easily when a motor stops, maintain vibration to approximately one-half of the allowable value).
8. MR-J2S-□ CP (1)-S084 is also compatible. The compatible motor is the same as the MR-J2S-□ CP(1).
9. The amplifier version software compatible with HA-LFS 1000 r/min is as follows: For 8kW, 12kW, 15kW or 20kW (200V) A type: Version A0 or above; B type: Version A3 or above. For 25kW or 30kW (200V) A type: Version A2 or above; B type: Version A5 or above.

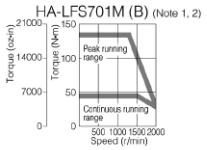


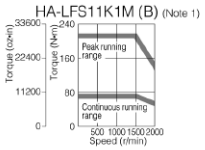
MR-J2S HA-LFS 1500 r/min Series Servomotor Specifications (200 VAC Type)

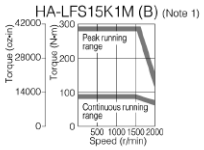
Servomotor Series		HA-LFS 1500 r/min Series					
Models	Servomotor Model HA-LFS	701M(B) (*9)	11K1M(B)	15K1M(B)	22K1M	30K1M	37K1M (*1)
	Servo-Amp Model MR-J2S	700A/B/CP/CL-U059 (*8, *9)	11KA/B (*10)	15KA/B (*10)	22KA/B (*10)	30KA/B (*10)	37KA/B-U042
	Converter Unit Model	—				MR-HP30KA	
Power Facility Capacity kVA (*2)		10	16	22	33	48	59
Continuous Running Duty	Rated Output kW	7.0	11	15	22	30	37 (75% ED)
	Rated Torque (N•m [oz•in])	44.6 (6315.4)	70.0 (9912)	95.5 (13522.8)	140 (19824)	191 (27045.6)	236 (33417.6)
Maximum Torque (N•m [oz•in])		134 (18974.4)	210 (29736)	286 (40497.6)	350 (49560)	477 (67543.2)	589 (83402.4)
Rated Speed r/min		1500					
Maximum Speed r/min		2000					
Permissible Instantaneous Speed r/min		2300					
Power Rate at Continuous Rated Torque kW/s		189	223	309	357	561	514
Rated Current (A)		37	65	87	126	174	202
Maximum Current (A)		111	195	261	315	435	505
Regeneration Braking Frequency (times/min) (*3)	With No Options	70	—	—	—	—	—
	MR-RB31 (300W)	124	—	—	—	—	—
	MR-RB51 (500W) (*4)	206	—	—	—	—	—
	GRZG400-2Ω (4) MR-RB65 (800W) (*5)	—	158	—	—	—	—
	GRZG400-1Ω (5) MR-RB66 (1300W) (*5)	—	—	191	—	—	—
	GRZG400-0.8Ω (5) MR-RB67 (1300W) (*5)	—	—	—	102	—	—
	MR-RB139 (1300W)	—	—	—	—	87	52
	MR-RB137 (3900W)	—	—	—	—	260	156
Moment of Inertia J (×10^{-4} kg·m^2) [J (oz·in^2)]	Standard	105 (574.0)	220 (1202.7)	295 (1612.6)	550 (3006.6)	650 (3553.3)	1080 (5903.9)
	With Electromagnetic Brake	113 (617.7)	293 (1601.7)	369 (2017.2)	—	—	—
Recommended Load/Motor Inertia Moment Ratio		10-times the servomotor's inertia moment max. (*6)					
Speed/Position Detector		17-bit encoder (Resolution per encoder/servomotor rotation: 131072 p/rev)					
Attachments		Oil seal					
Structure		Totally enclosed ventilated (protection degree: IP44)					
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: -15 to 70°C (5 to 158°F) (non-freezing)					
	Ambient Humidity	80% RH max. (non-condensing), storage 90% RH max. (non-condensing)					
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust					
	Elevation	1000 meters (3280 ft.) or less above sea level					
	Vibration (*7)	X: 11.7 m/s^2 • Y: 29.4 m/s^2			X: 9.8 m/s^2 • Y: 9.8 m/s^2		
Weight kg (lb)	Standard	55 (121.2)	95 (209.3)	115 (253.4)	160 (352.5)	180 (396.6)	230 (506.7)
	With Electromagnetic Brake	70 (154.2)	126 (277.6)	146 (321.7)	—	—	—
Cooling Fan Power	Voltage, Frequency	1-ph 200 - 220 VAC 50/Hz 1-ph 200 - 230 VAC 60/Hz	3-phase 200 to 220 VAC 50Hz • 3-phase 200 to 230 VAC 60Hz				
	Input (W)	42 (50Hz) / 54 (60Hz)	32 (50Hz) / 40 (60Hz)		45 (50Hz) / 63 (60Hz)		120 (50Hz) / 175 (60Hz)
Cooling Fan Rated Current (A)		0.21 (50Hz) / 0.25 (60Hz)	0.30 (50Hz) / 0.25 (60Hz)		0.32 (50Hz) / 0.35 (60Hz)		0.65 (50Hz) / 0.80 (60Hz)

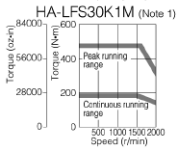
Notes:

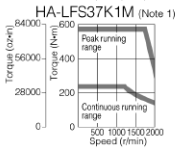
1. Make sure that the effective torque is less than 75% of the 37kW capacity during the power factor improvement. Always use a DC reactor (MR-DCL37K).
2. The power facility capacity varies depending on the power supply's impedance.
3. The regenerative brake frequency shows the permissible frequency for decelerating the motor without a load from rated speed to a stop. When a load is connected, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated speed is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating speed varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
4. Install a cooling fan (approx. 1.0m^3/min, □92).
5. The values apply when the parameter No. 0 (for MR-J2S-A type) or No. 2 (for MR-J2S-B type) is changed, and cooling fans (approx. 1.0m^3/min, □92 x 2 units) are installed. The GRZG400-□Ω is a standard accessory.
6. Contact Mitsubishi if the load/motor of inertia moment ratio exceeds the value in the table.
7. The vibration direction is shown in the right side diagram. The numeric value indicates the maximum value of the component (commonly the bracket in the opposite direction of the motor shaft.) Fretting of the bearing occurs easily when a motor stops, maintain vibration to approximately one-half of the allowable value).
8. MR-J2S-□CP (1)-S084 is also compatible. The compatible motor is the same as the MR-J2S-□CP(1).
9. The servo amplifier software version corresponding to each servo motor differs so contact your dealer for details on the servo amplifier type and the types of servo motor that are combined with the servo amplifier, and for information on the delivery schedule.
10. The amplifier version software compatible with HA-LFS 1500 r/min is as follows: For 11kW, 15kW, 22kW or 30kW (200V) A type: Version A0 or above; B type: Version A3 or above.











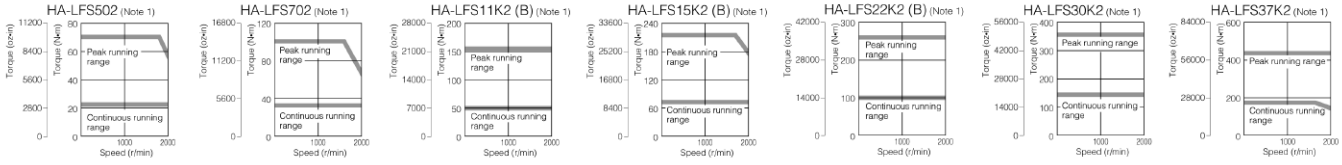
Notes:
1. ▬▬ : For 3-phase 200VAC.
2. The torque characteristics are anticipated values.

MR-J2S HA-LFS 2000 r/min Series Servomotor Specifications (200 VAC Type)

Servomotor Series		HA-LFS 2000 r/min Series						
Models	Servomotor Model HA-LFS	502	702	11K2(B)	15K2 (B)	22K2 (B)	30K2	37K2 (*1)
	Servo-Amp Model MR-J2S	500A/B/CP/CL-(*8, *9)	700A/B/CP/CL (*8, *9)	11KA/B (*9)	15KA/B (*10)	22KA/B (*9)	30KA/B (*9)	30KA/B (*9)
	Converter Unit Model	—					MR-HP30KA	
Power Facility Capacity kVA (*2)		7.5	10.0	16	22	33	48	59
Continuous Running Duty	Rated Output kW	5.0	7.0	11	15	22	30	37 (75% ED)
	Rated Torque (N•m [oz•in])	23.9 (3384.2)	33.4 (4729.4)	52.5 (7434)	71.6 (10138.6)	105 (14868)	143 (20248.8)	177 (25063.2)
Maximum Torque (N•m [oz•in])		71.6 (10138.6)	100 (14160)	158 (22372.8)	215 (30444)	263 (37240.8)	358 (50692.8)	442 (62587.2)
Rated Speed r/min		2000						
Maximum Speed r/min		2000						
Permissible Instantaneous Speed r/min		2300						
Power Rate at Continuous Rated Torque kW/s		77.2	118	263	233	374	373	480
Rated Current (A)		25	34	63	77	112	166	204
Maximum Current (A)		75	102	189	231	280	415	510
Regeneration Braking Frequency (times/min) (*3)	With No Options	50	50	—	—	—	—	—
	MR-RB30 (300W)	120	—	—	—	—	—	—
	MR-RB31 (300W)	—	95	—	—	—	—	—
	MR-RB50 (500W) (*4)	200	—	—	—	—	—	—
	MR-RB51 (500W) (*4)	—	160	—	—	—	—	—
	GRZG400-2Ω (4) MR-RB65 (800W) (*5)	—	—	186	—	—	—	—
	GRZG400-1Ω (5) MR-RB66 (1300W) (*5)	—	—	—	144	—	—	—
	GRZG400-0.8Ω (5) MR-RB67 (1300W) (*5)	—	—	—	—	107	—	—
	MR-RB139 (1300W)	—	—	—		—	58	49
	MR-RB137 (3900W)	—	—	—	—		174	147
Moment of Inertia J (×10⁻⁴ kg·m²) [J (oz·in²)]	Standard	74.0 (404.5)	94.2 (515.0)	105 (574.0)	220 (1202.7)	295 (1612.6)	550 (3006.6)	650 (3553.3)
	With Electromagnetic Brake	—	—	113 (617.7)	239 (1601.7)	369 (2017.2)	—	—
Recommended Load/Motor Inertia Moment Ratio		10-times the servomotor's inertia moment max. (*6)						
Speed/Position Detector		17-bit encoder (Resolution per encoder/servomotor rotation: 131072 p/rev)						
Attachments		Oil seal						
Structure		Totally enclosed non-ventilated (protection level: IP65)		Totally enclosed ventilated (protection level: IP44)				
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: -15 to 70°C (5 to 158°F) (non-freezing)						
	Ambient Humidity	80% RH max. (non-condensing), storage 90% RH max. (non-condensing)						
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Elevation	1000 meters (3280 ft.) or less above sea level						
	Vibration (*7)	X: 11.7 m/s² • Y: 29.4 m/s²					X: 9.8 m/s² • Y: 9.8 m/s²	
Weight kg (lb)	Standard	28 (61.7)	35 (77.1)	55 (121.2)	95 (209.3)	115 (253.4)	160 (352.5)	180 (396.6)
	With Electromagnetic Brake	—	—	70 (154.2)	126 (277.6)	146 (321.7)	—	—
Cooling Fan Power	Voltage, Frequency	—	—	1-ph 200-220 VAC 50/Hz 1-ph 200 - 230 VAC 60/Hz	3-phase 200 to 220 VAC 50Hz • 3-phase 200 to 230 VAC 60Hz			
	Input (W)	—	—	42 (50Hz) / 54 (60Hz)	32 (50Hz) / 40 (60Hz)		45 (50Hz) / 63 (60Hz)	
Cooling Fan Rated Current (A)		—	—	0.21 (50Hz) / 0.25 (60Hz)	0.30 (50Hz) / 0.25 (60Hz)		0.32 (50Hz) / 0.35 (60Hz)	

Notes:

1. Make sure that the effective torque is less than 75% of the 37kW capacity during the power factor improvement. Always use a DC reactor (MR-DCL37K).
2. The power facility capacity varies depending on the power supply's impedance.
3. The regenerative brake frequency shows the permissible frequency for decelerating the motor without a load from rated speed to a stop. When a load is connected, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated speed is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating speed varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
4. Install a cooling fan (approx. 1.0m³/min, □ 92).
5. The value apply when the parameter No. D (for MR-J2S-A type) or No. 2 (for MR-J2S-B type) is changed, and cooling fans (approx. 1.0m³/min, □ 92 x 2 units) are installed. The GRZG400-□ Ω is a standard accessory.
6. Contact Mitsubishi if the load/motor of inertia moment ratio exceeds the value in the table.
7. The vibration direction is shown in the right side diagram. The numeric value indicates the maximum value of the component (commonly the bracket in the opposite direction of the motor shaft.) Fretting of the bearing occurs easily when a motor stops, maintain vibration to approximately one-half of the allowable value)
8. MR-J2S-□ CP (1)-S084 is also compatible. The compatible motor is the same as the MR-J2S-□ CP(1).
9. The amplifier version software compatible with HA-LFS 2000 r/min is as follows: For 5kW or 7kW (200V) A type: Version B0 or above; B type: Version B0 or above. Other than the motor described: A type; Version A0 or above; B type: A3 or above.

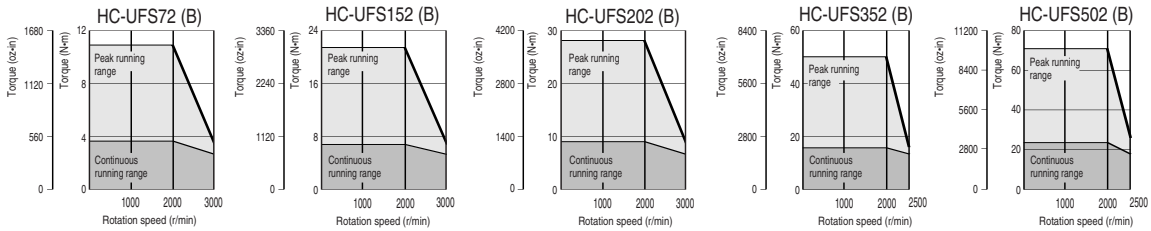


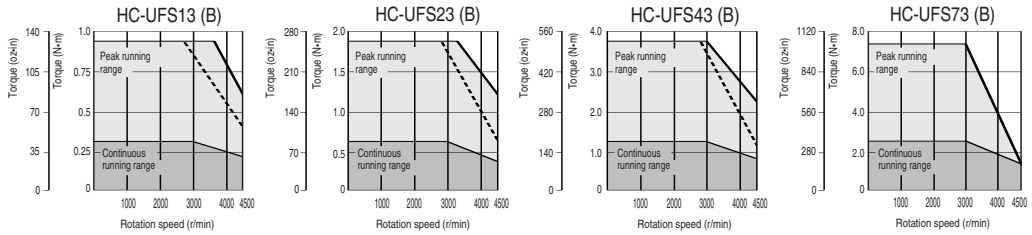
MR-J2S HC-UFS Series Servomotor Specifications

Servomotor Series		HC-UFS 2000 (Low Profile Type, Medium Capacity)					HC-UFS 3000 (Low Profile Type, Medium Capacity)			
Models / Specifications	Servomotor Model HC-	72 (B)	152 (B)	202 (B)	352 (B)	502 (B)	13 (B)	23 (B)	43 (B)	73 (B)
	Servo-Amp Model MR-	70A/B/CP/CL	200A/B/CP/CL	350A/B/CP/CL	500A/B/CP/CL	500A/B/CP/CL	10A/A1/B/B1 CP/CP1/CL/CL1	20A/A1/B/B1 CP/CP1/CL/CL1	40A/A1/B/B1 CP/CP1/CL/CL1	70A/B/CP/CL
Power Facility Capacity (kVA) (*1)		1.3	2.5	3.5	5.5	7.5	0.3	0.5	0.9	1.3
Continuous Running Duty	Rated Output (kW)	0.75	1.5	2.0	3.5	5.0	0.1	0.2	0.4	0.75
	Rated Torque (N·m [oz·in])	3.58 (506.9)	7.16 (1013.8)	9.55 (1352.3)	16.7 (2364.9)	23.9 (3384.5)	0.32 (45.3)	0.64 (90.6)	1.3 (184.1)	2.4 (339.8)
Maximum Torque (N·m [oz·in])		10.7 (1515.1)	21.6 (3058.5)	28.5 (4035.5)	50.1 (7094.8)	71.6 (10139.4)	0.95 (134.5)	1.9 (269.0)	3.8 (538.1)	7.2 (1019.5)
Rated Rotation Speed (r/min)		2000					3000			
Maximum Rotation Speed (r/min)		3000			2500		4500			
Permissible Instantaneous Rotation Speed (r/min)		3450			2875		5175			
Power Rate at Continuous Rated Torque (kW/s)		12.3	23.2	23.9	36.5	49.6	15.5	19.2	47.7	9.66
Rated Current (A)		5.4	9.7	14	23	28	0.76	1.5	2.8	4.3
Maximum Current (A)		16.2	29.1	42	68	84	2.5	4.95	9.24	12.9
Regeneration Braking Frequency (times/min) (*2)	With No Options	53	124	68	44	31	(*3)	(*3)	410	41
	MR-RB032 (30W)	79	—	—	—	—	—	—	1230	62
	MR-RB12 (100W)	264	—	—	—	—	—	—	4100	206
	MR-RB32 (300W)	791	—	—	—	—	—	—	—	—
	MR-RB30 (300W)	—	372	203	102	72	—	—	—	—
	MR-RB50 (500W)	—	620	338	169	119	—	—	—	—
Moment of Inertia J ($\times 10^{-4}$ kg·m^2) [WK^2 (oz·in^2)]	Standard	10.4 (56.9)	22.1 (120.8)	38.2 (208.9)	76.5 (418.3)	115 (628.8)	0.066 (0.361)	0.241 (1.315)	0.365 (1.994)	5.90 (32.2)
	With Electromagnetic Brake	12.4 (67.8)	24.1 (131.8)	46.8 (255.9)	85.1 (465.3)	123.6 (675.8)	0.074 (0.404)	0.323 (1.762)	0.447 (2.445)	6.10 (33.3)
Recommended Load/Motor Inertia Moment Ratio		Less than 15-times the servomotor's inertia moment (*4)								
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev								
Attachments		17 bit encoder, oil seal								
Structure		Totally enclosed non-ventilated (protection degree: IP65)					Totally enclosed non-ventilated (protection degree: IP65) (*5)			
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: –15 to 70°C (5 to 158°F) (non-freezing)								
	Ambient Humidity	80% RH max. (non-condensing), storage: 90% RH max. (non-condensing)								
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist, or dust								
	Elevation	1000 meters or less above sea level								
	Vibration (*6)	X, Y: 24.5m/s^2		X: 24.5m/s^2; Y: 49m/s^2			X, Y: 49m/s^2			
Weight kg (lb)	Standard	8 (17.6)	11 (24.3)	16 (35.3)	20 (44.1)	24 (52.9)	0.8 (1.76)	1.5 (3.31)	1.7 (3.75)	5.0 (11.02)
	With Electromagnetic Brake	10 (22.0)	13 (28.7)	22 (48.5)	26 (57.3)	30 (66.1)	1.2 (2.65)	2.2 (4.85)	2.4 (5.29)	6.2 (13.67)

Notes:

1. The power facility capacity varies depending on the power supply's impedance.
2. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
3. There are no limits on regeneration frequency as long as the effective torque is within the rated torque range.
4. Contact Mitsubishi if the load/ motor of inertia moment ratio exceeds the figure in the table.
5. Connector for cable terminal are excluded. However, IP65-compliant products (HC-UFSM-S1) including connector components have been prepared.
6. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.





∗Remarks:
1. Solid lines show torque characteristics for 3-phase 200-230V operation.
2. Torque characteristics are same for single-phase 230V operation.
3. For single-phase 100V operation, torque characteristics that are different from above-mentioned 1 and 2, are shown in broken lines.

MR-J2S Converter Unit

MR-HP30KA Required for the 30kW and 37kW Amplifiers

Converter Unit (200 VAC Type)

Amplifier Series		MR-J2S-30KA/B	MR-J2S-37KA/B
Main Circuit Power Supply	Voltage/Frequency	3-phase 200 to 230 VAC 50/60Hz	
	Permissible Voltage Fluctuation	3-phase 170 to 253 VAC 50/60Hz	
	Permissible Frequency Fluctuation	±5% max.	
Control Circuit Power Supply	Voltage/Frequency	1-phase 200 to 230 VAC 50/60Hz	
	Permissible Voltage Fluctuation	1-phase 170 to 235 VAC 50/60Hz	
	Permissible Frequency Fluctuation	±5% max.	
	Power Consumption	50W	
Weight kg(lb)		22 (48.5)	

Power, Encoder and Brake Cables

HC-KFS Series Motors

Motor Type (IP55) (*2)	Standard Power Cable Model No.	Standard Encoder Cable Model No. (*1)
HC-KF(S)053	MR1-□M	MR-JCCBL□M-L
HC-KF(S)13		
HC-KF(S)23		
HC-KF(S)43		
HC-KF(S)73		
HC-KF(S)053B	MR1B-□M	
HC-KF(S)13B		
HC-KF(S)23B		
HC-KF(S)43B		
HC-KF(S)73B		

□ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = 5 meter length, etc.)

HC-MFS Series Motors

Motor Type (IP55) (*2)	Standard Power Cable Model No.	Standard Encoder Cable Model No. (*1)
HC-MF(S)053	MR1-□M	MR-JCCBL□M-L
HC-MF(S)13		
HC-MF(S)23		
HC-MF(S)43		
HC-MF(S)73		
HC-MF(S)053B	MR1B-□M	
HC-MF(S)13B		
HC-MF(S)23B		
HC-MF(S)43B		
HC-MF(S)73B		

□ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = 5 meter length, etc.)

HC-RFS Series Motors

Motor Type (IP65)	IP65 Power Cable (Unshielded) Model No. (*2)	IP65 Power Cable (Shielded) Model No.	IP65 Encoder Cable Model No. (*1)
HC-RF(S)103	MR3S-□M	MR3SW-SH-□M	MR-ENCBL□M-H
HC-RF(S)153			
HC-RF(S)203			
HC-RF(S)353	MR5S-□M	MR5SW-SH-□M	
HC-RF(S)503			
HC-RF(S)103B	MR3SB-□M	MR3SBW-SH-□M	
HC-RF(S)153B			
HC-RF(S)203B			
HC-RF(S)353B	MR5SB-□M	MR5SBW-SH-□M	
HC-RF(S)503B			

□ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = 5 meter length, etc.)

Note:

1. -L = Standard Flexibility; -H = Extended Flexibility The flex type shown is standard. Opposing flex cable (-L) or (-H) also available.
   HC-KFS and HC-MFS shaft through portion and connectors are NOT IP55.
   IP65 type motors are available, special order, consult Mitsubishi.
2. IP65 on Revision B cable and later only.

MR-J2S Power, Encoder and Brake Cables (continued)

HC-SFS Series Motors

Motor Type (IP65)	IP65 Power Cable (Unshielded) Model No. (*2)	IP65 Power Cable (Shielded) Model No.	IP65 Encoder Cable Model No.(*1)
HC-SF(S)52	MR2S-□M	MR2SW-SH-□M	MR-ENCBL_M-H
HC-SF(S)53			
HC-SF(S)81			
HC-SF(S)102			
HC-SF(S)103			
HC-SF(S)121	MR3S-□M	MR3SW-SH-□M	
HC-SF(S)152			
HC-SF(S)153			
HC-SF(S)201	MR4S-□M	MR4SW-SH-□M	
HC-SF(S)202			
HC-SF(S)203			
HC-SF(S)301	MR5S-□M	MR5SW-SH-□M	
HC-SF(S)352			
HC-SF(S)353			
HC-SF(S)502			
HC-SF(S)702	MR6S-□M	MR6SW-SH-□M	
HC-SF(S)52B	MR2SB-□M	MR2SBW-SH-□M	
HC-SF(S)53B			
HC-SF(S)81B			
HC-SF(S)102B			
HC-SF(S)103B			
HC-SF(S)121B	MR3S-□M*	MR3SW-SH-□M *	
HC-SF(S)152B	MR3SB-□M	MR3SBW-SH-□M	
HC-SF(S)153B			
HC-SF(S)201B	MR4S-□M*	MR4SW-SH-□M*	
HC-SF(S)202B			
HC-SF(S)203B			
HC-SF(S)301B	MR5S-□M*	MR5SW-SH-□M*	
HC-SF(S)352B			
HC-SF(S)353B			
HC-SF(S)502B			
HC-SF(S)702B	MR6S-□M*	MR6SW-SH-□M *	

* = Must order separate brake cable listed on page 92. □ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = 5 meter length, etc.)

HA-LFS Series Motors

Motor Type (IP44)	IP65 Power Cable (Unshielded) Model No. (*2)	IP65 Power Cable (Shielded) Model No.	IP65 Encoder Cable Model No. (*1)
HA-LFS11K1MBK*	Hard-wired by user	Hard-wired by user	MR-ENCBL□M-H
HA-LFS11K1MK			
HA-LFS11K2BK*			
HA-LFS11K2K			
HA-LFS12K1BK*			
HA-LFS12K1K			
HA-LFS15K1K			
HA-LFS15K1MBK*			
HA-LFS15K1MK			
HA-LFS15K2BK*			
HA-LFS15K2K			
HA-LFS20K1K			
HA-LFS22K1MK			
HA-LFS22K2BK*			
HA-LFS22K2K			
HA-LFS25K1K			
HA-LFS30K2K			
HA-LFS37K2K			
HA-LFS502K (IP65)	MR5S-□M	MR5SW-SH-□M	
HA-LFS601BK*	Hard-wired by user	Hard-wired by user	
HA-LFS601K			
HA-LFS701MBK*			
HA-LFS701MK			
HA-LFS702K (IP65)	MR6S-□M	MR6SW-SH-□M	
HA-LFS801BK*	Hard-wired by user	Hard-wired by user	
HA-LFS801K			

*= Must order separate brake cable listed on page 92. □ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = 5 meter length, etc.)

Note:

1. -L = Standard Flexibility; -H = Extended Flexibility. The flex type shown is standard. Opposing flex cable (-L) or (-H) also available. HC-KFS and HC-MFS shaft through portion and connectors are NOT IP55. IP65 type motors are available, special order, consult Mitsubishi.
2. IP65 on Revision B cable and later only.

MR-J2S Power, Encoder and Brake Cables (continued)

HC-UFS Series Motors

Motor Type (IP65) (*3)	IP65 Power Cable (Unshielded) Model No. (*4)	IP65 Power Cable (Shielded) Model No.	IP65 Encoder Cable Model No. (*1)
HC-UF(S)13	MR1-☐M (Not IP65)	N/A	MR-JCCBL☐M-L
HC-UF(S)23			
HC-UF(S)43			
HC-UF(S)72	MR2S-☐M	MR2SW-SH-☐M	MR-ENCBL☐M-H
HC-UF(S)73	MR1-☐M	N/A	MR-JCCBL☐M-L
HC-UF(S)152	MR3S-☐M	MR3SW-SH-☐M	MR-ENCBL☐M-H
HC-UF(S)202	MR5S-☐M	MR5SW-SH-☐M	
HC-UF(S)352			
HC-UF(S)502			
HC-UF(S)13B	MR1B-☐M (Not IP65)	N/A	MR-JCCBL☐M-L
HC-UF(S)23B			
HC-UF(S)43B			
HC-UF(S)72B	MR2SB-☐M	MR2SBW-SH-☐M	MR-ENCBL☐M-H
HC-UF(S)73B	MR1B-☐M	N/A	MR-JCCBL☐M-L
HC-UF(S)152B	MR3SB-☐M	MR3SBW-SH-☐M	MR-ENCBL☐M-H
HC-UF(S)202B	MR5S-☐M*	MR5SW-SH-☐M*	
HC-UF(S)352B			
HC-UF(S)502B			

* = Must order separate brake cable listed below.
☐ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = 5 meter length, etc.)

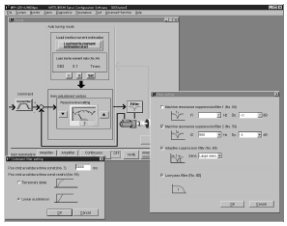
Notes:
1. -L = Standard Flexibility; -H = Extended Flexibility. The flex type shown is standard. Opposing flex cable (-L) or (-H) also available.
2. HC-KFS and HC-MFS shaft through portion and connectors are NOT IP55. IP65 type motors are available, special order, consult Mitsubishi.
3. HC-UF(S)13(B), 23(B), 43(B) and 73(B) connectors are NOT IP65. IP65 type motors are available, special order, consult Mitsubishi.
4. IP65 on Revision B cable and later only.

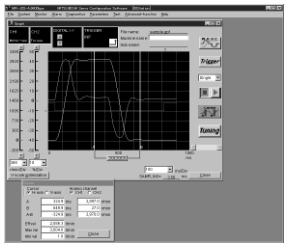
Brake Cable

Motor Type	IP65 Brake Cable (Unshielded) Model No. (*1)	IP65 Brake Cable (Shielded) Model No.
Brake Cable	MRBRKS-☐M	MRBRKSW-SH-☐M

Notes:
1. IP65 on Revision B cable and later only.

Setup Software





MR-Configurator

This Windows®-based software package is used to setup, program and test the amplifier. Initial setup and programming is easy and quick with the user-friendly software, which has extensive help functions and drop-downs. MR-Configurator also has many diagnostic functions such as a machine simulator to aid in mechanical design, a machine analyzer to find resonant frequencies of the load and set notch filters, an alarm monitor with history data, and the ability to assign and monitor I/O.

Features:

- Can be set up using a personal computer. Works on Windows 95/98/NT/ME/2000 Professional, XP Professional*.
- Provides numerous monitor functions. Provides graph display function that enables display of servomotor status upon input signal triggers such as command pulses, droop pulses, and r/min.
- Allows servomotors to be tested easily from a personal computer.

* Windows is a registered trademark of the Microsoft Corporation.

Software Selection

Description	Model Number
Windows Communication Software	MR-Configurator
Communications Cable	MR-CPCATCBL3M
Communications Cable (MR-J2S-CP-S084 only, connected via MR-J2S-T01)	MR-JRPCATCBL3M

Manual Selection

Hardware Description	Model Number
MR-J2S-A Servo Amp Instruction Manual	SH(NA)030006
MR-J2S-B Servo Amp Instruction Manual	SH(NA)030007
MR-J2S-CP Servo Amp Instruction Manual	SH(NA)030017
MR-J2S-CL Servo Amp Instruction Manual	SH(NA)030034
Servomotor Instruction Manual	SH(NA)3181
MR-HP30KA/55KA4 Converter Manual	SH(NA)030024
EMC Guidelines (Servo) Manual	IB(NA)67310

MR-J2S System Options

Description	Model Type	Model Number
Battery (Required for Absolute Positioning)	All MR-J2S Amplifier Models	MR-BAT
Terminal Block	All MR-J2S Amplifier Models	MR-TB20
Terminal Block Cable	All MR-J2S Amplifier Models	MR-J2TBL☐M
SSCNET Cable	MRJ2S☐B to MR-J2S☐B	MR-J2HBUS☐M
Converter Bus Cable	MRJ2S to Converter	MR-J2HBUS☐M
Terminator	MRJ2S☐B and Converter	MR-A-TM
TE2 Power Connector	MR-J2S-10 to 60 only	K05A01460200
TE2 Power Connector	MR-J2S-70 to 100 only	K05A01460201
CC-Link Interface Module	MR-J2S-CP-S084 only	MR-J2S-T01
Cable to Connect Amplifier to MR-J2S-T01 (CC-Link)	MR-J2S-CP-S084 only	MR-J2HBUS05M
CN1A/B I/O Connector Kit (Kit Contains One Each CN1A & CN1B)	All MR-J2S Amplifier Models	MR-J2CN1
CN4 Connector Kit	MR-J2S, 11kW or larger	MR-J2CMP2
Converter D-I/O Connector CN1	MR-HP30KA/55KA4 Converter	MR-HP4CN1
CN1A/B I/O Pigtail Cables (One Each Optional for CN1A & CN1B)	All MR-J2S Amplifier Models	MR-CCN1CBL-3M (3m length) MR-CCN1CBL-5M (5m length)

Note: Terminal Block Cable can be ordered in 0.5 and 1 meter lengths.

Servo-Amp Model (MR-J2S-)	Model Number — Regenerative Power [W] (Note)											
	MR-RB032	MR-RB12	MR-RB30	MR-RB31	MR-RB32	MR-RB50	MR-RB51	MR-RB65	MR-RB66	MR-RB67	MR-RB139	MR-RB137 (x3)
10A(1)/B(1)/CP(1)/CL(1)	30	X	X	X	X	X	X	X	X	X	X	X
20A(1)/B(1)/CP(1)/CL(1)	30	100	X	X	X	X	X	X	X	X	X	X
40A(1)/B(1)/CP(1)/CL(1)	30	100	X	X	X	X	X	X	X	X	X	X
60A/B/CP/CL	30	100	X	X	X	X	X	X	X	X	X	X
70A/B/CP/CL (-U☐)	30	100	X	X	300	X	X	X	X	X	X	X
100A/B/CP/CL	30	100	X	X	300	X	X	X	X	X	X	X
200A/B/CP/CL	X	X	300	X	X	500	X	X	X	X	X	X
350A/B/CP/CL	X	X	300	X	X	500	X	X	X	X	X	X
500A/B/CP/CL	X	X	300	X	X	500	X	X	X	X	X	X
700A/B/CP/CL	X	X	X	300	X	X	500	X	X	X	X	X
11KA/B	X	X	X	X	X	X	X	500 (800)	X	X	X	X
15KA/B	X	X	X	X	X	X	X	X	850 (1300)	X	X	X
22KA/B	X	X	X	X	X	X	X	X	X	850 (1300)	X	X
30KA/B	X	X	X	X	X	X	X	X	X	X	1300	3900
37KA/B	X	X	X	X	X	X	X	X	X	X	1300	3900

Note: This value is the regenerative power of the resistor and is not the rated power.

Description	Model Type	Model Number
Regeneration Brake Unit (Must Be Combined With Resistor Unit)	MR-J2S-500☐ – 700☐	FR-BU-15K-UL
	MR-J2S-11K☐ – 15K☐	FR-BU-30K-UL
	MR-J2S-22K☐	FR-BR-55K-UL
Regeneration Resistor Unit (Must Be Combined With Brake Unit)	MR-J2S-500☐ – 700☐	FR-BR-15K-UL
	MR-J2S-11K☐ – 15K☐	FR-BR-30K-UL
	MR-J2S-22K☐	FR-BR-55K-UL
Power Return Converter	MR-J2S-500☐	FR-RC-15K
	MR-J2S-700☐/11K☐/15K☐	FR-RC-30K
	MR-J2S-22K☐	FR-RC-55K
External Dynamic Brake Unit	MR-J2S-11K☐	DBU-11K
	MR-J2S-15K☐	DBU-15K
	MR-J2S-22K☐	DBU-22K
	MR-J2S-30K☐ / 37K☐	DBU-37K
Maintenance Junction Card	All models	MR-J2CN3TM
AC Power Factor Improving Reactor	MR-J2S-10☐(1) / 20☐	MRL-00402
	MR-J2S-40☐(1) / 20☐(1)	MRL-00402
	MR-J2S-60☐ / 70☐ / 40☐(1)	MRL-00802
	MR-J2S-100☐	MRL-01202
	MR-J2S-200☐	MRL-01802
	MR-J2S-350☐	MRL-03502
	MR-J2S-500☐	MRL-04502
	MR-J2S-700☐/11K☐	MRL-05502
	MR-J2S-15K☐	MRL-10002
	MR-J2S-22K☐	MRL-13002
DC Power Factor Improving Reactor	MR-J2S-11K☐	M40RB003
	MR-J2S-15K☐	M50RB001
	MR-J2S-22K☐	M80RB002
	MR-J2S-30K☐	MR-DCL30K
	MR-J2S-37K☐	MR-DCL37K
Line Noise Filter	MR-J2S-200☐ or less	FR-BSF01
	MR-J2S-350☐ or more	FR-BLF
Radio Noise Filter	All models	FR-BIF
EMC Filter	MR-J2S-10☐ – 70☐	SF1252
	MR-J2S-10☐1 – 40☐1	
	MR-J2S-100☐	MF-3F480-010.230
	MR-J2S-200☐ – 350☐	MF-3F480-025.230
	MR-J2S-500☐– 750☐	MF-3F230-050.230
	MR-J2S-11K☐	HF3060A-TMA
	MR-J2S-15K☐	HF3080A-TMA
	MR-J2S-22K☐	HF3100A-TMA
	MR-J2S-30K☐ – 37K☐	HF3200A-TMA
Outer-Mount Heat Sink Attachment	For MR-J2S-30K☐/37K☐	MR-ACN55K
	For Converter MR-HP30KA	MR-ACNP55K

Note: ☐= A, B, CP or CL.

