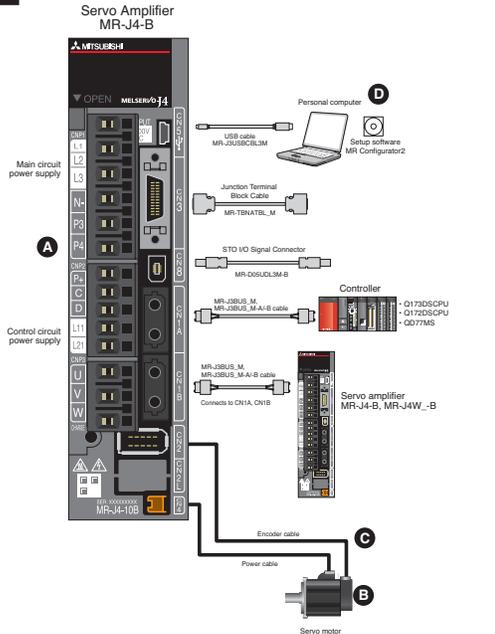


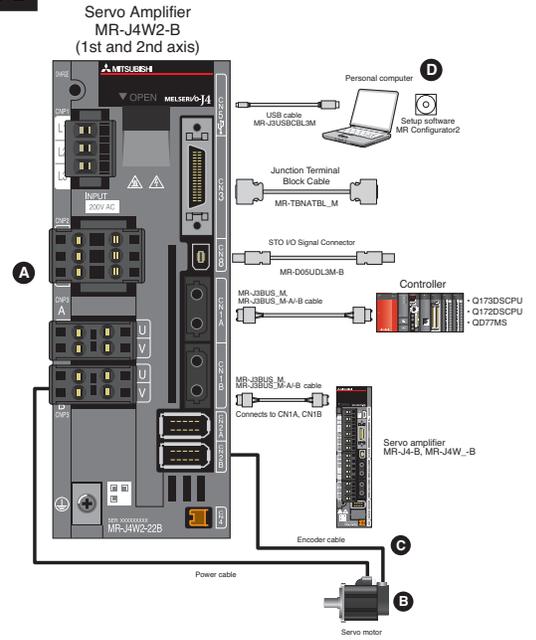
MR-J4 Servomotors and Amplifiers

With a capacity range of 50W to 7kW (200V only), both the amplifier and motor size is reduced. We added a high resolution encoder of 4 million pulse/rev, with a speed frequency response of 2500Hz. Additional features include advanced one-touch auto tuning and advanced vibration suppression control II functions. The MR-J4 motors have the same flange size as J3 motors with the length of the motor being the same or smaller than the J3. The same cables for power, encoder and brake can be used for the MR-J3 and MR-J4. MR-J4 Series has four models: MR-J4A (analog/pulse train), MR-J4B, (SSCNET III/H), MR-J4W2B (Dual axis amplifier with SSCNET III/H) and ME-J4W3B (Three axis in one amplifier with SSCNET III/H). In addition, MR-J4 has three motor models available: HG-KR similar to HF-KP, HG-MR similar to HF-MP, and HG-SR similar to HF-SP Series. M-Size software is used to size HG Series motors and setup is made easy using MR-Configurator.

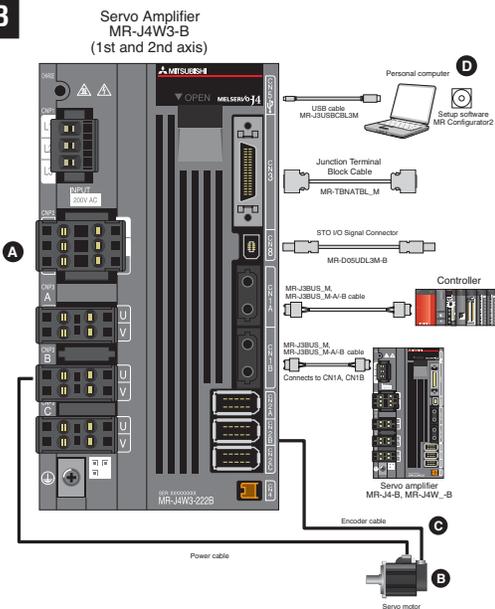
MR-J4-B



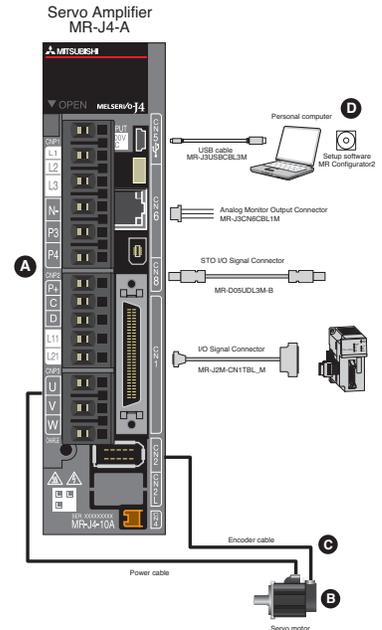
MR-J4W2-B



MR-J4W3-B



MR-J4-A



| | |
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A. MR-J4 Amplifiers

X = Compatible
- = Not compatible

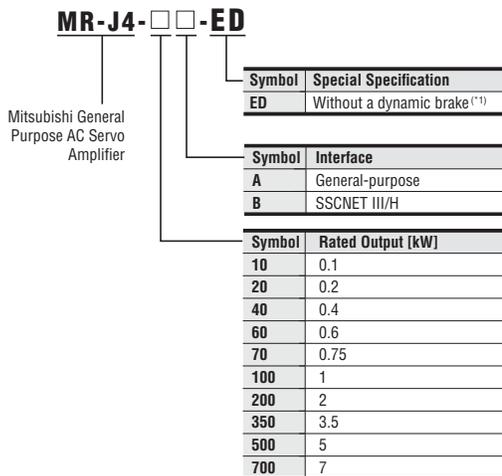
Amplifier Types

| Type | Interface | | | | Control Mode | | | | Number of Control Axes | Power | Rated Output (kW) ^(*) | Compatible Motor Series | | | | | | |
|---------------------------|---|--------|----------------|-------------------|--------------|-------|--------|---------------------------|------------------------|----------------|----------------------------------|-------------------------|-------|-------|-------|------|-------|-------|
| | Pulse Train | Analog | SSCNET III / H | RS-422 Multi-Drop | Position | Speed | Torque | Fully Closed Loop Control | | | | HG-KR | HG-MR | HG-SR | LM-H3 | LM-F | LM-K2 | LM-U2 |
| SSCNET III / H Interface |  | - | - | X | - | X | X | X | 1 axis | 3-Phase 200VAC | 0.01 ~ 7kW | X | X | X | X | X | X | X |
| |  | - | - | X | - | X | X | X | 2 axes | 3-Phase 200VAC | 0.02 ~ 1kW | X | X | X | X | - | X | X |
| |  | - | - | X | - | X | X | - | 3 axes | 3-Phase 200VAC | 0.02 ~ 0.04kW | X | X | - | X | - | X | X |
| General Purpose Interface |  | X | X | - | X | X | X | X | 1 axis | 3-Phase 200VAC | 0.01 ~ 7kW | X | X | X | X | X | X | X |

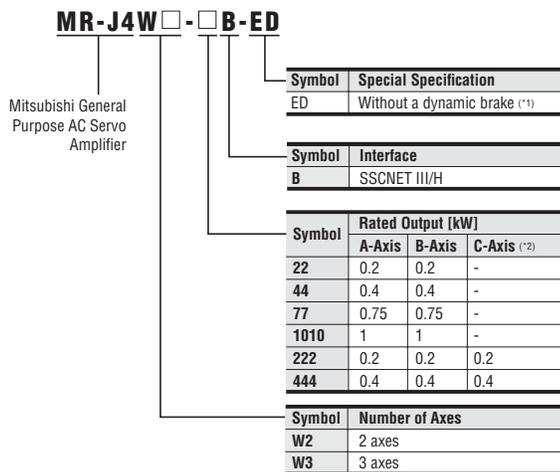
Note:

1. The values in the table shows the rated output of the servo amplifiers. Refer to theMR-J4 brochure for the compatible servo motor.

1-Axis Servo Amplifier Selection (Example Part No. = MR-J4-10B-ED)



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



Notes:

- When using the servo amplifier without a dynamic brake, the servo motor does not stop immediately at alarm occurrence or power failure. Take measures to ensure safety on the entire system.
- For 3-axis servo amplifier.

Combinations of 1-Axis Servo Amplifier and Servo Motor

| Servo Amplifier | Stocked Item | Rotary Servo Motor | Linear Servo Motor (Primary Side) (*1) | Direct Drive Motor |
|-----------------|--------------|------------------------------|---|--|
| MR-J4-10B | S | HG-KR053, 13 HG-MR053, 13 | - | - |
| MR-J4-20B | S | HG-KR23 HG-MR23 | LM-U2PAB-05M-OSS0 LM-U2PBB-07M-1SS0 | TM-RFM002C20 |
| MR-J4-40B | S | HG-KR43 HG-MR43 | LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAD-10M-OSS0 LM-U2PAF-15M-OSS0 | TM-RFM004C20 |
| MR-J4-60B | S | HG-SR51, 52 | LM-U2PBD-15M-1SS0 | TM-RFM006C20 TM-RFM006E20 |
| MR-J4-70B | S | HG-KR73 HG-MR73 | LM-H3P3B-24P-CSS0 LM-H3P3C-36P-CSS0 LM-H3P7A-24P-ASS0 LM-K2P2A-02M-1SS1 LM-U2PBF-22M-1SS0 | TM-RFM012E20 TM-RFM012G20 TM-RFM040J10 |
| MR-J4-200B | S | HG-SR121, 201, 152, 202 | LM-H3P3D-48P-CSS0 LM-H3P7B-48P-ASS0 LM-H3P7C-72P-ASS0 LM-FP2B-06M-1SS0 LM-K2P1C-03M-2SS1 LM-U2P2B-40M-2SS0 | - |
| MR-J4-350B | S | HG-SR301, 352 | LM-H3P7D-96P-ASS0 LM-K2P2C-07M-1SS1 LM-K2P3C-14M-1SS1 LM-U2P2C-60M-2SS0 | TM-RFM048G20 TM-RFM072G20 TM-RFM120J10 |
| MR-J4-500B | S | HG-SR421, 502 | LM-FP2D-12M-1SS0 LM-FP4B-12M-1SS0 LM-K2P2E-12M-1SS1 LM-K2P3E-24M-1SS1 LM-U2P2D-80M-2SS0 | TM-RFM240J10 |
| MR-J4-700B | S | HG-SR702 | LM-FP2F-18M-1SS0 LM-FP4D-24M-1SS0 | - |

With MR-J4-A servo amplifier

| Servo Amplifier | Stocked Item | Rotary Servo Motor | Linear Servo Motor (Primary Side) (*1) | Direct Drive Motor |
|-----------------|--------------|------------------------------|--|-------------------------|
| MR-J4-10A | S | HG-KR053, 13 HG-MR053, 13 | Available in the future | Available in the future |
| MR-J4-20A | S | HG-KR23 HG-MR23 | | |
| MR-J4-40A | S | HG-KR43 HG-MR43 | | |
| MR-J4-60A | S | HG-SR51, 52 | | |
| MR-J4-70A | S | HG-KR73 HG-MR73 | | |
| MR-J4-100A | S | HG-SR81, 102 | | |
| MR-J4-200A | S | HG-SR121, 201, 152, 202 | | |
| MR-J4-350A | S | HG-SR301, 352 | | |
| MR-J4-500A | S | HG-SR421, 502 | | |
| MR-J4-700A | S | HG-SR702 | | |

Note:

1. Refer to "Combinations of Linear Servo Motor and Servo Amplifier" under section 3 Linear Servo Motor for the combinations of the primary and the secondary sides of the linear servo motors.