MR-J2S Motor Power Connection Options

Description	Model Type	Model Number
Power Connector Kit (Straight Plug)	HC-SFS 52, 53, 81, 102, 103, 152, 153	MR-MTR-CON-KIT-AS
	HC-RFS 103, 153 203; HC-UFS 72, 152	
	HC-SFS 121, 201, 202, 203, 301, 352, 353, 502; HC-RFS 353, 503 HC-UFS 202, 352, 502; HA-LFS 502	MR-MTR-CON-KIT-BS
	HC-SFS 702; HA-LFS 702	MR-MTR-CON-KIT-DS
Power Connector Kit (90° Angle Plug)	HC-SFS 52, 53, 81, 102, 103, 152, 153	MR-MTR-CON-KIT-A
	HC-RFS 103, 153 203; HC-UFS 72, 152	
	HC-SFS 121, 201, 202, 203, 301, 352, 353, 502; HC-RFS 353, 503 HC-UFS 202, 352, 502; HA-LFS 502	MR-MTR-CON-KIT-B
	HC-SFS 702; HA-LFS 702	MR-MTR-CON-KIT-D
Power Connector Kit (IP65 & "CE") (Straight Plug)	HC-SFS 52, 53, 81, 102, 103, 152, 153; HC-RFS 103, 153, 203 HC-UFS 72, 152	MR-PWCNS1
	HC-SFS 121, 201, 202, 203, 301, 352, 353, 502; HC-RFS 353, 503 HC-UFS 202, 352, 502; HA-LFS 502	MR-PWCNS2
	HC-SFS 702; HA-LFS 702	MR-PWCNS3

Motor Power/Brake Connection Options

Description	Model Type	Model Number
Power Connector Kit (IP20) (Instead of MR1-☐M) (No Brake)	HC-UFS 13, 23, 43, 73 HC-MFS 053, 13, 23, 43, 73	MR-PWCNK1
	HC-KFS 053, 13, 23, 43	
Power Connector Kit (IP20) (Instead of MR1B-☐M) (With Brake)	HC-UFS 13, 23, 43, 73 HC-MFS 053, 13, 23, 43, 73 HC-KFS 053, 13, 23, 43	MR-PWCNK2

Motor Brake Connection Options

Description	Model Type	Model Number
Brake Cable	HC-SFS 121B, 201B, 202B, 203B, 301B, 352B	MRBRKS-☐M
	HC-RFS 353B, 502B, 702B HC-UFS 202B, 352B, 502B HA-LFS (B type)	
Brake Connector Kit (IP65 & "CE") (Instead of MRBRKS-☐M)	Connectors only (instead of MRBRKS-☐M cable)	MR-BKCN

Note: Model numbers with ☐ can be ordered in 2, 5 and 10 meter lengths.

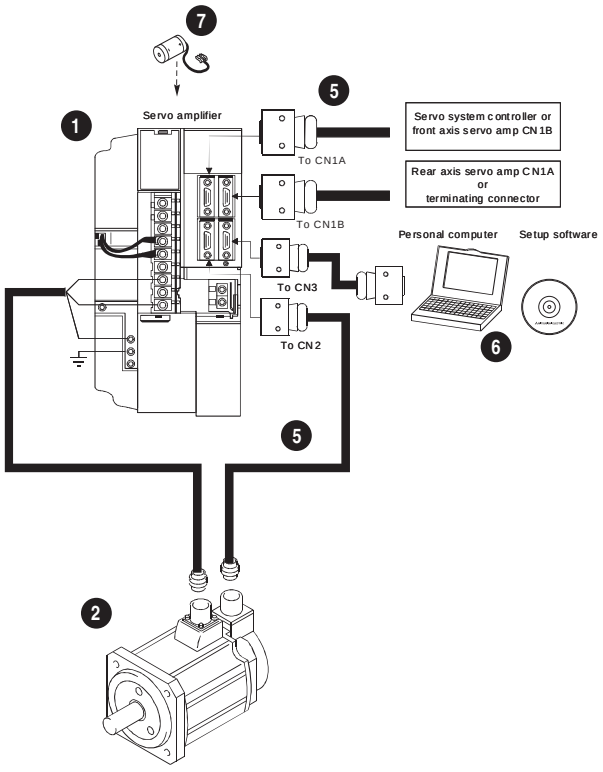
Motor Encoder Connection Options

Description	Model Type	Model Number
Encoder Connector Kit (IP20) (Instead of MR-JCCBL☐M)	HC-UFS 13-42, 73-502 HC-MFS 053-73 HC-KFS 053-43	MR-J2CNM
Encoder Connector Kit	All HC-SFS; All HA-LFS HC-RFS 103-503 HC-UFS 72, 152-502	MR-J2CNS
Encoder Connector Kit (IP65 & "CE") (instead of MR-ENCBL☐M-H)	All HC-SFS All HA-LFS HC-RFS 103-503 HC-UFS 72, 152-502	MR-ENCNS

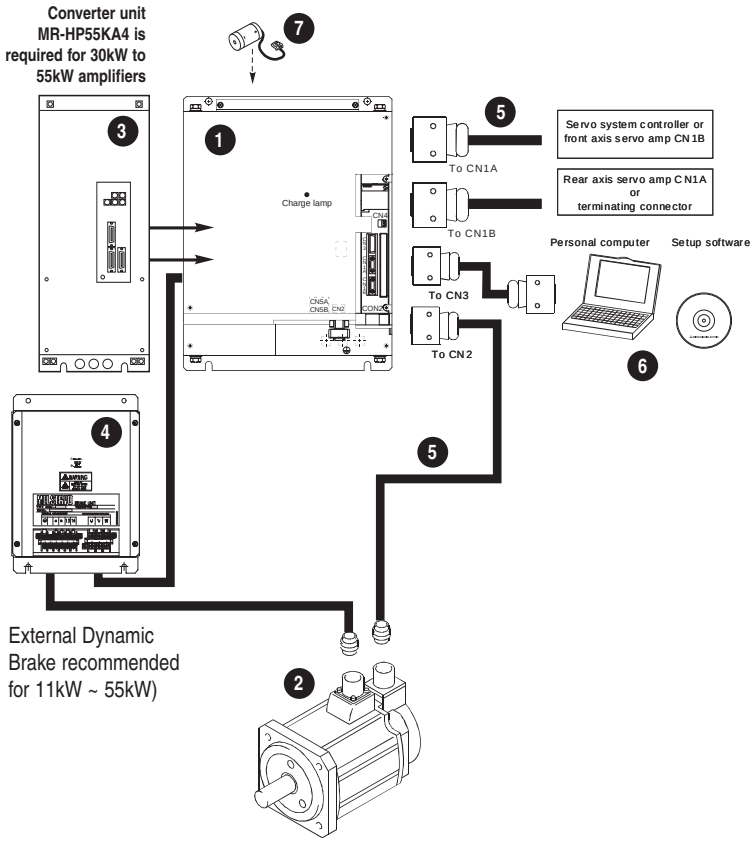
Note: Model numbers with ☐ can be ordered in 2, 5 and 10 meter lengths.

MR-J2S Servomotors and Amplifiers
380~480 VAC

500W to 7kW



11kW to 55kW



FOR AN OPERATIONAL SYSTEM, SELECT:

1. Amplifier
2. Motor
3. Converter
   (Required for 30kW ~55kW)
4. External Dynamic Brake Unit (Recommended for 11kW ~ 55kW)
5. Cables
6. Software and Manuals
7. Optional Accessories

Servo Amplifier Selection

MR-J2S □ □ **4 -** □

Special Specification

Mitsubishi J2 Super Series general-purpose AC Servo Amplifier

Symbol	Description
A	General purpose interface
B	SSCNET

Symbol	Power Supply
4	3-phase 380-480V AC

- Conforms to following standards: EN, UL, cUL

Compatible Motors		
Symbol	HC-SFS	HA-LFS
60	524	—
100	1024	—
200	1524, 2024	—
350	3524	—
500	5024	—
700	7024	—
11K	—	8014, 12K14, 11K1M4, 11K24
15K	—	15K14, 15K1M4, 15K24
22K	—	20K14, 22K1M4, 22K24
30K*	—	25K14, 30K14, 30K1M4, 30K24
37K*	—	37K14, 37K1M4, 37K24
45K*	—	45K1M4, 45K24
55K*	—	50K1M4, 55K24

* Converter unit MR-HP55KA4 is required for 30kW ~55kW amplifiers

Servo Amp Model MR-J2S-		60A4/B4	100A4/B4	200A4/B4	350A4/B4	500A4/B4	700A4/B4	11KA4/B4	15KA4/B4	22KA4/B4	30KA4/B4	37KA4/B4	45KA4/B4	55KA4/B4
Converter Unit Model		—									MR-HP55KA4			
Control Circuit Power Supply	Voltage/Frequency	24 VDC						1-phase 380 to 480 VAC 50/60Hz						
	Permissible Voltage Fluctuation	20.4 to 27.6 VDC						1-phase 323 to 528 VAC 50/60Hz						
	Permissible Frequency Fluctuation	—						±5% max.						
	Power Consumption	25W						50W						
Main Circuit Power Supply	Voltage /Frequency	3-phase 380 to 480 VAC 50/60Hz									The servo amplifier's main circuit power is supplied from the converter unit.			
	Permissible Volt. Fluctuation	3-phase 323 to 528 VAC 50/60Hz												
	Permissible Frequency Fluctuation	±5% max.												
Control System		Sine-wave PWM control/current control system												
Dynamic Brake		Built-in (700B4 externally attached)						External option						
Safety Features		Overcurrent shutdown, regeneration overvoltage shutdown, overload shutdown (electronic thermal), servomotor overheat protection, encoder fault protection, regeneration fault protection, undervoltage/sudden power outage protection, overspeed protection, excess error protection												
Position Control Mode	Maximum Input Pulse Frequency	500kpps (when using differential receiver), 200kpps (when using open collector)												
	Positioning Feedback Pulse	Resolution per encoder/servomotor rotation: 131072 p/rev												
	Command Pulse Multiple	Electronic gear A/B multiple, A: 1 to 65535 or 131072, B: 1 to 65535 1/50 < A/B < 500												
	Positioning Complete Width Setting	0 to ±10000 pulses (command pulse unit)												
	Excess Error	±10 rotations												
	Torque Limit	Set by parameters or external analog input (0 to +10 VDC, max. torque)												
Speed Control Mode	Speed Control Range	Analog speed command 1:2000, internal speed command 1:5000												
	Analog Speed Com. Input	0 to ±10 VDC / rated speed												
	Speed Fluctuation Rate	±0.01% max. (load fluctuation 0 to 100%) 0% (power fluctuation ±10%) ±0.2% max. ambient temperature 25°C ±10°C (77°F ±50°F) when using analog speed command												
	Torque Limit	Set by parameters or external analog input (0 to +10 VDC, max. torque)												
Torque Control Mode	Analog Torque Com. Input	0 to ±8 VDC max. torque (input impedance 10 to 12kΩ)												
	Speed Limit	Set by parameters or external analog input (0 to ±10 VDC, rated speed)												
Structure		Fan cooling open (IP00)												
Environment	Ambient Temperature	0 to +55°C (32 to +131°F) (non-freezing), storage: -20 to +65°C (-4 to 149°F) (non-freezing)												
	Ambient Humidity	90% RH max. (non-condensing). storage: 90% RH max. (non-condensing)												
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust												
	Elevation	1000 meters or less above sea level												
	Oscillation	5.9 m/s² max												
Weight kg (lb)		2.0 (4.4)	2.0 (4.4)	2.0 (4.4)	5 (11)	5 (11)	7.2 (15.9)	15 (33)	16 (35.3)	20 (44.1)	36 (79.3)	47 (103.5)	47 (103.5)	47 (103.5)

MR-J2S 380 – 480 VAC

	Motor Series	Rated Speed (Max. r/min)	Rated Output Capacity (kW)	Servomotor Type / Brake (B)	Protective Degree Rating	Features	Application Examples
Medium Capacity	**HC-SFS Series** 	2000	7 types 0.5, 1.0, 1.5, 2.0, 3.5, 5.0, 7.0	Available	IP65	**Medium inertia** Suitable for variable applications.	• Conveyor machines • Robots • X-Y tables
Large Capacity Series	**HA-LFS Series** 	1000	7 types 8.0, 12.0, 15.0, 20.0, 25.0, 30.0, 37.0 (*1)	Available	IP44	**Low inertia** Suitable for variable applications. Three models from low to medium-speed are available. As a standard, 30kW and larger capabilities are compatible with flange mounting or foot mounting.	• Injection molding machines • Semiconductor manufacturing devices • Large conveyor machines
		1500	7 types 11.0, 15.0, 22.0, 30.0, 37.0, 45.0, 50.0	Available	IP44		
		2000	7 types 11.0, 15.0, 22.0, 30.0, 37.0, 45.0, 55.0	Available	IP44		

Notes:
1. The HA-LFS 1000 r/min 400V 8.0 to 25 kW capacities are special order products. Contact Mitsubishi for details on the delivery schedule.

Servomotor Selection

HC-SFS ☐ **4** ☐ ☐

131072 pulse p/rev encoder for use in absolute and incremental systems (serial encoder)

• Conforms to following standards: EN, UL, cUL

Symbol	Rated Output Capacity kW
52	0.5
102	1.0
152	1.5
202	2.0
352	3.5
502	5.0
702	7.0

Symbol	Description
4	400V Class

Symbol	Electromagnetic Brake
None	None
B	Installed

Symbol	Shaft
None	Straight Shaft
K	Keyway (Standard)

Servomotor Selection:

HA-LFS ☐ ☐ **4** ☐ ☐

131072 pulse p/rev encoder for use in absolute and incremental systems (serial encoder)

• Conforms to following standards: EN, UL, cUL

Symbol	Rated Output Capacity kW
801	8
11K	11
12K	12
15K	15
20K	20
22K	22
25K	25
30K*	30
37K*	37
45K*	45
50K*	50
55K*	55

* No brake available

Symbol	Rated Speed r/min
1	1000
1M	1500
2	2000

Symbol	Description
4	400V Class

Symbol	Electromagnetic Brake
None	None
B	Installed

Symbol	Shaft
None	Straight Shaft
K	Keyway (Standard)

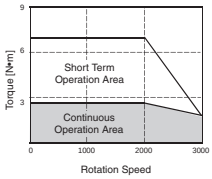
MR-J2S 380 – 480 VAC HC-SFS 2000 r/min Series Servomotor Specifications (400 VAC Type)

Models	Servomotor Model HC-SFS	524(B)	1024(B)	1524(B)	2024(B)	3524(B)	5024(B)	7024(B)
	Servo-Amp Model MR-J2S–	60A4/B4	100A4/B4	200A4/B4	200A4/B4	350A4/B4	500A4/B4	700A4/B4
Power Facility Capacity kVA (*1)		1.0	1.7	2.5	3.5	5.5	7.5	10.0
Continuous Running Duty	Rated Output kW	0.5	1.0	1.5	2.0	3.5	5.0	7.0
	Rated Torque (N•m [oz•in])	2.39 (338.4)	4.78 (676.8)	7.16 (1013.9)	9.55 (1352.3)	16.7 (2364.7)	23.9 (3384.2)	33.4 (4729.4)
Maximum Torque (N•m [oz•in])		7.16 (1013.9)	14.4 (2039.0)	21.6 (3058.6)	28.5 (4035.6)	50.1 (7094.2)	71.6 (10138.6)	100 (14160)
Rated Speed r/min		2000						
Maximum Speed r/min		3000			2500		2000	
Permissible Instantaneous Speed r/min		3450			2850		2300	
Power Rate at Continuous Rated Torque kW/s		8.7	16.7	25.6	21.5	34.1	56.5	69.7
Rated Current (A)		1.5	2.8	4.4	5.4	8.6	14	17
Maximum Current (A)		4.5	8.4	13.2	16.2	25.8	42	51
Regeneration Braking Frequency (times/min) (*2, *3)	With No Options	125	200	136	64	43	39	32
	MR-RB1L-4 (100W)	415	—	—	—	—	—	—
	MR-RB3M-4 (300W)	—	600	—	—	—	—	—
	MR-RB3H-4 (300W)	—	—	408	192	—	—	—
	MR-RB5H-4 (500W) (*6)	—	—	680	320	—	—	—
	MR-RB3G-4 (300W)	—	—	—	—	100	90	—
	MR-RB5G-4 (500W) (*6)	—	—	—	—	167	150	—
	MR-RB34-4 (600W)	—	—	—	—	—	—	57
	MR-RB54-4 (500W) (*6)	—	—	—	—	—	—	95
Moment of Inertia J ($\times 10^{-4}$ kg·m^2) [WK^2 (oz·in^2)]	Standard	6.6 (36.1)	13.7 (74.9)	20.0 (109)	42.5 (232)	82.0 (448)	101 (552)	160 (875)
	With Electromagnetic Brake	8.6 (47.0)	15.7 (85.8)	22.0 (120)	52.5 (287)	92.0 (503)	111 (607)	170 (929)
Recommended Load/Motor Inertia Moment Ratio		Less than 15-times the servomotor's inertia moment (*4)						
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev						
Attachments		17 bit encoder, oil seal						
Structure		Totally enclosed non-ventilated (protection degree: IP65)						
Environment	Ambient Temperature	0 to +40°C (32 to 104°F) (non-freezing), storage: -15 to +70°C (5 to +158°F) (non-freezing)						
	Ambient Humidity	80% RH max. (non-condensing), storage: 90% RH max. (non-condensing)						
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Elevation	1000 meters or less above sea level						
	Vibration (*5)	X, 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	
Weight kg (lb)	Standard	5 (11.0)	7 (15.4)	9 (19.8)	12 (26.4)	19 (41.9)	23 (50.7)	32 (70.5)
	With Electromagnetic Brake	7 (15.4)	9 (19.8)	11 (24.2)	18 (39.7)	25 (55.1)	29 (63.9)	38 (83.7)

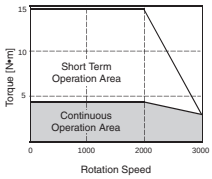
Notes:

1. The power facility capacity varies depending on the power supply's impedance.
2. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
3. The regenerative braking frequency of the 600W and smaller servo amplifier may fluctuate due to the affect of the power voltage since the energy charged by the electrolytic capacitor in the servo amplifier is large.
4. Contact Mitsubishi Electric if the load/motor of inertia moment ratio exceeds the figure in the table.
5. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.
6. Install a cooling fan (approx. 1.03/min, ☐92).

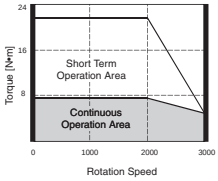
HC-SFS524 (B)



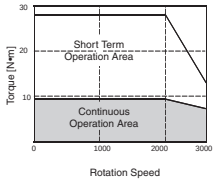
HC-SFS1024 (B)



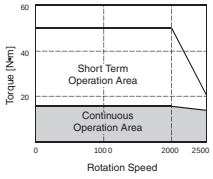
HC-SFS1524 (B)



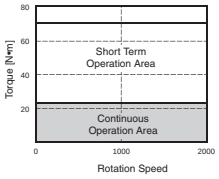
HC-SFS2024 (B)



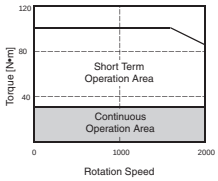
HC-SFS3524 (B)



HC-SFS5024 (B)



HC-SFS7024 (B)



MR-J2S 380 – 480 VAC HA-LFS 1000 r/min Series Servomotor Specifications (400 VAC Type)

Models		8014(B)	12K14(B)	15K14(B)	20K14(B)	25K14(B)	30K14	37K14
	Servo-Amp Model MR-J2S	11KA4/B4-U061 (*7)	11KA4/B4-U062 (*7)	15KA4/B4-U063 (*7)	22KA4/B4-U064 (*7)	30KA4/B4-U065 (*7)	30KA4/B4	37A4/B4-U040
	Converter Unit Model	—					MR-HP55KA4	
Power Facility Capacity kVA (*1)		12	18	22	30	38	48	59
Continuous Running Duty	Rated Output kW	8	12	15	20	25	30	37
	Rated Torque (N•m [oz•in])	76.4 (10818.2)	115 (16284)	143 (20248.8)	191 (27045.6)	239 (33842.4)	286 (40497.6)	353 (49984.8)
Maximum Torque (N•m [oz•in])		229 (32426.4)	344 (48710.4)	415 (58764)	477 (67543.2)	597 (84535.2)	716 (101385.6)	883 (125032.8)
Rated Speed r/min		1000						
Maximum Speed r/min		1200						
Permissible Instantaneous Speed r/min		1380						
Power Rate at Continuous Rated Torque kW/s		265	445	373	561	528	626	668
Rated Current (A)		21	31	42	59	70	77	94
Maximum Current (A)		63	93	126	148	175	193	235
Regeneration Braking Frequency (times/min) (*1, *2)	With No Options	—	—	—	—	—	—	—
	MR-RB31 (300W)	—	—	—	—	—	—	—
	MR-RB51 (500W) (*3)	—	—	—	—	—	—	—
	GRZG400-2Ω (4) MR-RB65 (800W) (*4)	—	—	—	—	—	—	—
	GRZG400-1Ω (5) MR-RB66 (1300W) (*4)	—	—	—	—	—	—	—
	GRZG400-0.8Ω (5) MR-RB67 (1300W) (*4)	—	—	—	—	—	—	—
	MR-RB139 (1300W)	—	—	—	—	—	—	—
	MR-RB137 (3900W)	—	—	—	—	—	—	—
	GRZG400-5Ω (4) MR-RB6B-4 (800W) (*4)	354	264	—	—	—	—	—
	GRZG400-2.5Ω (5) MR-RB60-4 (1300W) (*4)	—	—	230	—	—	—	—
	GRZG400-2Ω (5) MR-RB6K-4 (1300W) (*4)	—	—	—	195	117	—	—
	MR-RB136-4 (1300W)	—	—	—	—	—	97	68
	MR-RB138-4 (3900W)	—	—	—	—	—	290	203
Moment of Inertia J (×10^{-4} kg·m^2) [WK^2 (oz·in^2)]	Standard	220 (1202.7)	295 (1612.6)	550 (3006.6)	650 (3553.3)	1080 (5903.9)	1310 (7161.2)	1870 (10222.5)
	With Electromagnetic Brake	293 (1601.7)	369 (2017.2)	—	—	—	—	—
Recommended Load/Motor Inertia Moment Ratio		Less than 10-times the servomotor's inertia moment (*5)						
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev						
Attachments		17 bit encoder, oil seal						
Structure		Totally enclosed ventilated (protection degree: IP44)						
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: -15 to 70°C (5 to 158°F) (non-freezing)						
	Ambient Humidity	80% RH max. (non-condensing), storage 90% RH max. (non-condensing)						
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Elevation	1000 meters or less above sea level						
	Vibration (*6)	X: 11.7 m/s^2 • Y: 29.4 m/s^2	X: 11.7 m/s^2 • Y: 29.4 m/s^2	X: 9.8 m/s^2 • Y: 9.8 m/s^2				
Weight kg (lb)	Standard	95 (209.3)	115 (253.4)	160 (352.5)	180 (396.6)	230 (506.7)	250 (550.8)	335 (738)
	With Electromagnetic Brake	126 (277.6)	146 (321.7)	—	—	—	—	—
Cooling Fan Power	Voltage, Frequency	3-phase 380 to 420 VAC 50/60Hz	3-phase 380 to 420 VAC 50/60Hz	3-phase 380 to 460 VAC 50/60Hz				
	Input (W)	55 (50Hz) / 75 (60Hz)	55 (50Hz) / 75 (60Hz)	65 (50Hz) / 85 (60Hz)		110 (50Hz) / 150 (60Hz)		
Cooling Fan Rated Current (A)		0.12 (50Hz) / 0.11 (60Hz)	0.12 (50Hz) / 0.11 (60Hz)	0.12 (50Hz) / 0.14 (60Hz)		0.20 (50Hz) / 0.22 (60Hz)		

Notes:

1. The power facility capacity varies depending on the power supply's impedance.
2. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
3. Install a cooling fan (approx. 1.0^3/min, □92).
4. The values apply when the parameter No. 0 (for MR-J2S-A type) or No. 2 (for MR-J2S-B type) is changed, and the cooling fan (approx. 10m^3/min, □92 x2x units) are installed.
5. Contact Mitsubishi Electric if the load/motor of inertia moment ratio exceeds the figure in the table.
6. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.
7. The servomotor amplifier software version corresponding to each servomotor differs, so contact your dealer for details on the servo amplifier type and the types of servomotor that are combined with servo amplifiers, and for information on delivery schedule.

MR-J2S 380 – 480 VAC HA-LFS 1500 r/min Series Servomotor Specifications (400 VAC Type)

Servomotor Series		HA-LFS 1500						
Models	Servomotor Model HA-LFS	11K1M4(B)	15K1M4(B)	22K1M4	30K1M4	37K1M4	45K1M4	50K1M4
	Servo-Amp Model MR-J2S	11KA4/B4	15KA4/B4	22KA4/B4	30KA4/B4	37KA4/B4	45KA4/B4	55KA4/B4
	Converter Unit Model	—			MR-HP55KA4			
Power Facility Capacity kVA (*1)		16	22	33	48	59	71	80
Continuous Running Duty	Rated Output kW	11	15	22	30	37	45	50
	Rated Torque (N•m [oz•in])	70.0 (9912)	95.5 (13522.8)	140 (19824)	191 (27045.6)	236 (33417.6)	286 (40497.6)	318 (45028.8)
Maximum Torque (N•m [oz•in])		210 (29736)	286 (4097.6)	350 (49560)	477 (67543.2)	589 (83402.4)	716 (101385.6)	796 (112713.6)
Rated Speed r/min		1500						
Maximum Speed r/min		2000						
Permissible Instantaneous Speed r/min		2300						
Power Rate at Continuous Rated Torque kW/s		223	309	357	561	514	626	542
Rated Current (A)		33	44	63	87	101	128	143
Maximum Current (A)		99	132	158	218	253	320	358
Regeneration Braking Frequency (times/min) (*1, 2)	With No Options	—	—	—	—	—	—	—
	MR-RB31 (300W)	—	—	—	—	—	—	—
	MR-RB51 (500W) (*3)	—	—	—	—	—	—	—
	GRZG400-2Ω (4) MR-RB65 (800W) (*4)	—	—	—	—	—	—	—
	GRZG400-1Ω (5) MR-RB66 (1300W) (*4)	—	—	—	—	—	—	—
	GRZG400-0.8Ω (5) MR-RB67 (1300W) (*4)	—	—	—	—	—	—	—
	MR-RB139 (1300W)	—	—	—	—	—	—	—
	MR-RB137 (3900W)	—	—	—	—	—	—	—
	GRZG400-5Ω (4) MR-RB6B-4 (800W) (*4)	158	—	—	—	—	—	—
	GRZG400-2.5Ω (5) MR-RB60-4 (1300W) (*4)	—	191	—	—	—	—	—
	GRZG400-2Ω (5) MR-RB6K-4 (1300W) (*4)	—	—	102	—	—	—	—
	MR-RB136-4 (1300W)	—	—	—	87	52	43	30
	MR-RB138-4 (3900W)	—	—	—	260	156	129	90
Moment of Inertia J (×10^{-4} kg·m^2) [WK^2 (oz·in^2)]	Standard	220 (1202.7)	295 (1612.6)	550 (3006.6)	650 (3553.3)	1080 (5903.9)	1310 (7161.2)	1870 (10222.5)
	With Electromagnetic Brake	293 (1601.7)	369 (2017.2)	—	—	—	—	—
Recommended Load/Motor Inertia Moment Ratio		Less than 10-times the servomotor's inertia moment (*5)						
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev						
Attachments		17 bit encoder, oil seal						
Structure		Totally enclosed ventilated (protection degree: IP44)						
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: -15 to 70°C (5 to 158°F) (non-freezing)						
	Ambient Humidity	80% RH max. (non-condensing, storage 90% RH max. (non-condensing)						
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Elevation	1000 meters or less above sea level						
	Vibration (*6)	X: 11.7 m/s^2 • Y: 29.4 m/s^2		X: 9.8 m/s^2 • Y: 9.8 m/s^2				
Weight kg(lb)	Standard	95 (209.3)	115 (253.4)	160 (352.5)	180 (396.6)	230 (506.7)	250 (550.8)	335 (738)
	With Electromagnetic Brake	126 (227.6)	146 (321.7)	—	—	—	—	—
Cooling Fan Power	Voltage, Frequency	3-phase 380 to 420 VAC 50/60Hz		3-phase 380 to 460 VAC 50/60Hz				
	Input (W)	55 (50Hz) / 75 (60Hz)		65 (50Hz) / 85 (60Hz)		110 (50Hz) / 150 (60Hz)		
Cooling Fan Rated Current (A)		0.12 (50Hz) / 0.11 (60Hz)		0.12 (50Hz) / 0.14 (60Hz)		0.20 (50Hz) / 0.22 (60Hz)		

Notes:

1. The power facility capacity varies depending on the power supply's impedance.
2. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
3. Install a cooling fan (approx. 1.0^3/min, ☐92).
4. The values apply when the parameter No. 0 (for MR-J2S-A type) or No. 2 (for MR-J2S-B type) is changed, and the cooling fan (approx. 10m^3/min, ☐92 x2x units) are installed.
5. Contact Mitsubishi Electric if the load/motor of inertia moment ratio exceeds the figure in the table.
6. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.

MR-J2S 380 – 480 VAC HA-LFS 2000 r/min Series Servomotor Specifications (400 VAC Type)

Servomotor Series		HA-LFS 2000 r/min Series (Low Inertia, Medium to Large Capacity)						
Models	Servomotor Model HA-LFS	11K24(B)	15K24(B)	22K24(B)	30K24	37K24	45K24	55K24
	Servo-Amp Model MR-J2S	11KA4/B4	15KA4/B4	22KA4/B4	30KA4/B4	37KA4/B4	45KA4/B4	55KA4/B4
	Converter Unit Model	—			MR-HP55KA4			
Power Facility Capacity kVA (*1)		16	22	33	48	59	71	87
Continuous Running Duty	Rated Output kW	11	15	22	30	37	45	55
	Rated Torque (N•m [oz•in])	52.5 (7434)	71.6 (10138.6)	105 (14868)	143 (20248.8)	177 (25063.2)	215 (30444)	263 (37240.8)
Maximum Torque (N•m [oz•in])		158 (22372.8)	215 (30444)	263 (37240.8)	358 (50692.8)	442 (62587.2)	537 (76039.2)	657 (93031.2)
Rated Speed r/min		2000						
Maximum Speed r/min		2000						
Permissible Instantaneous Speed r/min		2300						
Power Rate at Continuous Rated Torque kW/s		263	233	374	373	480	427	526
Rated Current (A)		32	39	56	83	102	131	143
Maximum Current (A)		96	117	140	208	255	328	358
Regeneration Braking Frequency (times/min) (*1, *2)	With No Options	—	—	—	—	—	—	—
	MR-RB30 (400W)	—	—	—	—	—	—	—
	MR-RB31 (500W)	—	—	—	—	—	—	—
	MR-RB50 (500W) (*3)	—	—	—	—	—	—	—
	MR-RB51 (500W) (*3)	—	—	—	—	—	—	—
	GRZG400-2Ω (4) MR-RB65 (800W) (*4)	—	—	—	—	—	—	—
	GRZG400-1Ω (5) MR-RB66 (1300W) (*4)	—	—	—	—	—	—	—
	GRZG400-0.8Ω (5) MR-RB67 (1300W) (*4)	—	—	—	—	—	—	—
	MR-RB139 (1300W)	—	—	—	—	—	—	—
	MR-RB137 (3900W)	—	—	—	—	—	—	—
	GRZG400-5Ω (4) MR-RB6B-4 (800W) (*4)	186	—	—	—	—	—	—
	GRZG400-2.5Ω (5) MR-RB60-4 (1300W) (*4)	—	144	—	—	—	—	—
	GRZG400-2Ω (5) MR-RB6K-4 (1300W) (*4)	—	—	107	—	—	—	—
	MR-RB136-4 (1300W)	—	—	—	58	49	30	24
	MR-RB138-4 (3900W)	—	—	—	174	147	89	73
Moment of Inertia J (×10^{-4} kg·m^2) [WK^2 (oz·in^2)]	Standard	105 (574.0)	220 (1202.7)	295 (1612.6)	550 (3006.6)	650 (3553.3)	1080 (5903.9)	1310 (7161.2)
	With Electromagnetic Brake	113 (617.7)	293 (1601.7)	369 (2017.2)	—	—	—	—
Recommended Load/Motor Inertia Moment Ratio		Less than 10-times the servomotor's inertia moment (*5)						
Speed/Position Detector		Resolution per encoder/servomotor rotation: 131072 p/rev						
Attachments		17 bit encoder, oil seal						
Structure		Totally enclosed ventilated (protection degree: IP44)						
Environment	Ambient Temperature	0 to 40°C (32 to 104°F) (non-freezing), storage: -15 to 70°C (5 to 158°F) (non-freezing)						
	Ambient Humidity	80% RH max. (non-condensing), storage 90% RH max. (non-condensing)						
	Atmosphere	Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust						
	Elevation	1000 meters or less above sea level						
	Vibration (*6)	X: 11.7 m/s^2 • Y: 29.4 m/s^2		X: 9.8 m/s^2 • Y: 9.8 m/s^2				
Weight kg(lb)	Standard	55 (121.2)	95 (209.3)	115 (253.4)	160 (352.5)	180 (396.6)	230 (506.7)	250 (550.8)
	With Electromagnetic Brake	70 (154.2)	126 (277.6)	146 (321.7)	—	—	—	—
Cooling Fan Power	Voltage, Frequency	single-phase200 to 220VAC/50Hz single-phase200 to 230VAC/60Hz	3-phase 380 to 420 VAC 50/60Hz		3-phase 380 to 460 VAC 50/60Hz			
	Input (W)	42 (50Hz)/54 (60Hz)	55 (50Hz)/75 (60Hz)		65 (50Hz)/85 (60Hz)		110 (50Hz)/150 (60Hz)	
Cooling Fan Rated Current (A)		0.21 (50Hz)/0.25 (60Hz)	0.12 (50Hz)/0.11 (60Hz)		0.12 (50Hz)/0.14 (60Hz)		0.20 (50Hz)/0.22 (60Hz)	

Notes:

1. The power facility capacity varies depending on the power supply's impedance.
2. The regenerative brake frequency shown is the permissible frequency for decelerating a stand-alone motor from rated rpm to a stop. When under load, however, the value becomes the table value divided by (m+1) where m is the load inertia moment divided by the motor inertia moment. When the rated rpm is exceeded, the regenerative brake frequency is inversely proportional to the square of (operating speed/rated speed). When the operating rpm varies with the frequency or when regeneration is constant (as with vertical feeds), find the regeneration heat generated (W) while operating and do not exceed the permissible value.
3. Install a cooling fan (approx. 1.0^3/min, □92).
4. The values apply when the parameter No. 0 (for MR-J2S-A type) or No. 2 (for MR-J2S-B type) is changed, and the cooling fan (approx. 10m^3/min, □92 x2x units) are installed.
5. Contact Mitsubishi Electric if the load/motor of inertia moment ratio exceeds the figure in the table.
6. The vibration direction is shown in the right-side diagram. The numeric value indicates the maximum value of the component (commonly the bracket on the anti-load side). Fretting of the bearing occurs easily when the motor stops, so please maintain vibration to approximately one-half the allowable value.

MR-J2S 380 – 480 VAC HA-LFS Speed Torques 400 VAC

HA-LFS 1000 r/min Series

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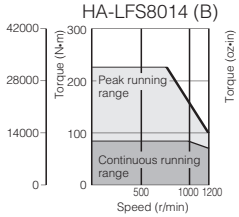
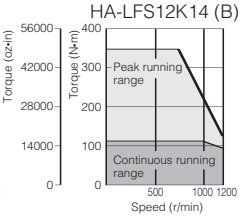


HA-LFS12K14 (B)



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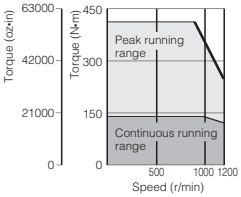
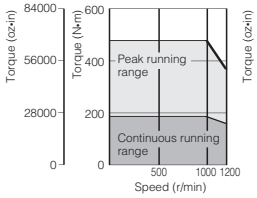


HA-LFS20K14



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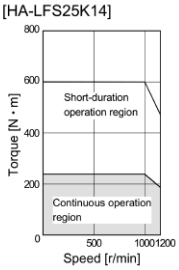

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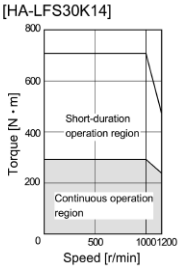

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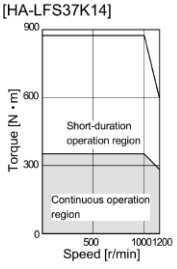
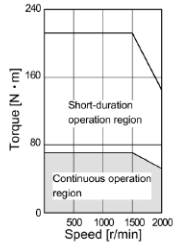


HA-LFS 1500 r/min Series

[HA-LFS11K1M4]



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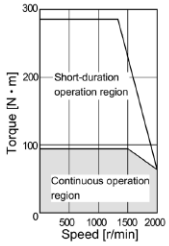

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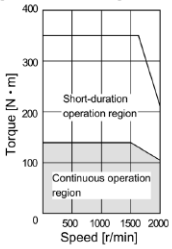

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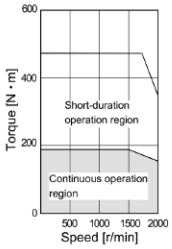

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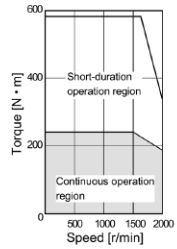

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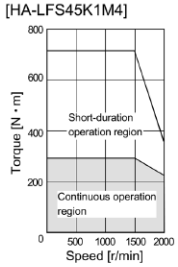

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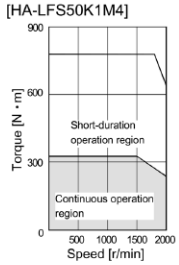
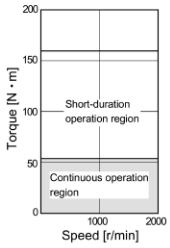


HA-LFS 2000 r/min Series

[HA-LFS11K24]



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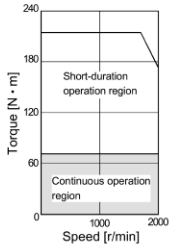

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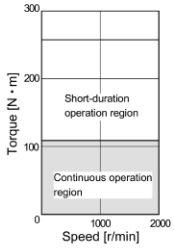

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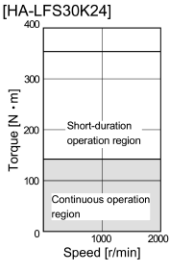

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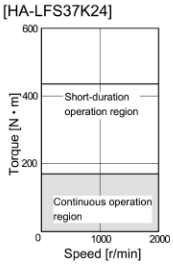

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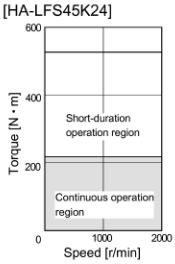

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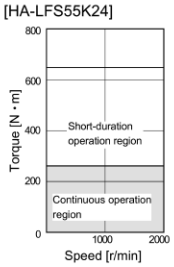


MR-J2S 380 – 480 VAC Converter Selection

MR-HP55KA4 Required for the 30kW~55kW Amplifiers

Converter Unit (400 VAC Type)

Amplifier Series		30KA/B4	37KA/B4	45KA/B4	55KA4/B4
Main Circuit Power Supply	Voltage/Frequency (*1)	3-phase 380 to 480 VAC 50/60Hz (*2)			
	Permissible Voltage Fluctuation	3-phase 323 to 528 VAC 50/60Hz			
	Permissible Frequency Fluctuation	±5% max.			
Control Circuit Power Supply	Voltage/Frequency (*1)	1-phase 380 to 420 VAC 50/60Hz			
	Permissible Voltage Fluctuation	1-phase 323 to 528 VAC 50/60Hz			
	Permissible Frequency Fluctuation	±5% max.			
	Power Consumption	50W			
Weight kg (lb)		22 (48.5)			

Notes:
1. Rated output capacity and rated speed of the servomotor used in combination with the servo-amp are as indicated when using the power-supply voltage and frequency listed. The output capacity and speed cannot be guaranteed when the power supply voltage is less than specified.
2. For Torque characteristics refer to page 102.

Dynamic Brake Recommended for 30kW~55kW amplifiers. When using an 11kW or larger servo amplifier, use these dynamic brakes if the servomotor must be suddenly stopped during a power failure or when the protection circuit function engages.

DBU-11K-4	MR-J2S-11KA4/B4
DBU-22K-4	MR-J2S-15KA4/B4
	MR-J2S-22KA4/B4
DBU-55K-4	MR-J2S-30KA4/B4
	MR-J2S-37KA4/B4
	MR-J2S-45KA4/B4
	MR-J2S-55KA4/B4

Power, Encoder and Brake Cables

HC-SFS Series Motors

Motor Type (IP65)	IP65 Power Cable (Unshielded) Model No. (*2)	IP65 Power Cable (Shielded) Model No.	IP65 Encoder Cable Model No. (*1)
HC-SF(S)524K	MR2S4-□M	MR2SW-SH-□M	MR-ENCBL□M-H
HC-SF(S)1024K			
HC-SF(S)1524K	MR3S4-□M	MR3SW-SH-□M	
HC-SF(S)2024K	MR4S4-□M	MR4SW-SH-□M	
HC-SF(S)3524K	MR5S-□M	MR5SW-SH-□M	
HC-SF(S)5024K			
HC-SF(S)7024K	MR6S-□M	MR6SW-SH-□M	
HC-SF(S)524BK	MR2SB4-□M	MR2SBW-SH-□M	
HC-SF(S)1024BK			
HC-SF(S)1524BK	MR3SB4-□M	MR3SBW-SH-□M	
HC-SF(S)2024BK	MR4S4-□M*	MR4SW-SH-□M *	
HC-SF(S)3524BK	MR5S-□M*	MR5SW-SH-□M*	
HC-SF(S)5024BK			
HC-SF(S)7024BK	MR6S-□M*	MR6SW-SH-□M*	

*= Must order separate brake cable listed below.
□ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = meter length, etc.)

Notes:
1. -L = Standard Flexibility; -H = Extended Flexibility. The flex type shown is standard. Opposing flex cable (-L) or (-H) also available.
2. IP65 on Revision B cable and later only.

Brake Cable

Motor Type	IP65 Brake Cable (Unshielded) Model No. (*1)	IP65 Brake Cable (Shielded) Model No.
Brake Cable	MRBRKS-□M	MRBRKSW-SH-□M

□ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = meter length, etc.)

Note:
1. IP65 on Revision B cable and later only.

HA-LFS Series Motors

Motor Type (IP44)	Power Cable Model No.	Standard Encoder Cable Model No. (*1)
HA-LFS8014K	Hard-wired by user	MR-ENCBL□M-H
HA-LFS8014BK*		
HA-LFS11K1M4K		
HA-LFS11K1M4BK*		
HA-LFS11K24K		
HA-LFS11K24BK*		
HA-LFS12K14K		
HA-LFS12K14BK		
HA-LFS15K14K		
HA-LFS15K1M4K		
HA-LFS15K1M4BK*		
HA-LFS15K24K		
HA-LFS15K24BK*		
HA-LFS20K14K		
HA-LFS22K1M4K		
HA-LFS22K24K		
HA-LFS22K24BK*		
HA-LFS25K14K		
HA-LFS30K141K		
HA-LFS30K1M4K		
HA-LFS30K24K		
HA-LFS37K14K		
HA-LFS37K1M4K		
HA-LFS37K24K		
HA-LFS45K1M4K		
HA-LFS45K24K		
HA-LFS50K1M4K		
HA-LFS55K24K		

*= Must order separate brake cable listed at left.
□ = 2, 5, 10, 20 or 30 where (2 = 2 meter length, 5 = meter length, etc.)

Note
1. -L = Standard Flexibility; -H = Extended Flexibility The flex type shown is standard. Opposing flex cable (-L) or (-H) also available.

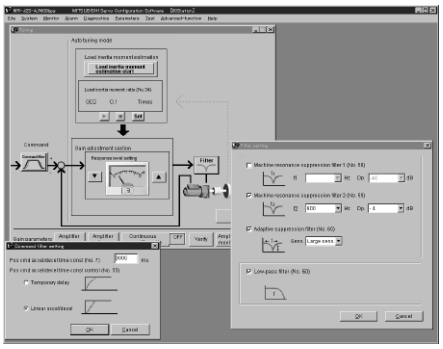
MR-J2S 380 – 480 VAC Setup Software
MR-Configurator

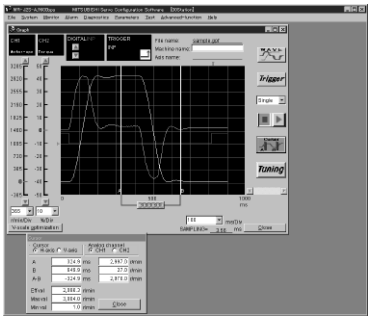
This Windows®-based software package is used to setup, program and test the amplifier. Initial setup and programming is easy and quick with the user-friendly software, which has extensive help functions and drop-downs. MR-Configurator also has many diagnostic functions such as a machine simulator to aid in mechanical design, a machine analyzer to find resonant frequencies of the load and set notch filters, an alarm monitor with history data, and the ability to assign and monitor I/O.

Features:

- Can be set up using a personal computer.
  Works on Windows 95/98/NT/ME/2000 Professional, XP Professional*.
- Provides numerous monitor functions. Provides graph display function that enables display of servomotor status upon input signal triggers such as command pulses, droop pulses, and r/min.
- Allows servomotors to be tested easily from a personal computer.

* Windows is a registered trademark of the Microsoft Corporation.





Software Selection

Description	Model Number
Windows Communication Software	MR-CONFIGURATOR
Communications Cable	MR-CPCATCBL3M

Manual Selection

Hardware Description	Model Number
MR-J2 Super Series 400 VAC Manual	SH(NA)030026
Servomotor Instruction Manual	SH(NA)3181
MR-HP30KA/55KA4 Converter Manual	SH(NA)030024

External Regenerative Resistor Units

Servo-Amp Model (MR-J2S-)	Model Number — Regenerative Power [W] (Note)												
	MR-RB1L-4	MR-RB3M-4	MR-RB3H-4	MR-RB3G-4	MR-RB34-4	MR-RB5H-4	MR-RB5G-4	MR-RB54-4	MR-RB6B-4	MR-RB60-4	MR-RB6K-4	MR-RB136-4	MR-RB138-4 (x3)
60A4/B4	100	X	X	X	X	X	X	X	X	X	X	X	X
100A4/B4	X	300	X	X	X	X	X	X	X	X	X	X	X
200A4/B4	X	X	300	X	X	500	X	X	X	X	X	X	X
350A4/B4	X	X	X	300	X	X	500	X	X	X	X	X	X
500A4/B4	X	X	X	300	X	X	500	X	X	X	X	X	X
700A4/B4	X	X	X	X	300	X	X	500	X	X	X	X	X
11KA4/B4	X	X	X	X	X	X	X	X	500 (800)	X	X	X	X
15KA4/B4	X	X	X	X	X	X	X	X	X	850 (1300)	X	X	X
22KA4/B4	X	X	X	X	X	X	X	X	X	X	850 (1300)	X	X
30KA4/B4	X	X	X	X	X	X	X	X	X	X	X	1300	3900
37KA4/B4	X	X	X	X	X	X	X	X	X	X	X	1300	3900
45KA4/B4	X	X	X	X	X	X	X	X	X	X	X	1300	3900
55KA4/B4	X	X	X	X	X	X	X	X	X	X	X	1300	3900

Note: This value is the regenerative power of the resistor and is not the rated power.

Regenerative Brake Unit / Brake Resistor Sets*

Brake Unit	Resistor Unit	Permissible Continuous Power (kw)	Max. Instantaneous Power (kw)	Applicable Servo Amplifier
FR-BU-H15K	FR-BR-H15K	0.99	16.5	MR-J2S-500A4/B4 MR-J2S-11KA4/B4
FR-BU-H30K	FR-BR-H30K	1.99	33.4	MR-J2S-15KA4/B4 MR-J2S-22KA4/B4
FR-BU-H55K	FR-BR-H55K	3.91	66.8	MR-J2S-70KA4/B4

***Note:** Regenerative Brake Unit and Regenerative Brake Resistor must be used together.

MR-J2S 380 – 480 VAC

EMC Filters

Description	Model Type	Model Number
EMC Filters	MR-J2S-60□4 – 200□64	MF-3F480-010.230
	MR-J2S-350□4– 700□4	MF-3F480-025.230
	MR-J2S-11K□	TF3030C-TX
	MR-J2S-15K□	TF3040C-TX
	MR-J2S-22K□	TF3060C-TX
	MR-J2S-30K□ – 55K□	TF3150C-TX

Power Return Converters

Description	Model Type	Model Number
Power Return Converter	for 5kW amp	FR-RC-H15K
	for 7kW, 11kW and 15kW amps	FR-RC-H30K
	for 22kW amps	FR-RC-H55K

AC Power Factor Improving Reactors

Description	Model Type	Model Number
AC Power Factor Improving Reactor	MR-J2S-60□4	MRL-00404
	MR-J2S-100□4	MRL-00404
	MR-J2S-200□4	MRL-00803
	MR-J2S-350□4	MRL-01803
	MR-J2S-500□4	MRL-02503
	MR-J2S-700□4	MRL-03503
	MR-J2S-11K□4	MRL-03503
	MR-J2S-15K□4	MRL-04503
	MR-J2S-22K□4	MRL-05503

DC Power Factor Improving Reactors

Description	Model Type	Model Number
DC Power Factor Improving Reactor	MR-J2S-11K□4	M25RB005
	MR-J2S-15K□4	M40RB004
	MR-J2S-22K□4	M50RB003
	MR-J2S-30K□4	MR-DCL30K-4
	MR-J2S-37K□4	MR-DCL37K-4
	MR-J2S-45K□4	MR-DCL45K-4
	MR-J2S-55K□4	MR-DCL55K-4

Radio Noise Filter

Description	Model Type	Model Number
Radio Noise Filter	All models	FR-BIF-H

Heat Sink Outside Mounting Attachment

Description	Model Type	Model Number
Heat Sink Outside Mounting Attachment	for 11kW to 15kW amps	MR-JACN15K
	for 22kW amps	MR-JACN22K
	for 30kW amps	MR-ACN30K
	for 37kW to 55kW amps	MR-ACN55K
	for MR-HP55KA4	MR-ACNP55K

System Options

Description	Model Type	Model Number
Battery (Required for Absolute Positioning)	All MR-J2S Amplifier Models	MR-BAT
Terminal Block	All MR-J2S Amplifier Models	MR-TB20
Terminal Block Cable	All MR-J2S Amplifier Models	MR-J2TBL□M
SSCNET Cable	MRJ2S□B to MR-J2S□B	MR-J2HBUS□M
Converter Bus Cable	MRJ2S to Converter	MR-J2HBUS□M
Terminator	MRJ2S□B and Converter	MR-A-TM
CN1A/B I/O Connector Kit (Kit Contains One Each CN1A & CN1B)	All MR-J2S Amplifier Models	MR-J2CN1
CN4 Connector Kit	MR-J2S, 11kW and larger	MR-J2CMP2
Converter D-I/O Connector CN1	MR-HP30KA/55KA4 Converter	MR-HP4CN1
CN1A/B I/O Pigtail Cables (One each optional for CN1A & CN1B)	All MR-J2S Amplifier Models	MR-CCN1CBL-3M (3m length) MR-CCN1CBL-5M (5m length)

Note: Terminal Block Cable can be ordered in 0.5 and 1 meter lengths.

Motor Power Connection Options

Description	Model Type	Model Number
Power Connector Kit (Straight Plug)	HC-SFS 524, 1024, 1524	MR-MTR-CON-KIT-AS
	HC-SFS 2024, 3524, 5024	MR-MTR-CON-KIT-BS
	HC-SFS 7024	MR-MTR-CON-KIT-DS
Power Connector Kit (90° Angle Plug)	HC-SFS 524, 1024, 1524	MR-MTR-CON-KIT-A
	HC-SFS 2024, 3524, 5024	MR-MTR-CON-KIT-B
	HC-SFS 7024	MR-MTR-CON-KIT-D
Power Connector Kit (IP65 & "CE") (Straight Plug)	HC-SFS 524, 1024, 1524	MR-PWCNS1
	HC-SFS 2024, 3524, 5024	MR-PWCNS2
	HC-SFS 7024	MR-PWCNS3

Motor Brake Connection Options

Description	Model Type	Model Number
Brake Cable	HC-SFS 2024B, 3524B,5024B, 7024B; All HA-LFS B Types	MRBRKS-□M
Brake Connector Kit (IP65 & "CE") (Instead of MRBRKS-□M)	Connectors only (instead of MRBRKS-□M cable)	MR-BKCN

Note: Model numbers with □ can be ordered in 2, 5 and 10 meter lengths.

Motor Encoder Connection Options

Description	Model Type	Model Number
Encoder Connector Kit (IP20)	All HC-SFS; HA-LFS	MR-J2CNS
Encoder Connector Kit	All HC-SFS; HA-LFS	MR-ENCNS

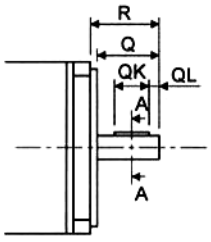
MR-J2S Motor Shaft Dimensions

Servo Motor Model	Shaft Shape	
	With Key	D Cut
HC-MFS053 • 13	—	✓
HC-MFS23 – 73	✓ (*1)	—
HA-FF053 • 13	—	✓
HA-FF23 – 63	✓ (*2)	—
HC-SFS81 – 301 HC-SFS52 – 702 HC-SFS53 – 353 HC-SFS524 – 7024	✓ (*2)	—

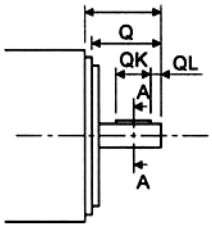
Servo Motor Model	Shaft Shape	
	With Key	D Cut
HC-RFS103 – 503	✓ (*2)	—
HC-UFS72 – 502	✓ (*2)	—
HC-UFS13	—	✓
HC-UFS23 – 73	✓ (*1)	—
HC-KFS053 • 13	—	✓
HC-KFS23 – 73	✓ (*1)	—
HC-LFS	✓ (*2)	—
HA-LFS	✓ (*2)	—

Notes:
1. With a key.
2. Without a key.

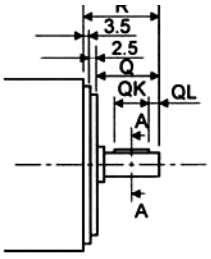
With Key



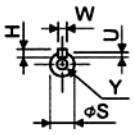
HC-MF(S)23K to 73K
HC-KF23K · 43K
HC-KFS23K to 73K



HC-UF(S)23K · 43K



HC-UF(S) 73K



Section A-A

Servo Motor Model	Variable Dimensions								
	S	R	Q	W	QK	QL	U	H	Y
HC-MFS23K • 43K	14h6 (14)	30 (1.18)	27 (1.06)	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	5 (0.20)	M4 Depth 15 (0.59)
HC-MFS73K	19h6 (19)	40 (1.57)	37 (1.46)	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	6 (0.24)	M5 Depth 20 (0.79)
HC-UFS23K • 43K	14h6 (14)	30 (1.18)	23.5 (0.93)	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	5 (0.20)	M4 Depth 15 (0.59)
HC-UFS73K	19h6 (19)	40 (1.57)	32.5 (1.28)	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	6 (0.24)	M5 Depth 20 (0.79)
HC-KFS23K • 43K	14h6 (14)	30 (1.18)	27 (1.06)	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	5 (0.20)	M4 Depth 15 (0.59)
HC-KFS73K	19h6 (19)	40 (1.57)	37 (1.46)	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	6 (0.24)	M5 Depth 20 (0.79)

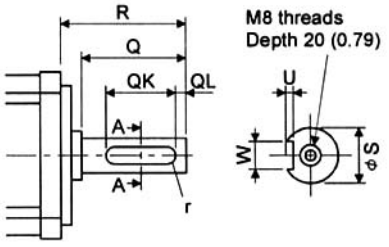
Unit of Measure: mm (in)

MR-J2S • Motor Shaft Dimensions Without Key

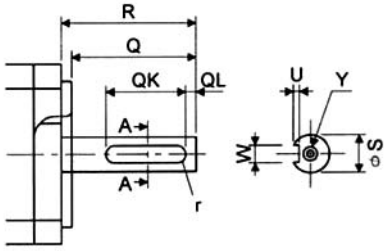
Unit of Measure: mm (in)

Servo Motor Model	Variable Dimensions										
	S	R	Q	W	QK	QL	U	r	Drawing	Key Dimension	Model Number
HC-SFS52(4)K – 152(4)K HC-SFS53K – 153K HC-LFS52K – 152K	24h6 (0.94)	55 (2.17)	50 (1.97)	$8^{0}_{-0.036}$ (0.31)	36 (1.42)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)	A	8 x 7 x 28	MTR KEY 8-7-28
HC-SFS121K – 301K HC-SFS202(4)K – 702(4)K HC-SFS203K • 353K HC-LFS202K • 302K	$35^{+0.010}_{0}$ (1.38)	79 (3.11)	75 (2.95)	$10^{0}_{-0.036}$ (0.39)	55 (2.17)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	5 (0.20)		10 x 8 x 45	MTR KEY 10-8-45
HC-RFS103K – 203K	24h6 (0.94)	45 (1.79)	40 (1.57)	$8^{0}_{-0.036}$ (0.31)	25 (0.98)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)		8 x 7 x 16	MTR KEY 8-7-16
HC-RFS353K – 503K	28h6 (1.10)	63 (2.48)	58 (2.28)	$8^{0}_{-0.036}$ (0.31)	53 (2.09)	3 (0.12)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)		8 x 7 x 45	MTR KEY 8-7-45
HC-UFS72K	22h6 (0.87)	55 (2.17)	50 (1.97)	$6^{0}_{-0.036}$ (0.24)	42 (1.65)	3 (0.12)	$3.5^{+0.1}_{0}$ (0.14)	3 (0.13)		6 x 6 x 36	MTR KEY 6-6-36
HC-UFS152K	28h6 (1.10)	55 (2.17)	50 (1.97)	$8^{0}_{-0.036}$ (0.31)	45 (1.77)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)		8 x 7 x 36	MTR KEY 8-7-36
HC-UFS202K – 502K	35h6 (1.38)	65 (2.56)	60 (2.36)	$10^{0}_{-0.036}$ (0.39)	55 (2.17)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	5 (0.20)		10 x 8 x 45	MTR KEY 10-8-45

Servo Motor Model	Variable Dimensions									
	S	R	Q	W	QK	QL	U	r	Y	Drawing
HA-LFS502K • 702K • 11K2(4)K HA-LFS601(4)K HA-LFS701M(4)K	42h6 (1.65)	85 (3.35)	80 (3.15)	$12^{0}_{0.01}$ (0.47)	70 (2.76)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	6 (0.24)	Same as the straight shaft of the standard motor.	A
HA-LFS801(4)K • 12K1(4)K HA-LFS11K1M(4)K • 15K1M(4)K HA-LFS15K2(4)K • 22K2(4)K	55m6 (2.17)	110 (4.33)	100 (3.94)	$16^{0}_{-0.04}$ (0.63)	90 (3.54)	5 (0.20)	$6^{+0.2}_{0}$ (0.24)	8 (0.31)		
HA-LFS30K2(4)K • 37K2(4)K HA-LFS15K1(4)K • 20K1(4)K HA-LFS22K1M(4)K • 30K1M(4)K HA-LFS30K2(4)K • 37K2(4)K	60m6 (2.36)	140 (5.51)	140 (5.51)	$18^{0}_{-0.03}$ (0.71)	128 (5.04)	6 (0.24)	$7^{+0.2}_{0}$ (0.28)	9 (0.35)		B
HA-LF45K24K • 55K24K HA-LFS25K1(4)K • 30K1(4) HA-LFS37K1M(4)K • 30K1M(4)K HA-LFS30K2(4)K • 37K2(4)K	65m6 (2.56)	140 (5.51)	140 (5.51)	$18^{0}_{-0.03}$ (0.71)	128 (5.04)	6 (0.24)	$7^{+0.2}_{0}$ (0.28)	9 (0.35)		
HA-LFS37K1(4)K HA-LFS50K1M4K	80m6 (3.15)	170 (6.69)	170 (6.69)	$22^{0}_{-0.04}$ (0.87)	147 (5.79)	11 (0.43)	$9^{+0.2}_{0}$ (0.35)	11 (0.43)		



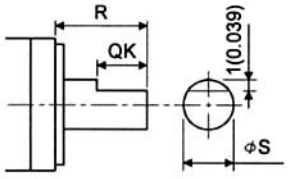
Drawing A



Drawing B

MR-J2S

Servo Motor Model	Variable Dimensions		
	R	QK	S
HC-KFS053D • 13D HC-MFS053D • 13D	25 (0.98)	20.5 (0.81)	8h (0.32)
HA-FF053D • 13D	30 (1.178)	25.5 (1.0)	8h (0.32)
HC-UFS13D	25 (0.98)	17.5 (0.69)	8h (0.32)

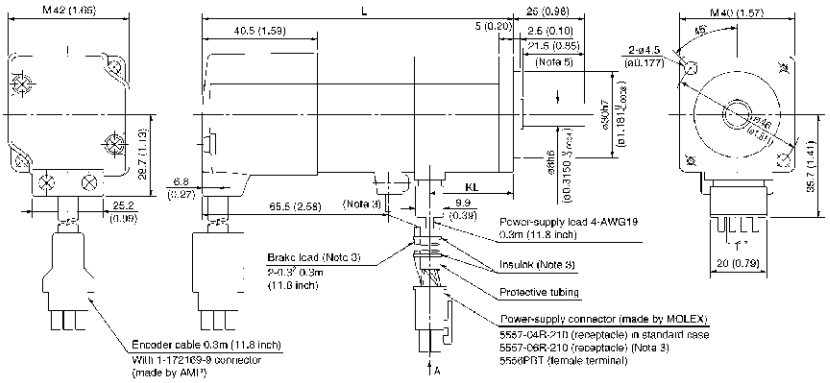


D Cut

MR-J2S HC-KFS/MFS Series

Unit: mm (inch)

●HC-KFS053 (B), HC-KFS13 (B)
●HC-MFS053 (B), HC-MFS13 (B)



Standard Power-supply connector pin assignment

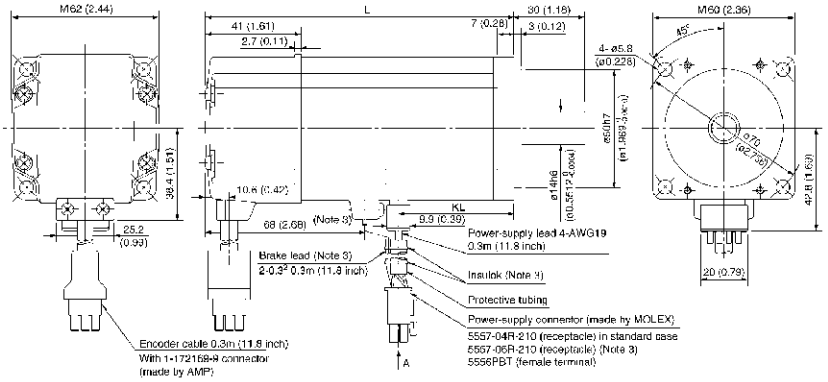
Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth

with Brake Power-supply connector pin assignment

Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth
5	B1
6	B2

Model	Variable dimensions	
	L	KL
HC-KFS053 (B) HC-MFS053 (B)	81.5 (3.21) <109.5 (4.31)>	29.5 (1.16)
HC-KFS13 (B) HC-MFS13 (B)	95.5 (3.83) <124.5 (4.90)>	44.5 (1.75)

●HC-KFS23 (B), HC-KFS43 (B)
●HC-MFS23 (B), HC-MFS43 (B)



Standard Power-supply connector pin assignment

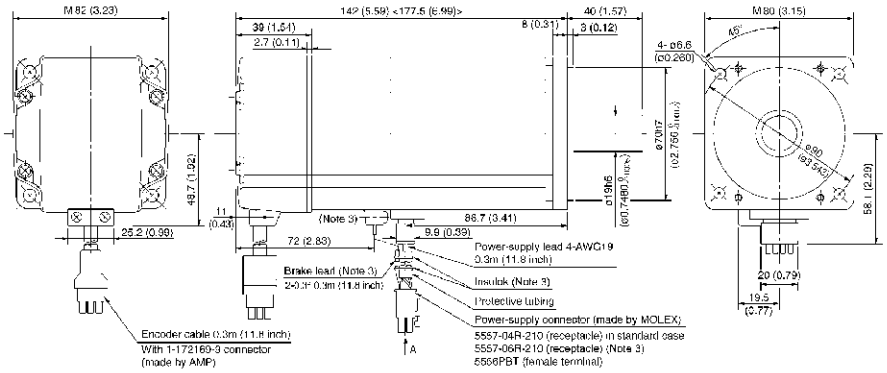
Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth

with Brake Power-supply connector pin assignment

Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth
5	B1
6	B2

Model	Variable dimensions	
	L	KL
HC-KFS23 (B) HC-MFS23 (B)	99.5 (3.92) <131.5 (5.18)>	49.1 (1.93)
HC-KFS43 (B) HC-MFS43 (B)	124.5 (4.90) <156.5 (6.16)>	72.1 (2.84)

●HC-KFS73 (B), HC-MFS73 (B)



Standard Power-supply connector pin assignment

Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth

with Brake Power-supply connector pin assignment

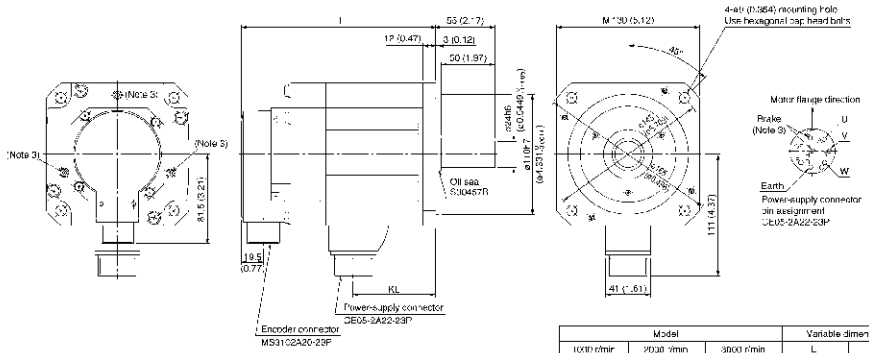
Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth
5	B1
6	B2

Notes:
1. Use a friction coupling to fasten the load.
2. Dimensions inside < > are for models with electromagnetic brake.
3. Only for models with electromagnetic brake.
4. For dimensions where there is no tolerance is ed, use general tolerance.
5. For HC-KFS053 (B) and KFS13 (B).

MR-J2S HC-SFS Series

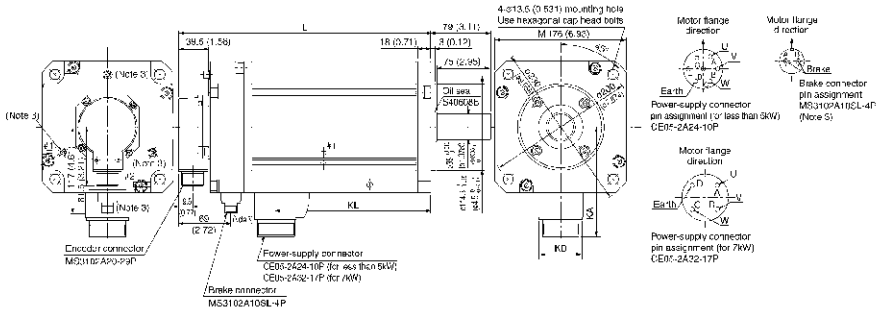
- HC-SFS81 (B)
- HC-SFS52 (B), HC-SFS102 (B), HC-SFS152 (B), HC-SFS524 (B), HC-SFS1024 (B), HC-SFS1524 (B)
- HC-SFS53 (B), HC-SFS103 (B), HC-SFS153 (B)

Unit: mm (inch)



Model			Variable dimensions	
1000 r/min	2000 r/min	3000 r/min	L	KL
—	HC-SFS52 (B) HC-SFS524 (B)	HC-SFS53 (B)	131 (4.72) <153 (6.02)>	51.5 (2.03)
—	HC-SFS102 (B) HC-SFS1024 (B)	HC-SFS103 (B)	145 (5.71) <175 (7.01)>	76.5 (3.01)
HC-SFS81 (B)	HC-SFS152 (B) HC-SFS1524 (B)	HC-SFS153 (B)	173 (6.69) <203 (7.99)>	101.5 (4.00)

- HC-SFS121 (B), HC-SFS201 (B), HC-SFS301 (B)
- HC-SFS202 (B), HC-SFS352 (B), HC-SFS502 (B), HC-SFS702 (B), HC-SFS2024 (B), HC-SFS3524 (B), HC-SFS5024 (B), HC-SFS7024 (B)
- HC-SFS203 (B), HC-SFS353 (B)



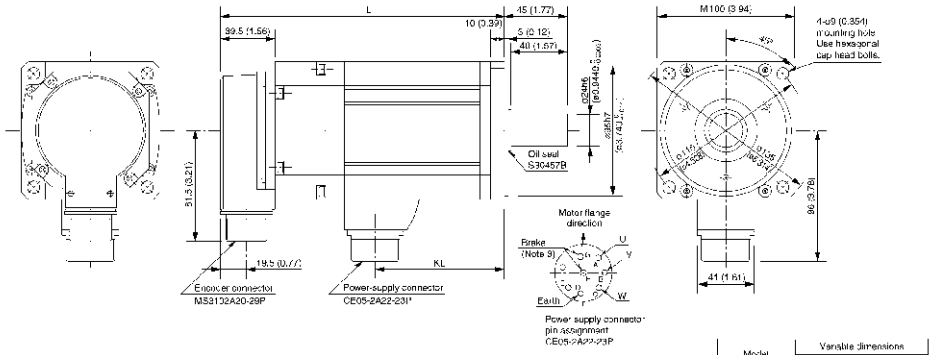
Mode			Variable dimensions			
1000 r/min	2000 r/min	3000 r/min	L	KL	KA	KB
HC-SFS121 (B)	HC-SFS202 (B) HC-SFS2024 (B)	HC-SFS203 (B)	145 (5.71) <185 (7.60)>	63.5 (2.70)	142 (5.59)	46 (1.81)
HC-SFS201 (B)	HC-SFS352 (B) HC-SFS3524 (B)	HC-SFS353 (B)	187 (7.36) <235 (9.25)>	110.5 (4.35)	142 (5.59)	46 (1.81)
HC-SFS301 (B)	HC-SFS502 (B) HC-SFS5024 (B)	—	238 (9.19) <286 (10.06)>	131.5 (5.18)	142 (5.59)	46 (1.81)
—	HC-SFS702 (B) HC-SFS7024 (B)	—	292 (11.50) <340 (13.39)>	210.5 (8.29)	190 (5.91)	58 (2.28)

Notes:
1. Use a friction coupling to fasten the load.
2. Dimensions inside < > are for models with electromagnetic brake.
3. Only for models with electromagnetic brake.
4. For dimensions where there is no tolerance listed, use general tolerance.

MR-J2S HC-RFS Series

- HC-RFS103 (B), HC-RFS153 (B), HC-RFS203 (B)

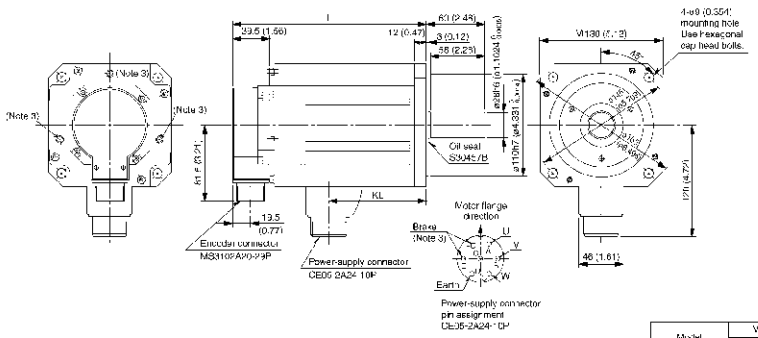
Unit: mm (inch)



Model	Variable dimensions	
	L	KL
HC-RFS103 (B)	147 (5.79) <185 (7.28)>	71 (2.80)
HC-RFS153 (B)	172 (6.77) <210 (8.27)>	96 (3.78)
HC-RFS203 (B)	197 (7.76) <235 (9.25)>	121 (4.76)

MR-J2S HC-RFS Series

● HC-RFS353 (B), HC-RFS503 (B)



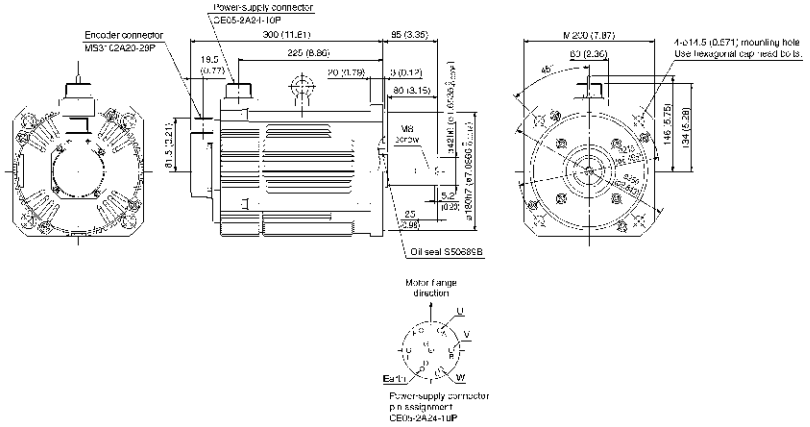
Model	Variable dimensions	
	L	KL
HC-RFS353 (B)	217 (8.54) <254 (10.00)>	148 (5.83)
HC-RFS503 (B)	274 (10.79) <311 (12.24)>	205 (8.07)

Notes:
1. Use a friction coupling to fasten the load.
2. Dimensions inside < > are for models with electromagnetic brake.
3. Only for models with electromagnetic brake.
4. For dimensions where there is no tolerance listed, use general tolerance.