Combinations of Multi-Axis Servo Amplifier and Servo Motor With MR-J4W2-B Servo Amplifier

| Servo Amplifier | Stocked Item | Rotary Servo Motor | Linear Servo Motor (Primary Side) (*1) | Direct Drive Motor |
|-----------------|--------------|--|---|--|
| MR-J4W2-22B | S | HG-KR053, 13, 23 HG-MR053, 13, 23 | LM-U2PAB-05M-0SS0 LM-U2PBB-07M-1SS0 | TM-RFM002C20 |
| MR-J4W2-44B | S | HG-KR053, 13, 23, 43 HG-MR053, 13, 23, 43 | LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAB-05M-0SS0 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0 LM-U2PBB-07M-1SS0 | TM-RFM002C20 TM-RFM004C20 |
| MR-J4W2-77B | S | HG-KR43, 73 HG-MR43, 73 HG-SR51, 52 | LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-H3P3B-24P-CSS0 LM-H3P3C-36P-CSS0 LM-H3P7A-24P-ASS0 LM-K2P1A-01M-2SS1 LM-K2P2A-02M-1SS1 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0 LM-U2PBD-15M-1SS0 LM-U2PBF-22M-1SS0 | TM-RFM004C20 TM-RFM006C20 TM-RFM006E20 TM-RFM012E20 TM-RFM012G20 TM-RFM040J10 |
| MR-J4W2-1010B | S | HG-KR43, 73 HG-MR43, 73 HG-SR51, 81, 52, 102 | LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-H3P3B-24P-CSS0 LM-H3P3C-36P-CSS0 LM-H3P7A-24P-ASS0 LM-K2P1A-01M-2SS1 LM-K2P2A-02M-1SS1 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0 LM-U2PBD-15M-1SS0 LM-U2PBF-22M-1SS0 | TM-RFM004C20 TM-RFM006C20 TM-RFM006E20 TM-RFM012E20 TM-RFM018E20 TM-RFM012G20 TM-RFM040J10 |

With MR-J4W3-B Servo Amplifier

| Servo Amplifier | Stocked Item | Rotary Servo Motor | Linear Servo Motor (Primary Side) (*1) | Direct Drive Motor |
|-----------------|--------------|--|---|------------------------------|
| MR-J4W3-222B | S | HG-KR053, 13, 23 HG-MR053, 13, 23 | LM-U2PAB-05M-0SS0 LM-U2PBB-07M-1SS0 | TM-RFM002C20 |
| MR-J4W3-444B | S | HG-KR053, 13, 23, 43 HG-MR053, 13, 23, 43 | LM-H3P2A-07P-BSS0 LM-H3P3A-12P-CSS0 LM-K2P1A-01M-2SS1 LM-U2PAB-05M-0SS0 LM-U2PAD-10M-0SS0 LM-U2PAF-15M-0SS0 LM-U2PBB-07M-1SS0 | TM-RFM002C20 TM-RFM004C20 |

Note:

1. Refer to "Combinations of Linear Servo Motor and Servo Amplifier" in this guide for the combinations of the primary and the secondary sides of the linear servo motors.

MR-J4-B (SSCNET III/H Interface) Specifications

| Servo Amplifier Model MR-J4- | | 10B | 20B | 40B | 60B | 70B | 100B | 200B | 350B | 500B | 700B |
|---|---|--|-----|-----|----------|-----|--------------------------------------|------|------|---------------------------------|------|
| Stocked Item | | S | S | S | S | S | S | S | S | S | S |
| Output | Rated Voltage | 3-phase 170 VAC | | | | | | | | | |
| | Rated Current (A) | 1.1 | 1.5 | 2.8 | 3.2 | 5.8 | 6.0 | 11.0 | 17.0 | 28.0 | 37.0 |
| Main Circuit Power Supply | Voltage/Frequency (*1, *2) | 3-phase or 1-phase 200 VAC to 240 VAC, 50/60 Hz | | | | | 3-phase 200 VAC to 240 VAC, 50/60 Hz | | | | |
| | Rated Current (A) | 0.9 | 1.5 | 2.6 | 3.2 (*9) | 3.8 | 5.0 | 10.5 | 16.0 | 21.7 | 28.9 |
| | Permissible Voltage Fluctuation | 3-phase or 1-phase 170 VAC to 264 VAC | | | | | 3-phase 170 VAC to 264 VAC | | | | |
| | Permissible Frequency Fluctuation | ±5% maximum | | | | | | | | | |
| Control Circuit Power Supply | Voltage/Frequency | 1-phase 200 VAC to 240 VAC, 50/60 Hz | | | | | | | | | |
| | Rated Current (A) | | | | | | | | | 0.3 | |
| | Permissible Voltage Fluctuation | 1-phase 170 VAC to 264 VAC | | | | | | | | | |
| | Permissible Frequency Fluctuation | ±5% maximum | | | | | | | | | |
| Power Consumption (W) | | 30 | | | | | | | | 45 | |
| Interface Power Supply | | 24 VDC ±10% (required current capacity: 0.3 A (including CN8 connector signal)) | | | | | | | | | |
| Load-Side Encoder Interface (*8) | | Mitsubishi high-speed serial communication | | | | | | | | | |
| Tolerable Regenerative Power of the Built-in Regenerative Resistor (*2, *3) (W) | | - | 10 | 10 | 10 | 20 | 20 | 100 | 100 | 130 | 170 |
| Control Method | | Sine-wave PWM control/current control method | | | | | | | | | |
| Dynamic Brake | | Built-in (*4) | | | | | | | | | |
| Protective Functions | | Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, over-speed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection | | | | | | | | | |
| Fully Closed Loop Control | | Available in the future | | | | | | | | | |
| Safety Function (*10) | | STO (IEC/EN 61800-5-2) | | | | | | | | | |
| Safety Performance | Standards Certified by CB | EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2 | | | | | | | | | |
| | Response Performance | 8 ms or less (STO input OFF — energy shut-off) | | | | | | | | | |
| | Test Pulse Input (STO) (*7) | Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum | | | | | | | | | |
| | Mean Time to Dangerous Failure (MTTFd) | 100 years | | | | | | | | | |
| | Average Diagnostic Coverage (DCavg) | 90% | | | | | | | | | |
| | Probability of Dangerous Failure Per Hour (PFH) | 1.01×10^{-7} [1/h] | | | | | | | | | |
| Communication Function | | USB: Connect a personal computer (MR Configurator2 compatible) | | | | | | | | | |
| Compliance to Standards | CE Marking | LVD: EN 61800-5-1; EMC: EN 61800-3; MD: EN ISO 13849-1, EN 61800-5-2, EN 62061 | | | | | | | | | |
| | UL Standard (*10) | UL 508C | | | | | | | | | |
| Structure (IP Rating) | | Natural cooling, open (IP20) | | | | | Force cooling, open (IP20) | | | Force cooling, open (IP20) (*5) | |
| Close Mounting | | Possible (*6) | | | | | | | | Not possible | |
| Weight kg | | 0.8 | 0.8 | 1.0 | 1.0 | 1.4 | 1.4 | 2.1 | 2.3 | 4.0 | 6.2 |

Notes:

- Rated output and speed of a rotary servo motor and a direct drive motor; and rated thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
- Optimal regenerative option varies for each system. Select the most suitable regenerative option for your system with our capacity selection software.
- Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
- When using the built-in dynamic brake, refer to "MR-J4-B Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
- Terminal blocks are excluded.
- When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use them with 75% or less of the effective load rate.
- This function makes a failure diagnosis on contacts including external circuits by instantaneously turning off the signals from a controller to a servo amplifier at constant period when the input signals of the servo amplifier are on.
- Not compatible with pulse train interface (A/B/Z-phase differential output type).
- The rated current is 2.9 A when the servo amplifier is used with UL or CSA compliant servo motor.
- Some of the models are under application. Contact your local sales office for more details.

MR-J4W2-B (2-Axis) Specifications

| Servo Amplifier Model MR-J4W2- | | 22B | 44B | 77B | 1010B |
|---|---|---|----------------------------|------|--------------------------------------|
| Stocked Item | | S | S | S | S |
| Rated Output | | 0.2 | 0.4 | 0.75 | 1 |
| Output | Rated Voltage | 3-phase 170 VAC | | | |
| | Rated Current (A) | 1.5 | 2.8 | 5.8 | 6.0 |
| Main Circuit Power Supply | Voltage/Frequency (*1, *2) | 3-phase or 1-phase 200 VAC to 240 VAC, 50/60 Hz | | | 3-phase 200 VAC to 240 VAC, 50/60 Hz |
| | Rated Current (A) | 2.9 | 5.2 | 7.5 | 9.8 |
| | Permissible Voltage Fluctuation | 3-phase or 1-phase 170 VAC to 264 VAC | | | 3-phase 170 VAC to 264 VAC |
| | Permissible Frequency Fluctuation | ±5% maximum | | | |
| Control Circuit Power Supply | Voltage/Frequency | 1-phase 200 VAC to 240 VAC, 50/60 Hz | | | |
| | Rated Current (A) | 0.4 | | | |
| | Permissible Voltage Fluctuation | 1-phase 170 VAC to 264 VAC | | | |
| | Permissible Frequency Fluctuation | ±5% maximum | | | |
| Power Consumption (W) | | 55 | | | |
| Interface Power Supply | | 24 VDC ±10% (required current capacity: 0.35 A (including CN8 connector signal)) | | | |
| Load-Side Encoder Interface (*8) | | Mitsubishi high-speed serial communication | | | |
| Capacitor Regeneration | Tolerable Regenerative Power of the Built-in Regenerative Resistor (*2, *3) (W) | 17 | 21 | 44 | |
| | Moment of inertia (J) Equivalent to Permissible Charging Amount ($\times 10^{-4}$ kg·m ²) (*6) | 3.45 | 4.26 | 8.92 | |
| | Mass Equivalent to Permissible Charging Amount (kg) (*7) | LM-H3 | 3.8 | 4.7 | 9.8 |
| LM-K2 LM-U2 | | 8.5 | 10.5 | 22.0 | |
| Tolerable Regenerative Power of the Built-in Regenerative Resistor (*2, *3) (W) | | 20 | | 100 | |
| Control Method | | Sine-wave PWM control/current control method | | | |
| Dynamic Brake | | Built-in (*4) | | | |
| Protective Functions | | Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection | | | |
| Fully Closed Loop Control | | Available in the future | | | |
| Safety Function (*10) | | STO (IEC/EN 61800-5-2) | | | |
| Safety Performance | Standards Certified by CB | EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2 | | | |
| | Response Performance | 8 ms or less (STO input OFF — energy shut-off) | | | |
| | Test Pulse Input (STO) (*7) | Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum | | | |
| | Mean Time to Dangerous Failure (MTTFd) | 100 years | | | |
| | Average Diagnostic Coverage (DCavg) | 90% | | | |
| Probability of Dangerous Failure Per Hour (PFH) | | 1.01×10^{-7} [1/h] | | | |
| Communication Function | | USB: Connect a personal computer (MR Configurator2 compatible) | | | |
| Compliance to Standards | CE Marking | LVD: EN 61800-5-1; EMC: EN 61800-3; MD: EN ISO 13849-1, EN 61800-5-2, EN 62061 | | | |
| | UL Standard (*10) | UL 508C | | | |
| Structure (IP Rating) | | Natural cooling, open (IP20) | Force cooling, open (IP20) | | |
| Close Mounting | | Possible | | | |
| Weight kg | | 1.5 | 1.5 | 2.0 | 2.0 |

Notes:

- Rated output and speed of a rotary servo motor and a direct drive motor; and rated thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
- Optimal regenerative option varies for each system. Select the most suitable regenerative option for your system with our capacity selection software.
- Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
- When using the built-in dynamic brake, refer to "MR-J4W_ _B Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio and the permissible load to mass ratio.
- For rotary servo motors and direct drive motors, "regenerative energy" is the energy generated when a machine, which has a moment of inertia equivalent to the permissible charging amount, decelerates from the rated speed to a stop. For linear servo motors, "regenerative energy" is the energy generated when a machine, which has mass equivalent to the permissible charging amount, decelerates from the maximum speed to a stop.
- This is applicable for the rotary servo motor and the direct drive motor. When two axes are simultaneously decelerated, the permissible charging amount is equivalent to the total moments of inertia of the two axes. Otherwise, the permissible charging amount is equivalent to the moment of inertia of each axis.
- This is applicable for the linear servo motor. Mass of primary side (coil) is included. When two axes are simultaneously decelerated, the permissible charging amount is equivalent to the total masses of the two axes. Otherwise, the permissible charging amount is equivalent to the mass of each axis.
- This function makes a failure diagnosis on contacts including external circuits by instantaneously turning off the signals from a controller to a servo amplifier at constant period when the input signals of the servo amplifier are on.
- Not compatible with pulse train interface (A/B/Z-phase differential output type).
- STO is common for all axes.
- Some of the models are under application. Contact your local sales office for more details.