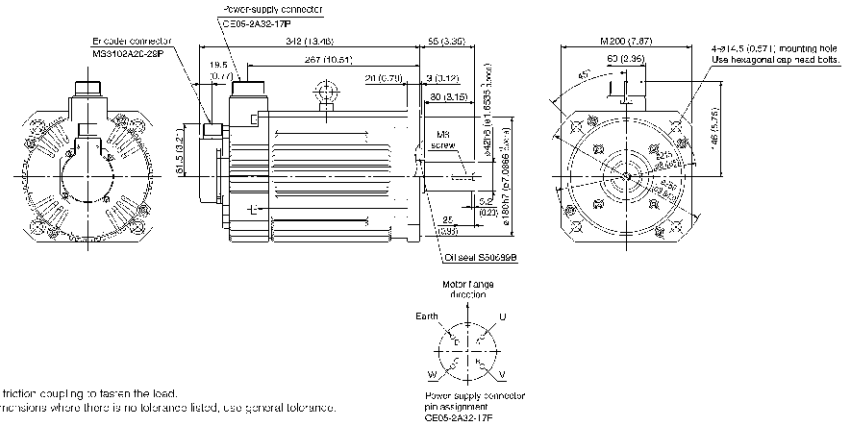
MR-J2S HA-LFS Series

● HA-LFS502

Unit: mm (inch)



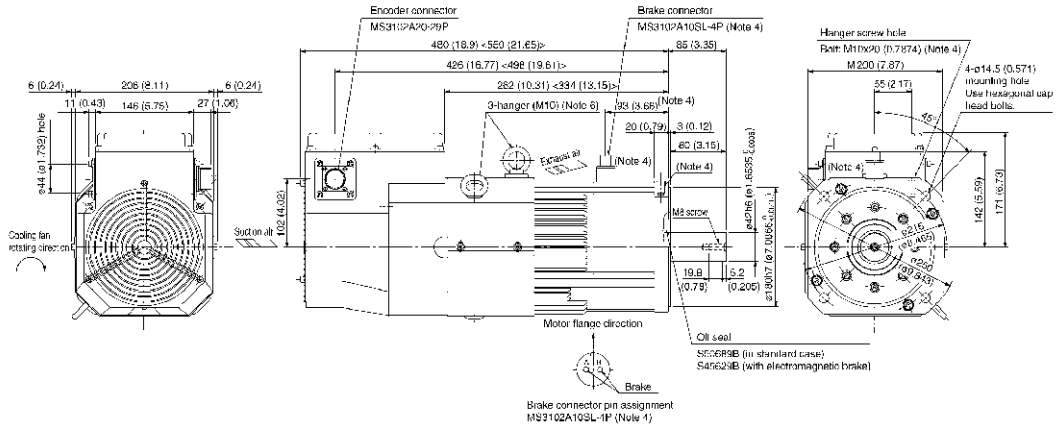
● HA-LFS702



Notes:
1. Use a friction coupling to fasten the load.
2. For dimensions where there is no tolerance listed, use general tolerance.

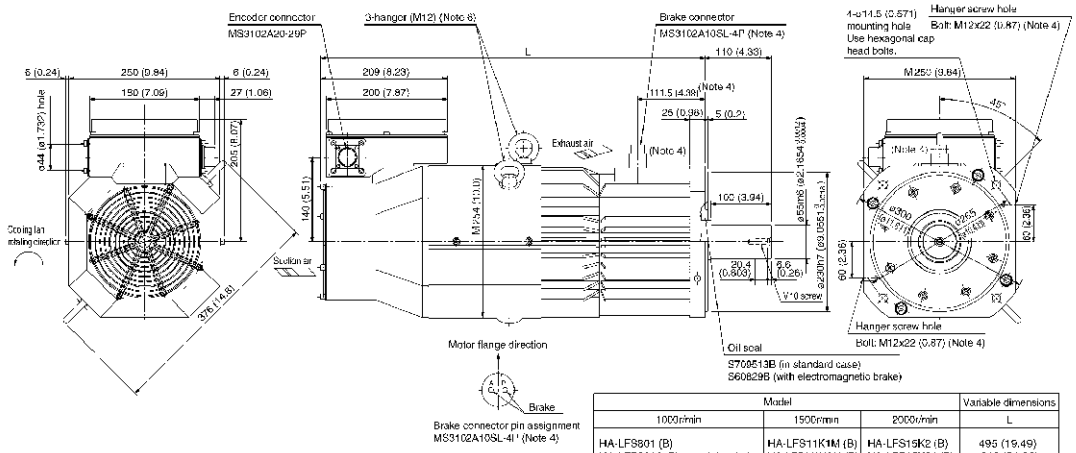
- HA-LFS601 (B)
- HA-LFS701M (B)
- HA-LFS11K2 (B), HA-LFS11K24 (B)

Unit: mm (inch)



* When the motor is used without a hanger, plug the thread hole with a bolt of M10X20 (0.7874) or less.

- HA-LFS801 (B), HA-LFS12K1 (B), HA-LFS8014 (B) (special-order) (Note 7), HA-LFS12K14 (B) (special-order) (Note 7)
- HA-LFS11K1M (B), HA-LFS15K1M (B), HA-LFS11K1M4 (B), HA-LFS15K1M4 (B)
- HA-LFS15K2 (B), HA-LFS22K2 (B), HA-LFS15K24 (B), HA-LFS22K24 (B)



Model			Variable dimensions
1000r/min	1500r/min	2000r/min	L
HA-LFS801 (B) HA-LFS8014 (B) (special-order)	HA-LFS11K1M (B) HA-LFS11K1M4 (B)	HA-LFS15K2 (B) HA-LFS15K24 (B)	495 (19.49) <610 (24.02)>
HA-LFS12K1 (B) HA-LFS12K14 (B) (special-order)	HA-LFS15K1M (B) HA-LFS15K1M4 (B)	HA-LFS22K2 (B) HA-LFS22K24 (B)	555 (21.85) <670 (26.38)>

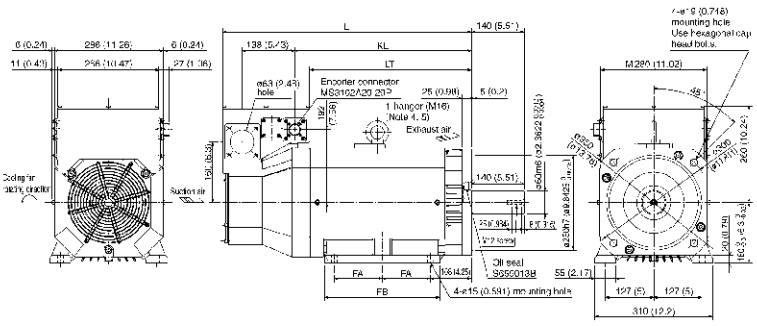
* When the motor is used without a hanger, plug the thread hole with a bolt of M12x20 (0.7874) or less.

Notes:
1. Use a friction coupling to fasten the load.
2. For dimensions where there is no tolerance listed, use general tolerance.
3. Dimensions inside < > are for models with electromagnetic brake.
4. Only for models with electromagnetic brake.
5. Leave a clearance of at least 100mm between the motor's suction side and wall.
6. Make sure that oil, water and dust, etc., will not enter the motor from the load side.
7. The motors are special-order products. Contact Mitsubishi for details on the servo amplifier type and the types of servo motors that are combined with the servo amplifier, and for information on the delivery schedule.

MR-J2S HA-LFS Series

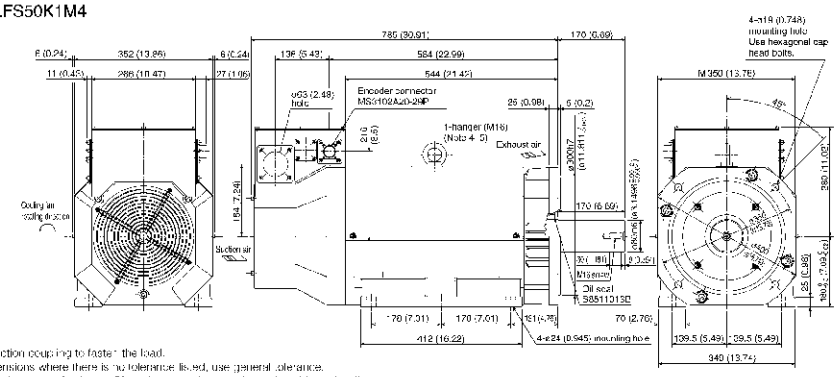
● HA-LFS30K1M
● HA-LFS30K2, HA-LFS37K2

Unit: mm (inch)



Model		Variable dimensions				
1500r/min	2000r/min	L	LT	KL	FA	FB
—	HA-LFS30K2	615 (24.21)	361 (14)	471 (18.55)	105 (4.13)	260 (10.24)
HA-LFS30K1M	HA-LFS37K2	660 (25.98)	426 (16.77)	486 (19.13)	127 (5)	304 (11.97)

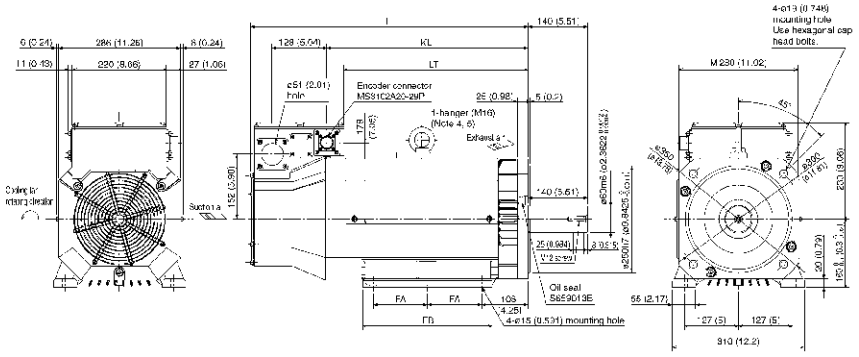
● HA-LFS37K1, HA-LFS37K14
● HA-LFS50K1M4



Notes:
1. Use a flexible coupling to fasten the load.
2. For dimensions where there is no tolerance listed, use general tolerance.
3. Leave a clearance of at least 150mm between the motor's suction side and wall.
4. When the motor is used without a hanger, plug the threaded hole with a bolt of M16x20 (0.7874) or less.
5. Make sure that oil, water and dust, etc., will not enter the motor from the lead-in hole.

● HA-LFS15K1, HA-LFS20K1, HA-LFS15K14 (special-order) (Note 6), HA-LFS20K14 (special-order) (Note 6)
● HA-LFS22K1M, HA-LFS22K1M4, HA-LFS30K1M4
● HA-LFS30K24, HA-LFS37K24

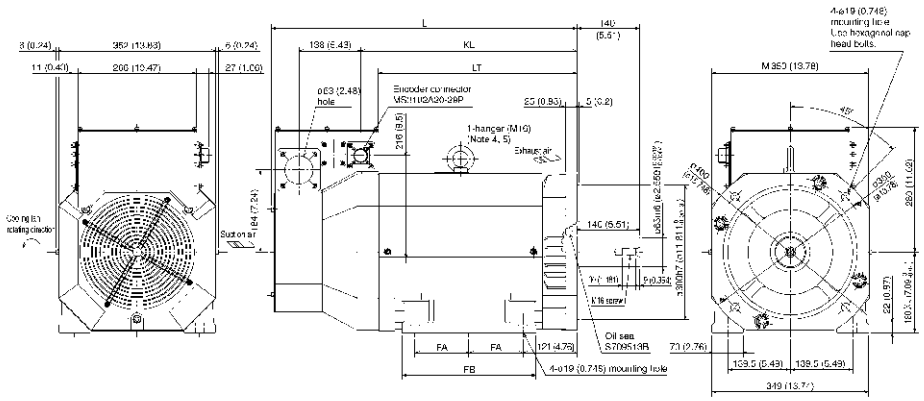
Unit: mm (inch)



Model			Variable dimensions				
1000r/min	1500r/min	2000r/min	L	LT	KL	FA	FB
HA-LFS15K1 HA-LFS15K14 (special-order)	HA-LFS22K1M HA-LFS22K1M4	HA-LFS30K24	600 (23.62)	386 (15.2)	426 (16.77)	105 (4.13)	260 (10.24)
HA-LFS20K1 HA-LFS20K14 (special-order)	HA-LFS30K1M4	HA-LFS37K24	650 (25.59)	431 (16.97)	471 (18.54)	127 (5)	304 (11.97)

MR-J2S HA-LFS Series

- HA-LFS25K1, HA-LFS30K1, HA-LFS25K14 (special-order) (Note 6), HA-LFS30K14
- HA-LFS37K1M, HA-LFS37K1M4, HA-LFS45K1M4
- HA-LFS45K24, HA-LFS55K24



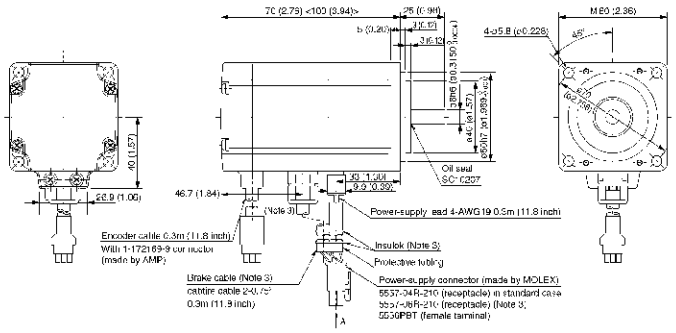
Model			Variable dimensions				
1000r/min	1500r/min	2000r/min	L	LT	KL	FA	FB
HA-LFS25K1 HA-LFS25K14 (special-order)	HA-LFS37K1M HA-LFS37K1M4	HA-LFS45K24	640 (25.2)	399 (15.71)	439 (17.29)	161.5 (6)	262 (10.31)
HA-LFS30K1 HA-LFS30K14	HA-LFS45K1M4	HA-LFS55K24	695 (26.97)	444 (17.48)	484 (19.06)	120.5 (4.74)	300 (11.81)

Notes:
1. Use a friction coupling to fasten the load.
2. For dimensions where there is no tolerance listed, use general tolerance.
3. Leave a clearance of at least 150mm between the motor's suction side and wall.
4. When the motor is used without a hanger, plug the threaded hole with a bolt of M8x20 (0.787") or less.
5. Make sure that oil, water and dust, etc., will not enter the motor from the lead-in hole.
6. The motors are special-order products. Contact Mitsubishi for details on the servo amplifier type and the types of servo motors that are combined with the servo amplifier, and for information on the delivery schedule.

MR-J2S HC-UFS Series

- HC-UFS13 (B)

Unit: mm (inch)



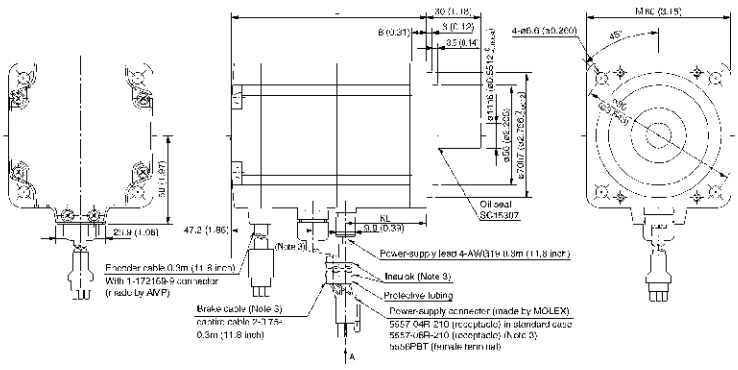
Standard Power-supply connector pin assignment

Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth

with Brake Power-supply connector pin assignment

Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth
5	B1
6	B2

- HC-UFS23 (B), HC-UFS43 (B)



Standard Power-supply connector pin assignment

Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth

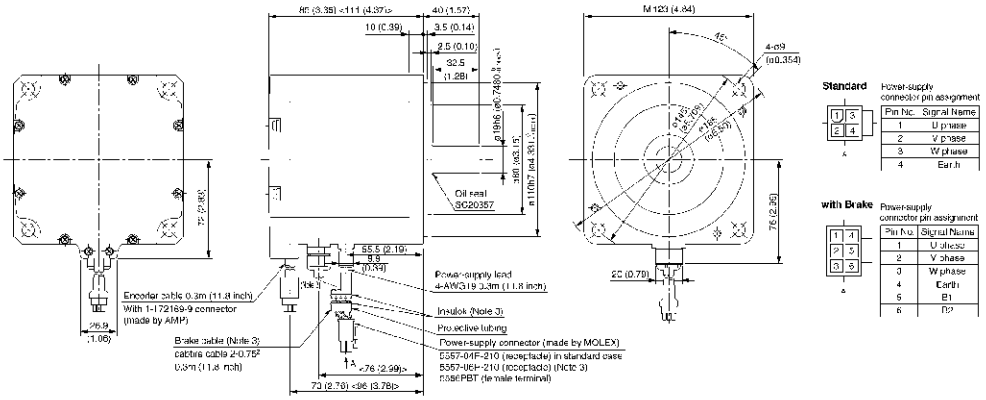
with Brake Power-supply connector pin assignment

Pin No.	Signal Name
1	U phase
2	V phase
3	W phase
4	Earth
5	B1
6	B2

Model	Variable dimensions	
	L	KL
HC-UFS23 (B)	77 (3.03) <111 (4.37)>	49.8 (1.72)
HC-UFS43 (B)	92 (3.62) <176 (6.96)>	58.8 (2.31)

MR-J2S HC-UFS Series

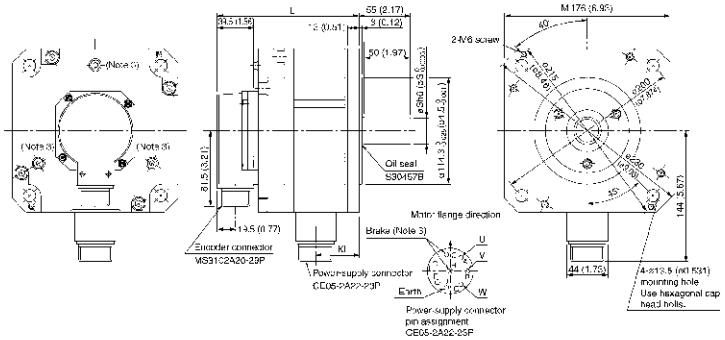
● HC-UFS73 (B)



Notes:
1. Use a friction coupling to fasten the load.
2. Dimensions inside < > are for models with electromagnetic brake.
3. Only for models with electromagnetic brake.
4. For dimensions where there is no tolerance listed, use general tolerance.

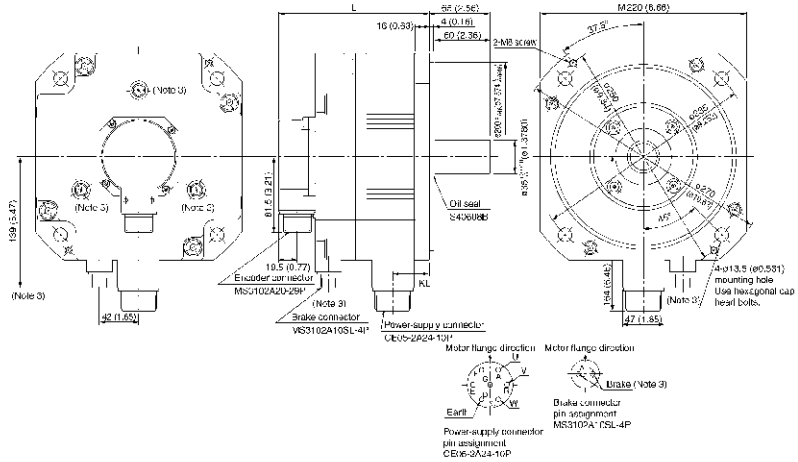
● HC-UFS72 (B), HC-UFS152 (B)

Unit: mm (inch)



Model	Variable dimensions		
	L	KL	S
HC-UFS72 (B)	110.5 (4.35) <144 (5.67)>	38 (1.50)	22 (0.8661)
HC-UFS152 (B)	120 (4.72) <153.5 (6.04)>	47.5 (1.87)	28 (1.1024)

● HC-UFS202 (B), HC-UFS352 (B), HC-UFS502 (B)



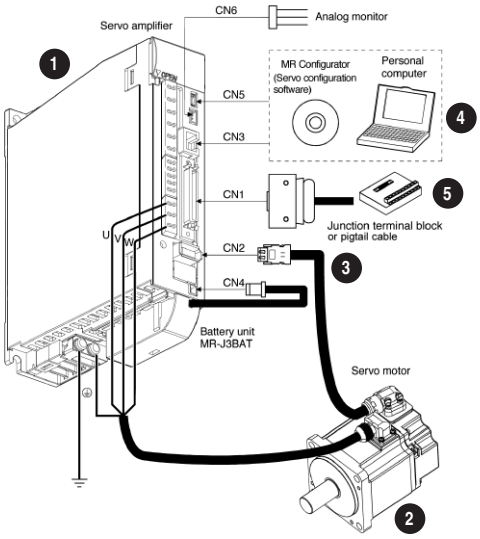
Model	Variable dimensions	
	L	KL
HC-UFS202 (B)	116 (4.65) <161 (6.34)>	42.5 (1.67)
HC-UFS352 (B)	142 (5.59) <185.7 (7.28)>	66.5 (2.62)
HC-UFS502 (B)	166 (6.54) <209 (8.23)>	90.5 (3.56)

Notes:
1. Use a friction coupling to fasten the load.
2. Dimensions inside < > are for models with electromagnetic brake.
3. Only for models with electromagnetic brake.
4. For dimensions where there is no tolerance listed, use general tolerance.

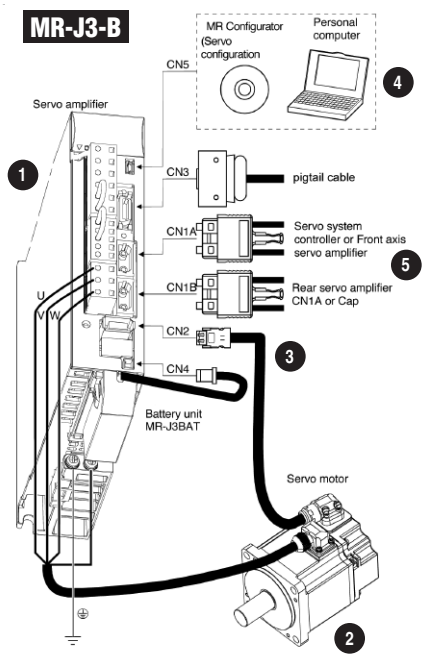
MR-J3 Servomotors and Amplifiers

The MR-J3 has raised the bar for servo speed and performance. With a capacity range of 50W to 22kW, we reduced the size of both the amplifier and motor, added a high resolution encoder and advanced auto-tuning and vibration control. The J3's high torque motor can operate at up to 6000 rpm, and with a speed frequency response of 900 Hz. Twenty percent smaller than its predecessor, the J3's high resolution 262,144ppr encoder is mounted as standard to provide stability even at low speeds. Mitsubishi Electric Automation's original model adaptive control and ever-evolving automatic tuning function makes precise tuning easy and the J3's advanced vibration control suppresses vibrations automatically. Set-up, diagnostics, and tuning are easy, thanks to MR-Configurator, a Windows™-based software package. MR-Configurator has many improved diagnostic functions, such as an advanced machine analyzer, software oscilloscope, and high speed monitor. A parameter setting window makes start-up easy, and a USB interface enables high-speed sampling and long-term wavelength measurement. The MR-J3 supports the following control methods: Position, Speed, Torque, SSCNET Network, CC-Link and RS-485 Multi Drop.

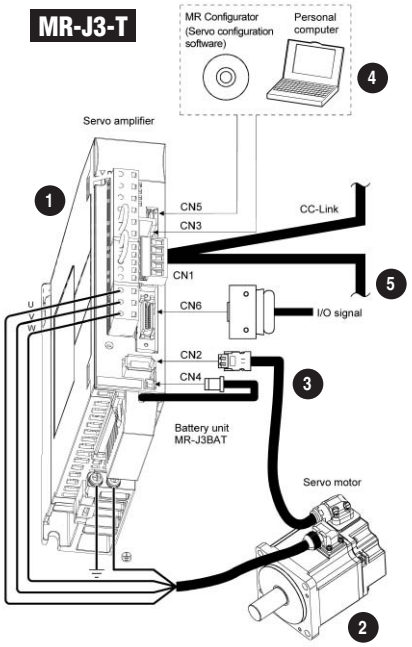
MR-J3-A



MR-J3-B



MR-J3-T



FOR AN OPERATIONAL SYSTEM, SELECT:

1. Amplifier
2. Motor
3. Cables and Connectors
4. Software and Manuals
5. Optional Accessories

MR-J3 Amplifier Types

Type		Interface						Control Mode				Setup Software	Model	Power	Source Capacity (*1)	Compatible Motor Series						
		Pulse Train	Analog	DIO	SSCNET III	RS-422 Multi-Drop	CC-Link	Position	Speed	Torque	Position Functions					HF-KP	HF-MP	HF-SP	HC-LP	HC-RP	HC-UP	HA-LP
A-Type	General Purpose Interface 	●	●			●		●	●	●		●	MR-J3-☐A	3-Phase AC 200V	0.05 ~ 22kW	●	●	●	●	●	●	●
		●	●			●		●	●	●		●	MR-J3-☐A1	1-Phase AC 100V	0.05 ~ 0.4kW	●	●					
B-Type	Advanced Serial Bus SSCNET III 				●			●				●	MR-J3-☐B	3-Phase AC 200V	0.05 ~ 22kW	●	●	●	●	●	●	●
					●			●				●	MR-J3-☐B1	1-Phase AC 100V	0.05 ~ 0.4kW	●	●					
T-Type	Built-In CC-Link Positioning Function 	● (*2)		● (*3)		●	●	●			●	●	MR-J3-☐T	3-Phase AC 200V	0.05 ~ 22kW	●	●	●	●	●	●	●
		● (*2)		● (*3)		●	●	●			●	●	MR-J3-☐T1	1-Phase AC 100V	0.05 ~ 0.4kW	●	●					

● indicates the available product range.

Notes:

1. Capacity selection software MSIZE (MRZJW3-MOTSZ111) can be downloaded for free from www.meau.com.
2. Please use the manual pulse generator (MR-HDP01).
3. Please use the extended IO unit (MR-J3-D01).

MR-J3 Motor Types

Motor Series		Rated Speed (Maximum Speed) r/min	Rated Output (kW)	Electro-magnetic Brake Available	Standards		Protective Degree	Features	Application Examples
					EN	UL/cUL			
Small Capacity Series	HF-KP 	3000 (6000)	5 Types 0.05, 0.1 0.2, 0.4 0.75	●	●	●	IP65 (*2)	Low inertia Perfect for general industrial machines. High velocity motors, 6000 or 10000r/min, have been prepared.	• Belt drive • Robots • Mounters • Sewing machines • X-Y tables • Food processing machines • Semiconductor manufacturing devices • Knitting and embroidery machines
	HF-MP 							Ultra-low inertia Well suited for high-frequency operation.	• Inserters • Mounters
Medium Capacity Series	HF-SP 	1000 (1500)	6 Types 0.5, 0.85, 1.2, 2.0, 3.0, 4.2	●	●	●	IP67 (*2)	Medium inertia Suitable for variable applications two models from low to high-speed are available.	• Conveyor machines • Robots • X-Y tables
		2000 (3000)	7 Types 0.5, 1.0, 1.5, 2.0, 3.5, 5.0, 7.0	●	●	●	IP67 (*2)		
	HC-LP 	2000 (3000)	5 Types 0.5, 1.0, 1.5, 2.0, 3.0	●	●	●	IP65 (*2)	Low inertia Perfect for general industrial machines.	• Roller feeder • Loader and unloader • High frequency conveyor machines
	HC-RP 	3000 (4500)	5 Types 1.0, 1.5, 2.0, 3.5, 5.0	●	●	●	IP65 (*2)	Ultra-low inertia Well suited for high-frequency operation.	• Ultra-high-frequency conveyor machines
Flat, Small/ Medium Capacity Series	HC-UP 	2000 (3000: 0.75 ~ 2kW 2500: 3.5, 5kW)	5 Types 0.75, 1.5, 2.0, 3.5, 5.0	●	●	●	IP65 (*2)	Flat Type The flat design makes this unit well suited for situations where the installation space is restricted.	• Robots • Food processing machines
Medium/Large Capacity Series	HA-LP 	1000 (1200)	6 Types 6.0, 8.0, 12, 15, 20,25	●	●	●	IP44 (*2)	Low inertia Suitable for variable applications three models from low to medium-speed are available. As a standard, 30kW and larger capacities are compatible with flange mounting or foot mounting.	• Injection molding machines • Semiconductor manufacturing devices • Large conveyor machines
		1500 (2000)	4 Types 7.0, 11, 15, 22	●	●	●	IP44 (*2)		
		2000 (2000)	5 Types 5.0, 7.0, 11. 15, 22	●	●	●	IP44 (HA-LP502/702 IP65) (*2)		

Notes:
1. ● indicates the available product range.
2. The shaft-through portion is excluded.

Servo Amplifier Selection:

MR-J3 - □ □ □

Symbol	Power Supply
None	3-phase 200 VAC or 1-phase 230 VAC (*1)
1	1-phase 100 VAC (*2)

Notes:
1. The 1-phase 200 VAC is available only for the MR-J3-70□ or smaller servo amplifiers.
2. The 1-phase 100 VAC is available only for the MR-J3-40□ or smaller servo amplifiers.

A: General-purpose interface
B: SSCNET III compatible
T: CC-Link Interface

Mitsubishi general purpose AC Servo Amplifier MR-J3 Series

Conforms to the following standards: EN, UL, cUL

Compatible Motors							
Symbol	HF-KP	HF-MP	HF-SP	HC-LP	HC-RP	HC-UP	HA-LP
10	053, 13	053, 13	—	—	—	—	—
20	23	23	—	—	—	—	—
40	43	43	—	—	—	—	—
60	—	—	51, 52	52	—	—	—
70	73	73	—	—	—	72	—
100	—	—	81, 102	102	—	—	—
200	—	—	121, 201, 152, 202	152	103, 153	152	—
350	—	—	301, 352	202	203	202	—
500	—	—	421, 502	302	353, 503	352, 502	502
700	—	—	702	—	—	—	601, 701M, 702
11K	—	—	—	—	—	—	801, 12K1, 11K1M, 11K2
15K	—	—	—	—	—	—	15K1, 15K1M, 15K2
22K	—	—	—	—	—	—	20K1, 25K1, 22K1M, 22K2

Servo Motor Selection:

HF-KP □ □ □ □ □

Symbol	Motor Series	
HF-KP	Ultra-low inertia, small capacity	
HF-MP	Low inertia, small capacity	
HF-SP	Medium inertia, medium capacity	
HC-LP	Low inertia, medium capacity	
HC-RP	Ultra-low inertia medium capacity	
HC-UP	Flat type small/medium capacity	
HA-LP	Low inertia medium/large capacity	

Symbol	Shaft Shape
None	Standard (Straight)
K	With Keyway (*1)
D	D-Cut (*1)

Note:
1. Refer to "Special shaft end specifications" in this catalog for the compatible models and detailed specifications.

Symbol	Oil Seal
None	None
J	Installed (*1, *2)

Note:
1. Dimensions for HF-MP/HF-KP series motors with oil seals are different from those for the standard model. Contact Mitsubishi for details.
2. Oil-seal is not available for the .05kW motors.

Symbol	Electromagnetic Brake
None	Without Brake
B	With Brake

Symbol	Rated Speed (r/min)
1	1000 (*1)
1M	1500 (*1)
2	2000 (*1)
3	3000 (*1)

Note:
1. Refer to servo motor specification in this catalog for the correct symbol to use for each servo motor.

Symbol	Rated Output (kW)
05	0.05
1 to 8	0.1 to 0.85
10 to 80	1.0 to 8.0
11K to 25K	11.0 to 25.0

* Conforms to following standards: EN, UL and cUL

MR-J3-A Servo Amplifier Specifications

Item	Servo Amplifier MR-J3-		10A	20A	40A	70A	100A	200A	350A	500 A	700 A	10A1	20A1	40A1
Power Supply	Voltage/Frequency		3-phase 200 to 230VAC, 50/60Hz or 1-phase 230VAC, 50/60Hz				3-phase 200 to 230VAC, 50/60Hz					1-phase 100V to 120VAC, 50/60Hz		
	Permissible Voltage Fluctuation		3-phase 200 to 230VAC: 170 to 253VAC 1-phase 230VAC: 207 to 253VAC				3-phase 170 to 253VAC					1-phase 85 to 132VAC		
	Permissible Frequency Fluctuation		Within ±5%											
	Power Supply Capacity		Refer to MR-J3-A Instruction Manual (Section 11)											
	Inrush Current		Refer to MR-J3-A Instruction Manual (Section 11)											
Control Circuit Power Supply	Voltage, Frequency		1-phase 200 to 230VAC, 50/60Hz									1-phase 100 to 120VAC, 50/60Hz		
	Permissible Voltage Fluctuation		1-phase 170 to 253VAC									1-phase 85 to 132VAC		
	Permissible Frequency Fluctuation		Within ±5%											
	Input		30W							45W		30W		
	Inrush Current		Refer to MR-J3-A Instruction Manual (Section 11)											
Interface Power Supply	Voltage, Frequency		DC24V ±10%											
	Power Supply Capacity		300 mA or more (*1)											
Control System			Sine-wave PWM control, current control system											
Dynamic Brake			Built-in											
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal relay), servo motor overheat protection, encoder error protection, regenerative brake error protection, undervoltage, instantaneous power failure protection, overspeed protection, excessive error protection											
Position Control Mode	Max. Input Pulse Frequency		1Mpps (for differential receiver), 200kpps (for open collector)											
	Command Pulse Multiplying Factor		Electronic gear A:1 to 1048576, B:1 to 1048576, 1/10 <A/B <2000											
	In-Position Range Setting		0 to ±10000 pulse (command pulse unit)											
	Error Excessive		±3 revolutions											
	Torque Limit		Set by parameter setting or external analog input (0 to 10VDC/maximum torque)											
Speed Control Mode	Speed Control Range		Analog speed command 1: 2000, internal speed command 1: 5000											
	Analog Speed Command Input		0 to 10VDC / Rated speed											
	Speed Fluctuation Ratio		±0.01% or less (load fluctuation 0 to 100%) • 0% or less (power fluctuation ±10%) ±0.2% max.(ambient temperature 25 ±10 °C) for external speed setting only											
	Torque Limit		Set by parameter setting or external analog input (0 to 10VDC/maximum torque)											
Torque Control Mode	Analog Torque Command Input		0 to ±8VDC / Maximum torque (input impedance 10 to 12Ω)											
	Speed Limit		Set by parameter setting or external analog input (0 to 10VDC/Rated speed)											
Structure			Self-cooled, open (IP00)			Force-cooled, open (IP00)						Self-cooled, open (IP00)		
Ambient Temp.	During Operation	°C	0 to +55 (non-freezing) (*2)											
		°F	+32 to +131 (non-freezing)											
	In Storage	°C	-20 to +65											
		°F	-4 to +149											
Ambient Humidity		In Operation	90%RH or less (non-condensing)											
		In Storage												
Atmosphere			Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt											
Altitude			Max. 1000m (3280ft) above sea level											
Vibration			5.9 [m/s^2] or less											
			19.4 [ft/s^2] or less											
Mass		[kg]	0.8	0.8	1.0	1.4	1.4	2.3	2.3	4.6	6.2	0.8	0.8	1.0
		[lb]	1.8	1.8	2.2	3.1	3.1	5.071	5.071	10.1	13.7	1.8	1.8	2.2

Notes:

1. 300mA 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.
2. When mounting the servo amplifiers closely, operate them at the ambient temperatures of 0 to 45°C or at 75% or a smaller effective load ratio.

MR-J3-B Servo Amplifier Specifications

Item	Servo Amplifier MR-J3-		10B	20B	40B	60B	70B	100B	200B	350B	500B	700B	11KB	15KB	22KB	10B1	20B1	40B1
Power Supply	Voltage/Frequency		3-phase or 1-phase 200 to 230VAC, 50/60Hz					3-phase 200 to 230VAC, 50/60Hz								1-phase 100V to 120VAC, 50/60Hz		
	Permissible Voltage Fluctuation Frequency		3-phase or 1-phase 200 to 230VAC: 170 to 253VAC					3-phase 170 to 253VAC								1-phase 85 to 132VAC		
	Permissible Frequency Fluctuation		Within ±5%															
	Power Supply Capacity		Refer to MR-J3-B Instruction Manual (Section 10)															
	Inrush Current		Refer to MR-J3-B Instruction Manual (Section 10)															
Control Circuit Power Supply	Voltage, Frequency		1-phase 200 to 230VAC, 50/60Hz													1-phase 100 to 120VAC, 50/60Hz		
	Permissible Voltage Fluctuation		1-phase 170 to 253VAC													1-phase 85 to 132VAC		
	Permissible Frequency Fluctuation		Within ±5%															
	Input		30W								45W					30W		
	Inrush Current		Refer to MR-J3-B Instruction Manual (Section 10)															
Interface Power Supply	Voltage, Frequency		DC24V ±10%															
	Power Supply Capacity		150mA or more (*1)															
Control System			Sine-wave PWM control, current control system															
Dynamic Brake			Built-in										External option			Built-in		
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal relay), servo motor overheat protection, encoder error protection, regenerative brake error protection, undervoltage, instantaneous power failure protection, overspeed protection, excessive error protection															
Structure			Self-cooled, open (IP00)					Force-cooling, open (IP00)								Self-cooled, open (IP00)		
Ambient Temp.	During Operation	°C	0 to +55 (non-freezing) (*2)															
		°F	+32 to +131 (non-freezing)															
	In Storage	°C	-20 to +65															
		°F	-4 to +149															
Ambient Humidity	In Operation		90%RH or less (non-condensing)															
	In Storage																	
Atmosphere			Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt															
Altitude			Max. 1000m (3280 ft) above sea level															
Vibration			5.9 [m/s^2] or less															
Mass		kg	0.8	0.8	1.0	1.0	1.4	1.4	2.3	2.3	4.6	6.2	18	18	19	0.8	0.8	1.0
		lb	1.8	1.8	2.2	2.2	3.1	3.1	5.071	5.071	10.1	13.7	39.68	39.68	41.88	1.8	1.8	2.2

Notes:

1. 150mA 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.