MR-J4W3-B (3-Axis) Specifications

| | | | |
|---|---|---|------|
| Servo Amplifier Model MR-J4W3- | | 222B | 444B |
| Stocked Item | | S | S |
| Rated Output | | 0.2 | 0.4 |
| Output | Rated Voltage | 3-phase 170 VAC | |
| | Rated Current (A) | 1.5 | 2.8 |
| Main Circuit Power Supply | Voltage/Frequency (*1, *2) | 3-phase or 1-phase 200 VAC to 240 VAC, 50/60 Hz | |
| | Rated Current (A) | 4.3 | 7.8 |
| | Permissible Voltage Fluctuation | 3-phase or 1-phase 170 VAC to 264 VAC | |
| | Permissible Frequency Fluctuation | ±5% maximum | |
| Control Circuit Power Supply | Voltage/Frequency | 1-phase 200 VAC to 240 VAC, 50/60 Hz | |
| | Rated Current (A) | 0.4 | |
| | Permissible Voltage Fluctuation | 1-phase 170 VAC to 264 VAC | |
| | Permissible Frequency Fluctuation | ±5% maximum | |
| | Power Consumption (W) | 55 | |
| Interface Power Supply | | 24 VDC ±10% (required current capacity: 0.45 A (including CN8 connector signal)) | |
| Load-Side Encoder Interface (*8) | | Mitsubishi high-speed serial communication | |
| Capacitor Regeneration | Tolerable Regenerative Power of the Built-in Regenerative Resistor (*2, *3) (W) | 21 | 30 |
| | Moment of inertia (J) Equivalent to Permissible Charging Amount ($\times 10^{-4}$ kg·m ²) (*6) | 4.26 | 6.08 |
| | Mass Equivalent to Permissible Charging Amount (kg) (*7) | LM-H3 | 4.7 |
| LM-K2 LM-U2 | | 10.5 | 15.0 |
| Tolerable Regenerative Power of the Built-in Regenerative Resistor (*2, *3) (W) | | 30 | |
| Control Method | | Sine-wave PWM control/current control method | |
| Dynamic Brake | | Built-in (*4) | |
| Protective Functions | | Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, overspeed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection | |
| Fully Closed Loop Control | | Not compatible | |
| Safety Function (*10) | | STO (IEC/EN 61800-5-2) (*9) | |
| Safety Performance | Standards Certified by CB | EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2 | |
| | Response Performance | 8 ms or less (STO input OFF — energy shut-off) | |
| | Test Pulse Input (STO) (*7) | Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum | |
| | Mean Time to Dangerous Failure (MTTFd) | 100 years | |
| | Average Diagnostic Coverage (DCavg) | 90% | |
| | Probability of Dangerous Failure Per Hour (PFH) | 1.01×10^{-7} [1/h] | |
| Communication Function | | USB: Connect a personal computer (MR Configurator2 compatible) | |
| Compliance to Standards | CE Marking | LVD: EN 61800-5-1; EMC: EN 61800-3; MD: EN ISO 13849-1, EN 61800-5-2, EN 62061 | |
| | UL Standard (*10) | UL 508C | |
| Structure (IP Rating) | | Natural cooling, open (IP20) | |
| Close Mounting | | Possible | |
| Weight kg | | 1.9 | 1.9 |

Notes:

- Rated output and speed of a rotary servo motor and a direct drive motor; and rated thrust and maximum speed of a linear servo motor are applicable when the servo amplifier, combined with the servo motor, is operated within the specified power supply voltage and frequency.
- Optimal regenerative option varies for each system. Select the most suitable regenerative option for your system with our capacity selection software.
- Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
- When using the built-in dynamic brake, refer to 'MR-J4W_ _B Servo Amplifier Instruction Manual' for the permissible load to motor inertia ratio and the permissible load to mass ratio.
- For rotary servo motors and direct drive motors, "regenerative energy" is the energy generated when a machine, which has a moment of inertia equivalent to the permissible charging amount, decelerates from the rated speed to a stop. For linear servo motors, "regenerative energy" is the energy generated when a machine, which has mass equivalent to the permissible charging amount, decelerates from the maximum speed to a stop.
- This is applicable for the rotary servo motor and the direct drive motor. When three axes are simultaneously decelerated, the permissible charging amount is equivalent to the total moments of inertia of the three axes. Otherwise, the permissible charging amount is equivalent to the moment of inertia of each axis.
- This is applicable for the linear servo motor. Mass of primary side (coil) is included. When three axes are simultaneously decelerated, the permissible charging amount is equivalent to the total masses of the three axes. Otherwise, the permissible charging amount is equivalent to the mass of each axis.
- This function makes a failure diagnosis on contacts including external circuits by instantaneously turning off the signals from a controller to a servo amplifier at constant period when the input signals of the servo amplifier are on.
- STO is common for all axes.
- Some of the models are under application. Contact your local sales office for more details.

MR-J4-A (General Purpose Interface) Specifications

| Servo Amplifier Model MR-J4- | | 10A | 20A | 40A | 60A | 70A | 100A | 200A | 350A | 500A | 700A | |
|---|---|--|-----|-----|----------|-----|--------------------------------------|------|------|------|---------------------------------|--|
| Stocked Item | | S | S | S | S | S | S | S | S | S | S | |
| Output | Rated Voltage | 3-phase 170 VAC | | | | | | | | | | |
| | Rated Current (A) | 1.1 | 1.5 | 2.8 | 3.2 | 5.8 | 6.0 | 11.0 | 17.0 | 28.0 | 37.0 | |
| Main Circuit Power Supply | Voltage/Frequency (*1, *2) | 3-phase or 1-phase 200 VAC to 240 VAC, 50/60 Hz | | | | | 3-phase 200 VAC to 240 VAC, 50/60 Hz | | | | | |
| | Rated Current (A) | 0.9 | 1.5 | 2.6 | 3.2 (*8) | 3.8 | 5.0 | 10.5 | 16.0 | 21.7 | 28.9 | |
| | Permissible Voltage Fluctuation | 3-phase or 1-phase 170 VAC to 264 VAC | | | | | 3-phase 170 VAC to 264 VAC | | | | | |
| | Permissible Frequency Fluctuation | ±5% maximum | | | | | | | | | | |
| Control Circuit Power Supply | Voltage/Frequency | 1-phase 200 VAC to 240 VAC, 50/60 Hz | | | | | | | | | | |
| | Rated Current (A) | 0.2 | | | | | | | | | 0.3 | |
| | Permissible Voltage Fluctuation | 1-phase 170 VAC to 264 VAC | | | | | | | | | | |
| | Permissible Frequency Fluctuation | ±5% maximum | | | | | | | | | | |
| Power Consumption (W) | | 30 | | | | | | | | | 45 | |
| Interface Power Supply | | 24 VDC ±10% (required current capacity: 0.5 A (including CN8 connector signal)) | | | | | | | | | | |
| Load-Side Encoder Interface (*8) | | Mitsubishi high-speed serial communication | | | | | | | | | | |
| Tolerable Regenerative Power of the Built-in Regenerative Resistor (*2, *3) (W) | | - | 10 | 10 | 10 | 20 | 20 | 100 | 100 | 130 | 170 | |
| Control Method | | Sine-wave PWM control/current control method | | | | | | | | | | |
| Dynamic Brake | | Built-in (*4) | | | | | | | | | | |
| Protective Functions | | Overcurrent shut-off, regenerative overvoltage shut-off, overload shut-off (electronic thermal), servo motor overheat protection, encoder error protection, regenerative error protection, undervoltage protection, instantaneous power failure protection, over-speed protection, error excessive protection, magnetic pole detection protection, linear servo control fault protection | | | | | | | | | | |
| Position Control Mode | Maximum Input Pulse Frequency | 4 Mpps (when using differential receiver), 200 kpps (when using open-collector) | | | | | | | | | | |
| | Positioning Feedback Pulse | Encoder resolution: 22 bits | | | | | | | | | | |
| | Command Pulse Multiplying Factor | Electronic gear A/B multiple, A: 1 to 16777216, B: 1 to 16777216, 1/10 < A/B < 4000 | | | | | | | | | | |
| | Positioning Complete Width Setting | 0 pulse to ±65535 pulses (command pulse unit) | | | | | | | | | | |
| | Error Excessive | ±3 rotations | | | | | | | | | | |
| | Torque Limit | Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque) | | | | | | | | | | |
| Speed Control Mode | Speed Control Range | Analog speed command 1:2000, internal speed command 1:5000 | | | | | | | | | | |
| | Analog Speed Command Input | 0 V DC to ±10 V DC/rated speed (Speed at 10 V is changeable with [Pr. PC12].) | | | | | | | | | | |
| | Speed Fluctuation Rate | ±0.01% maximum (load fluctuation 0% to 100%), 0% (power fluctuation: ±10%) ±0.2% maximum (ambient temperature: 25 °C ± 10 °C) only when using analog speed command | | | | | | | | | | |
| | Torque Limit | Set by parameters or external analog input (0 V DC to +10 V DC/maximum torque) | | | | | | | | | | |
| Torque Control Mode | Analog Torque Command Input | 0 V DC to ±8 V DC/maximum torque (input impedance: 10 kΩ to 12 kΩ) | | | | | | | | | | |
| | Speed Limit | Set by parameters or external analog input (0 V DC to ± 10 V DC/rated speed) | | | | | | | | | | |
| Fully Closed Loop Control | | Available in the future | | | | | | | | | | |
| Safety Function (*10) | | STO (IEC/EN 61800-5-2) | | | | | | | | | | |
| Safety Performance | Standards Certified by CB | EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL 2, EN 61800-5-2 SIL 2 | | | | | | | | | | |
| | Response Performance | 8 ms or less (STO input OFF — energy shut-off) | | | | | | | | | | |
| | Test Pulse Input (STO) (*7) | Test pulse frequency: 1 Hz to 25 Hz; Test pulse off time: 1 ms maximum | | | | | | | | | | |
| | Mean Time to Dangerous Failure (MTTFd) | 100 years | | | | | | | | | | |
| | Average Diagnostic Coverage (DCavg) | 90% | | | | | | | | | | |
| | Probability of Dangerous Failure Per Hour (PFH) | 1.01×10^{-7} [1/h] | | | | | | | | | | |
| Communication Function | | USB: Connect a personal computer (MR Configurator2 compatible) | | | | | | | | | | |
| Compliance to Standards | CE Marking | LVD: EN 61800-5-1; EMC: EN 61800-3; MD: EN ISO 13849-1, EN 61800-5-2, EN 62061 | | | | | | | | | | |
| | UL Standard (*10) | UL 508C | | | | | | | | | | |
| Communication Function | | USB: Connect a personal computer (MR Configurator2 compatible) RS-422: 1 : n communication (up to 32 axes) (Available in the future) | | | | | | | | | | |
| Structure (IP Rating) | | Natural cooling, open (IP20) | | | | | Force cooling, open (IP20) | | | | Force cooling, open (IP20) (*5) | |
| Close Mounting | | Possible (*6) | | | | | | | | | Not possible | |
| Weight kg | | 0.8 | 0.8 | 1.0 | 1.0 | 1.4 | 1.4 | 2.1 | 2.3 | 4.0 | 6.2 | |

Notes:

- Rated output and speed of a rotary servo motor are applicable when the servo amplifier, combined with the rotary servo motor, is operated within the specified power supply voltage and frequency.
- Optimal regenerative option varies for each system. Select the most suitable regenerative option for your system with our capacity selection software.
- Refer to "Regenerative Option" in this catalog for the tolerable regenerative power [W] when regenerative option is used.
- When using the built-in dynamic brake, refer to "MR-J4-A Servo Amplifier Instruction Manual" for the permissible load to motor inertia ratio.
- Terminal blocks are excluded.
- When the servo amplifiers are closely mounted, keep the ambient temperature within 0 °C to 45 °C, or use them with 75% or less of the effective load rate.
- This function makes a failure diagnosis on contacts including external circuits by instantaneously turning off the signals from a controller to a servo amplifier at constant period when the input signals of the servo amplifier are on.
- The rated current is 2.9 A when the servo amplifier is used with UL or CSA compliant servo motor.
- Not compatible with pulse train interface (A/B/Z-phase differential output type).
- Some of the models are under application. Contact your local sales office for more details.