2. When mounting the servo amplifiers closely, operate them at the ambient temperatures of 0 to 45°C or at 75% or a smaller effective load ratio.

MR-J3-T Servo Amplifier Specifications

Item	Servo Amplifier MR-J3-		10T	20T	40T	60T	70T	100T	200T	350T	500T	700T	11KT	15KT	22KT	10T1	20T1	40T1
Power Supply	Voltage/Frequency		3-phase or 1-phase 200 to 230VAC, 50/60Hz					3-phase 200 to 230VAC, 50/60Hz								1-phase 100V to 120VAC, 50/60Hz		
	Permissible Voltage Fluctuation		3-phase or 1-phase 200 to 230VAC: 170 to 253VAC					3-phase 170 to 253VAC								1-phase 85 to 132VAC		
	Permissible Frequency Fluctuation		Within ±5%															
	Power Supply Capacity		Refer to MR-J3-T Instruction Manual (Section 13)															
	Inrush Current		Refer to MR-J3-T Instruction Manual (Section 13)															
Control Circuit Power Supply	Voltage/Frequency		1-phase 200 to 230VAC, 50/60Hz													1-phase 100 to 120VAC, 50/60Hz		
	Permissible Voltage Fluctuation		1-phase 170 to 253VAC													1-phase 85 to 132VAC		
	Permissible Frequency Fluctuation		Within ±5%															
	Input		30W								45W					30W		
	Inrush Current		Refer to MR-J3-T Instruction Manual (Section 13)															
Interface Power Supply	Voltage, Frequency		DC24V ±10%															
	Power Supply Capacity		150mA or more (*1)															
Control System			Sine-wave PWM control, current control system															
Dynamic Brake			Built-in											External option		Built-in		
Protective Functions			Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal relay), servo motor overheat protection, encoder error protection, regenerative brake error protection, undervoltage, instantaneous power failure protection, overspeed protection, excessive error protection															
Command System	Point Table Number Input	Operational Specifications	Positioning by specifying the point table No. (255 points)															
		Position Command Input	Set in point table. 1-point feed length setting range: ±1[μm] to ±999.999[mm]															
		Speed Command Input	Set in point table. Acceleration/deceleration time is set in point table. S-pattern acceleration/deceleration time constant is set in parameter No. PC13.															
		System	Signed absolute value command system, incremental value command system, signed absolute value command/incremental value command specifying system															
	Position Command Data Input (When 2 Stations Are Occupied)	Operational Specifications	Remote register setting is used for positioning.															
		Position Command Input	Remote register is used to set position command data. Feed length input setting range :±1μm to ±999.999mm															
		Speed Command Input	Remote register is used to make selection from point table. Remote register is used to set speed command data (speed). S-pattern acceleration/deceleration time constant is set in parameter No. PC13.															
		System	Signed absolute value command system, incremental value command system, signed absolute value command/incremental value command specifying system															
Operation Mode	Automatic Operation on Mode	Point Table	Point table number input, position data input system. Positioning operation is performed once in accordance with the position and speed commands.															
		Automatic Continuous Operation	Varied speed operation (2 to 255 speeds), automatic continuous positioning operation (2 to 255 points)															
	Manual Operation Mode	Jog	Jog operation is performed in accordance with the parameter-set speed command by contact input or through CC-Link communication function															
	Home Position Return Mode	Dog Type	Home position return is made starting with Z-phase pulse after passage of proximity dog. Home position address may be set. Home position shift distance may be set. Home position return direction may be selected. Automatic at-dog home position return return/automatic stroke return function															
		Count Type	Home position return is made by counting encoder pulses after contact with proximity dog. Home position address may be set. Home position shift value may be set. Home position return direction may be set. Automatic at-dog home position return return/automatic stroke return function															
		Data Setting Type	Home position return is made without dog. Home position may be set at any position by manual operation, etc. Home position address may be set.															
		Stopper Type	Home position return is made by pressing machine part against stroke end. Home position address may be set. Home position return direction may be set.															
		Home Position Ignorance (Servo-On Position As Home Position)	Position where servo-on (RYn0) is switched on is defined as home position. Home position address may be set.															
		Dog Type Rear End Reference	Home position return is made with respect to the rear end of a proximity dog. Home position address may be set. Home position shift value may be set. Home position return direction may be set. Automatic at-dog home position return return/automatic stroke return function															
		Count Type Front End Reference	Home position return is made with respect to the front end of a proximity dog. Home position address may be set. Home position shift value may be set. Home position return direction may be set. Automatic at-dog home position return return/automatic stroke return function															
		Dog Cradle Type	Home position return is made with respect to the front end of a proximity dog by the first Z-phase pulse. Home position address may be set. Home position shift value may be set. Home position return direction may be set. Automatic at-dog home position return return/automatic stroke return function															
		Dog Type Last Z Phase Reference	Home position return is made with respect to the front end of a proximity dog by the last Z-phase pulse. Home position address may be set. Home position shift value may be set. Home position return direction may be set. Automatic at-dog home position return return/automatic stroke return function															

MR-J3-T Servo Amplifier Specifications (continued)

Item	Servo Amplifier MR-J3-		10T	20T	40T	60T	70T	100T	200T	350T	500T	700T	11KT	15KT	22KT	10T1	20T1	40T1
Operation Mode	Home Position Return Mode	Dog Type Front End Reference	Home position return is made to the dog front end with respect to the front end of a proximity dog. Home position address may be set. Home position shift value may be set. Home position return direction may be set. Automatic at-dog home position return return/automatic stroke return function.															
		Dogless Z-Phase Reference	Home position return is made with respect to the first Z phase to the Z phase. Home position address may be set. Home position shift value may be set. Home position return direction may be set.															
	Automatic Positioning to Home Position		High-speed automatic return to a defined home position.															
Other Functions			Absolute position detection, backlash function, overtravel prevention using external limit switch, software stroke limit															
Structure			Self-cooled, open (IP00)				Force-cooling, open (IP00)									Self-cooled, open (IP00)		
Ambient Temp.	During Operation	°C	0 to +55 (non-freezing) (*2)															
		°F	+32 to +131 (non-freezing)															
	In Storage	°C	-20 to +65															
		°F	-4 to +149															
Ambient Humidity	In Operation		90%RH or less (non-condensing)															
	In Storage																	
Atmosphere			Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt															
Altitude			Max. 1000m (3280 ft) above sea level															
Vibration			5.9 [m/s^2] or less															
Mass	kg		0.8	0.8	1.0	1.0	1.4	1.4	2.3	2.3	4.6	6.2	18	18	19	0.8	0.8	1.0
	lb		1.8	1.8	2.2	2.2	3.1	3.1	5.071	5.071	10.1	13.7	39.68	39.68	41.88	1.8	1.8	2.2

Notes:

1. 150mA 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.

2. When you closely mount the servo amplifier of 3.5kW or less, operate at the ambient temperature of 0 to 40°C or at 75% or smaller effective load ratio.

MR-J3 HF-MP Series • HF-KP Series

Item	Servo Motor			HF-MP Series (Ultra-low inertia) Small Capacity					HF-KP Series(low inertia) Small Capacity				
				053	13	23	43	73	053	13	23	43	73
Applicable Servo Amplifier/Drive Unit	MR-J3-□A/B/T			10		20	40	70	10		20	40	70
	MR-J3-□A1/B1/T1			10		20	40	—	10		20	40	—
Continuous Running Duty (*1)	Rated Output		[kW]	0.05	0.1	0.2	0.4	0.75	0.05	0.1	0.2	0.4	0.75
	Rated Torque		[N • m]	0.16	0.32	0.64	1.3	2.4	0.16	0.32	0.64	1.3	2.4
			[oz • in]	22.7	45.3	90.6	184	340	22.7	45.3	90.6	184	340
Rated Speed (*1)			[r/min]	3000					3000				
Maximum Speed (*10)			[r/min]	6000					6000				
Instantaneous Permissible Speed			[r/min]	6900					6900				
Maximum Torque			[N • m]	0.48	0.95	1.9	3.8	7.2	0.48	0.95	1.9	3.8	7.2
			[oz • in]	68.0	135	269	538	1020	68.0	135	269	538	1020
Power Rate at Continuous Rated Torque			[kW/s]	13.3	31.7	46.1	111.6	95.5	4.87	11.5	16.9	38.6	39.9
Inertia moment (*3)	J [x10^{-4}kg • m^2]			0.019	0.032	0.088	0.15	0.60	0.052	0.088	0.24	0.42	1.43
	WK^2 [oz • in^2]			0.104	0.175	0.481	0.82	3.28	0.284	0.481	1.31	2.30	7.82
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2, *10)				30 times or less					15 times or less		24 times or less	22 times or less	15 times or less
Power Supply Capacity				Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.									
Rated Current			[A]	1.1	0.9	1.6	2.7	5.6	0.9	0.8	1.4	2.7	5.2
Maximum Current			[A]	3.2	2.8	5.0	8.6	16.7	2.7	2.4	4.2	8.1	15.6
Speed/Position Detector				Encoder common to absolute position and incremental detection systems (Resolution per servo motor 1 rotation: 262144pulse/rev)									
Insulation Class				Class B									
Structure				Totally – enclosed, self-cooled (protection type: IP65 (*4, *9))									
Environmental Conditions (*5)	Ambient Temp.	During Operation	[°C]	0 to +40 (non-freezing)									
			[°F]	32 to 104 (non-freezing)									
		In Storage	[°C]	-15 to 79									
			[°F]	5 to 158									
	Ambient Humidity	During Operation		80% RH or less (non-condensing)									
		In Storage		90% RH or less (non-condensing)									
	Atmosphere			Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt.									
	Altitude			Max. 1000m above sea level									
	Vibration (*6)		[m/s^2]	X, Y: 49									
Vibration Rank (*7)				V-10									
Permissible Load for the Shaft (*8, *10)	L		[mm]	25		30	40		25		30		40
	Radial		[N]	88		245	392		88		245		392
			[lb]	19.8		55.1	88.1		19.8		55.1		88.1
	Thrust		[N]	59		98	147		59		98		147
			[lb]	13.3		22.0	33.0		13.3		22.0		33.0
Mass (*3)			[kg]	0.35	0.56	0.94	1.5	2.9	0.35	0.56	0.94	1.5	2.9
			[lb]	0.772	1.24	2.07	3.31	6.39	0.772	1.24	2.07	3.31	6.39

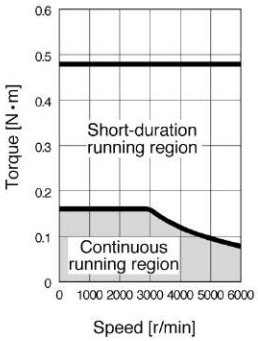
Notes:

1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult us.
3. Refer to the outline dimension drawing for the servo motors with electromagnetic brake and with reduction gear.
4. Except for the shaft-through portion.
5. In the environment where the servo motor is exposed to oil mist, oil and/or water, the servo motor of the standard specifications may not be usable. Contact MEAU.
6. The value is the one at the part that indicates the maximum value (normally the opposite-to-load side bracket). When the servo motor stops, fretting is likely to occur at the bearing. Therefore, suppress the vibration to about half of the permissible value. Note that this does not apply to the servo motor with reduction gear. Refer to the servo motor manual for more details.
7. V-10 indicates that the amplitude of a single servo motor is 10m or less. Refer to the servo motor manual for more details.
8. The values in the table assume that the loads work individually. Refer to the servo motor manual for more details.
9. For the servo motor with reduction gear, the reduction gear area is IP44-equivalent.
10. For servo motors with reduction gear please refer to the servo motor manual.

MR-J3 HF-MP / HF-KP Series • Torque Characteristics

- For machines which produce unbalanced torque, e.g. vertical lift applications, it is recommended to use the servo motor so that the unbalanced torque will be within 70% of the rated torque.
- When the input power supply specifications of the servo amplifier are 3-phase 200 VAC or 1-phase 230 VAC, the torque characteristic is indicated by the heavy line. For the 1-phase 100 VAC power supply, part of the torque characteristic is indicated by the broken line. For the 1-phase 200 VAC power supply, part of the torque characteristic is indicated by the continuous line.

[HF-MP053]



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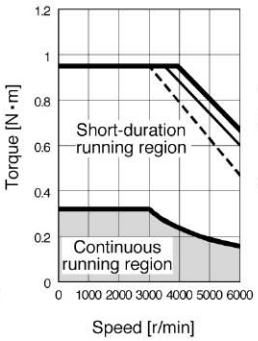

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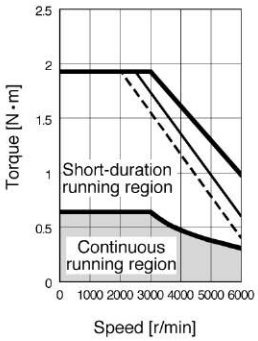

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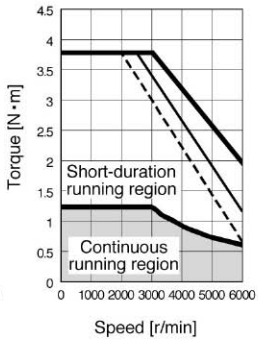

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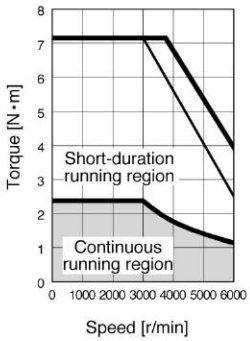

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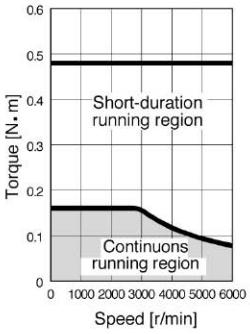

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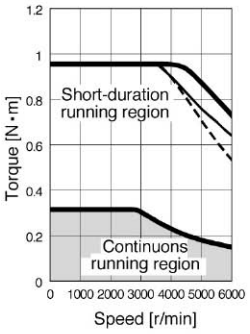

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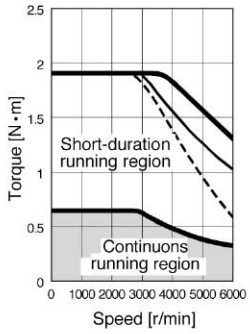

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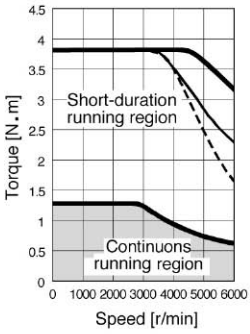

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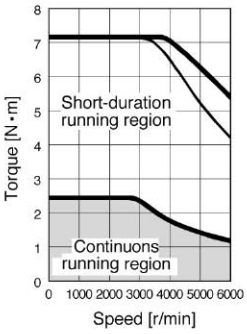


MR-J3 HF-SP Series

Item	Servo Motor	HF-SP 1000r/min Series (Medium Inertia, Medium Capacity)						HF-SP 2000r/min Series (Medium Inertia, Medium Capacity)						
		51	81	121	201	301	421	52	102	152	202	352	502	702
Applicable Servo Amplifier/Drive Unit	MR-J3-□A/B/T	60	100	200		350	500	60	100	200		350	500	700
Continuous Characteristics — Rated Output [kW]		0.5	0.85	1.2	2.0	3.0	4.2	0.5	1.0	1.5	2	3.5	5.0	7.0
Continuous Characteristics — Rated Torque	[N • m]	4.77	8.12	11.5	19.1	28.6	40.1	2.39	4.77	7.16	9.55	16.7	23.9	33.4
	[oz • in]	675	1150	1630	2710	4050	5679	338	675	1010	1350	2360	3380	4730
Rated Speed (*1)	[r/min]	1000						2000						
Maximum Speed	[r/min]	1500						3000						
Instantaneous Permissible Speed	[r/min]	1725						3450						
Maximum Torque	[N • m]	14.3	24.4	34.4	57.3	85.9	120	7.16	14.3	21.5	28.6	50.1	71.6	100
	[oz • in]	2030	3460	4870	8110	12164	16993	1010	2030	3040	4050	7090	10100	14200
Power Rate at Continuous Rated Torque	[kW/s]	19.2	37.0	34.3	48.6	84.6	104	9.34	19.2	28.8	23.8	37.2	58.8	72.5
Inertia Moment (*3)	J [x10^{-4}kg • m^2]	11.9	17.8	38.3	75.0	97.0	154	6.1	11.9	17.8	38.3	75.0	97.0	154
	WK^2 [oz • in^2]	65.1	97.3	290	410	530	842	33.4	65.1	97.3	209	410	530	842
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2, *10)		15 times or less												
Power Supply Capacity		Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.												
Rated Current	[A]	2.9	4.5	6.5	11	16.0	24.0	2.9	5.3	8.0	10	16	24	33
Maximum Current	[A]	8.7	13.5	19.5	33	48.0	72.0	8.7	15.9	2.4	30	48	72	99
Speed/Position Detector		Encoder (resolution: 262144 pulse/rev)												
Accessory		Absolute • Encoder												
Insulation Class		Class F												
Structure		Totally - enclosed, self-cooled (protection type: IP67 (*4,* 9))												
Environmental Conditions (*5) — Ambient Temp. — During Operation	[°C]	0 to +40 (non-freezing)												
	[°F]	32 to 104 (non-freezing)												
Ambient Temp. — In Storage	[°C]	-15 to 70												
	[°F]	5 to 158												
Ambient Humidity — During Operation		80% RH or less (non-condensing)												
Ambient Humidity — In Storage		90% RH or less (non-condensing)												
Atmosphere		Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt.												
Altitude		Max.1000m above sea level												
Vibration [m/s^2] (*6)		X, Y: 24.5		X: 24.5 Y: 29.4		X: 24.5 Y: 29.4		X, Y: 24.5			X: 24.5 Y: 49		X: 24.5 Y: 29.4	
Vibration Rank (*7)		V-10												

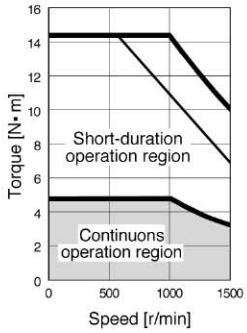
Notes:

1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult us.
3. Refer to the outline dimension drawing for the servo motors with electromagnetic brake and with reduction gear.
4. Except for the shaft-through portion.
5. In the environment where the servo motor is exposed to oil mist, oil and/or water, the servo motor of the standard specifications may not be usable. Contact MEAU.
6. The value is the one at the part that indicates the maximum value (normally the opposite-to-load side bracket). When the servo motor stops, fretting is likely to occur at the bearing. Therefore, suppress the vibration to about half of the permissible value. Note that this does not apply to the servo motor with reduction gear. Refer to the servo motor manual for more details.
7. V-10 indicates that the amplitude of a single servo motor is 10m or less. Refer to the servo motor manual for more details.
8. The values in the table assume that the loads work individually. Refer to the servo motor manual for more details.
9. For the servo motor with reduction gear, the reduction gear area is IP44-equivalent.
10. For servo motors with reduction gear please refer to the servo motor manual.

MR-J3 HF-SP Series • Torque Curves

- For machines which produce unbalanced torque, e.g. vertical lift applications, it is recommended to use the servo motor so that the unbalanced torque will be within 70% of the rated torque.
- When the input power supply specifications of the servo amplifier are 3-phase 200 VAC or 1-phase 230 VAC, the torque characteristic is indicated by the heavy line. For the 1-phase 100 VAC power supply, part of the torque characteristic is indicated by the broken line. For the 1-phase 200 VAC power supply, part of the torque characteristic is indicated by the continuous line.

[HF-SP51]



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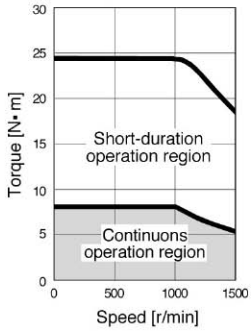

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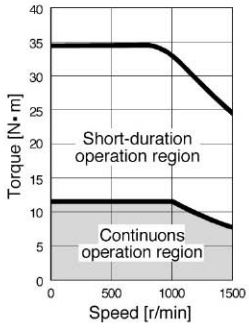

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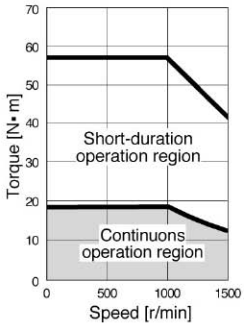

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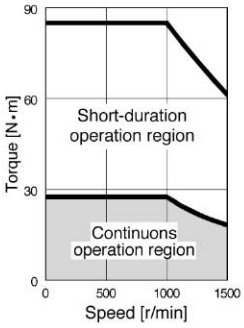

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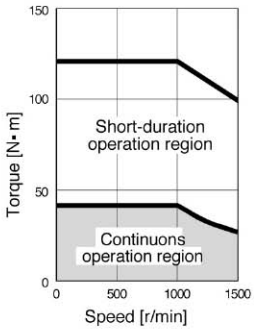

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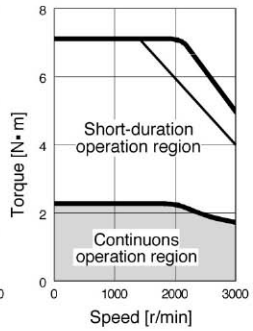

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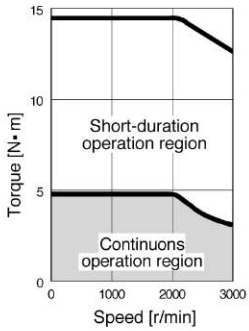

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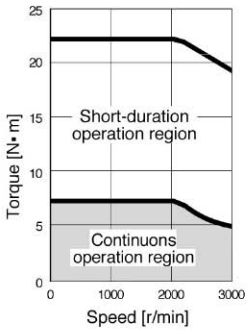

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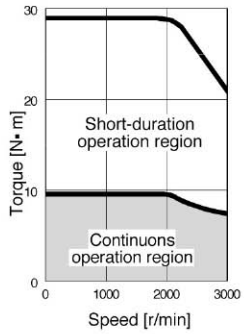

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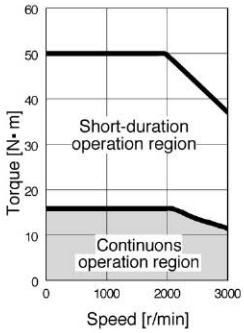

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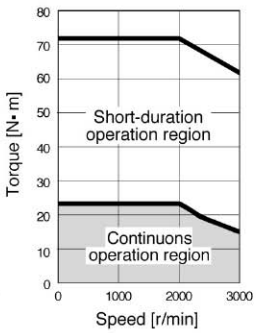

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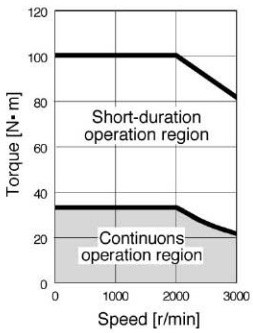


MR-J3 HA-LP Series

Item			Servo Motor	HA-LP 1000r/min Series (200VAC-compatible, low inertia, middle large capacity)						HA-LP 1500r/min Series (200VAC-compatible, low inertia middle large capacity)			
				601	801	12K1	15K1	20K1 (*8)	25K1 (*8)	710M	11K1M	15K1M	22K1M (*8)
Applicable Servo Amplifier/Drive Unit			MR-J3-□A/B/T	700	11K		15K	22K		700	11K	15K	22K
Continuous Characteristics (*1)	Rated Output		[kW]	6	8	12	15	20	25	7	11	15	22
	Rated Torque		[N•m]	57.3	76.4	115	143	191	239	44.6	70	95.5	140
			[oz • in]	8114	10819	16285	20251	27048	33845	6315.9	9912.9	13524	19825.7
Rated Speed (*1)			[r/min]	1000						1500			
Maximum Speed			[r/min]	1200						2000			
Instantaneous Permissible Speed			[r/min]	1380						2300			
Maximum Torque			[N • m]	172	229	344	415	477	597	134	210	286	350
			[oz • in]	24357	32429	48715	58769	67549	84542	18976	29738.6	40501.1	49564.3
Power Rate at Continuous Rated Torque			[kW/s]	313	265	445	373	561	528	189	223	309	357
Inertia Moment (*3)		J [x10^{-4}kg • m^2]		105	220	295	550	650	1080	105	220	295	550
		WK^2 [oz • in^2]		574.1	1202.8	1612.9	3007.1	3553.8	5904.8	574.1	1202.8	1612.9	3007.1
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2, *10)				10 times or less									
Power Supply Capacity				Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.									
Rated Current			[A]	34	42	61	83	118	118	37	65	87	126
Maximum Current			[A]	102	126	183	249	295	295	111	195	261	315
Speed/Position Detector				Encoder common to absolute position and incremental detection systems (Resolution per servo motor 1 rotation: 262144 pulse/rev)									
Cooling Fan	Power Supply	Voltage Frequency		One-phase 200 to 220 VAC 50Hz, One-phase 200 to 230 VAC 60Hz	Three-phase 200 to 220VAC 50Hz Three-phase 200 to 230VAC 60Hz					One-phase 200 to 220 VAC 50Hz, One-phase 200 to 230 VAC 60Hz	Three-phase 200 to 220VAC 50Hz Three-phase 200 to 230VAC 60Hz		
		Power Consumption	[W]	42(50Hz)/ 54(60Hz)	32(50Hz)/40(60Hz)		45(50Hz)/63(60Hz)		120(50Hz)/ 175(60Hz)	42(50Hz)/ 54(60Hz)	32(50Hz)/ 40(60Hz)	45(50Hz)/ 63(60Hz)	120(50Hz)/ 175(60Hz)
	Rated Current		[A]	0.21(50Hz)/ 0.25(60Hz)	0.30(50Hz)/0.25(60Hz)		0.32(50Hz)/0.35(60Hz)		0.65(50Hz)/ 0.80(60Hz)	0.21(50Hz)/ 0.25(60Hz)	0.30(50Hz)/ 0.25(60Hz)	0.32(50Hz)/ 0.35(60Hz)	0.65(50Hz)/ 0.80(60Hz)
Thermal Sensor	Maximum Rated			125VAC/DC, 3A or 250VAC/DC, 2A									
	Minimum Rated			6VAC/DC, 0.15A									
Accessory				Oil seal									
Insulation class				Class F									
Structure				Totally-enclosed, force-cooled (protection type: IP44) (*4, *9)									
Environment (*4)	Ambient Temp.	During Operation	[°C]	0 to +40 (non-freezing)									
			[°F]	32 to 104 (non-freezing)									
		In Storage	[°C]	-15 to 70									
			[°F]	5 to 158									
	Ambient Humidity	During Operation		80% RH or less (non-condensing)									
		In Storage		90% RH or less (non-condensing)									
	Atmosphere			Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt.									
	Altitude			Max.1000m above sea level									
	Vibration (*5)		[m/s^2]	X, : 11.7, Y : 29.4			X, Y: 9.8			X, : 11.7, Y : 29.4		X, Y: 9.8	
Vibration Rank (*6)				V-10									
Permissible Load for the Shaft (*7)	L		[mm]	85	110		140		140	85	110		140
	Radial		[N]	2450	2940		3234		4900	2450	2940		3234
			[lb]	551	661		727		1102	551	661		794
	Thrust		[N]	980			1470		1960	980			1470
			[lb]	220			330		51.7	220			330
Mass (*3)			[kg]	55	95	115	160	180	230	55	95	115	160
			[lb]	121.3	209.4	253.5	352.7	396.8	507.1	121.3	209.4	253.5	352.7

Notes:

1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult us.
3. Refer to the outline dimension drawing for the servo motors with electromagnetic brake and with reduction gear.
4. Except for the shaft-through portion.
5. In the environment where the servo motor is exposed to oil mist, oil and/or water, the servo motor of the standard specifications may not be usable. Contact MEAU.
6. The value is the one at the part that indicates the maximum value (normally the opposite-to-load side bracket). When the servo motor stops, fretting is likely to occur at the bearing. Therefore, suppress the vibration to about half of the permissible value. Note that this does not apply to the servo motor with reduction gear. Refer to the servo motor manual for more details.
7. V-10 indicates that the amplitude of a single servo motor is 10m or less. Refer to the servo motor manual for more details.
8. The values in the table assume that the loads work individually. Refer to the servo motor manual for more details.
9. For the servo motor with reduction gear, the reduction gear area is IP44-equivalent.
10. For servo motors with reduction gear please refer to the servo motor manual.

MR-J3 HA-LP Series (continued)

Item				Servo Motor	HA-LP 2000r/min Series (200VAC-compatible, low inertia, middle large capacity)				
					502	702	11K2	15K2	22K2
Applicable Servo Amplifier/Drive Unit				MR-J3-□A/B/T	500	700	11K	15K	22K
Continuous Characteristics (*1)	Rated Output			[kW]	5	7	11	15	22
	Rated Torque			[N • m]	23.9	33.4	52.5	71.6	105
				[oz • in]	3384.5	4729.9	7434.6	10139.4	14869.3
Rated Speed (*1)				[r/min]	2000				
Maximum Speed				[r/min]	2000				
Instantaneous Permissible Speed				[r/min]	2300				
Maximum Torque				[N • m]	71.6	100	158	215	263
				[oz • in]	10139.4	14161.2	22374.7	30446.6	37244
Power Rate at Continuous Rated Torque				[kW/s]	77.2	118	263	233	374
Inertia Moment (*3)			J [x10^{-4}kg • m^2]		74	94.2	105	220	295
			WK^2 [oz • in^2]		404.6	515	574.1	1202.8	1612.9
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2)					10 times or less				
Power Supply Capacity					Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.				
Rated Current				[A]	25	34	63	77	112
Maximum Current				[A]	75	102	189	231	280
Speed/Position Detector					Encoder common to absolute position and incremental detection systems (Resolution per servo motor 1 rotation: 262144 pulse/rev)				
Cooling Fan	Power Supply	Voltage Frequency			—	—	One-phase 200 to 220 VAC 50Hz, One-phase 200 to 230 VAC 60Hz	Three-phase 200 to 220VAC 50Hz Three-phase 200 to 230VAC 60Hz	
		Power Consumption		[W]	—	—	42(50Hz)/ 54(60Hz)	32(50Hz)/40(60Hz)	
	Rated Current			[A]	—	—	0.21(50Hz)/ 0.25(60Hz)	0.30(50Hz)/0.25(60Hz)	
Thermal Sensor	Maximum Rated				—	—	125VAC/DC, 3A or 250VAC/DC, 2A		
	Minimum Rated				—	—	6VAC/DC, 0.15A		
Accessory					Oil seal				
Insulation class					Class F				
Structure					Totally-enclosed, self-cooled (protection type: IP65)		Totally-enclosed, force-cooled (protection type: IP44)		
Environment (*4)	Ambient Temp.	During Operation		[°C]	0 to +40 (non-freezing)				
				[°F]	32 to 104 (non-freezing)				
		In Storage		[°C]	-15 to 70				
				[°F]	5 to 158				
	Ambient Humidity	During Operation			80% RH or less (non-condensing)				
		In Storage			90% RH or less (non-condensing)				
	Atmosphere				Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt.				
	Altitude				Max.1000m above sea level				
	Vibration (*5)			[m/s^2]	X, : 11.7, Y : 29.4				
Vibration Rank (*6)					V-10				
Permissible Load for the Shaft (*7)	L			[mm]	85			110	140
	Radial			[N]	2450		2940		3234
				[lb]	551		661		727
	Thrust			[N]	980				1470
				[lb]	220				330
Mass (*3)				[kg]	28	35	55	95	115
				[lb]	61.7	77.2	121.3	209.4	253.5

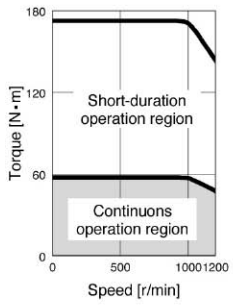
Notes:

1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult us.
3. Refer to the outline dimension drawing for the servo motor with electromagnetic brake.
4. In the environment where the servo motor is exposed to oil mist, oil and/or water, the servo motor of the standard specifications may not be usable. Contact MEAU.
5. The value is the one at the part that indicates the maximum value (normally the opposite-to-load side bracket). When the servo motor stops, fretting is likely to occur at the bearing. Therefore, suppress the vibration to about half of the permissible value. Note that this does not apply to the servo motor with reduction gear. Refer to the servo motor manual for more details.
6. V-10 indicates that the amplitude of a single servo motor is 10m or less. Refer to the servo motor manual for more details.
7. The values in the table assume that the loads work individually. Refer to the servo motor manual for more details.

MR-J3 HA-LP Series • Speed Torque Characteristics

- For machines which produce unbalanced torque, e.g. vertical lift applications, it is recommended to use the servo motor so that the unbalanced torque will be within 70% of the rated torque.
- When the input power supply specifications of the servo amplifier are 3-phase 200 VAC or 1-phase 230 VAC, the torque characteristic is indicated by the heavy line.

[HA-LP601]



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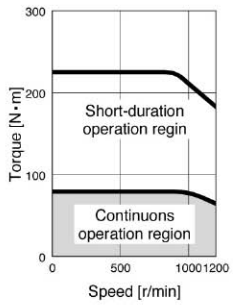

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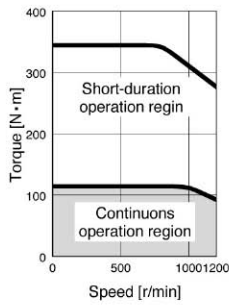

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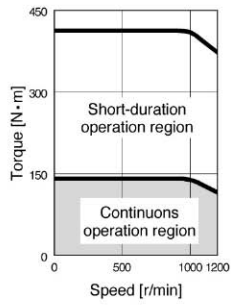

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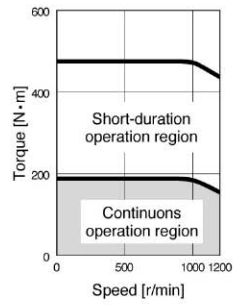

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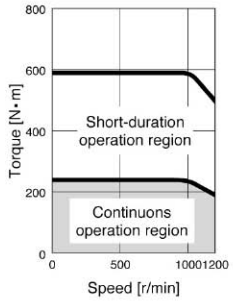

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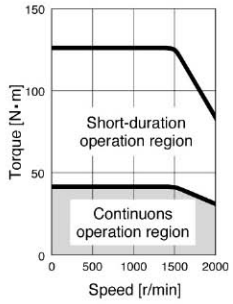

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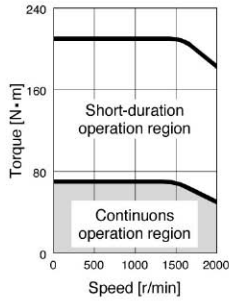

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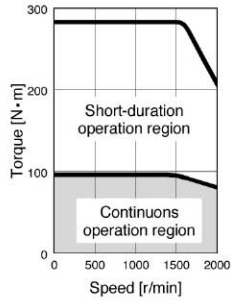

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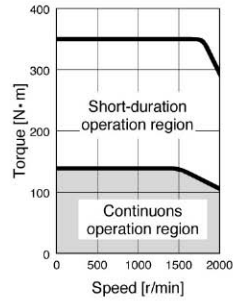

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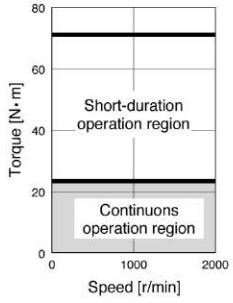

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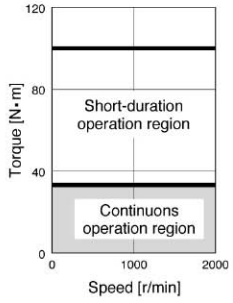

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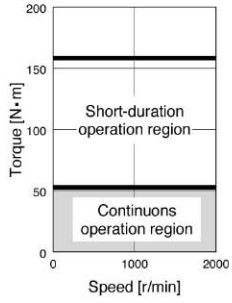

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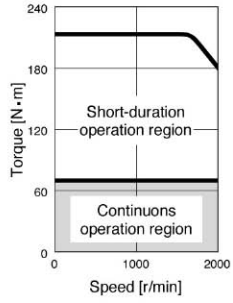

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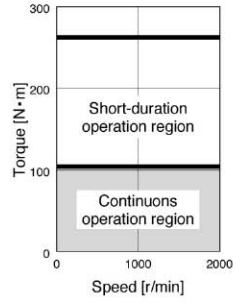


MR-J3 HC-RP Series

Item			Servo Motor	HC-RP Series (Low inertia, middle capacity)				
				103	153	203	353	503
Applicable Servo Amplifier/Drive Unit			MR-J3-□A/B/T	200		350	500	
Continuous Characteristics (*1)	Rated Output		[kW]	1.0	1.5	2.0	3.5	5.0
	Rated Torque		[N • m]	3.18	4.78	6.37	11.1	15.9
			[oz • in]	450	677	902	1572	2252
Rated Speed (*1)			[r/min]	3000				
Maximum Speed			[r/min]	4500				
Instantaneous Permissible Speed			[r/min]	5175				
Maximum Torque			[N • m]	7.95	11.9	15.9	27.9	39.7
			[oz • in]	1126	1686	2253	3954	5626
Power Rate at Continuous Rated Torque			[kW/s]	67.4	120	176	150	211
Inertia Moment (*3)		J [x10^{-4}kg • m^2]		1.5	1.9	2.3	8.3	12.0
		WK^2 [oz • in^2]		8.2	10.4	12.6	45.4	65.6
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2)				5 times or less				
Power Supply Capacity				Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.				
Rated Current			[A]	6.1	8.8	14	23	28
Maximum Current			[A]	18	23	37	58	70
Speed/Position Detector				Encoder common to absolute position and incremental detection systems (Resolution per servo motor 1 rotation: 262144 pulse/rev)				
Accessory				Oil seal				
Insulation class				Class F				
Structure				Totally-enclosed, self-cooled (protection type: IP65)				
Environment (*4)	Ambient Temp.	During Operation	[°C]	0 to +40 (non-freezing)				
			[°F]	32 to 104 (non-freezing)				
		In Storage	[°C]	-15 to 70				
			[°F]	5 to 158				
	Ambient Humidity	During Operation		80% RH or less (non-condensing)				
		In Storage		90% RH or less (non-condensing)				
	Atmosphere			Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt.				
	Altitude			Max.1000m above sea level				
	Vibration (*5)		[m/s^2]	X, Y :24.5				
Vibration Rank (*6)				V-10				
Permissible Load for the Shaft (*7)	L		[mm]	45			63	
	Radial		[N]	686			980	
			[lb]	154			220	
	Thrust		[N]	196			392	
			[lb]	44.1			88.1	
Mass (*3)			[kg]	3.9	5.0	6.2	12	17
			[lb]	8.6	11.0	13.7	26.5	37.5

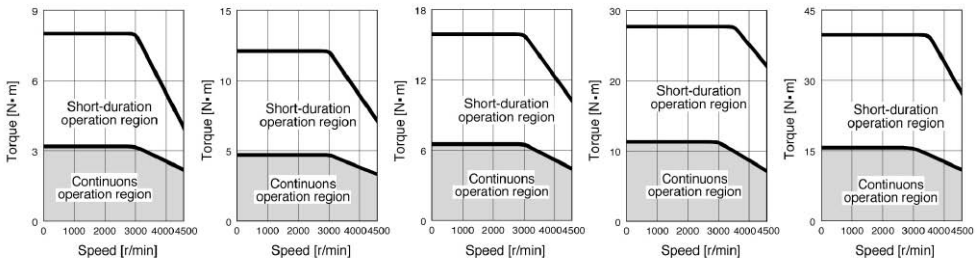
Notes:

1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult us.
3. Refer to the outline dimension drawing for the servo motors with electromagnetic brake and with reduction gear.
4. Except for the shaft-through portion.
5. In the environment where the servo motor is exposed to oil mist, oil and/or water, the servo motor of the standard specifications may not be usable. Contact MEAU.
6. The value is the one at the part that indicates the maximum value (normally the opposite-to-load side bracket). When the servo motor stops, fretting is likely to occur at the bearing. Therefore, suppress the vibration to about half of the permissible value. Note that this does not apply to the servo motor with reduction gear. Refer to the servo motor manual for more details.
7. V-10 indicates that the amplitude of a single servo motor is 10m or less. Refer to the servo motor manual for more details.

HC-RP Series • Speed Torque Characteristics

- For machines which produce unbalanced torque, e.g. vertical lift applications, it is recommended to use the servo motor so that the unbalanced torque will be within 70% of the rated torque.
- When the input power supply specifications of the servo amplifier are 3-phase 200 VAC the torque characteristic is indicated by the continuous line.

[HC-RP103] [HC-RP153] [HC-RP203] [HC-RP353] [HC-RP503]

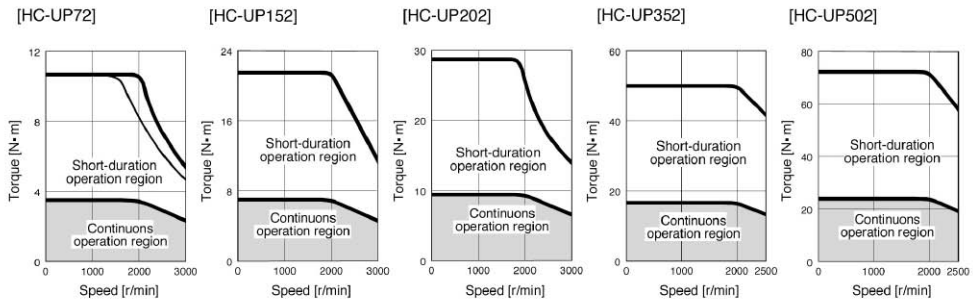


MR-J3 HC-UP Series

Item			Servo Motor	HC-UP 2000r/min Series (Flat Type, middle capacity)				
				72	152	202	352	502
Applicable Servo Amplifier/Drive Unit			MR-J3-□A/B/T	70	200	350	500	
Continuous Characteristics (*1)	Rated Output		[kW]	0.75	1.5	2.0	3.5	5.0
	Rated Torque		[N • m]	3.58	7.16	9.55	16.7	23.9
			[oz • in]	507	1015	1353	2367	3387
Rated Speed (*1)			[r/min]	2000				
Maximum Speed			[r/min]	3000			2500	
Instantaneous Permissible Speed			[r/min]	3450			2875	
Maximum Torque			[N • m]	10.7	21.6	28.5	50.1	71.6
			[oz • in]	1516	3061	4039	7100	10146
Power Rate at Continuous Rated Torque			[kW/s]	12.3	23.2	23.9	36.5	49.6
Inertia Moment (*3)		J [x10^{-4}kg • m^2]		10.4	22.1	38.2	76.5	115
		WK^2 [oz • in^2]		56.9	120.8	208.9	418.3	628.8
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2)				15 times or less				
Power Supply Capacity				Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.				
Rated Current			[A]	5.4	9.7	14	23	28
Maximum Current			[A]	16	29	42	69	84
Speed/Position Detector				Encoder common to absolute position and incremental detection systems (Resolution per servo motor 1 rotation: 262144 pulse/rev)				
Accessory				Oil seal				
Insulation class				Class F				
Structure				Totally-enclosed, self-cooled (protection type: IP65)				
Environment (*4)	Ambient Temp.	During Operation	[°C]	0 to +40 (non-freezing)				
			[°F]	32 to 104 (non-freezing)				
		In Storage	[°C]	-15 to 70				
			[°F]	5 to 158				
	Ambient Humidity	During Operation		80% RH or less (non-condensing)				
		In Storage		90% RH or less (non-condensing)				
	Atmosphere			Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt.				
	Altitude			Max. 1000m above sea level				
	Vibration (*5)		[m/s^2]	X, Y :24.5		X: 24.5 Y: 49		
Vibration Rank (*6)				V-10				
Permissible Load for the Shaft (*7)	L		[mm]	55		65		
	Radial		[N]	637		882	1176	
			[lb]	143		198	264	
	Thrust		[N]	490		784		
			[lb]	110		176		
Mass (*3)			[kg]	8.0	11	16	20	24
			[lb]	17.6	24.3	35.3	44.1	52.9

Notes:
1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult us.
3. Refer to the outline dimension drawing for the servo motor with electromagnetic brake.
4. In the environment where the servo motor is exposed to oil mist, oil and/or water, the servo motor of the standard specifications may not be usable. Contact MEAU.
5. The value is the one at the part that indicates the maximum value (normally the opposite-to-load side bracket). When the servo motor stops, fretting is likely to occur at the bearing. Therefore, suppress the vibration to about half of the permissible value. Note that this does not apply to the servo motor with reduction gear. Refer to the servo motor manual for more details.
6. V-10 indicates that the amplitude of a single servo motor is 10m or less. Refer to the servo motor manual for more details.
7. The values in the table assume that the loads work individually. Refer to the servo motor manual for more details.

HC-UP Series • Speed Torques



Notes:
- For machines which produce unbalanced torque, e.g. vertical lift applications, it is recommended to use the servo motor so that the unbalanced torque will be within 70% of the rated torque.
- When the input power supply specifications of the servo amplifier are 3-phase 200 VAC or 1-phase 230 VAC, the torque characteristic is indicated by the heavy line. For the 1-phase 200 VAC power supply, part of the torque characteristic is indicated by the continuous line.

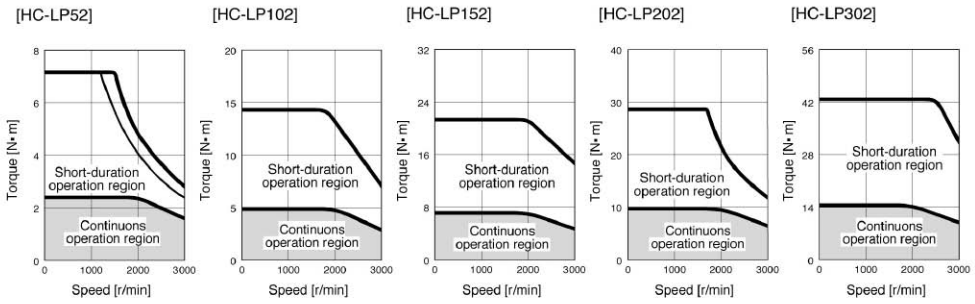
MR-J3 HC-LP Series

Item			Servo Motor	HC-LP Series (Low Inertia • Middle capacity)				
				52	102	152	202	302
Applicable Servo Amplifier/Drive Unit			MR-J3-□A/B/T	60	100	200	350	500
Continuous Characteristics (*1)	Rated Output		[kW]	0.5	1.0	1.5	2.0	3.0
	Rated Torque		[N • m]	2.39	4.78	7.16	9.55	14.3
			[oz • in]	338.5	676.9	1013.9	1352.4	2025.1
Rated Speed (*1)			[r/min]	2000				
Maximum Speed			[r/min]	3000				
Instantaneous Permissible Speed			[r/min]	3450				
Maximum Torque			[N • m]	7.16	14.4	21.6	28.5	42.9
			[oz • in]	1013.9	2039.2	3058.8	4036	6075.2
Power Rate at Continuous Rated Torque			[kW/s]	17.9	49.7	80.1	41.5	56.8
Inertia Moment (*3)		J [x10^{-4}kg • m^2]		3.10	4.62	6.42	22.0	36.0
		WK^2 [oz • in^2]		16.9	25.3	35.1	120.3	196.8
Recommended Ratio of Load Inertia Moment to Servo Motor Shaft Inertia Moment (*2)				10 times or less				
Power Supply Capacity				Refer to "Power supply equipment capacity and generated loss of servo amplifiers" in Servo Amplifier Instruction Manual.				
Rated Current			[A]	3.2	5.9	9.9	14	23
Maximum Current			[A]	9.6	18	30	42	69
Speed/Position Detector				Encoder common to absolute position and incremental detection systems (Resolution per servo motor 1 rotation: 262144 pulse/rev)				
Accessory				Oil seal				
Insulation class				Class F				
Structure				Totally-enclosed, self-cooled (protection type: IP65)				
Environment (*4)	Ambient Temp.	During Operation	[°C]	0 to +40 (non-freezing)				
			[°F]	32 to 104 (non-freezing)				
		In Storage	[°C]	-15 to 70				
			[°F]	5 to 158				
	Ambient Humidity	During Operation		80% RH or less (non-condensing)				
		In Storage		90% RH or less (non-condensing)				
	Atmosphere			Indoors (no direct sunlight) Free from corrosive gas, flammable gas, oil mist, dust and dirt.				
	Altitude			Max. 1000m above sea level				
	Vibration (*5)		[m/s^2]	X: 9.8 Y :24.5			X: 19.6 Y: 49	
Vibration Rank (*6)				V-10				
Permissible Load for the Shaft (*7)	L		[mm]	55			79	
	Radial		[N]	980			2058	
			[lb]	220			463	
	Thrust		[N]	490			980	
			[lb]	110			220	
Mass (*3)			[kg]	6.5	8.0	10	21	28
			[lb]	14.33	17.6	22	46.3	61.7

Notes:

1. When the power supply voltage drops, we cannot guarantee the output and rated speed.
2. If the load inertia moment ratio exceeds the indicated value, please consult us.
3. Refer to the outline dimension drawing for the servo motor with electromagnetic brake.
4. In the environment where the servo motor is exposed to oil mist, oil and/or water, the servo motor of the standard specifications may not be usable. Contact MEAU.
5. The value is the one at the part that indicates the maximum value (normally the opposite-to-load side bracket). When the servo motor stops, fretting is likely to occur at the bearing. Therefore, suppress the vibration to about half of the permissible value. Note that this does not apply to the servo motor with reduction gear. Refer to the servo motor manual for more details.
6. V-10 indicates that the amplitude of a single servo motor is 10m or less. Refer to the servo motor manual for more details.
7. The values in the table assume that the loads work individually. Refer to the servo motor manual for more details.

HC-LP Series • Speed Torques



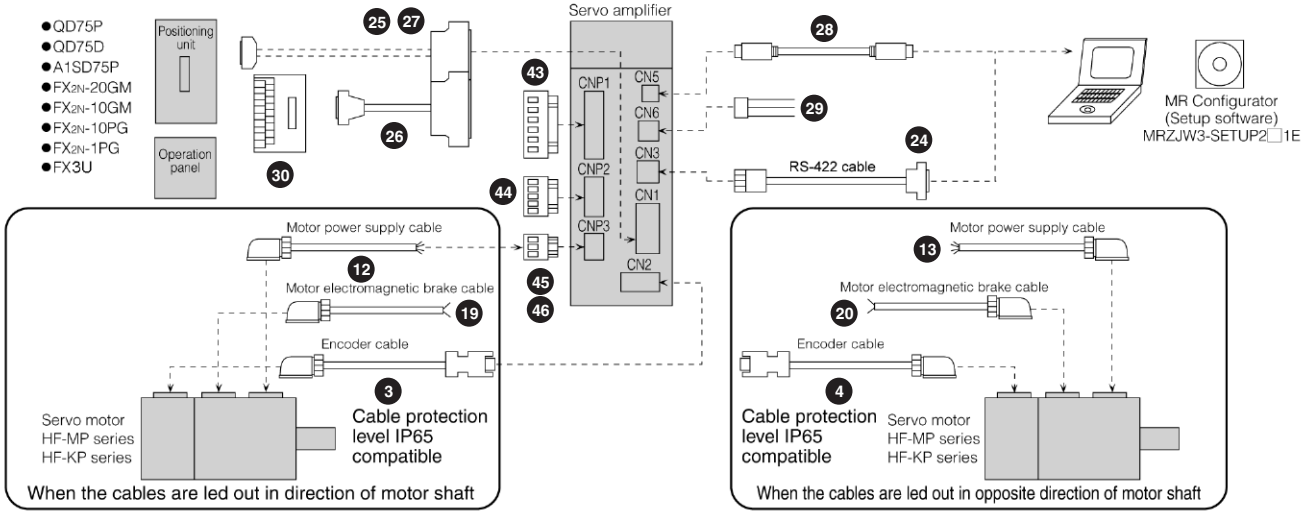
Notes:

- For machines which produce unbalanced torque, e.g. vertical lift applications, it is recommended to use the servo motor so that the unbalanced torque will be within 70% of the rated torque.
- When the input power supply specifications of the servo amplifier are 3-phase 200 VAC or 1-phase 230 VAC, the torque characteristic is indicated by the heavy line. For the 1-phase 200 VAC power supply, part of the torque characteristic is indicated by the continuous line.

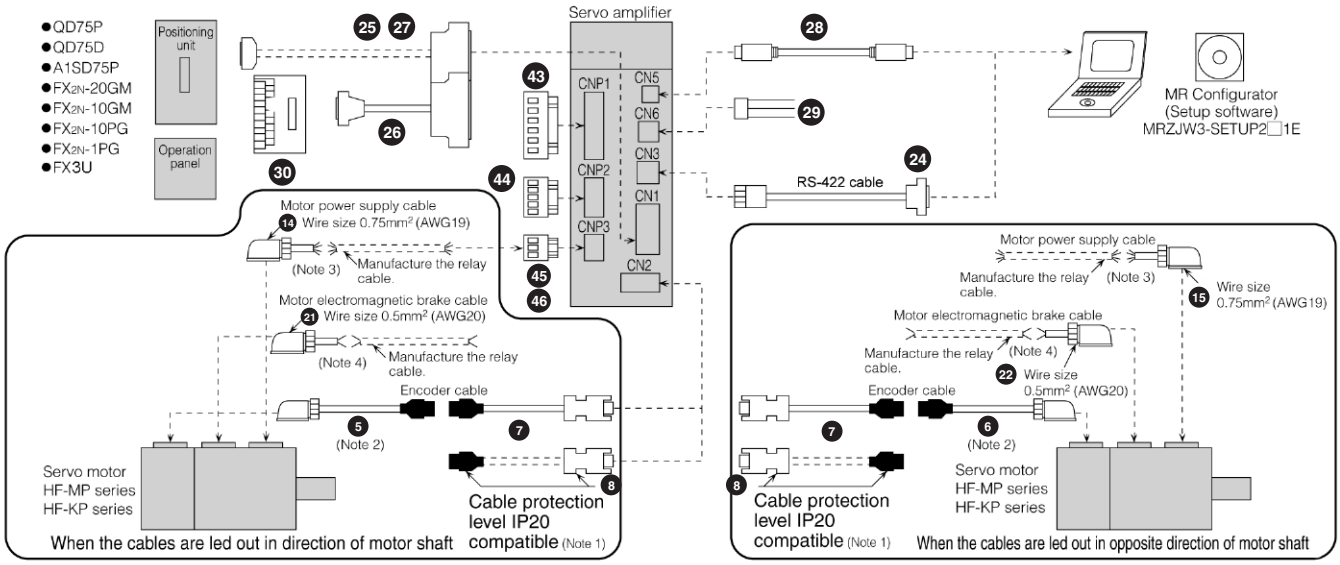
MR-J3-A Cables and Connectors (A-Type)

Optional cables and connectors are shown in the diagram below.

Servo motor HF-MP/HF-KP series: encoder cable length 10m or shorter

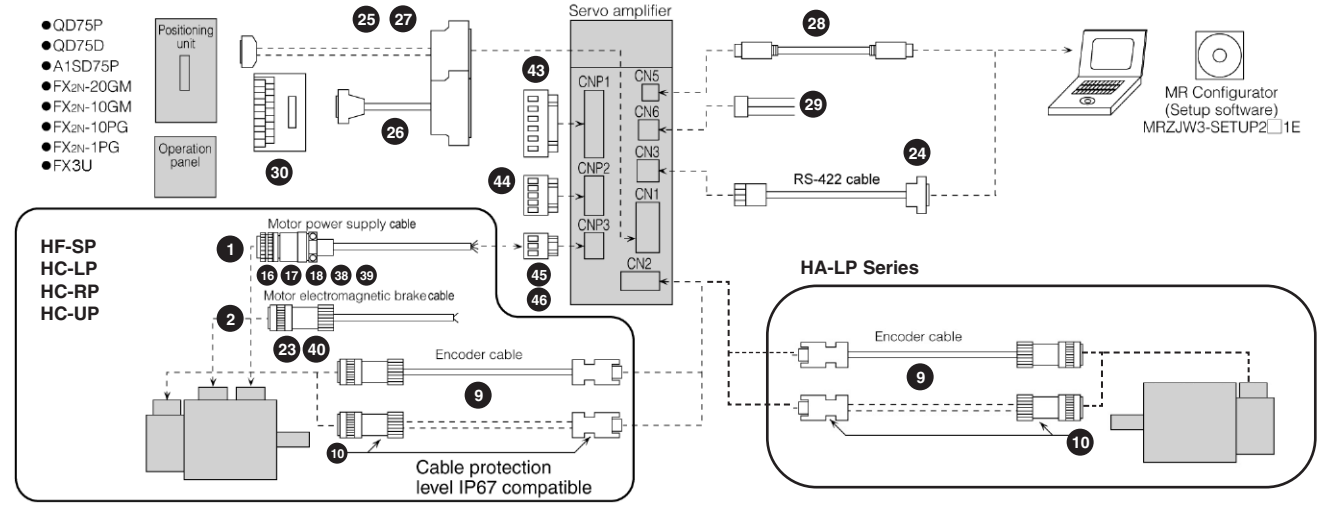


Servo motor HF-MP/HF-KP series: Encoder cable length over 10m



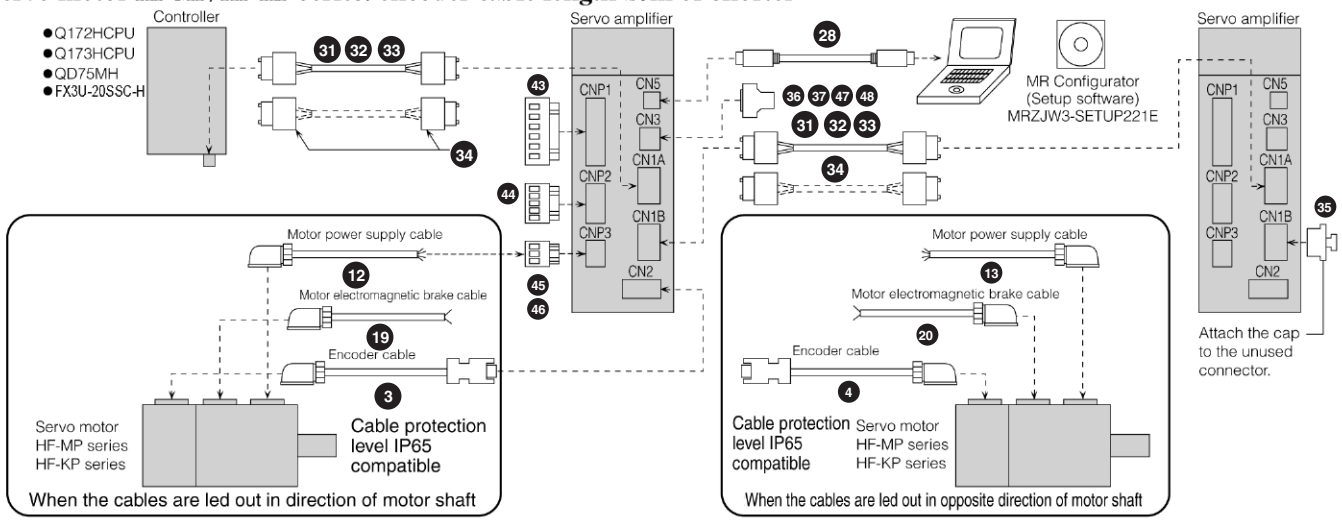
Notes: 1. Compatible with protection level IP20. Contact Mitsubishi when using in a protection level IP65 environment.
2. This cable does not have a long bending life, so always fix the cable before using.
3. If the length exceeds 10m, relay the cable using the cable MR-PWS2CBL03M-A1-L/-A2-L. This cable does not have a long bending life, so always fix the cable before using. Refer to "MR-J3-A SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the relay cable.
4. If the length exceeds 10m, relay the cable using the cable MR-BKS2CBL03M-A1-L/-A2-L. This cable does not have a long bending life, so always fix the cable before using. Refer to "MR-J3-A SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the relay cable.

For servo motors HF-SP, HC-LP, HC-RP, HC-UP and HA-LP Series

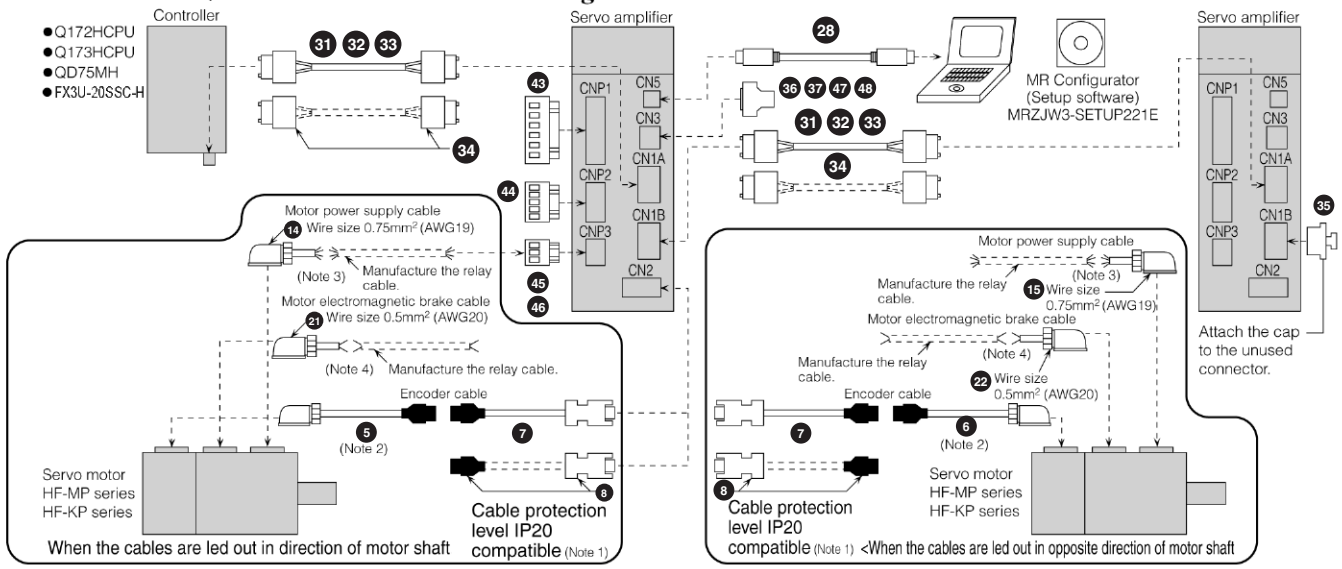


MR-J3-B Cables and Connectors (B-Type)

Servo motor HF-MP/HF-KP series: encoder cable length 10m or shorter

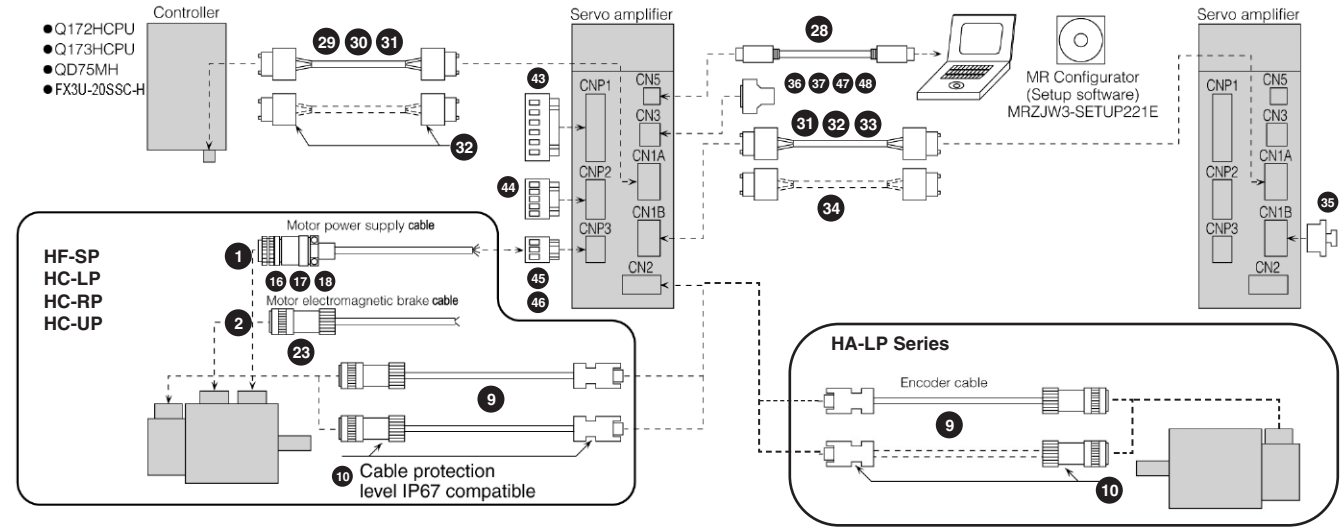


Servo motor HF-MP/HF-KP series: Encoder cable length over 10m



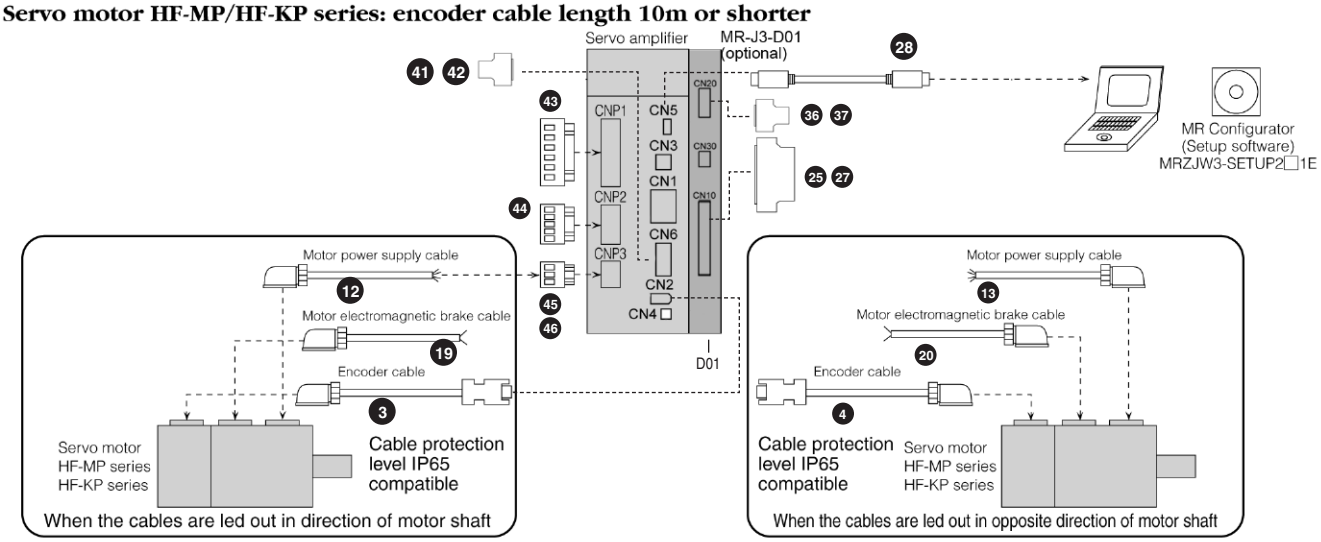
Notes: 1. Compatible with protection level IP20. Contact Mitsubishi when using in a protection level IP65 environment.
2. This cable does not have a long bending life, so always fix the cable before using.
3. If the length exceeds 10m, relay the cable using the cable MR-PWS2CBL03M-A1-L/-A2-L. This cable does not have a long bending life, so always fix the cable before using. Refer to "MR-J3-B SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the relay cable.
4. If the length exceeds 10m, relay the cable using the cable MR-BKS2CBL03M-A1-L/-A2-L. This cable does not have a long bending life, so always fix the cable before using. Refer to "MR-J3-B SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the relay cable.

For servo motors HF-SP, HC-LP, HC-RP, HC-UP and HA-LP Series

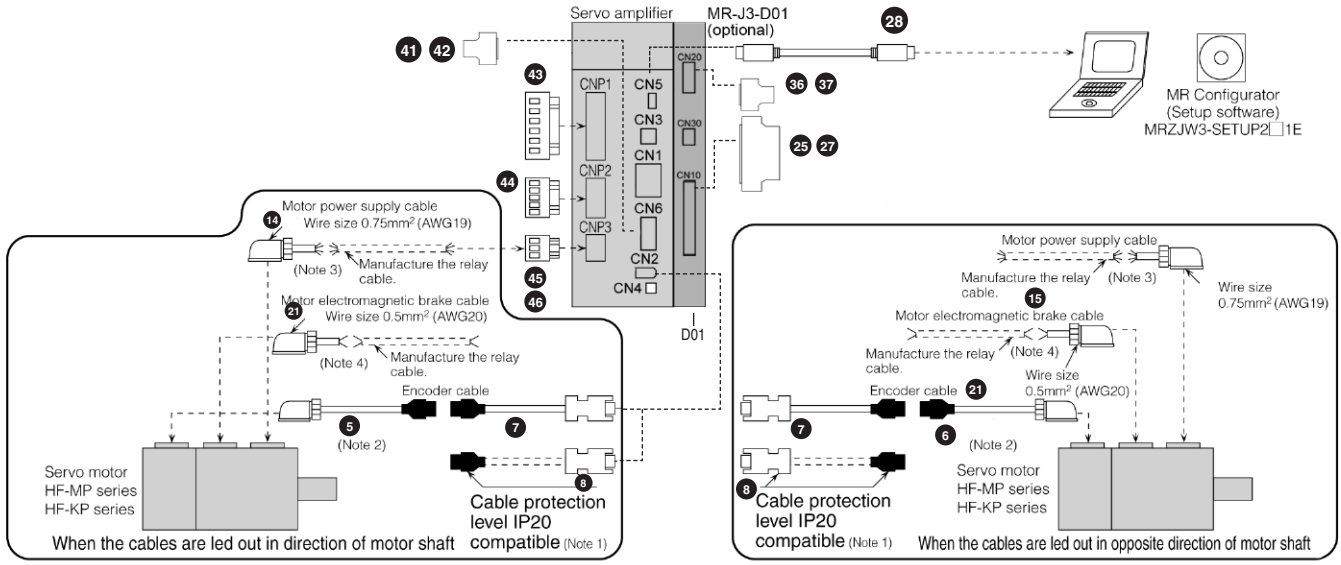


MR-J3-T Cables and Connectors (T-Type)

Servo motor HF-MP/HF-KP series: encoder cable length 10m or shorter

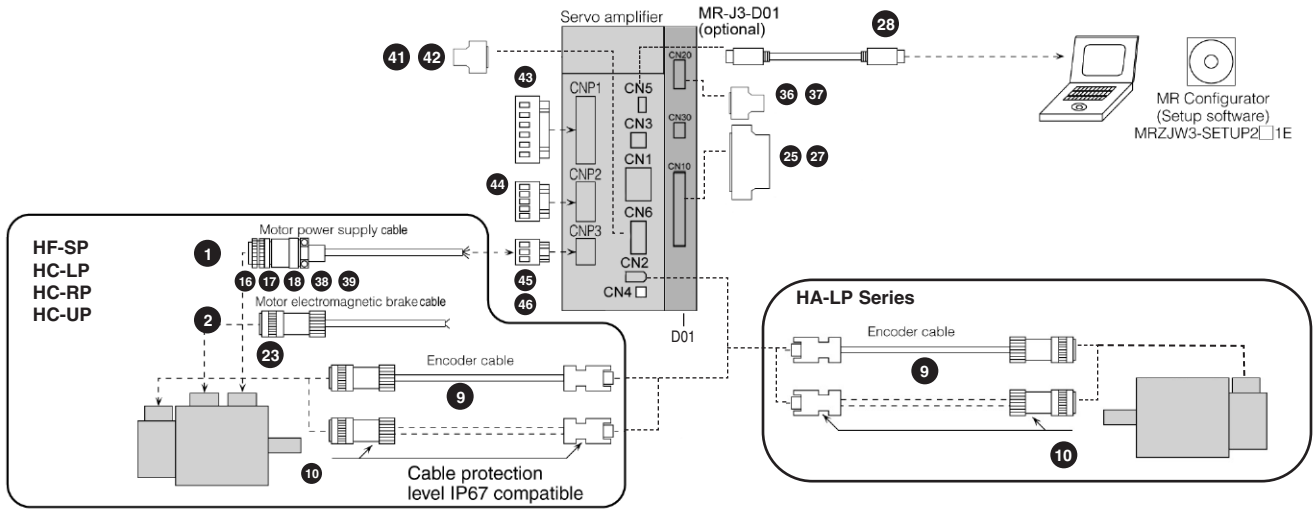


Servo motor HF-MP/HF-KP series: Encoder cable length over 10m



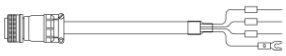
Notes: 1. Compatible with protection level IP20. Contact Mitsubishi when using in a protection level IP65 environment.
2. This cable does not have a long bending life, so always fix the cable before using.
3. If the length exceeds 10m, relay the cable using the cable MR-PWS2CBL03M-A1-L/-A2-L. This cable does not have a long bending life, so always fix the cable before using. Refer to "MR-J3-A SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the relay cable.
4. If the length exceeds 10m, relay the cable using the cable MR-BKS2CBL03M-A1-L/-A2-L. This cable does not have a long bending life, so always fix the cable before using. Refer to "MR-J3-A SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the relay cable.