B. MR-J4 Rotary Servomotors

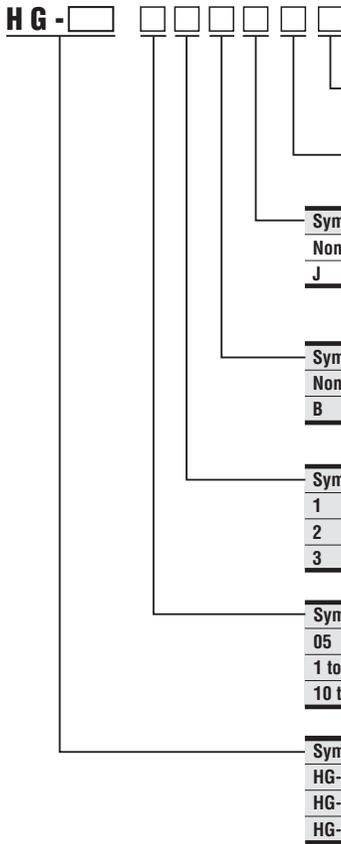
X = Available
- = Not Available

| Rotary servo motor series | Rated Speed (Max. r/min) | Rated Output Capacity (kW) | Servo Motor Type | | | Protective Degree (*2) | Compatible Series | Features | Application Examples |
|---------------------------|--|--|---------------------------------|------------------------|----------------------------|------------------------|-------------------|--|--|
| | | | Electromagnetic Brake Available | With Reducer (G1) (*1) | With Reducer (G5, G7) (*1) | | | | |
| Small Capacity |  HG-KR 3000 (6000) | 5 Types 0.05, 0.1, 0.2, 0.4, 0.75 | X | X | X | IP65 | HF-KP | Low inertia: perfect for general industrial machines | <ul style="list-style-type: none"> • Belt Drive • Robots • Mounters • Sewing Machines • X-Y Tables • Food Processing Machines • Semiconductor manufacturing devices • Knitting and embroidery machines |
| |  HG-MR 3000 (6000) | 5 Types 0.05, 0.1, 0.2, 0.4, 0.75 | X | - | - | IP65 | HF-MP | Ultra-low inertia Well suited for high-throughput operations | <ul style="list-style-type: none"> • Inserters • Mounters |
| Medium Capacity |  HG-SR 1000 (1500) | 6 Types 0.5, 0.85, 1.2, 2.0, 3.0, 4.2 | X | - | - | IP67 | HF-SP | Medium inertia This series is available with two rated speeds | <ul style="list-style-type: none"> • Material handling systems • Robots • X-Y tables |
| | 2000 (3000) | 7 Types 0.5, 1.0, 1.5, 2.0, 3.5, 5.0, 7.0 | X | X | X | IP67 | | | |

Notes:

1. G1 for general industrial machines. G5 and G7 for high precision applications.
2. The shaft-through portion is excluded. Refer to the asterisk 7 of "Annotations for Rotary Servo Motor Specifications" on p. 2-13 in this catalog for the shaft-through portion.
For geared servo motor, IP rating of the reducer portion is equivalent to IP44.

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



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

| Symbol | Electromagnetic Brake |
|--------|-----------------------|
| None | None |
| B | Installed (*1) |

| Symbol | Rated Speed [r/min] |
|--------|---------------------|
| 1 | 1000 |
| 2 | 2000 |
| 3 | 3000 |

| Symbol | Rated Output [kW] |
|----------|-------------------|
| 05 | 0.05 |
| 1 to 8 | 0.1 to 0.85 |
| 10 to 70 | 1.0 to 7.0 |

| Symbol | Inertia/Capacity |
|--------|-----------------------------------|
| HG-KR | Low inertia, small capacity |
| HG-MR | Ultra-low inertia, small capacity |
| HG-SR | Medium inertia, medium capacity |

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

| Symbol | Shaft End |
|--------|-----------------------------------|
| None | Standard (Straight shaft) (*7) |
| K | Key shaft (with/without key) (*8) |
| D | D-cut shaft (*8) |

Stocked Motors

| Model Number | Model Number |
|--------------|--------------|
| HG-KR053(B) | HG-SR52(B) |
| HG-KR13(B) | HG-SR102(B) |
| HG-KR23(B) | HG-SR152(B) |
| HG-KR43(B) | HG-SR202(B) |
| HG-KR73(B) | HG-SR352(B) |
| HG-KR053(B)D | HG-SR-502(B) |
| HG-KR13(B)D | HG-SR702(B) |
| HG-KR23(B)K | HG-SR52(B)K |
| HG-KR43(B)K | HG-SR102(B)K |
| HG-KR73(B)K | HG-SR152(B)K |
| HG-MR053(B) | HG-SR202(B)K |
| HG-MR13(B) | HG-SR502(B)K |
| HG-MR23(B) | HG-SR702(B)K |
| HG-MR43(B) | |
| HG-MR73(B) | |
| HG-MR053(B)D | |
| HG-MR13(B)D | |
| HG-MR23(B)K | |
| HG-MR43(B)K | |
| HG-MR73(B)K | |

Notes:

1. Refer to electromagnetic brake specifications of each servo motor series in this catalog for the available models and detailed specifications.
2. Available in 0.1 kW or larger HG-KR/HG-MR series and all HG-SR series.
3. Oil seal is not installed in the geared servo motor.
4. Dimensions for HG-KR/HG-MR/HG-SR series with an oil seal are different from the standard models. Contact your local sales office for more details.
5. Refer to "Geared Servo Motor Specifications" in this catalog for the available models and detailed specifications.
6. Available only in HF-SR 2000 r/min series.
7. Standard HG-SR G1/G1H has a key shaft (with key).
8. Refer to special shaft end specifications of each servo motor series in this catalog for the available models and detailed specifications.

Combinations of Rotary Servo Motor and Servo Amplifier With MR-J4 Servo Amplifier

| Rotary Servo Motor | | | Servo Amplifier |
|--------------------|---------|--------------------|-----------------|
| HG-KR | HG-MR | HG-SR | |
| 053, 13 | 053, 13 | - | MR-J4-10A/B |
| 23 | 23 | - | MR-J4-20A/B |
| 43 | 43 | - | MR-J4-40A/B |
| - | - | 51, 52 | MR-J4-60A/B |
| 73 | 73 | - | MR-J4-70A/B |
| - | - | 81, 102 | MR-J4-100A/B |
| - | - | 121, 201, 152, 202 | MR-J4-200A/B |
| - | - | 301, 352 | MR-J4-350A/B |
| - | - | 421, 502 | MR-J4-500A/B |
| - | - | 702 | MR-J4-700A/B |

Notes:

1. Any combination of the servo motors is available such as rotary servo motor for A-axis, and linear servo motor or direct drive motor for B-axis. Refer to "Combinations of Linear Servo Motor and Servo Amplifier" and "Combinations of Direct Drive Motor and Servo Amplifier" in the MR-J4 brochure.
2. Any combination of the servo motors is available such as rotary servo motor for A-axis, linear servo motor for B-axis, and direct drive motor for C-axis. Refer to "Combinations of Linear Servo Motor and Servo Amplifier" and "Combinations of Direct Drive Motor and Servo Amplifier" in the MR-J4 brochure.

With MR-J4W2 Servo Amplifier

| Rotary Servo Motor | | | Servo Amplifier | Axis (*1) |
|--------------------|-----------------|-----------------|-----------------|-----------|
| HG-KR | HG-MR | HG-SR | | |
| 053, 13, 23 | 053, 13, 23 | - | MR-J4W2-22B | A/B |
| 053, 13, 23, 43 | 053, 13, 23, 43 | - | MR-J4W2-44B | A/B |
| 43, 73 | 43, 73 | 51, 52 | MR-J4W2-77B | A/B |
| 43, 73 | 43, 73 | 51, 81, 52, 102 | MR-J4W2-1010B | A/B |

With MR-J4W3 Servo Amplifier

| Rotary Servo Motor | | | Servo Amplifier | Axis (*2) |
|--------------------|-----------------|-------|-----------------|-----------|
| HG-KR | HG-MR | HG-SR | | |
| 053, 13, 23 | 053, 13, 23 | - | MR-J4W3-222B | A/B/C |
| 053, 13, 23, 43 | 053, 13, 23, 43 | - | MR-J4W3-444B | A/B/C |

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

| Servomotor Model HG-KR_ | | 053(B) | 13(B) | 23(B) | 43(B) | 73(B) |
|--|-----------------------------------|---|--|------------------|------------------|------------------|
| Servo Amplifier Model | MR-J4_ | Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide. | | | | |
| | MR-J4W_ | | | | | |
| Power Supply Capacity (kVA) (*1) | | 0.3 | 0.3 | 0.5 | 0.9 | 1.3 |
| Continuous Running Duty | Rated Output (kW) | 5.0 | 100 | 200 | 400 | 750 |
| | Rated Torque (N•m) (*3) | 0.16 | 0.32 | 0.64 | 1.3 | 2.4 |
| Maximum Torque (N•m) | | 0.56 | 1.1 | 2.2 | 4.5 | 8.4 |
| Rated Speed (r/min) | | 3000 | | | | |
| Maximum Speed (r/min) | | 6000 | | | | |
| Permissible Instantaneous Speed (r/min) | | 6900 | | | | |
| Power Rate Continuous Rated Torque (kW/s) | Standard (kW/s) | 5.63 | 13.0 | 18.3 | 43.7 | 45.2 |
| | With Electromagnetic Brake (kW/s) | 5.37 | 12.1 | 16.7 | 41.3 | 41.6 |
| Rated Current (A) | | 0.9 | 0.8 | 1.3 | 2.6 | 4.8 |
| Maximum Current (A) | | 3.2 | 2.5 | 4.6 | 9.1 | 17.2 |
| Regenerative Braking Frequency (times/min) (*2) | MR-J4- (times/min) | (*4) | (*4) | 453 | 268 | 157 |
| | MR-J4W_ (times/min) | 2540 | 1370 | 451 | 268 | 393 |
| Moment of inertia J (x10 ⁻⁴ kg•m ²) [J (oz•in ²)] | Standard | 0.0450 | 0.0777 | 0.221 | 0.371 | 1.26 |
| | With Electromagnetic Brake | 0.0472 | 0.0837 | 0.243 | 0.393 | 1.37 |
| Recommended Load/Motor Inertia Moment Ratio | | 15 times or less | | 24 times or less | 22 times or less | 15 times or less |
| Speed/Position Detector | | Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev) | | | | |
| Oil Seal | | None | None (Servo motors with oil seal are available. (HG-KR_J)) | | | |
| Insulation Class | | 130 (B) | | | | |
| Structure | | Totally enclosed, natural cooling (IP rating: IP65) (*2) | | | | |
| Environment | Ambient Temperature | 0 °C to 40 °C (non-freezing), storage: -15 °C to 70 °C (non-freezing) | | | | |
| | Ambient Humidity | 80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing) | | | | |
| | Atmosphere | Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust | | | | |
| | Elevation / Vibration (*5) | 1000 m or less above sea level; X: 49 m/s ² Y: 49 m/s ² | | | | |
| Vibration Rank | | V10 (*6) | | | | |
| Permissible Load for the Shaft (*5) | L (mm) | 25 | 25 | 30 | 30 | 40 |
| | Radial (N) | 88 | 88 | 245 | 245 | 392 |
| | Thrust (N) | 59 | 59 | 98 | 98 | 147 |
| Weight kg | Standard | 0.34 | 0.54 | 0.91 | 1.4 | 2.8 |
| | With Electromagnetic Brake | 0.54 | 0.74 | 1.3 | 1.8 | 3.8 |

Notes:

- Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
- The shaft-through portion is excluded. IP67 for the servo motor with oil seal. Equivalent to IP44 for the reducer portion on the geared servo motor. Refer to this guide for the shaft-through portion.
- When unbalanced torque is generated, such as in a vertical lift machine, it is recommended that the unbalanced torque of the machine be kept under 70% of the servo motor rated torque.
- When the servo motor decelerates to a stop from the rated speed, the regenerative frequency will not be limited if the effective torque is within the rated torque range.
When the servo motor decelerates to a stop from the maximum speed, the regenerative frequency will not be limited if the following requirements are met.
 - HG-KR053(B): The load to motor inertia ratio is 8 times or less, and the effective torque is within the rated torque range.
 - HG-KR13(B): The load to motor inertia ratio is 4 times or less, and the effective torque is within the rated torque range.
- The vibration direction is shown in the diagram below. 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 the motor stops, so maintain vibration to approximately one-half of the allowable value.



- Refer to the MR-J4 Servo Amplifier and Motors brochure for more detailed specifications.