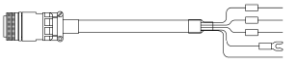
For servo motors HF-SP, HC-LP, HC-RP, HC-UP and HA-LP Series



MR-J3 Cables and Connectors (Refer to Charts on Previous Pages)

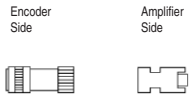
Item				Model Number	Protection Level	Description
Power Cables for HA-LP, HC-LP, HC-RP, HC-UP and HF-SP Series Motors - A-, B- & T-Type Amplifiers	❶	Standard-Flex, Unshielded Type Cables	HA-LP502	MR-J3HC5S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HA-LP702	MR-J3P7-□M □ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HA-LP ALL OTHERS	Hard Wired By User	N/A	
			HC-LP52	MR-J3HC1S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP52B	MR-J3HC1SB-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP102	MR-J3HC2S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP102B	MR-J3HC2SB-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP152	MR-J3HC3S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP152B	MR-J3HC3SB-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP202~302	MR-J3HC5S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP202B~302B	MR-J3HC5S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-RP103~203	MR-J3HC3S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-RP103B~203B	MR-J3HC3SB-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-RP353~503	MR-J3HC5S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-RP353B~503B	MR-J3HC5SB-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP72	MR-J3HC1S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP72B	MR-J3HC1SB-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP152	MR-J3HC3S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP152B	MR-J3HC3SB-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP202~502	MR-J3HC5S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP202B~502B	MR-J3HC5S-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP52(B)	MR-J3P1-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP51(B) & 102(B)	MR-J3P2-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP81(B) & 152(B)	MR-J3P3-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP121(B) & 202(B)	MR-J3P4-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP201(B) & 352(B)	MR-J3P5-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP301(B) & 502(B)	MR-J3P6-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP421(B) & 702(B)	MR-J3P7-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
		High-Flex, Shielded Type Cables	HA-LP502	MR-J3HC5SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HA-LP702	MR-J3PWS7-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HA-LP ALL OTHERS	Hard Wired By User	N/A	
			HC-LP52	MR-J3HC1SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP52B	MR-J3HC1SBW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP102	MR-J3HC2SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP102B	MR-J3HC2SBW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP152	MR-J3HC3SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP152B	MR-J3HC3SBW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP202~302 (*1)	MR-J3HC5SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP202B~302B	MR-J3HC5SW-SH-□M (□= cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-RP103~203	MR-J3HC3SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-RP103B~203B	MR-J3HC3SBW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-RP353~503	MR-J3HC5SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-RP353B~503B	MR-J3HC5SBW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP72	MR-J3HC1SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP72B	MR-J3HC1SBW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP152	MR-J3HC3SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP152B	MR-J3HC3SBW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP202~502 (*1)	MR-J3HC5SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP202B~502B	MR-J3HC5SW-SH-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP52(B)	MR-J3PWS1-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	
			HF-SP51(B) & 102(B)	MR-J3PWS2-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	
			HF-SP81(B) & 152(B)	MR-J3PWS3-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	
			HF-SP121(B) & 202(B)	MR-J3PWS4-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	
			HF-SP201(B) & 352(B)	MR-J3PWS5-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	
			HF-SP301(B) & 502(B)	MR-J3PWS6-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	
			HF-SP421(B) & 702(B)	MR-J3PWS7-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	
Brake Cables - A-, B- & T-Types	❷	Standard-Flex, Unshielded Type Cables	HA-LP ALL B SIZES	MRJ3HCBKS-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP202B~302B	MRJ3HCBKS-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP202B~502B	MRJ3HCBKS-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP ALL B SIZES	MR-J3BK-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	
		High-Flex, Shielded Type Cables	HA-LP ALL B SIZES	MRJ3HCBKS-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-LP202B~302B	MRJ3HCBKS-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HC-UP202B~502B	MRJ3HCBKS-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP65	
			HF-SP ALL B SIZES	MR-J3BRKS1-□M (□ = cable length 2, 5, 10, 15, 20, 25, 30m)	IP67	





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

MR-J3 Cables and Connectors (Refer to Charts on Previous Pages)

Item				Model	Protection Level	Description
Encoder Cable for CN2 – A-, B- and T-Type	❸	10m or Shorter (Direct Connection Type)	Encoder Cable For HF-MP/HF-KP Series Motor Lead Out In Direction Of Motor Shaft	MR-J3ENCBL☐M-A1-H ☐ = cable length 2, 5, 10m (*1)	IP65	
				MR-J3ENCBL☐M-A1-L ☐ = cable length 2, 5, 10m (*1)	IP65	
	❹		Encoder Cable For HF-MP/HF-KP Series Motor Lead Out In Opposite Direction Of Motor Shaft	MR-J3ENCBL☐M-A2-H ☐ = cable length 2, 5, 10m (*1)	IP65	
				MR-J3ENCBL☐M-A2-L ☐ = cable length 2, 5, 10m (*1)	IP65	
	❺	Exceeding 10m (Relay Type)	Encoder Cable For HF-MP/HF-KP Series Motor Lead Out In Direction Of Motor Shaft	MR-J3JCBL03M-A1-L Cable length 0.3m (*1)	IP20	
	❻		Encoder Cable For HF-MP/HF-KP Series Motor Lead Out In Opposite Direction Of Motor Shaft	MR-J3JCBL03M-A2-L Cable length 0.3m (*1)	IP20	
	❼		Amplifier-Side Cable For HF-MP/HF-KP Series Motor	MR-EKCBL☐M-H ☐ = cable length 20, 30, 40, 50m (*1)	IP20	
				MR-EKCBL☐M-L ☐ = cable length 20, 30m (*1)	IP20	
	❽		Junction Connector, Amplifier-Side Connector (*2) For HF-MP/HF-KP Series Motor	MR-ECNM	IP20	
	❾	Encoder Cable For HF-SP, HC-RP, HC-UP, HC-LP, HA-LP Series Motor		MR-J3ENSCBL☐M-H ☐ = cable length 2, 5, 10, 20, 30, 40, 50m (*1)	IP67	
				MR-J3ENSCBL☐M-L ☐ = cable length 2, 5, 10, 20, 30m (*1)	IP67	
	❿	Encoder Connector Set For HF-SP, HC-RP, HC-UP, HC-LP, HA-LP Series Motor		MR-J3SCNS	IP67	
	⓫	Battery Connection Relay Cable		MR-J3BTCBL03M Cable length 0.3m (*3)	—	
Motor Power Supply Cables For CNP3 – A-, B- and T-Type	⓬	10m Or Shorter (Direct Connection Type	Power Supply Cable For HF-MP/ HF-KP Series Motor. Lead Out In Direction Of Motor Shaft	MR-PWS1CBL☐M-A1-H ☐ = cable length 2, 5, 10m (*1)	IP65	
				MR-PWS1CBL☐M-A1-L ☐ = cable length 2, 5, 10m (*1)	IP65	
	⓭		Power Supply Cable For HF-MP/ HF-KP Series Motor. Lead Out In Opposite Direction of Motor Shaft	MR-PWS1CBL☐M-A2-H ☐ = cable length 2, 5, 10m (*1)	IP65	
				MR-PWS1CBL☐M-A2-L ☐ = cable length 2, 5, 10m (*1)	IP65	
	⓮	Exceeding 10m (Relay Type)	Power Supply Cable For HF-MP/HF-KP Series Motor Lead Out In Direction Of Motor Shaft	MR-PWS2CBL03M-A1-L Cable length 0.3m (*1)	IP55	
	⓯		Power Supply Cable For HF-MP/HF-KP Series Motor Lead Out In Opposite Direction Of Motor Shaft	MR-PWS2CBL03M-A2-L Cable length 0.3m (*1)	IP55	

Notes:
See next page.

MR-J3 Cables and Connectors

Item				Model	Protection Level	Description
Power Supply Connectors For HF-SP, HC-LP, HC-RP, HC-UP, and HF-SP Motors	16	Power Supply Connector For HF-SP51, 81, HF-SP52, 102, 152 Motor See 1 For Cable		MR-PWCNS4 (Straight type)	IP67	
	17	Power Supply Connector For HF-SP121, 201, HF-SP202, 352, 502 Motor See 1 For Cable		MR-PWCNS5 (Straight type)	IP67	
	18	Power Supply Connector For HF-SP702 See 1 For Cable		MR-PWCNS3 (Straight type)	IP67	
Motor Brake Cables – A-, B- and T-Type	19	10m Or Shorter (Direct Connection Type)	Brake Cable For HF-MP/ HF-KP Series Motor Lead Out In Direction Of Motor Shaft	MR-BKS1CBL☐M-A1-H ☐ = cable length 2, 5, 10m (*1)	IP65	
				MR-BKS1CBL☐M-A1-L ☐ = cable length 2, 5, 10m (*1)	IP65	
	20		Brake Cable For HF-MP/ HF-KP Series Motor Lead Out In Opposite Direction Of Motor Shaft	MR-BKS1CBL☐M-A2-H ☐ = cable length 2, 5, 10m (*1)	IP65	
				MR-BKS1CBL☐M-A2-L ☐ = cable length 2, 5, 10m (*1)	IP65	
	21	Exceeding 10m (Relay Type)	Brake Cable For HF-MP/ HF-KP Series Motor Lead Out In Direction Of Motor Shaft	MR-BKS2CBL03M-A1-L Cable length 0.3m (*1)	IP55	
	22		Brake Cable For HF-MP/ HF-KP Series Motor Lead Out In Opposite Direction Of Motor Shaft	MR-BKS2CBL03M-A2-L Cable length 0.3m (*1)	IP55	
Brake Connector For HF-SP Series Motor	23	Brake Connector For HF-SP Series Motor See 2 For Cable		MR-BKCNS1 (Straight type)	IP67	
For CN3 A- and T-Type Only	24	RS-232 to RS-485 Converter PC to CN3 Cable (3 Meter)		SC-FRPC	—	
For CN1 – A- and T-D01 Types Only	25	CN1 Connector (50 Pin)		MR-J3CN1	—	
	26	Junction Terminal Block Cable		MR-J2M-CN1TBL☐M ☐ = cable length 0.5, 1m (For use with MR-TB50 and MR-TB50MIN Junction Terminal Block)	—	
For CN1 - A- and T-D01 Types Only	27	CN1 Pigtail Cable (50 Pin)		MR-J3CCN1CBL-☐M ☐ = cable length 3, 5m		
For CN5 A-, B- & T-Types	28	Personal Computer Communication Cable	USB Cable	MR-J3USBCBL3M Cable length 3m	—	
For CN6 A-Type Only	29	Monitor Cable		MR-J3CN6CBL1M Cable length 1m	—	
A-Type Only	30	Junction Terminal Block		MR-TB50MIN (reduced size – width = 145mm (5.71 in))	—	
				MR-TB50 (standard size – width = 244mm (9.61 in))		

Notes:
See next page.

MR-J3 Cables and Connectors

Item			Model	Protection Level	Description
For Controller, CN1A, CN1B B-Type Only	31	SSCNET III Cable (Standard Cord For Inside Panel)	MR-J3BUS☐M ☐ = cable length 0.15, 0.3, 0.5, 1, 3m	—	
	32	SSCNET III Cable (Standard Cable For Outside Panel)	MR-J3BUS☐M-A ☐ = cable length 5, 10, 20m	—	
	33	SSCNET III Cable (Long Distance Cable)	MR-J3BUS☐M-B ☐ = cable length 30, 40, 50m	—	
	34	Connector Set For SSCNET III	MR-J3BCN1	—	
For CN1B B-Type Only	35	Connector Cap for SSCNET III	Connector comes with amplifier standard	—	
For CN3 B- and T-D01 Types Only	36	CN10 or CN3 Signal Connector (20 Pin)	MR-CCN1	—	
For CN3 B- and T-D01 Types Only	37	CN10 or CN3 Pigtail Cable (20 Pin)	MR-CCN1CBL-☐M ☐ = cable length 3, 5M	—	
For A-, B- and T-Types	38	Power Supply Connector For HC-RP, HC-UP, and HC-LP	MR-PWCNS1	IP65	
	39	Power Supply Connector For HC-RP, HC-UP, and HC-LP	MR-PWCNS2	IP65	
	40	Brake Connector For HC-RP, HC-UP, and HC-LP	MR-BKCN	IP65	
For T-Type Only	41	CN6 Connector (26 Pin)	MR-ECN1	—	
	42	CN6 Pigtail Cable (26 Pin)	MR-ECN1CBL-☐M ☐ = cable length 3, 5M	—	
For A, B and T-Types	43	CNP1 Connector 1kW or less (Comes with J3 Amp Standard)	54928-0670	—	
		CNP1 Connector 2kW – 3.5kW (Comes with J3 Amp Standard)	PC4/6-STF-7.62	—	
	44	CNP2 Connector up to 3.5kW (Comes with J3 Amp Standard)	54927-0510	—	
	45	CNP3 Connector 1kW or less (Comes with J3 Amp Standard)	54928-0370	—	
		CNP3 Connector 2kW – 3.5kW (Comes with J3 Amp Standard)	PC4/3-STF-7.62	—	
	46	CNP1-2-3 Insertion Tool (Comes with J3 Amp Standard)	54932-0000	—	
For B-Type Only	47	20 Pin Terminal B Lock For J3-B (TB20 Cannot be Used)	PS7DW-20V14B-F	—	
	48	Cable for PS7DW-20V14B-F Terminal Block	MR-J2HBUS☐M ☐ = Cable Length 0.5, 1, 3, 5 meter	—	

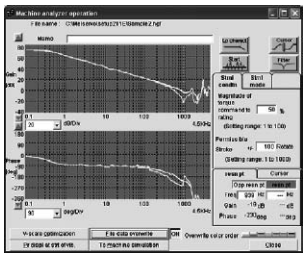
Notes:
1. -H and -L indicate bending life. -H indicates a long bending life, and -L indicates a standard.
2. Refer to "MR-J3-B SERVO AMPLIFIER INSTRUCTION MANUAL" for details on manufacturing the cable.
3. The battery connection junction cable (MR-J3BTCB L03M) has a diode built-in. Do not manufacture this cable.This optional cable must be used.

MR-J3 Software and Manuals

MR Configurator • (MRZJW3-SETUP221E)

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-satisfying functions that enable the balance with the machine system, optimum control and short start up time are available.

1. This software can set up and tune your servo system easily with a personal computer.
2. 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.
3. Test operations with a personal computer
   Test operation of the servo motors can be performed with a personal computer using multiple test mode menus.
4. Further advanced tuning is possible with the improved advanced functions.



(*1)

Main Menu	Functions
Monitors	Batch display, input/output I/F display, high speed monitor, graph display
Alarms	Alarm display, alarm history, display of data that generated alarm
Diagnostics	Failure to rotate reason display, system information display, tuning data display, absolute data display, axis name setting, amplifier diagnostic (*2)
Parameters	Parameter setting, device setting, tuning, display of change list, display of detailed information, converter and parameter copy
Test Operations	JOG operation, positioning operation, operation without motor, forced digital output, program operation using simple language
Advanced Function	Machine analyzer, gain search, machine simulation
Project	Project creation, reading or saving, various data reading, saving or printing
Others	Automatic operation, help display

Notes:

1. The screen shown on this page is for reference and may differ from the actual screen.
2. The amplifier diagnostic function is available only for MR-J3-A type. The following versions are compatible with MR-J3-100A or smaller. Servo amplifier: Software Version A1 or above • MR Configurator: MRZJW3-SETUP211E Software Version A0 or above

Software Selection

Description	Model Number
Windows Communication Software	MR-CONFIGURATOR
Communication Cable	MR-J3USBCBL3M

Manual Selection

Hardware Description	Model Number
MR-J3-A Instruction Manual	SH(NA)030038
MR-J3-B Instruction Manual	SH(NA)030051
MR-J3-T Instruction Manual	SH(NA)030058
MR-J3-T / MR-J3-D01 Instruction Manual	SH(NA)030061
Servo Motor Manual Volume 2	SH(NA)030041

Options

Extension I/O Unit

Servo Amplifier Type	Model Number	
MR-J3-T Only	MR-J3-D01	

Regeneration Unit

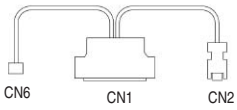
Servo Amplifier Model	Built-in Regenerative Resistor/Tolerable Regenerative Power (W)	Optional Regeneration Unit/Tolerable Regenerative Power (W)										Resistance Value
		MR–RB032	MR–RB12	MR–RB30	MR–RB31	MR–RB32	MR–RB50	MR–RB51	MR-RB5E	MR-RB9P	MR-RB9F	
MR-J3-10 A(1) /B(1)/T(1)	X	30	X	X	X	X	X	X	X	X	X	40
MR-J3-20 A(1) /B(1)/T(1)	10	30	100	X	X	X	X	X	X	X	X	40
MR-J3-20 A(1) /B(1)/T(1)	10	30	100	X	X	X	X	X	X	X	X	40
MR-J3-60A/B/T	10	30	100	X	X	X	X	X	X	X	X	40
MR-J3-70A/B/T	20	30	100	X	X	300	X	X	X	X	X	40
MR-J3-100A/B/T	20	30	100	X	X	300	X	X	X	X	X	40
MR-J3-200A/B/T	100	X	X	300	X	X	500	X	X	X	X	13
MR-J3-350A/B/T	100	X	X	300	X	X	500	X	X	X	X	13
MR-J3-500A/B/T	130	X	X	X	300	X	X	500	X	X	X	6.7
MR-J3-700A/B/T	170	X	X	X	300	X	X	500	X	X	X	6.7
MR-J3-11KA/B/T	X	X	X	X	X	X	X	X	500 (800)	X	X	6
MR-J3-15KA/B/T	X	X	X	X	X	X	X	X	X	850 (1300)	X	4.5
MR-J3-22KA/B/T	X	X	X	X	X	X	X	X	X	X	850 (1300)	3

Notes:

The tolerable regenerative power in the table differs from the regenerative resistor's rated wattage.
( ) = with fan attached.

MR-J3 Options (continued)

Battery

Item Number	Model Number	Description	Description
Battery	MR-J3BAT	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.	
Battery Connection Relay Cable	MR-J3BTCBL03M	Use this relay cable to hold the absolute value when shipping the product with the machine and servo amplifier removed. The servo motor HF series does not have a super capacitor (for holding an absolute value for short time) in the encoder. When this optional cable is used, the absolute value can be held even when the encoder cable is disconnected from the servo amplifier, making it easy to do maintenance on the servo amplifier.	
Diagnostic Cable Only For MR-J3-A Type	MR-J3ACHECK	This cable is required when using the amplifier diagnostic function of MR Configurator (Setup software).	

Battery Requirements

User's System		Battery (MR-J3BAT)	Battery Connection Relay Cable (MR-J3BTCBL03M)
Incremental	—	Not Required	Not Required
Absolute	Not necessary to hold an absolute value after the encoder cable is disconnected from the servo amplifier	Required	Not Required
	Necessary to hold an absolute value after the encoder cable is disconnected from the servo amplifier (Note)	Required	Required

Note: Start up the absolute system after mounting this optional cable.

Power Factor Improvement Reactor (FR-BEL, FR-BAL)

This reactor enables users to boost the servo amplifier's power factor and reduce its power supply capacity. The power factor improvement effect of the DC reactor (FR-BEL) is higher than the AC reactor (FR-BAL), the size is compact and light, and the wiring is easy (The AC reactor uses six wires, and the DC reactor uses two wires). Use of the DC reactor is recommended.

Servo Amplifier Model	DC Reactor Model Number	AC Reactor Model Number
MR-J3-10A/B/T; MR-J3-20A/B/T	FR-BEL-0.4K	FR-BAL-0.4K
MR-J3-10A1/B1/T1	—	
MR-J3-20A1/B1/T1	—	FR-BAL-0.75K
MR-J3-40A/B/T	FR-BEL-0.75K	
MR-J3-40A1/B1/T1	—	FR-BAL-1.5K
MR-J3-60A/B/T; MR-J3-70A/B/T	FR-BEL-1.5K	
MR-J3-100A/B/T	FR-BEL-2.2K	FR-BAL-2.2K
MR-J3-200A/B/T	FR-BEL-3.7K	FR-BAL-3.7K
MR-J3-350A/B/T	FR-BEL-7.5K	FR-BAL-7.5K
MR-J3-500A/B/T	FR-BEL-11K	FR-BAL-11K
MR-J3-700A/B/T; MR-J3-11KA/B/T	FR-BEL-15K	FR-BAL-15K
MR-J3-15KA/B/T	FR-BEL-22K	FR-BAL-22K
MR-J3-22KA/B/T	FR-BEL-30K	FR-BAL-30K

EMC Filter

The following filters are recommended as a filter compliant with the EMC directive for the servo amplifier's power supply.

Servo Amplifier Model	Model Number
MR-J3-10A/B/T to 100A/B/T MR-J310A1/B1/T1 to 40A1/B1/T1	HF3010A-UN
MR-J3-200A/B/T; MR-J3-350A/B/T	HF3030A-UN
MR-J3-500A/B/T; MR-J3-700A/B/T	HF3040A-UN
MR-J3-11KA/B/T to 22KA/B/T	HF3100A-UN

RS-422 Distributor (For Multidrop)

Servo Amplifier Type	Model Number	
MR-J3-A/B/T	BMJ-8	

Line Noise Filter

Applicable Servo Amplifiers Model	Model Number
MR-J3-200A/B/T or smaller	FR-BSF01
MR-J3-350A/B/T or larger	FR-BLF

MR-J3 Options (continued)

Radio Noise Filter

Servo Amplifier Model	Model Number
MR-J3 All Models	FR-BIF

External Dynamic Brake

Servo Amplifier Model	Model Number
MR-J3-11KA/B/T	DBU-11K
MR-J3-15KA/B/T	DBU-15K
MR-J3-22KA/B/T	DBU-22K

Brake/Resistor Units (Must be used in conjunction with each other)

Servo Amplifier Model	Brake Unit Model Number	Resistor Unit Model Number
MR-J3-500A/B/T to 700A/B/T	FR-BU-15K	FR-BR-15K
MR-J3-11KA/B/T to 15KA/B/T	FR-BU-30K	FR-BR-30K
MR-J3-22KA/B/T	FR-BU-55K	FR-BR-55K

Power Regeneration Converter

Servo Amplifier Model	Model Number
MR-J3-500A/B/T	FR-RC-15K
MR-J3-700A/B/T to 15KA/B/T	FR-RC-30K
MR-J3-22KA/B/T	FR-RC-55K

Power Regeneration Common Converter/Stand-Alone Reactor

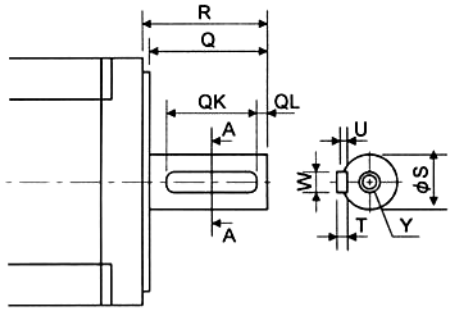
(Must be used in conjunction with each other).
Up to six servo amplifiers can be connected to one FR-CV, refer to manuals for details.

Servo Amplifier Model	Common Converter Model Number	Reactor Model Number
MR-J3-350A/B/T	FR-CV-7.5K	FR-CVL-7.5K
MR-J3-500A/B/T	FR-CV-11K	FR-CVL-11K
MR-J3-700A/B/T	FR-CV-15K	FR-CVL-15K
MR-J3-11KA/B/T	FR-CV-22K	FR-CVL-22K
MR-J3-15KA/B/T	FR-CV-30K	FR-CVL-30K
	FR-CV-37K	FR-CVL-37K
MR-J3-22KA/B/T	FR-CV-55K	FR-CVL-55K

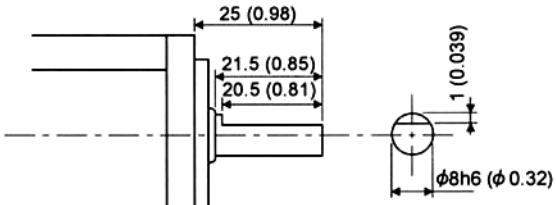
HF-MP & HF-KP MR-J3 Motor Shaft Detail

Servo Motor Model	Shaft Shape	
	With Key	D Cut
HF-MP053 • 13☐ HF-KP053 • 13☐	—	D
HF-MP23 • 73☐ HF-KP23 • 73☐	K	—

With Key



D Cut

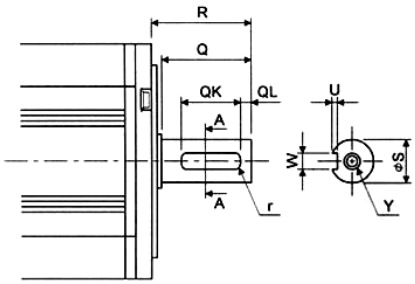


Servo Motor Model	Variable Dimensions								
	S	R	Q	W	QK	QL	U	T	Y
HF-MP23K • 43K HF-KP23K • 43K	14h6 (14)	30 (1.18)	27 (1.06)	5 (0.20)	20 (0.79)	3 (0.12)	3 (0.12)	5 (0.20)	M4 Depth 15 (0.59)
HF-MP73K HF-KP73K	19h6 (19)	40 (1.57)	37 (1.46)	6 (0.24)	25 (0.98)	5 (0.20)	3.5 (0.14)	6 (0.24)	M5 Depth 20 (0.79)

MR-J3 Motor Shaft Detail (continued)

HF-SP Series • Without Key

Servo Motor Model	Shaft Shape
	Without Key
HF-SP51☐ – 421☐ HF-SP52☐ – 702☐	K



Servo Motor Model	Variable Dimensions									Key Dimensions	Key Model
	S	R	Q	W	QK	QL	U	r	Y		
HF-SP51K • 81K HF-SP52K – 152K	24h6 (0.94)	55 (2.17)	50 (1.97)	$8^{0}_{-0.036}$ (0.31)	36 (1.42)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)	M8 Depth 20 (0.79)	8x7x28	MTR KEY 8-7-28
HF-SP121K – 421K HC-SP202K – 702K	$35^{+0.010}_{0}$ (1.38)	79 (3.11)	75 (2.95)	$10^{0}_{-0.036}$ (0.39)	55 (2.17)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	5 (0.20)	M8 Depth 20 (0.79)	10x 8x45	MTR KEY 10-8-45

Unit of Measure: mm (in)

HA-LP Series

Servo Motor Model	Shaft Shape
	Without Key
HA-LP	K

Servo Motor Model	Variable Dimensions									
	S	R	Q	W	QK	QL	U	r	Y	Figure
HA-LP502K • 702K • 11K2(4)K HA-LP601K HA-LP701MK	42h6 (1.65)	85 (3.35)	80 (3.15)	$12^{0}_{-0.04}$ (0.47)	70 (2.76)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	6 (0.24)	Same as the straight axis of standard monitor	A
HA-LP801K • 12K1K HA-LP11K1MK • 15K1MK HA-LP15K(4)2K • 22K2(4)K	55m6 (2.17)	110 (4.33)	100 (3.94)	$16^{0}_{-0.04}$ (0.63)	90 (3.54)	5 (0.20)	$6^{+0.2}_{0}$ (0.24)	8 (0.31)		
HA-LP15K1K • 20K1K HA-LP22K1MK	60m6 (2.36)	140 (5.51)	140 (5.51)	$18^{0}_{-0.04}$ (0.71)	128 (5.04)	6 (0.24)	$7^{+0.2}_{0}$ (0.28)	9 (0.35)		B
HA-LP25K1K	65m6 (2.56)	140 (5.51)	140 (5.51)	$18^{0}_{-0.04}$ (0.71)	128 (5.04)	6 (0.24)	$7^{+0.2}_{0}$ (0.28)	9 (0.35)		

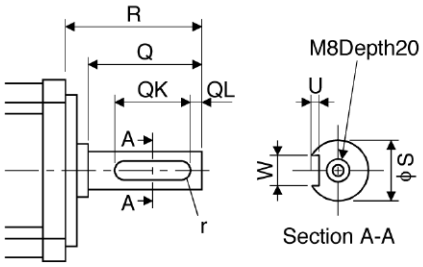


Figure A

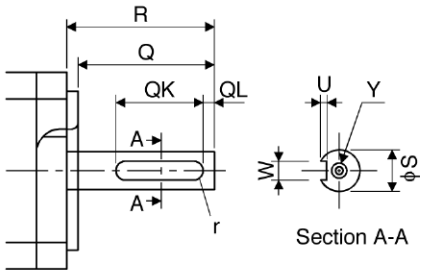
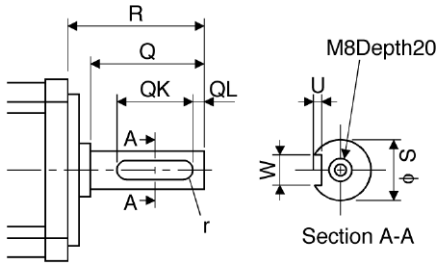


Figure B

MR-J3 Motor Shaft Detail (continued)

HC-RP Series

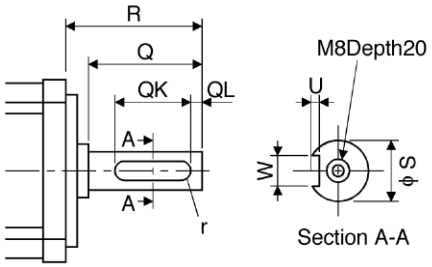
Servo Motor Model	Shaft Shape
	Without Key
HC-RP	K



Servo Motor Model	Variable Dimensions								Key Dimensions	Key Model
	S	R	Q	W	QK	QL	U	r		
HC-RP103K – 203K	24h6 (0.94)	45 (1.79)	40 (1.57)	$8^{0}_{-0.036}$ (0.31)	25 (0.98)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)	8x7x16	MTR KEY 8-7-16
HC-RP353K • 503K	28h6 (1.10)	63 (2.48)	58 (2.28)	$8^{0}_{-0.036}$ (0.31)	53 (2.09)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)	8x7x45	MTR KEY 8-7-45

HC-UP Series

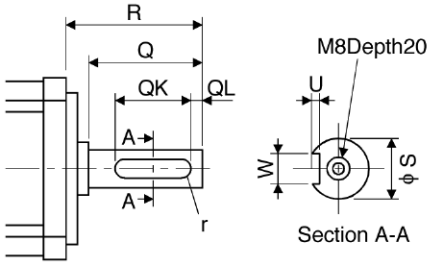
Servo Motor Model	Shaft Shape
	Without Key
HC-UP	K



Servo Motor Model	Variable Dimensions								Key Dimensions	Key Model
	S	R	Q	W	QK	QL	U	r		
HC-UP72K	22h6 (0.87)	55 (2.17)	50 (1.97)	$6^{0}_{-0.036}$ (0.24)	42 (1.65)	3 (0.12)	$3.5^{+0.2}_{0}$ (0.14)	3 (0.13)	6x6x36	MTR KEY 6-6-36
HC-UP152K	28h6 (1.10)	55 (2.17)	50 (1.97)	$8^{0}_{-0.036}$ (0.31)	45 (1.77)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)	8x7x36	MTR KEY 8-7-36
HC-UP202K – 502K	$35^{+0.010}_{0}$ (1.38)	65 (2.56)	60 (2.36)	$10^{0}_{-0.036}$ (0.39)	55 (2.17)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	5 (0.20)	10x8x45	MTR KEY 10-8-45

HC-LP Series

Servo Motor Model	Shaft Shape
	Without Key
HC-LP	K

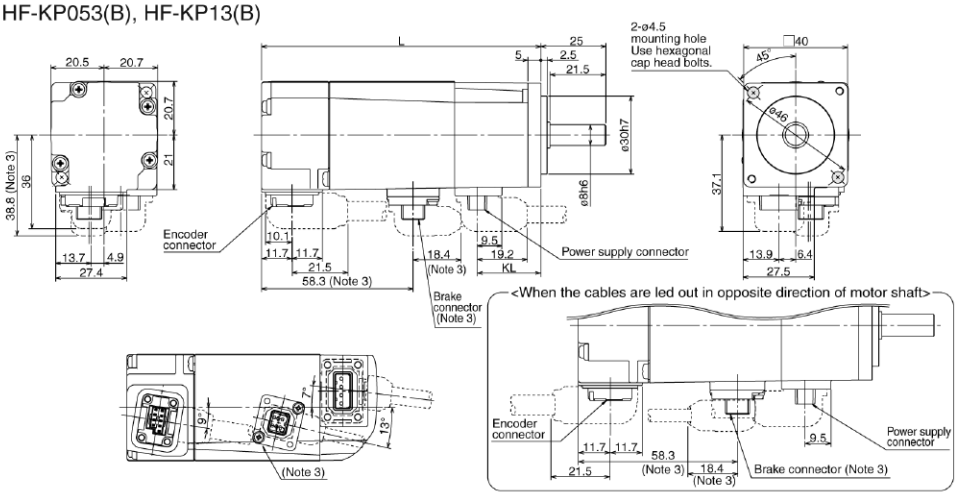


Servo Motor Model	Variable Dimensions								Key Dimensions	Key Model
	S	R	Q	W	QK	QL	U	r		
HC-LP52K – 152K	24h6 (0.94)	55 (2.17)	50 (1.97)	$8^{0}_{-0.036}$ (0.31)	36 (1.42)	5 (0.20)	$4^{+0.2}_{0}$ (0.16)	4 (0.16)	8x7x28	MTR KEY 8-7-28
HC-LP202K • 302K	$35^{+0.010}_{0}$ (1.38)	79 (3.11)	75 (2.95)	$10^{0}_{-0.036}$ (0.39)	55 (2.17)	5 (0.20)	$5^{+0.2}_{0}$ (0.20)	5 (0.20)	10x8x45	MTR KEY 10-8-45

MR-J3 Motor Dimensions

(Unit: mm)

- HF-MP053(B), HF-MP13(B)
- HF-KP053(B), HF-KP13(B)



Power supply connector pin assignment

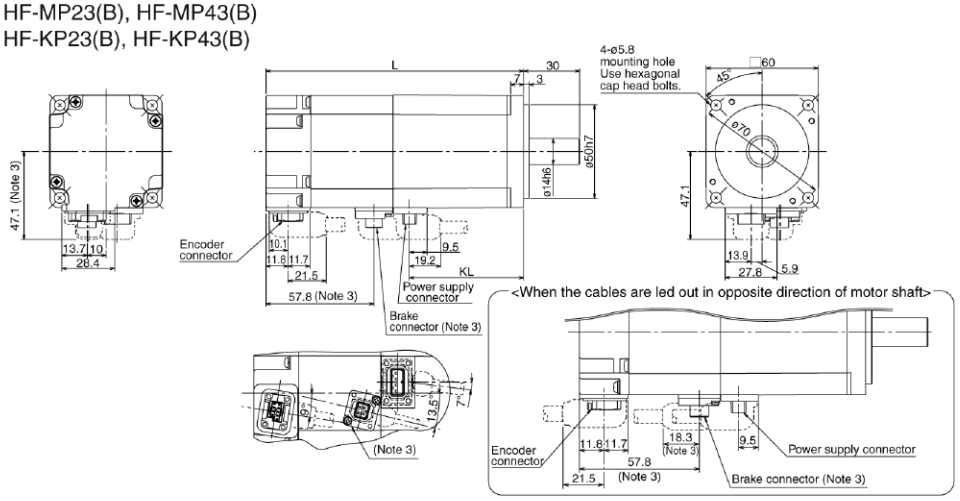
Pin No.	Signal name
1	Earth
2	U
3	V
4	W

Brake connector pin assignment (Note 3)

Pin No.	Signal name
1	B1
2	B2

Model	Variable dimensions	
	L	KL
HF-MP053 (B) HF-KP053 (B)	66.4 (107.5)	24.5
HF-MP13 (B) HF-KP13 (B)	82.4 (123.5)	40.5

- HF-MP23(B), HF-MP43(B)
- HF-KP23(B), HF-KP43(B)



Power supply connector pin assignment

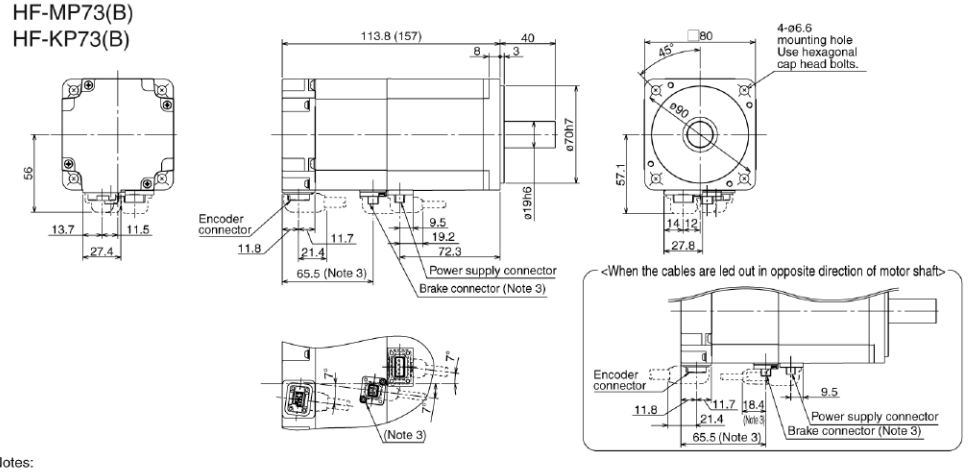
Pin No.	Signal name
1	Earth
2	U
3	V
4	W

Brake connector pin assignment (Note 3)

Pin No.	Signal name
1	B1
2	B2

Model	Variable dimensions	
	L	KL
HF-MP23 (B) HF-KP23 (B)	76.6 (116.1)	39.3
HF-MP43 (B) HF-KP43 (B)	98.5 (138)	61.2

- HF-MP73(B)
- HF-KP73(B)



Power supply connector pin assignment

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

Brake connector pin assignment (Note 3)

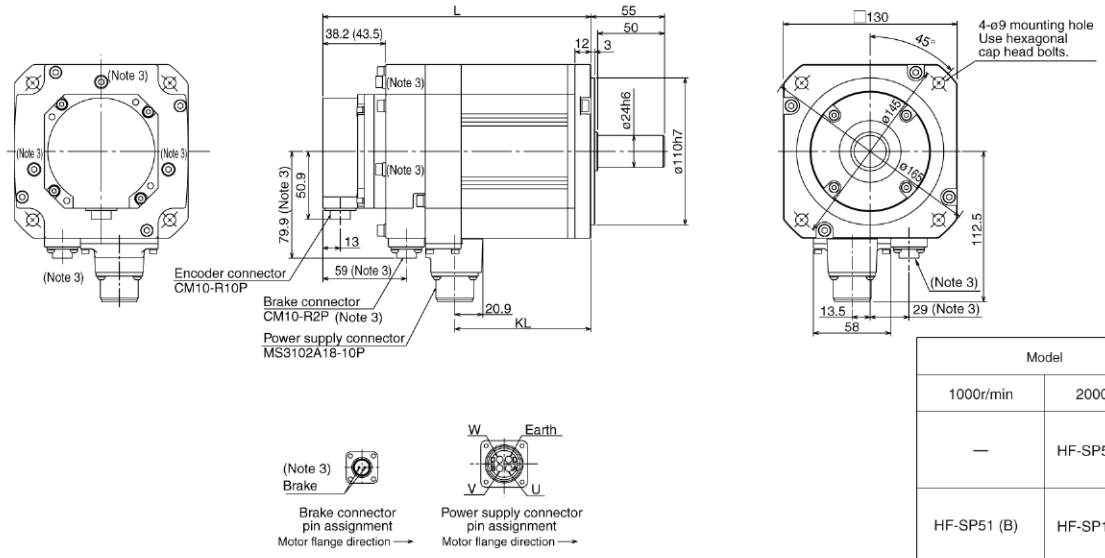
Pin No.	Signal name
1	B1
2	B2

Notes:
1. Use a friction coupling to fasten a load.
2. Dimensions inside ( ) are for the models with an electromagnetic brake.
3. Only for the models with an electromagnetic brake. The electromagnetic brake terminals (B1,B2) do not have the polarity.
4. For dimensions where there is no tolerance listed, use general tolerance.
5. Dimensions for motors with an oil seal (HF-MP□J and HF-KP□J) are different from the above. Contact Mitsubishi for details.

MR-J3 Motor Dimensions

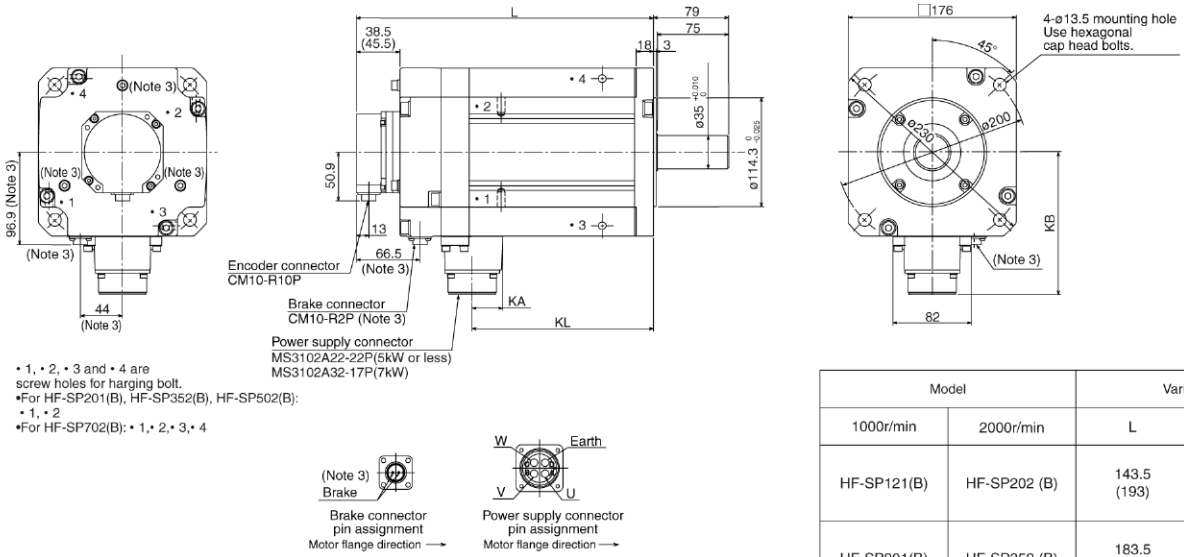
(Unit: mm)

HF-SP51(B), HF-SP81(B)
HF-SP52(B) to HF-SP152(B)



Model		Variable dimensions	
1000r/min	2000r/min	L	KL
—	HF-SP52 (B)	118.5 (153)	57.8
HF-SP51 (B)	HF-SP102 (B)	140.5 (175)	79.8
HF-SP81 (B)	HF-SP152 (B)	162.5 (197)	101.8

HF-SP121(B), HF-SP201(B)
HF-SP202(B) to HF-SP702(B)



• 1, • 2, • 3 and • 4 are
screw holes for harging bolt.
•For HF-SP201(B), HF-SP352(B), HF-SP502(B):
• 1, • 2
•For HF-SP702(B): • 1,• 2,• 3,• 4

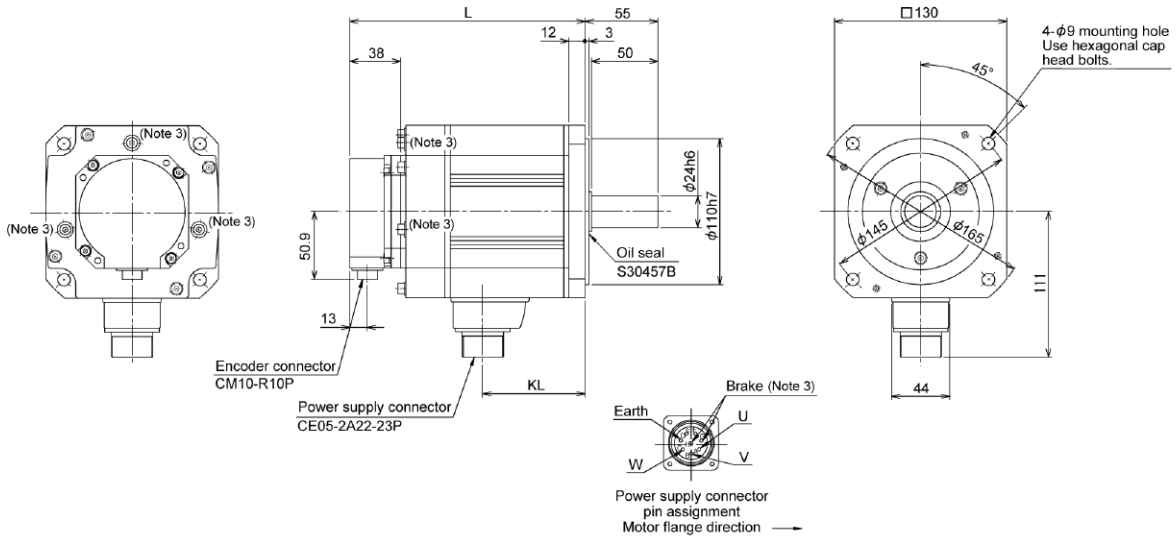
Model		Variable dimensions			
1000r/min	2000r/min	L	KL	KA	KB
HF-SP121(B)	HF-SP202 (B)	143.5 (193)	79.8	24.8	140.9
HF-SP201(B)	HF-SP352 (B)	183.5 (233)	119.8		
—	HF-SP502 (B)	203.5 (253)	139.8		
—	HF-SP702 (B)	263.5 (313)	191.8	32	149.1

otes:
Use a friction coupling to fasten a load.
Dimensions inside ( ) are for the models with an electromagnetic brake.
Only for the models with an electromagnetic brake. The electromagnetic brake terminals do not have the polarity.
For dimensions where there is no tolerance listed, use general tolerance.

MR-J3 Motor Dimensions

● HC-LP52(B), HC-LP102(B), HC-LP152(B)

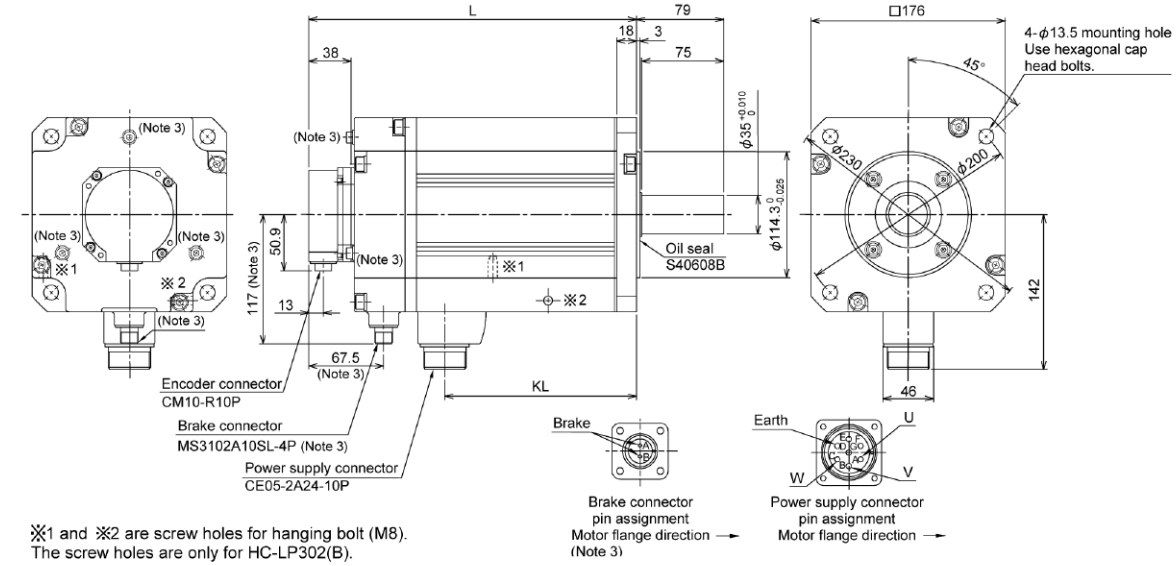
(Unit: mm)



Model	Variable dimensions	
	L	KL
HC-LP52(B)	144 (177)	77
HC-LP102(B)	164 (197)	97
HC-LP152(B)	191.5 (224.5)	124.5

Model	Brake static friction torque (N·m [oz·in])
HC-LP52B	8.5 (1200)
HC-LP102B	
HC-LP152B	

● HC-LP202(B), HC-LP302(B)



※1 and ※2 are screw holes for hanging bolt (M8).
The screw holes are only for HC-LP302(B).

Model	Variable dimensions	
	L	KL
HC-LP202(B)	198.5 (246.5)	123.5
HC-LP302(B)	248.5 (296.5)	173.5

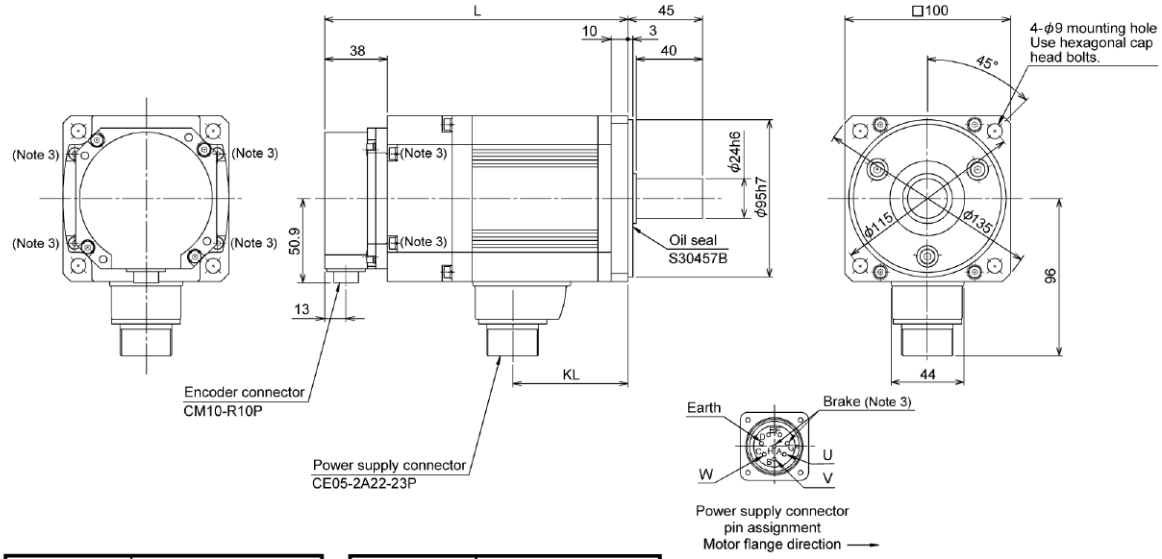
Model	Brake static friction torque (N·m [oz·in])
HC-LP202B	44 (6230)
HC-LP302B	

Notes: 1. Use a friction coupling to fasten a load.
2. Dimensions inside ( ) are for the models with an electromagnetic brake.
3. Only for the models with an electromagnetic brake. The electromagnetic brake terminals do not have the polarity.
4. For dimensions where there is no tolerance listed, use general tolerance.

MR-J3 Motor Dimensions

● HC-RP103(B), HC-RP153(B), HC-RP203(B)

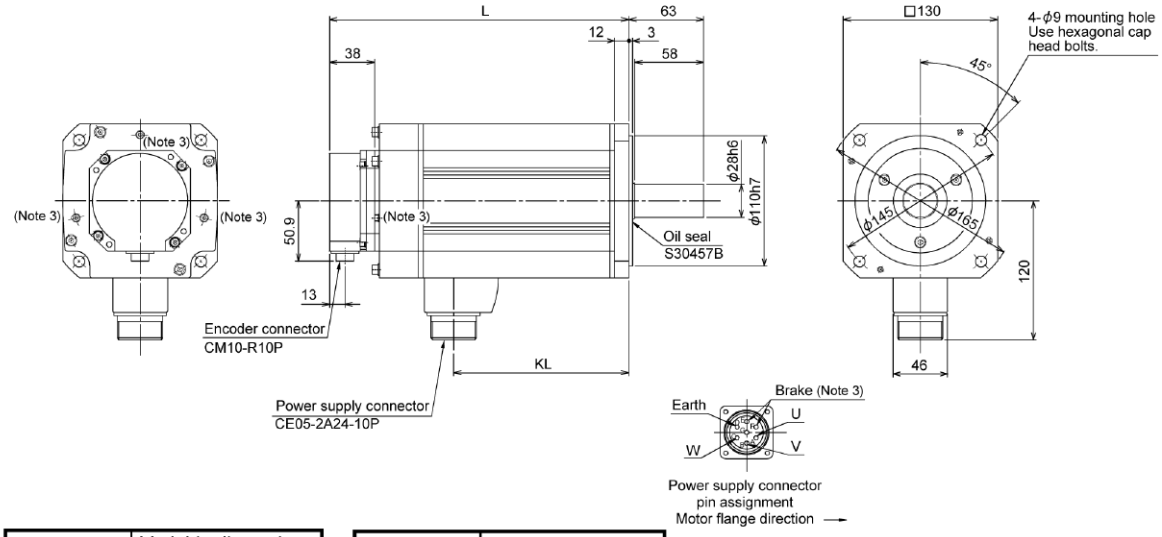
(Unit: mm)



Model	Variable dimensions	
	L	KL
HC-RP103(B)	145.5 (183.5)	69.5
HC-RP153(B)	170.5 (208.5)	94.5
HC-RP203(B)	195.5 (233.5)	119.5

Model	Brake static friction torque (N·m [oz·in])
HC-RP103B	7 (991)
HC-RP153B	
HC-RP203B	

● HC-RP353(B), HC-RP503(B)



Model	Variable dimensions	
	L	KL
HC-RP353(B)	215.5 (252.5)	148
HC-RP503(B)	272.5 (309.5)	205

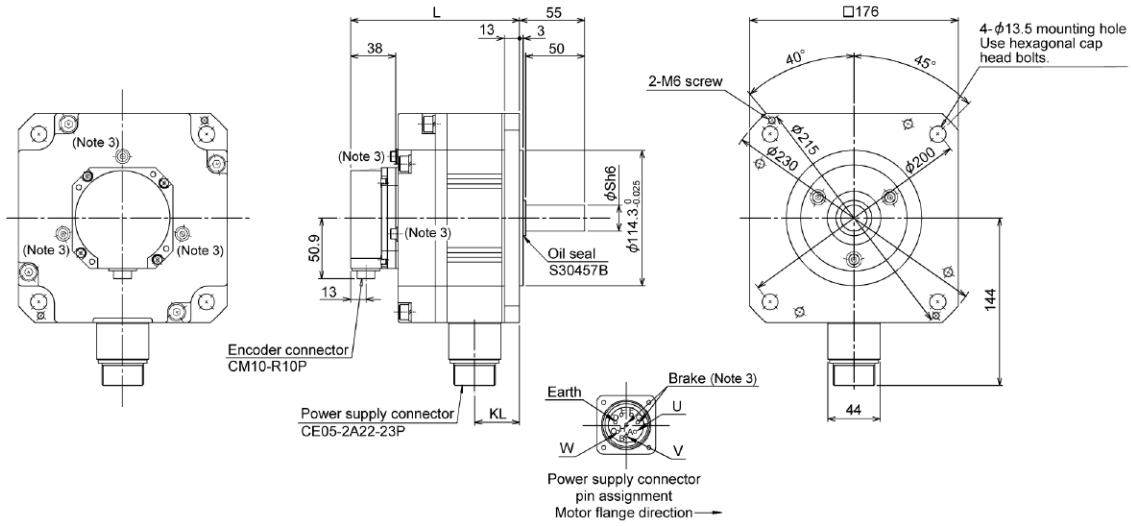
Model	Brake static friction torque (N·m [oz·in])
HC-RP353B	17 (2410)
HC-RP503B	

Notes: 1. Use a friction coupling to fasten a load.
2. Dimensions inside ( ) are for the models with an electromagnetic brake.
3. Only for the models with an electromagnetic brake. The electromagnetic brake terminals do not have the polarity.
4. For dimensions where there is no tolerance listed, use general tolerance.

MR-J3 Motor Dimensions

● HC-UP72(B), HC-UP152(B)

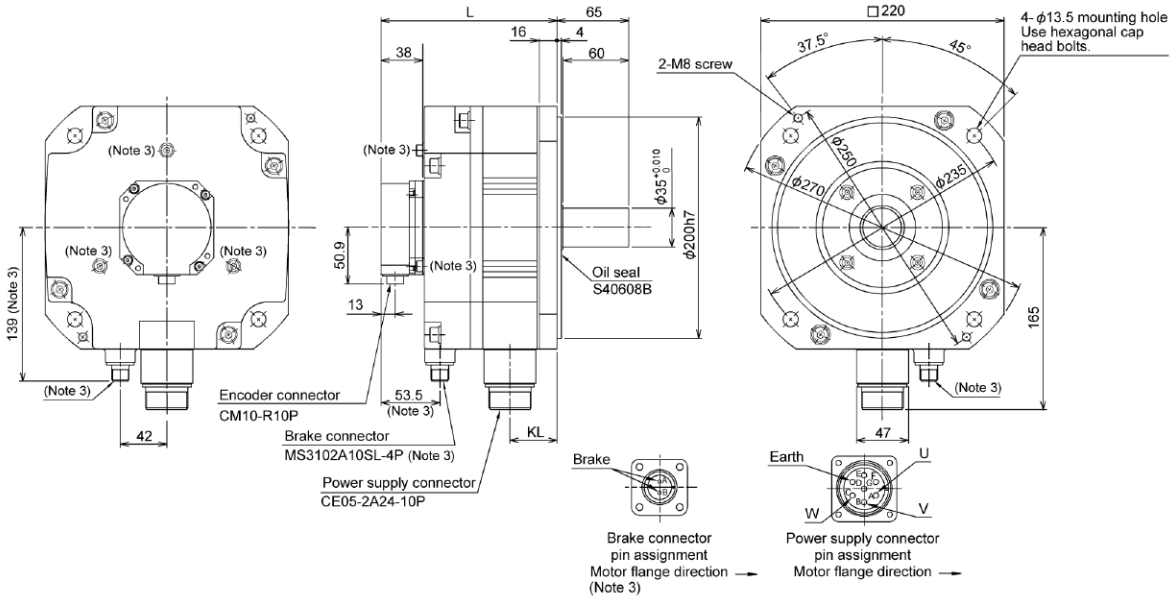
(Unit: mm)



Model	Variable dimensions		
	L	KL	S
HC-UP72(B)	109 (142.5)	38	22
HC-UP152(B)	118.5 (152)	47.5	28

Model	Brake static friction torque (N·m [oz·in])
HC-UP72B	8.5 (1200)
HC-UP152B	

● HC-UP202(B), HC-UP352(B), HC-UP502(B)



Model	Variable dimensions	
	L	KL
HC-UP202(B)	116.5 (159.5)	42.5
HC-UP352(B)	140.5 (183.5)	66.5
HC-UP502(B)	164.5 (207.5)	90.5

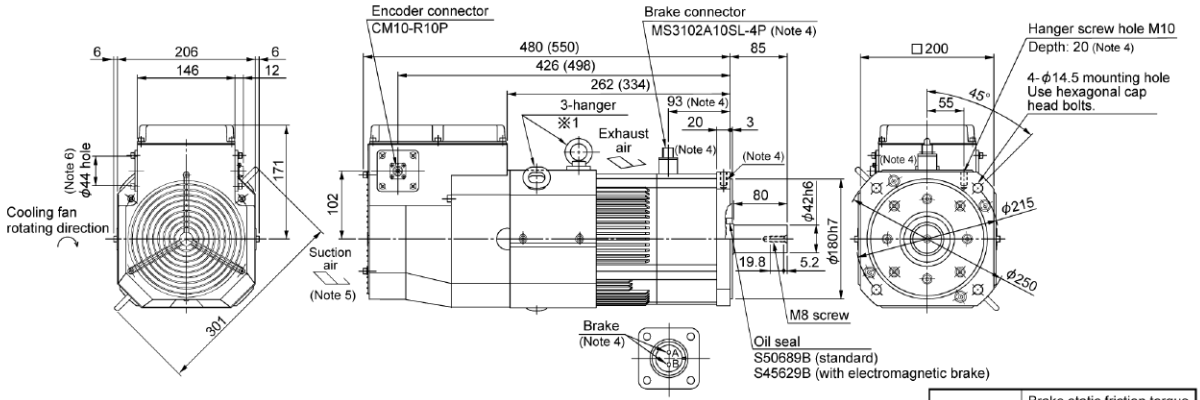
Model	Brake static friction torque (N·m [oz·in])
HC-UP202B	44 (6230)
HC-UP352B	
HC-UP502B	

Notes: 1. Use a friction coupling to fasten a load.
2. Dimensions inside ( ) are for the models with an electromagnetic brake.
3. Only for the models with an electromagnetic brake. The electromagnetic brake terminals do not have the polarity.
4. For dimensions where there is no tolerance listed, use general tolerance.

MR-J3 Motor Dimensions

● HA-LP601(B), HA-LP701M(B)

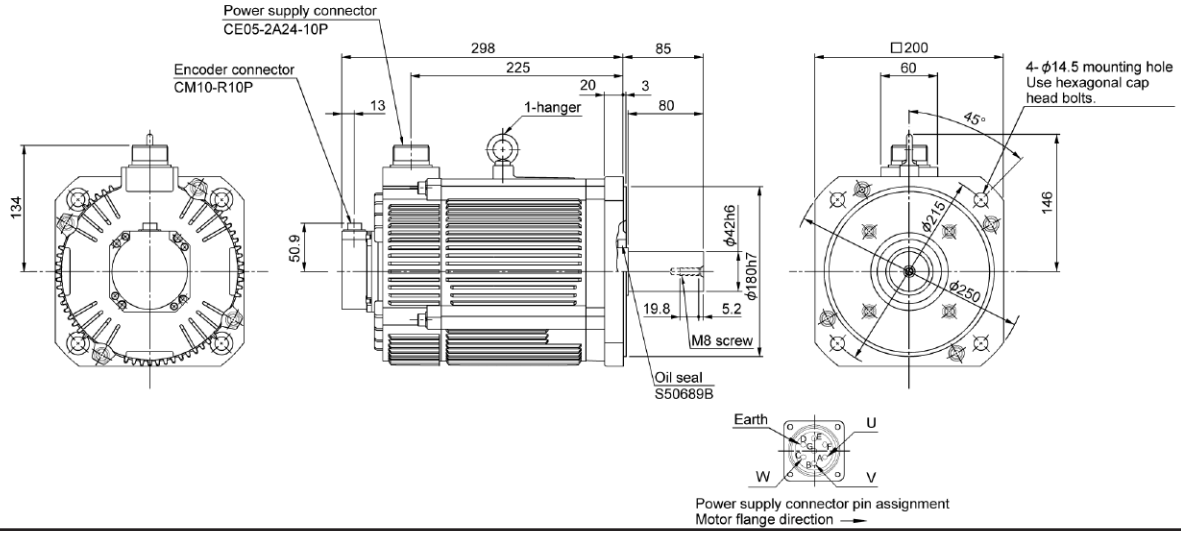
(Unit: mm)



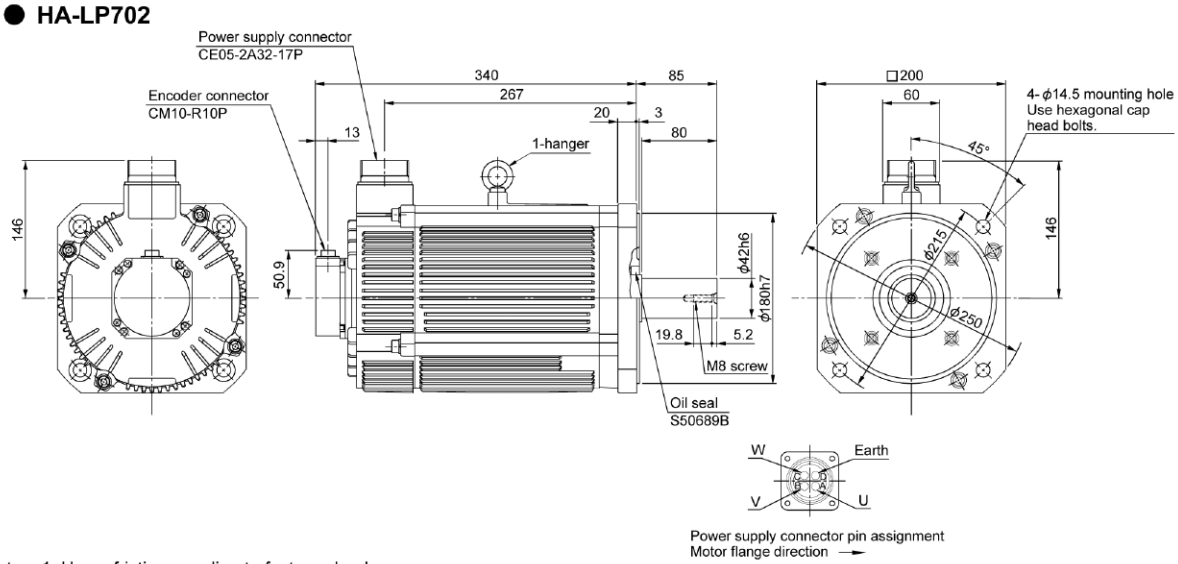
Model	Brake static friction torque (N·m [oz·in])
HA-LP601B HA-LP701MB	82 (11600)

※1. When the motor is used without a hanger, plug the thread hole with a bolt of M10×20 or shorter.
※2. The terminal block on the terminal box housing consists of M6 screws for the motor power supply (U, V, W), M4 screws for the cooling fan (BU, BV) and for the thermal protector (OHS1, OHS2).

● HA-LP502



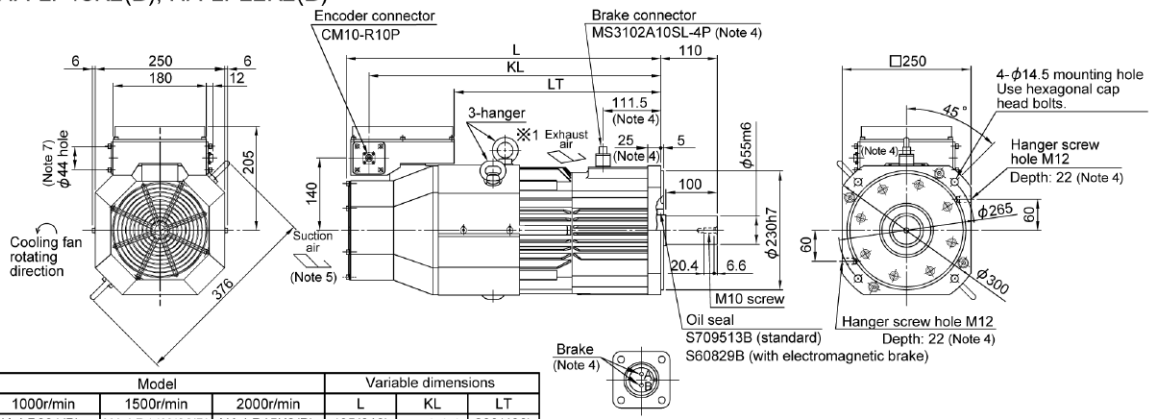
● HA-LP702



Notes: 1. Use a friction coupling to fasten a load.
2. For dimensions where there is no tolerance listed, use general tolerance.
3. Dimensions inside ( ) are for the models with an electromagnetic brake.
4. Only for the models with an electromagnetic brake. The electromagnetic brake terminals do not have the polarity.
5. Leave a clearance of at least 100mm between the motor's suction side and wall.
6. Make sure that oil, water and dust, etc., will not enter the motor from the lead-in hole.

MR-J3 Motor Dimensions

- HA-LP801(B), HA-LP12K1(B)
- HA-LP11K1M(B), HA-LP15K1M(B)
- HA-LP15K2(B), HA-LP22K2(B)

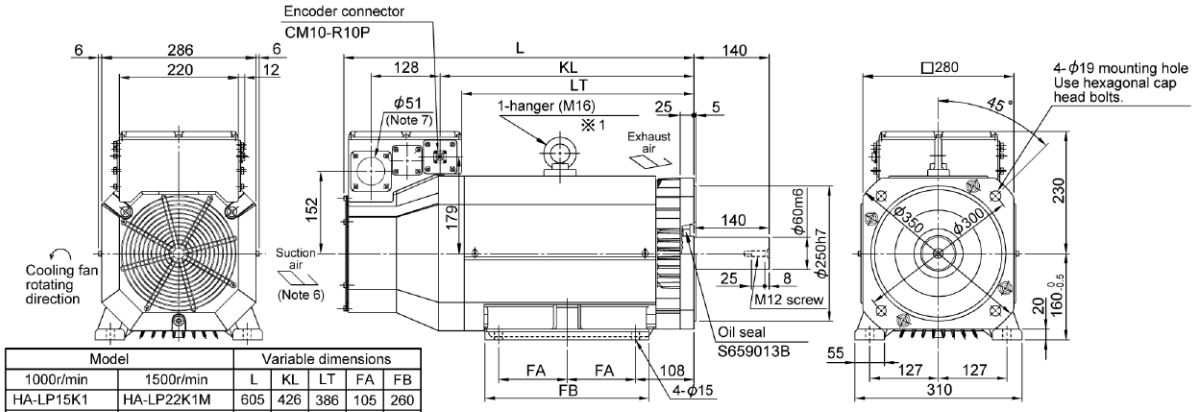


Model			Variable dimensions		
1000r/min	1500r/min	2000r/min	L	KL	LT
HA-LP801(B)	HA-LP11K1M(B)	HA-LP15K2(B)	495(610)	454(565)	289(400)
HA-LP12K1(B)	HA-LP15K1M(B)	HA-LP22K2(B)	555(670)	511(622)	346(457)

Unit: mm

※1. When the motor is used without a hanger, plug the thread hole with a bolt of M12×20 or shorter.
※2. The terminal block on the terminal box housing consists of M8 screws for the motor power supply (U, V, W), M4 screws for the cooling fan (BU, BV, BW) and for the thermal protector (OHS1, OHS2).

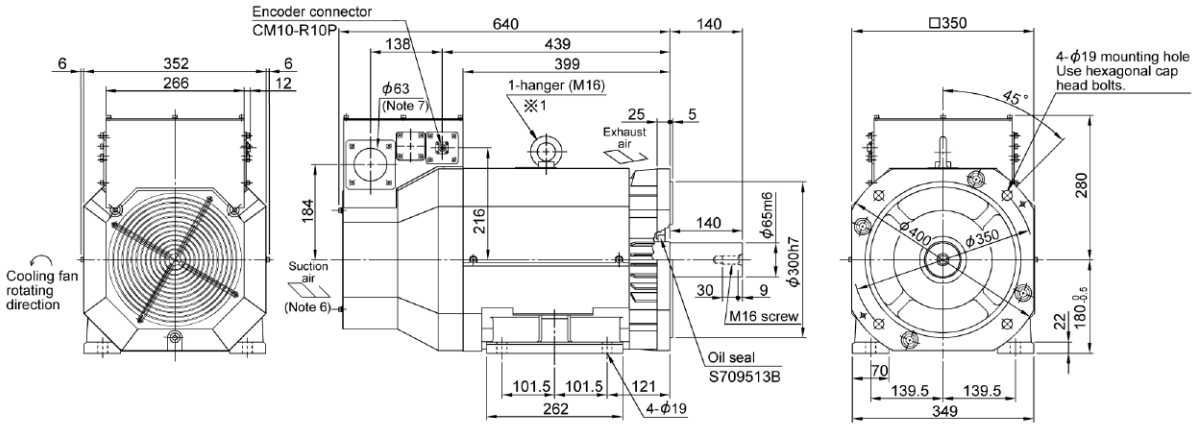
- HA-LP15K1, HA-LP20K1
- HA-LP22K1M



Model		Variable dimensions				
1000r/min	1500r/min	L	KL	LT	FA	FB
HA-LP15K1	HA-LP22K1M	605	426	386	105	260
HA-LP20K1	—	650	471	431	127	304

※1. When the motor is used without a hanger, plug the thread hole with a bolt of M16×20 or shorter.
※2. The terminal block on the terminal box housing consists of M8 screws for the motor power supply (U, V, W), M4 screws for the cooling fan (BU, BV, BW) and for the thermal protector (OHS1, OHS2).
※3. When mounting the motor, keep the motor shaft horizontal and its legs downward. Mount the motor either at the legs or the flange.

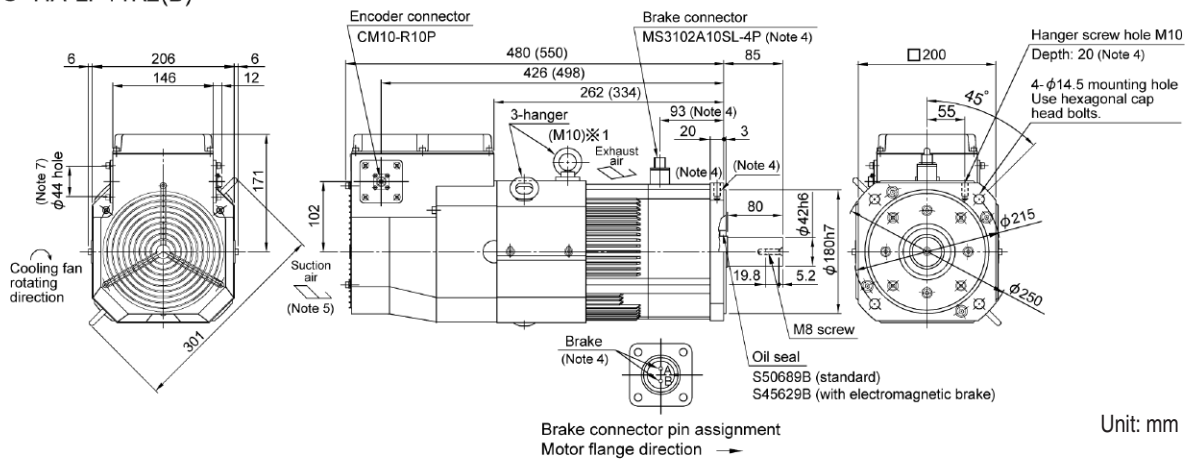
- HA-LP25K1



※1. When the motor is used without a hanger, plug the thread hole with a bolt of M16×20 or shorter.
※2. The terminal block on the terminal box housing consists of M10 screws for the motor power supply (U, V, W), M4 screws for the cooling fan (BU, BV, BW) and for the thermal protector (OHS1, OHS2).
※3. When mounting the motor, keep the motor shaft horizontal and its legs downward. Mount the motor either at the legs or the flange.

MR-J3 Motor Dimensions

● HA-LP11K2(B)



Unit: mm

※1. When the motor is used without a hanger, plug the thread hole with a bolt of M10×20 or shorter.
※2. The terminal block on the terminal box housing consists of M6 screws for the motor power supply (U, V, W), M4 screws for the cooling fan (BU, BV) and for the thermal protector (OHS1, OHS2).

Notes: 1. Use a friction coupling to fasten a load.
2. For dimensions where there is no tolerance listed, use general tolerance.
3. Dimensions inside ( ) are for the models with an electromagnetic brake.
4. Only for the models with an electromagnetic brake. The electromagnetic brake terminals do not have the polarity.
5. Leave a clearance of at least 100mm between the motor's suction side and wall.
6. Leave a clearance of at least 150mm between the motor's suction side and wall.
7. Make sure that oil, water and dust, etc., will not enter the motor from the lead-in hole.