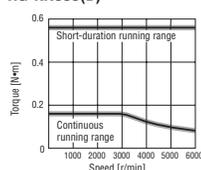
HG-KR Series Electromagnetic Brake Specifications (*1)

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

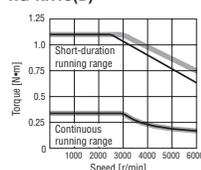
Notes:

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

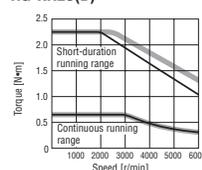
HG-KR053(B) (*1, *2)



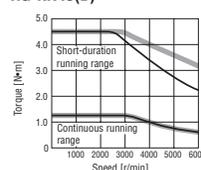
HG-KR13(B) (*1, *2)



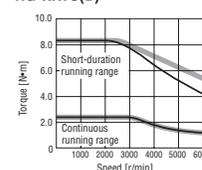
HG-KR23(B) (*1, *2)



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



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



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

HG-MR Series (Ultra Low Inertia, Small Capacity) Specifications

| Servomotor Model HG-MR_ | | 053(B) | 13(B) | 23(B) | 43(B) | 73(B) |
|--|-----------------------------------|---|--|--------|-------|-------|
| Servo Amplifier Model | MR-J4- MR-J4W_- | Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide. | | | | |
| Power Supply Capacity (kVA) (*1) | | 0.3 | 0.3 | 0.5 | 0.9 | 1.3 |
| Continuous Running Duty | Rated Output (kW) | 5.0 | 100 | 200 | 400 | 750 |
| | Rated Torque (N•m) (*3) | 0.16 | 0.32 | 0.64 | 1.3 | 2.4 |
| Maximum Torque (N•m) | | 0.48 | 0.95 | 1.9 | 3.8 | 7/2 |
| Rated Speed (r/min) | | 3000 | | | | |
| Maximum Speed (r/min) | | 6000 | | | | |
| Permissible Instantaneous Speed (r/min) | | 6900 | | | | |
| Power Rate Continuous Rated Torque (kW/s) | Standard (kW/s) | 15.6 | 33.8 | 46.9 | 114.2 | 97.3 |
| | With Electromagnetic Brake (kW/s) | 11.3 | 28.0 | 37.2 | 98.8 | 82.1 |
| Rated Current (A) | | 1.0 | 0.9 | 1.5 | 2.6 | 5.8 |
| Maximum Current (A) | | 3.1 | 2.5 | 5.3 | 9.0 | 20.0 |
| Regenerative Braking Frequency (times/min) (*2) | MR-J4- (times/min) | (*4) | (*4) | 1180 | 713 | 338 |
| | MR-J4W_- (times/min) | 7540 | 3640 | 1170 | 710 | 846 |
| Moment of Inertia J (x10 ⁻⁴ kg•m ²) [J (oz•in ²)] | Standard | 0.0162 | 0.0300 | 0.0865 | 0.142 | 0.586 |
| | With Electromagnetic Brake | 0.0224 | 0.0362 | 0.109 | 0.164 | 0.694 |
| Recommended Load/Motor Inertia Moment Ratio | | 30 times or less | | | | |
| Speed/Position Detector | | Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev) | | | | |
| Oil Seal | | None | None (Servo motors with oil seal are available. (HG-MR_J)) | | | |
| Insulation Class | | 130 (B) | | | | |
| Structure | | Totally enclosed, natural cooling (IP rating: IP65) (*2) | | | | |
| Environment | Ambient Temperature | 0 °C to 40 °C (non-freezing), storage: -15 °C to 70 °C (non-freezing) | | | | |
| | Ambient Humidity | 80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing) | | | | |
| | Atmosphere | Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust | | | | |
| | Elevation / Vibration (*5) | 1000 m or less above sea level; X: 49 m/s ² Y: 49 m/s ² | | | | |
| Vibration Rank | | V10 (*6) | | | | |
| Permissible Load for the Shaft (*5) | L (mm) | 25 | 25 | 30 | 30 | 40 |
| | Radial (N) | 88 | 88 | 245 | 245 | 392 |
| | Thrust (N) | 59 | 59 | 98 | 98 | 147 |
| Weight kg | Standard | 0.34 | 0.54 | 0.91 | 1.4 | 2.8 |
| | With Electromagnetic Brake | 0.54 | 0.74 | 1.3 | 1.8 | 3.8 |

Notes:

- Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
- The shaft-through portion is excluded. IP67 for the servo motor with oil seal. Refer to the asterisk 7 of "Annotations for Rotary Servo Motor Specifications" on p. 2-13 in this catalog for the shaft-through portion.
- When unbalanced torque is generated, such as in a vertical lift machine, it is recommended that the unbalanced torque of the machine be kept under 70% of the servo motor rated torque.
- When the servo motor decelerates to a stop from the maximum speed, the regenerative frequency will not be limited if the effective torque is within the rated torque range.
When the servo motor decelerates to a stop from the maximum speed, the regenerative frequency will not be limited if the following requirements are met.
 - HG-MR053(B): The load to motor inertia ratio is 24 times or less, and the effective torque is within the rated torque range.
 - HG-MR13(B): The load to motor inertia ratio is 12 times or less, and the effective torque is within the rated torque range.
- The vibration direction is shown in the diagram below. 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 the motor stops, so maintain vibration to approximately one-half of the allowable value.



- Refer to the MR-J4 Servo Amplifier and Motors brochure for more detailed specifications.

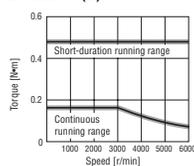
HG-MR Series Electromagnetic Brake Specifications (*1)

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

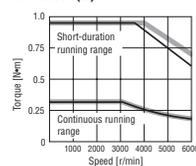
Notes:

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

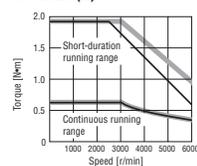
HG-MR053(B) (*1, *2)



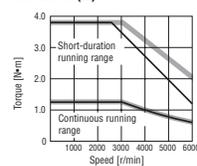
HG-MR13(B) (*1, *2)



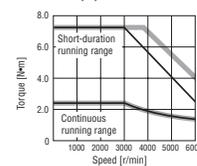
HG-MR23(B) (*1, *2)



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



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



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

HG-SR 1000 Series (Medium Inertia, Medium Capacity) Specifications

| Servomotor Model HG-SR_ | | 51(B) | 81(B) | 121(B) | 201(B) | 301(B) | 421(B) |
|--|-----------------------------------|---|-------|---|--------|---|--------|
| Servo Amplifier Model | MR-J4- _ | Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide. | | | | | |
| | MR-J4W_ _ | | | | | | |
| Power Supply Capacity (kVA) (*1) | | 1.0 | 1.5 | 2.1 | 3.5 | 4.8 | 6.3 |
| Continuous Running Duty | Rated Output (kW) | 0.5 | 0.85 | 1.2 | 2.0 | 3.0 | 4.2 |
| | Rated Torque (N•m) (*3) | 4.8 | 8.1 | 11.5 | 19.1 | 28.6 | 40.1 |
| Maximum Torque (N•m) | | 14.3 | 24.4 | 34.4 | 57.3 | 85.9 | 129 |
| Rated Speed (r/min) | | 1000 | | | | | |
| Maximum Speed (r/min) | | 1500 | | | | | |
| Permissible Instantaneous Speed (r/min) | | 1725 | | | | | |
| Power Rate Continuous Rated Torque (kW/s) | Standard (kW/s) | 19.7 | 41.2 | 28.1 | 46.4 | 82.3 | 107 |
| | With Electromagnetic Brake (kW/s) | 16.5 | 36.2 | 23.2 | 41.4 | 75.3 | 99.9 |
| Rated Current (A) | | 2.8 | 5.2 | 7.1 | 9.4 | 13 | 19 |
| Maximum Current (A) | | 9.0 | 16.6 | 22.7 | 30.1 | 41.6 | 60.8 |
| Regenerative Braking Frequency (times/min) (*2) | MR-J4- (times/min) | 77 | 114 | 191 | 113 | 89 | 76 |
| | MR-J4W_ (times/min) | 392 | 286 | - | - | - | - |
| Moment of Inertia J (x10 ⁻⁴ kg•m ²) [J (oz•in ²)] | Standard | 11.6 | 16.0 | 46.8 | 78.6 | 99.7 | 151 |
| | With Electromagnetic Brake | 13.8 | 18.2 | 56.5 | 88.2 | 109 | 161 |
| Recommended Load/Motor Inertia Moment Ratio | | 15 times or less | | | | | |
| Speed/Position Detector | | Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev) | | | | | |
| Oil Seal | | None (Servo motors with oil seal are available. (HG-SR_J)) | | | | | |
| Insulation Class | | 155 (F) | | | | | |
| Structure | | Totally enclosed, natural cooling (IP rating: IP67) (*2) | | | | | |
| Environment | Ambient Temperature | 0 °C to 40 °C (non-freezing), storage: -15 °C to 70 °C (non-freezing) | | | | | |
| | Ambient Humidity | 80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing) | | | | | |
| | Atmosphere | Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust | | | | | |
| | Elevation | 1000 m or less above sea level | | | | | |
| Vibration Rank | | Vibration (*4) | | X: 24.5 m/s ² Y: 24.5 m/s ² | | X: 24.5 m/s ² Y: 29.4 m/s ² | |
| Permissible Load for the Shaft (*5) | L (mm) | 55 | 55 | 79 | 79 | 79 | 79 |
| | Radial (N) | 980 | 980 | 2058 | 2058 | 2058 | 2058 |
| | Thrust (N) | 490 | 490 | 980 | 980 | 980 | 980 |
| Weight kg | Standard | 6.2 | 7.3 | 11 | 16 | 20 | 27 |
| | With Electromagnetic Brake | 8.2 | 9.3 | 17 | 22 | 26 | 33 |

Notes:

- Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
- The shaft-through portion is excluded. IP67 for the servo motor with oil seal. Refer to the asterisk 7 of "Annotations for Rotary Servo Motor Specifications" on p. 2-13 in this catalog for the shaft-through portion.
- When unbalanced torque is generated, such as in a vertical lift machine, it is recommended that the unbalanced torque of the machine be kept under 70% of the servo motor rated torque.
- The vibration direction is shown in the diagram below. 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 the motor stops, so maintain vibration to approximately one-half of the allowable value.



- Refer to the MR-J4 Servo Amplifier and Motors brochure for more detailed specifications.

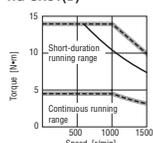
HG-SR 1000 Series Electromagnetic Brake Specifications (*1)

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

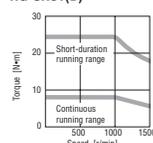
Notes:

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

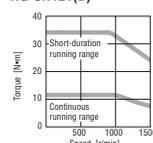
HG-SR51(B) (*1, *2, *3)



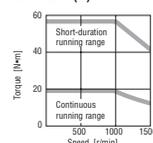
HG-SR81(B) (*1)



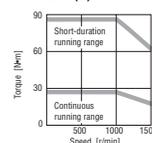
HG-SR121(B) (*1)



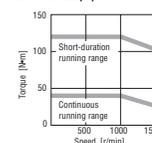
HG-SR201(B) (*1)



HG-SR301(B) (*1)



HG-SR421(B) (*1)



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

HG-SR 2000 Series (Medium Inertia, Medium Capacity) Specifications

| Servomotor Model HG-SR_ | | 52(B) | 102(B) | 152(B) | 202(B) | 352(B) | 502(B) | 702(B) |
|--|-----------------------------------|---|--------|--------|---|--------|---|--------|
| Servo Amplifier Model | MR-J4- MR-J4W_ _ | Refer to "Combinations of Servo Motor and Servo Amplifier" in this guide. | | | | | | |
| Power Supply Capacity (kVA) (*1) | | 1.0 | 1.7 | 2.5 | 3.5 | 5.5 | 7.5 | 10 |
| Continuous Running Duty | Rated Output (kW) | 0.5 | 1.0 | 1.5 | 2.0 | 3.5 | 5.0 | 7.0 |
| | Rated Torque (N•m) (*3) | 2.4 | 4.8 | 7.2 | 9.5 | 16.7 | 23.9 | 33.4 |
| Maximum Torque (N•m) | | 7.2 | 14.3 | 21.5 | 28.6 | 50.1 | 71.6 | 1000 |
| Rated Speed (r/min) | | 2000 | | | | | | |
| Maximum Speed (r/min) | | 3000 | | | | | | |
| Permissible Instantaneous Speed (r/min) | | 3450 | | | | | | |
| Power Rate Continuous Rated Torque (kW/s) | Standard (kW/s) | 7.85 | 19.7 | 32.1 | 19.5 | 35.5 | 57.2 | 74.0 |
| | With Electromagnetic Brake (kW/s) | 6.01 | 16.5 | 28.2 | 16.1 | 31.7 | 52.3 | 69.4 |
| Rated Current (A) | | 2.9 | 5.6 | 9.4 | 9.6 | 14 | 22 | 26 |
| Maximum Current (A) | | 9.0 | 17.4 | 29.1 | 30.7 | 44.8 | 70.4 | 83.2 |
| Regenerative Braking Frequency (times/min) (*2) | MR-J4- (times/min) | 31 | 38 | 139 | 47 | 28 | 29 | 25 |
| | MR-J4W_ _ (times/min) | 154 | 96 | - | - | - | - | - |
| Moment of inertia J (x10 ⁻⁴ kg•m ²) [J (oz•in ²)] | Standard | 7.26 | 11.6 | 16.0 | 46.8 | 78.6 | 99.7 | 151 |
| | With Electromagnetic Brake | 9.48 | 13.8 | 18.2 | 56.5 | 88.2 | 109 | 161 |
| Recommended Load/Motor Inertia Moment Ratio | | 15 times or less | | | | | | |
| Speed/Position Detector | | Absolute/incremental 22-bit encoder (resolution: 4194304 pulses/rev) | | | | | | |
| Oil Seal | | None (Servo motors with oil seal are available. (HG-SR_J)) | | | | | | |
| Insulation Class | | 155 (F) | | | | | | |
| Structure | | Totally enclosed, natural cooling (IP rating: IP67) (*2) | | | | | | |
| Environment | Ambient Temperature | 0 °C to 40 °C (non-freezing), storage: -15 °C to 70 °C (non-freezing) | | | | | | |
| | Ambient Humidity | 80% RH maximum (non-condensing), storage: 90% RH maximum (non-condensing) | | | | | | |
| | Atmosphere | Indoors (no direct sunlight); no corrosive gas, inflammable gas, oil mist or dust | | | | | | |
| | Elevation | 1000 m or less above sea level | | | | | | |
| Vibration Rank | | X: 24.5 m/s ² Y: 24.5 m/s ² | | | X: 24.5 m/s ² Y: 49 m/s ² | | X: 24.5 m/s ² Y: 29.4 m/s ² | |
| | | V10 (*6) | | | | | | |
| Permissible Load for the Shaft (*5) | L (mm) | 55 | 55 | 55 | 79 | 79 | 79 | 79 |
| | Radial (N) | 980 | 980 | 980 | 2058 | 2058 | 2058 | 2058 |
| | Thrust (N) | 490 | 490 | 490 | 980 | 980 | 980 | 980 |
| Weight kg | Standard | 4.8 | 6.2 | 7.3 | 11 | 16 | 20 | 27 |
| | With Electromagnetic Brake | 6.7 | 8.2 | 9.3 | 17 | 22 | 26 | 33 |

Notes:

- Contact your local sales office if the load to motor inertia ratio exceeds the value in the table.
- The shaft-through portion is excluded. IP67 for the servo motor with oil seal. Refer to the asterisk 7 of "Annotations for Rotary Servo Motor Specifications" on p. 2-13 in this catalog for the shaft-through portion.
- When unbalanced torque is generated, such as in a vertical lift machine, it is recommended that the unbalanced torque of the machine be kept under 70% of the servo motor rated torque.
- The vibration direction is shown in the diagram below. 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 the motor stops, so maintain vibration to approximately one-half of the allowable value.



- Refer to the MR-J4 Servo Amplifier and Motors brochure for more detailed specifications.

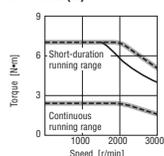
HG-SR 2000 Series Electromagnetic Brake Specifications (*1)

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

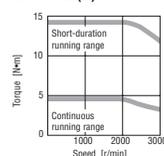
Notes:

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

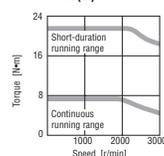
HG-SR52(B) (*1, *2, *3)



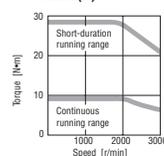
HG-SR102(B) (*1)



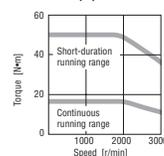
HG-SR152(B) (*1)



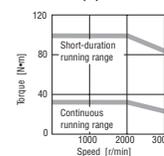
HG-SR202(B) (*1)



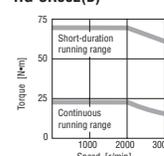
HG-SR352(B) (*1)



HG-SR702(B) (*1)

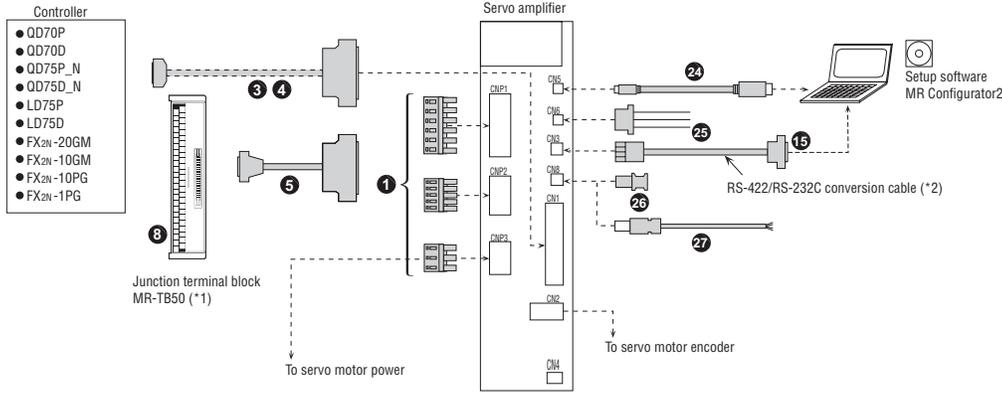


HG-SR502(B) (*1)

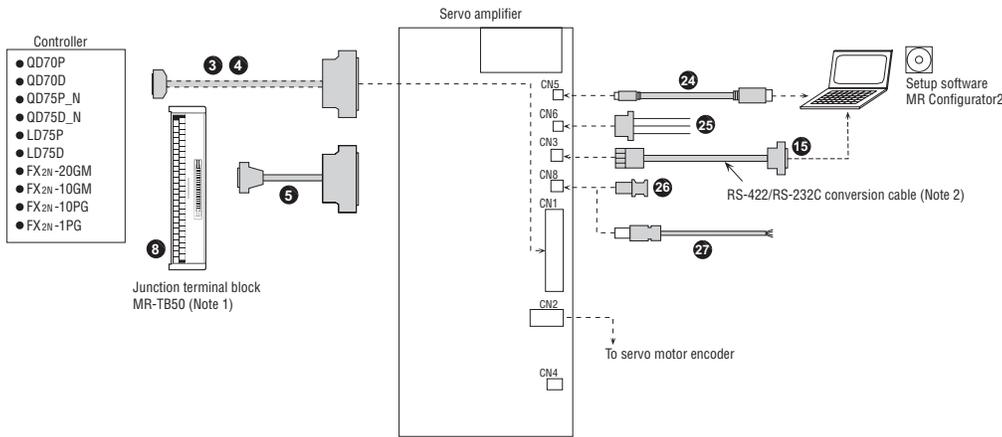


- Notes: 1. — : For 3-phase 200 V AC.
 2. - - - : For 1-phase 230 V AC.
 3. — : For 1-phase 200 V AC.
 This line is drawn only where it differs from the other two lines.
 4. Torque drops when the power supply voltage is below the specified value.

MR-J4-A Type Amplifier Cables and Connectors For 3.5 kW or smaller



For 5 kW or larger



Notes:

1. Refer to "Junction Terminal Block" in this catalog.
2. Refer to "Products on the Market for Servo Amplifiers" in this catalog.

For CNP1, CNP2, CNP3

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

Notes:

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

For CN1

| Item | Model Number | Stocked Lengths | Protection Level | Description | |
|------|---|---|------------------|-------------|---|
| 3 | Connector Set For MR-J4-A | MR-J3CN1 | S | - |  |
| 4 | CN1 Pigtail Cable (50 Pin) | MR-J3CCN1CBL-_M _ = cable length 3, 5m | 3, 5 | - |  |
| 5 | Junction Terminal Block Cable For Connecting MRJ4-A and MR-TB50 | MR-J2M-CN1TBL_M _ = cable length 0.5, 1m) | 05, 1 | - |  |
| 6 | Junction Terminal Block | MR-TB50 | S | - |  |
| | | MR-TB50MIN (reduced size - width = 145mm (5.71 in)) | S | - | |

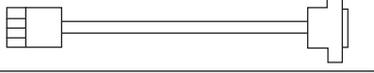
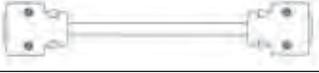
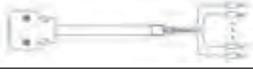
For Controller, CN1A, CN1B

| Item | Model Number | Stocked Lengths | Protection Level | Description | |
|------|--|---|------------------|-------------|---|
| 7 | SSCNET III Cable (Standard Cord for Inside Cabinet) Compatible With SSCNET III(H) For MR-J4-B/MR-J4W2-B/MR-J4W3-B (*1) | MR-J3BUS_M _ (= cable length 0.15, 0.3, 0.5, 1, 3m) | S | - |  |
| 8 | SSCNET III Cable (Standard Cable for Outside cabinet) Compatible With SSCNET III(H) For MR-J4-B/MR-J4W2-B/MR-J4W3-B (*1) | MR-J3BUS_M-A _ = cable length 5, 10, 20m) | S | - | |
| 9 | SSCNET III Cable (Long Distance Cable, Long Bending Life) Compatible With SSCNET III(H) For MR-J4-B/MR-J4W2-B/MR-J4W3-B (*1, *3) | MR-J3BUS_M-B _ = cable length 30, 40, 50m) | S | - | |
| 10 | SSCNET III Connector Cap. Compatible With SSCNET III(H). For MR-J4-B/MR-J4W2-B/MR-J4W3-B | Supplied with Amplifier | S | - |  |

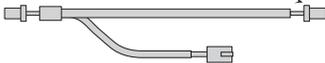
Notes:

1. Read carefully through the precautions enclosed with the options before use.
2. Dedicated tools are required. Contact your local sales office for more details.
3. When SSCNET III/H is used, refer to "Products on the Market for Servo Amplifiers" in this catalog for cables over 50 m or with ultra-long bending life.

For CN3

| Item | Model Number | Stocked Item | Protection Level | Description | |
|------|---|--|------------------|-------------|---|
| 11 | Connector Set For MR-J4-B | MR-CCN1 | - | - |  |
| 12 | Connector Set (Qty: 1 pc) For MR-J4W2-B/MR-J4W3-B | MR-J2CMP2 | S | - | |
| 13 | Connector Set For MR-J4W2-B/MR-J4W3-B | MR-ECN1 | S | - | |
| 14 | Junction Terminal Block Cable For Connecting MR-J4W2-B/MR-J4W3-B and MR-TB26A | MR-TBNATBL_M _ = cable length 0.5, 1m | S | - |  |
| 15 | RS-232 to RS-485 Converter PC to CN3 (3M) | SC-FRPC (Cable length 3m) | S | - |  |
| 16 | CN10 or CN3 Signal Connector (20 pin) | MR-J2CN1 | S | - |  |
| 17 | CN10 or CN3 Pigtail Cable (20 pin) | MR-CCN1CBL-_M _ = cable length 3, 5m) | 3, 5 | - |  |
| 18 | Cable for PS7DW-20V14B-F Terminal Block | MR-J2HBUS_M | 05, 1, 3, 5 | - |  |
| 19 | 20 Pin Terminal B Lock for J4-B (TB20 cannot be used) | PS7DW-20V14B-F | S | - |  |
| 20 | CN6 Pigtail Cable (26 Pin) | MR-ECN1CBL-3M | S | - |  |
| 21 | Junction Terminal Block | MR-TB26A | S | - |  |

For CN4

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

For CN5 and CN6

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

For CN8

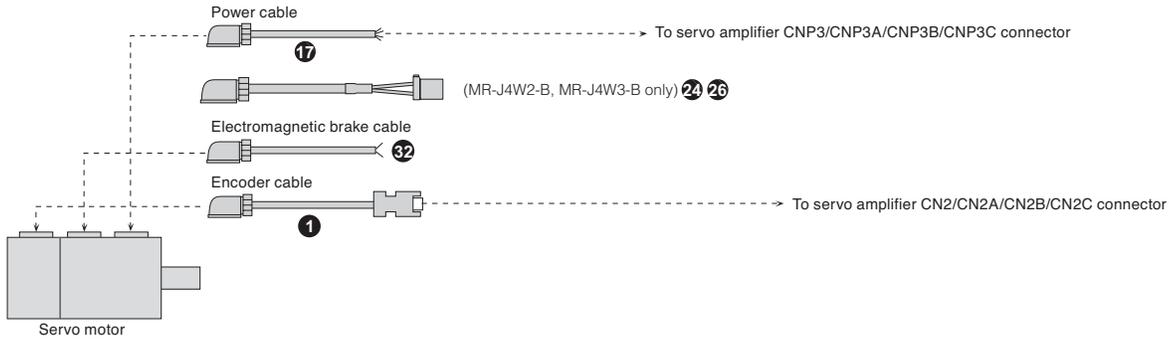
| Item | Model Number | Stocked Lengths | Protection Level | Description |
|------|---|-----------------|------------------|---|
| 26 | Short-Circuit Connector For MR-J4-A/MR-J4-B/ MR-J4W2-B/MR-J4W3-B Supplied with Amplifier | - | - |  |
| 27 | STO Cable MR-D05UDL- _M _ = cable length 0.3, 1, 3m | 0.3, 1, 3 | - |  |
| 28 | STO Cable For Connecting Servo Amplifier with MRJ3-D05 or Other Safety Control Device MR-D05UDL3M-B | 3m | - |  |

For CN9 AND CN10

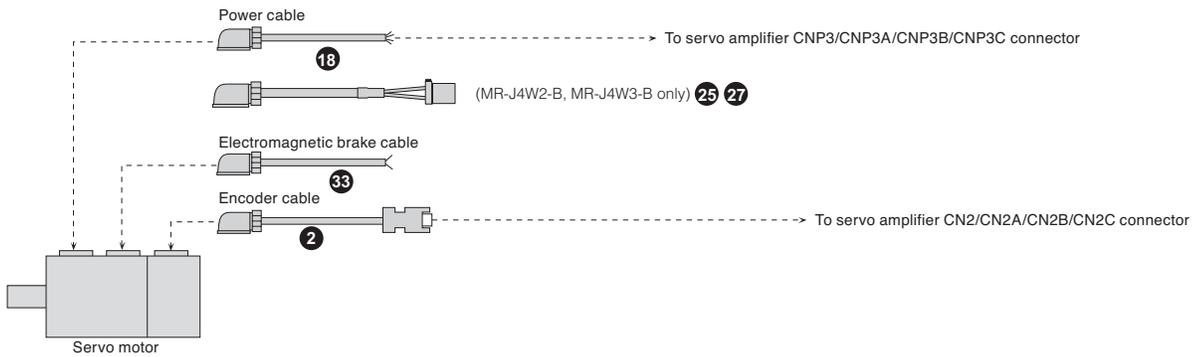
| Item | Model Number | Stocked Lengths | Protection Level | Description |
|------|--|-----------------|------------------|---|
| 29 | CN9 Connector (Standard accessory of MR-J3-D05) | - | - |  |
| 30 | CN10 Connector (Standard accessory of MR-J3-D05) | 3m | - |  |

C. Servo Motor Cables and Connectors

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

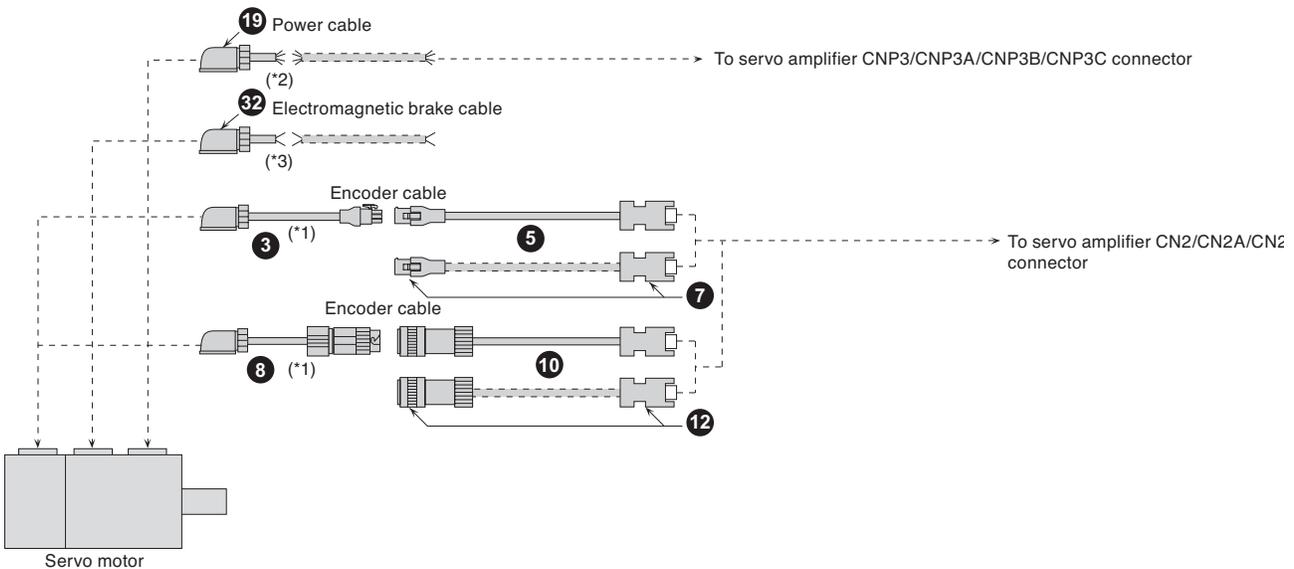


For HG-KR/HG-MR Servo Motor Series: Encoder Cable Length 10m or Shorter
 For leading the cables out in opposite direction of load side (*1)

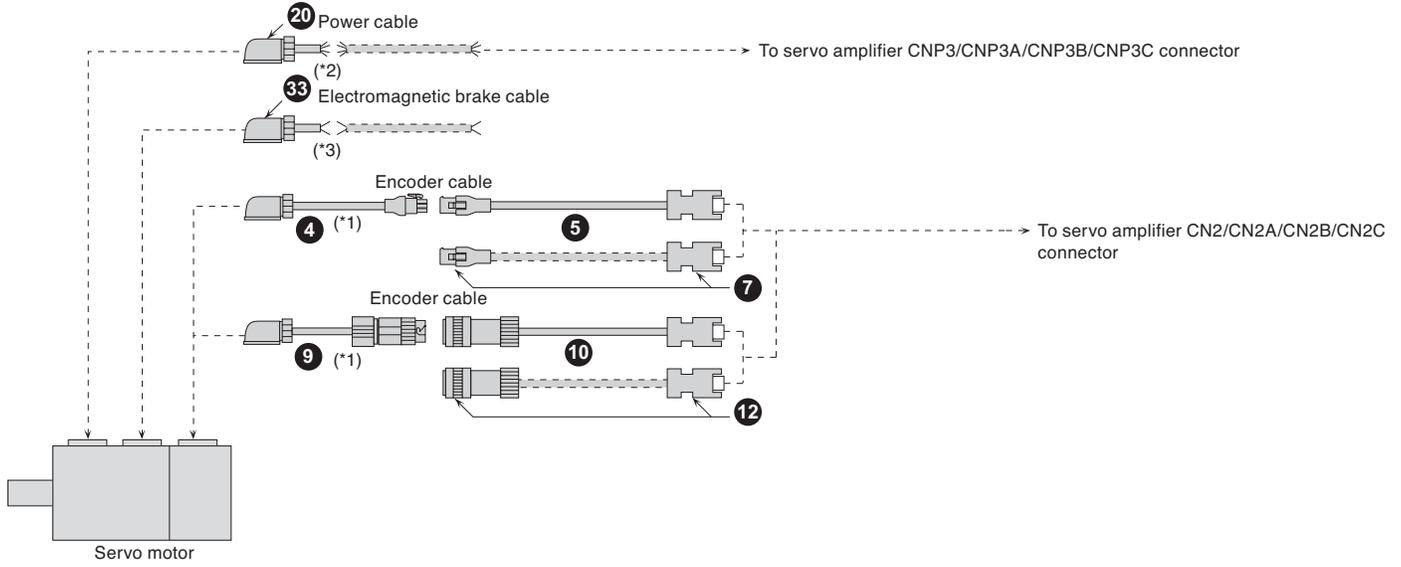


Note: Cables for leading two different directions may be used for one servo motor.

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



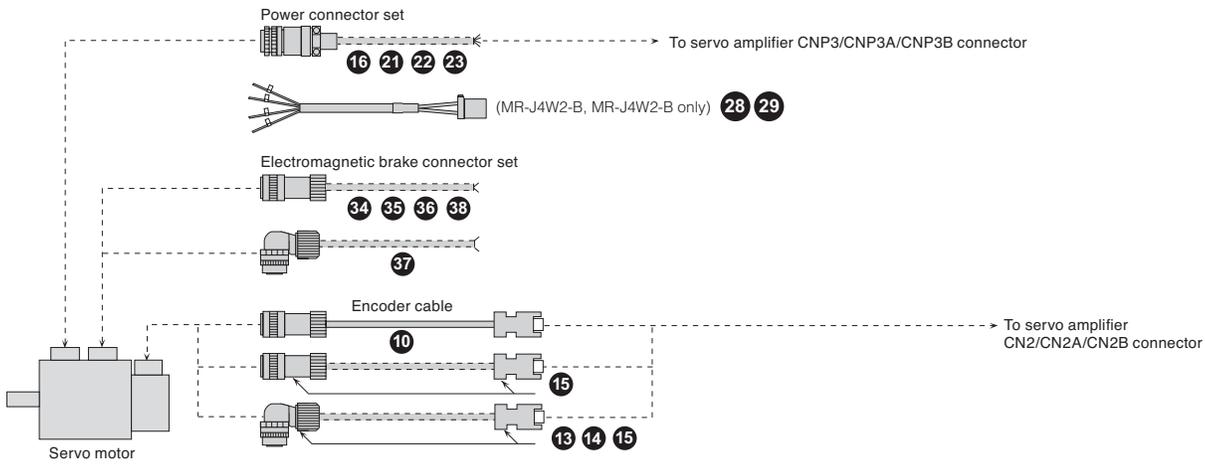
For HG-KR/HG-MR Servo Motor Series: Encoder Cable Length Over 10m
 For leading the cables out in opposite direction of load side (*4)



Notes:

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

For HG-SR Servo Motor Series



Encoder Cables and Connectors

| Item | | Model Number (_ = cable length in meters) | Stocked Lengths | Protection Level | Diagram |
|------|---|---|------------------|------------------|---------|
| ① | Encoder Cable 10m or Shorter (Direct Connection Type) (*2) | Lead Out in Direction of Motor Shaft For HG-KR/HG-MR MR-J3ENCBL_M-A1-H = 2, 5 or 10 (*1) | 2, 5, 10 | IP65 | |
| | | MR-J3ENCBL_M-A1-L = 2, 5, or 10 (*1) | 2, 5, 10 | IP65 | |
| ② | | Lead Out in Opposite Direction of Motor Shaft For HG-KR/HG-MR MR-J3ENCBL_M-A2-H = 2, 5, or 10 (*1) | 2, 5, 10 | IP65 | |
| | | MR-J3ENCBL_M-A2-L = 2, 5, or 10 (*1) | 2, 5, 10 | IP65 | |
| ③ | Encoder Cable. (Junction Type) Use This In Combination With (5) or (7). (*2) | Lead Out in Direction of Motor Shaft For HG-KR/HG-MR MR-J3JCBLO3M-A1-L cable length 0.3 (*1) | S | IP20 | |
| ④ | | Lead Out in Opposite Direction of Motor Shaft For HG-KR/HG-MR MR-J3JCBLO3M-A2-L cable length 0.3 (*1) | S | IP20 | |
| ⑤ | Encoder Cable. Use This In Combination With (3) or (4). | For HG-KR/HG-MR (Junction Type) MR-EKCBL_M-H = 20, 30, 40, or 50 (*1, *3) | 20, 30 | IP20 | |
| | | MR-EKCBL_M-L = 20 or 30 (*1, *3) | - | IP20 | |
| ⑦ | For Connecting Linear Encoder (*5) | Amplifier-Side Connector (Junction Type) MR-ECNM | S | IP20 | |
| ⑧ | Exceeding 10m (Relay Type) Use this in combination with (10) or (11). | For HG-KR/HG-MR (Junction Type) MR-J3JSCBLO3M-A1-L Cable length 0.3m (*1, *3) | S | IP65 (*4) | |
| ⑨ | | For HG-KR/HG-MR (Junction Type) MR-J3JSCBLO3M-A2-L Cable length 0.3m (*1) | S | IP65 (*4) | |
| ⑩ | Encoder Cable (*2) For HG-KR/HG-MR (Junction Type) For HG-SR (Direct Connection Type) Use this in combination with (8) or (9) for HG-KR/HG-MR Series. | MR-J3ENSCBL_M-H = cable length 2, 5, 10, 20, 30, 40, 50m (*1) | 2, 5, 10, 20, 30 | IP67 | |
| | | MR-J3ENSCBL_M-L = cable length 2, 5, 10, 20, 30m (*1) | 2, 5 | IP67 | |
| ⑪ | Encoder Connector Set (One-Touch Connection Type) For HG-KR/HG-MR (Junction Type) For HG-SR (Direct Connection Type) (Straight Type) | MR-J3SCNS | S | IP67 | |
| ⑫ | Encoder Connector Set (Screw Type) (*2, *3, *6, *7) For HG-SR (Straight Type) | MR-ENCNS2 | S | IP67 | |
| ⑬ | Encoder Connector Set (One-Touch Connection Type) For HG-SR (Angle Type) (*2, *7) | MR-J3SCNSA | S | IP67 | |
| ⑭ | Encoder Connector Set (Screw Type) (*2, *3, *6, *7) For HG-SR (Angle Type) | MR-ENCNS2A | S | IP67 | |
| ⑮ | CN2 Connector Only | MR-J3CN2 | S | - | |

Notes:

- The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/servo motor. If the IP rating of the servo amplifier/servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
- H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.
- This encoder cable is available in four-wire type. Parameter setting is required to use the four-wire type encoder cable. Refer to relevant Servo Amplifier Instruction Manual for more details.
- The encoder cable is rated IP65 while the junction connector itself is rated IP67.
- MR-EKCBL_M-H and MR-ECNM can be connected to an output cable for Mitutoyo Corporation scale AT343A, AT543A-SC or AT545A-SC.
- A screw thread is cut on the encoder connector of HG-SR series, and the screw type connector can be used.
- Cable clamps and bushings for cable OD of 5.5 mm to 7.5 mm and of 7.0 mm to 9.0 mm are included in the set.

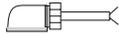
Motor Power Supply Cables

| Item | Motor Model Number | Cable Number (_ = cable length 2, 5, 10, 15, 20, 25, 30 meter) | Stocked Lengths | Protection Level | Description | |
|------|---|--|-----------------|----------------------|-------------|--|
| ⑯ | Standard-Flex, Unshielded Type Cables (Straight Type Connector Only) (*2) | HG-SR51(B), HG-SR52(B) (*1) | MR-J3P1-_M | 2, 5, 10, 20, 30 | IP65 | |
| | | HG-SR81(B), HG-SR102(B), HG-SR152(B) (*1) | MR-J3P2-_M | | | |
| | | HG-SR121(B), HG-SR201(B), HG-SR202(B) (*1) | MR-J3P4-_M | | | |
| | | HG-SR502(B) (*1) | MR-J3P6-_M | | | |
| | | HG-SR421(B), HG-SR702(B) (*1) | MR-J3P7-_M | | | |
| | | HG-SR301(B), HG-SR352(B) (*1) | MR-J3P8-_M | | | |
| | High-Flex, Shielded Type Cables (Straight Type Connector Only) (*2) | HG-SR51(B), HG-SR52(B), HG-SR152(B) (*1) | MR-J3PWS1-_M | 2, 5, 10, 15, 20, 30 | IP67 | |
| | | HG-SR81(B), HG-SR102(B) (*1) | MR-J3PWS2-_M | | | |
| | | HG-SR121(B), HG-SR201(B), HG-SR202(B) (*1) | MR-J3PWS4-_M | | | |
| | | HG-SR502(B) (*1) | MR-J3PWS6-_M | | | |
| | HG-SR421(B), HG-SR702(B) (*1) | MR-J3PWS7-_M | | | | |
| | HG-SR301(B), HG-SR352(B) (*1) | MR-J3PWS9-_M | | | | |

Notes:

- Must order separate brake cable for these motors.

Motor Power Supply Cables

| Item | | | Model Number | Stocked Lengths | Protection Level (*1) | Description |
|------|---|--|--|-----------------|-----------------------|---|
| 17 | 10m Or Shorter (Direct Connection Type) | Power Supply Cable For HG-KR/HG-MR. Lead Out In Direction Of Motor Shaft (Non-Shielded) (*2) | MR-PWS1CBL_M-A1-H (= cable length 2, 5, 10m) (*1) | 2, 5, 10 | IP65 |  |
| | | | MR-PWS1CBL_M-A1-L (= cable length 2, 5, 10m) (*1) | 2, 5, 10 | IP65 | |
| 18 | | Power Supply Cable For HG-KR/HG-MR. Lead Out In Opposite Direction of Motor Shaft (Non-Shielded) (*2) | MR-PWS1CBL_M-A2-H (= cable length 2, 5, 10m) (*1) | 2, 5, 10 | IP65 | |
| | | | MR-PWS1CBL_M-A2-L (= cable length 2, 5, 10m) (*1) | 2, 5, 10 | IP65 | |
| 19 | Exceeding 10m (Relay Type) | Power Supply Cable For HG-KR/HG-MR (Junction Type) Motor Lead Out In Direction Of Motor Shaft (Non-Shielded) (*2) | MR-PWS2CBL03M-A1-L (Cable length 0.3m) | S | IP55 |  |
| 20 | | Power Supply Cable For HG-KR/HG-MR (Junction Type) Motor Lead Out In Opposite Direction Of Motor Shaft (Non-Shielded) (*2) | MR-PWS2CBL03M-A2-L (Cable length 0.3m) | S | IP55 | |
| 21 | Power Connector Set For HG-SR51, 81, 52, 102, 152 | | MR-PWCNS4 (*2) | - | IP67 |  |
| 22 | Power Connector Set For HG-SR121, 201, 301, 202, 352, 502 | | MR-PWCNS5 (*2) | - | IP67 | |
| 23 | Power Connector Set For HG-SR421, 702 | | MR-PWCNS3 (*2) | - | IP67 | |

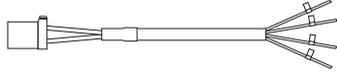
Notes:

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

Power Supply Cable for HF-KP/HF-MP Rotary Servo Motors (Direct Connection Type)

| Item | | | Model (*1) | Stocked Lengths | Protection Level | Description |
|------|--|---|---|-----------------|------------------|-------------|
| 24 |  | Lead Out in Direction of Motor Shaft Standard Bending Life | SC-EPWS1CBL_M-A1-L (= cable length: 2, 5, 10m) | - | - | |
| 25 | | Lead Out in Opposite Direction of Motor Shaft Standard Bending Life | SC-EPWS1CBL_M-A2-L (= cable length: 2, 5, 10m) | - | - | |
| 26 | | Lead Out in Direction of Motor Shaft Long Bending Life | SC-EPWS1CBL_M-A1-H (= cable length: 2, 5, 10m) | 2, 5, 10 | - | |
| 27 | | Lead out in Opposite Direction of Motor Shaft Long Bending Life | SC-EPWS1CBL_M-A2-H (= cable length: 2, 5, 10m) | 2, 5, 10 | - | |

Power Supply Cable for MR-J4W2 and MR-J4W3

| Item | | | Model (*1) | Stocked Lengths | Protection Level | Description |
|------|---|-----------------------|--|-----------------|------------------|-------------|
| 28 |  | Standard Bending Life | SC-EPWS2CBL_M-L (= cable length: 2, 5, 10, 20, 30m) | - | - | |
| 29 | | Long Bending Life | SC-EPWS2CBL_M-H (= cable length: 2, 5, 10, 20, 30m) | 2, 5, 10 | - | |

Note:

- A separate motor-side power supply connector (listed below) is required for HF-SP/HC-LP/HC-UP rotary servo motors.

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

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

Notes:

- The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/servo motor. If the IP rating of the servo amplifier/servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
- H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.
- A screw thread is cut on the electromagnetic brake connector of HG-SR Series and the screw type connector can be used.

Brake Cables for HG-SR Servo Motor Series

| Item | Model Number (_ = cable length 2, 5, 10, 15, 20, 25, 30 Meter) | Stocked Lengths | Protection Level | Diagram | |
|------|--|--------------------|-------------------------|---------|---|
| 34 | Standard-Flex, Unshielded Type Cables | MR-J3BK-_M | 2, 5, 10, 20, 30 | IP65 |  |
| | High-Flex, Shielded Type Cables | MR-J3BRKS1-_M | 2, 5, 10, 15, 20, 30 | IP65 |  |

Brake Connector Set

| Item | Model Number | Stocked Lengths | Protection Level (*1) | Diagram | |
|------|--|--------------------|--------------------------|---------|---|
| 35 | Electromagnetic Brake Connector Set (One-Touch Connection Type) For HG-SR (Straight Type) | MR-BKCNS1 | S | IP67 |  |
| 36 | Electromagnetic Brake Connector Set (Screw Type) For HG-SR (Straight Type) (*3) | MR-BKCNS2 | S | IP67 | |
| 37 | Electromagnetic Brake Connector Set (One-Touch Connection Type) For HG-SR (Angle Type) | MR-BKCNS1A | S | IP67 |  |
| 38 | Electromagnetic Brake Connector Set (Screw type) For HG-SR (Angle Type) (*3) | MR-BKCNS1A | S | IP67 |  |

Notes:

- The IP rating indicated is for the connector's protection against ingress of dust and water when coupled to a servo amplifier/servo motor. If the IP rating of the servo amplifier/servo motor differs from that of these connectors, overall IP rating depends on the lowest of all.
- H and -L indicate a bending life. -H indicates a long bending life, and -L indicates a standard bending life.
- A screw thread is cut on the electromagnetic brake connector of HG-SR Series and the screw type connector can be used.

D. Software and Manuals

Servo Support Software • (MRJW3-MOTSZ111E)

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.

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

Manuals

| Hardware Description | Model Number | Stocked Item |
|---------------------------|----------------|--------------|
| MR-J4B Instruction Manual | SH(NA)030106-A | MEAU.com |
| MR-J4A Instruction Manual | SH(NA)030107-A | MEAU.com |
| MR-J4W Instruction Manual | SH(NA)030105-A | MEAU.com |

| Description | Model Number | Stocked Item |
|--------------------------------|------------------|-----------------|
| Windows Communication Software | MR-CONFIGURATOR2 | S |
| Communication Cable | MR-J3USBCBL3M | S |

E. System Options

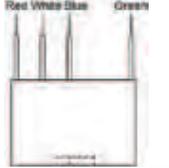
Line Noise Filter

| Servo Amplifier Type | Model Number | Stocked Item | Description |
|---|--------------|--------------|---|
| MR-J4 For wire size 3.5mm ² (AWG12) or smaller | FR-BSF01 | S |  |
| MR-J4 For wire size 5.5mm ² (AWG10) or larger | FR-BLF | S | |

Extension I/O Unit

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

Radio Noise Filter

| Servo Amplifier Type | Model Number | Stocked Item | Description |
|----------------------|--------------|--------------|---|
| All J4 Models | FR-BIF | S |  |

Manual Pulse Generator

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

EMC Filter (*1)

| Servo Amplifier Type | Model Number | Stocked Item | Description |
|--|------------------|--------------|---|
| MR-J4-10A/B to 100A/B MR-J4W2-22B MR-J4W3-222B | HF3010A-UN (*1) | - |  |
| MR-J4W2-44B | HF3010A-UN2 (*1) | - | |
| MR-J4-200A/B, 350A/B MR-J4W2-77B, 1010B MR-J4W3-444B | HF3030A-UN (*1) | - | |
| MR-J4-500A/B, 700A/B | HF3040A-UN (*1) | - | |

Note: Contact MEAU for additional filter opportunities.

1. Manufactured by Soshin Electric Co., Ltd. A surge protector is separately required to use this EMC filter. Refer to "EMC Installation Guidelines."

20 Pin Terminal Block (*1)

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

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

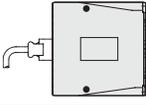
Power Factor Improving DC Reactor

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

Power Factor Improving AC Reactor

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

Battery

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

Optional Regeneration Resistors

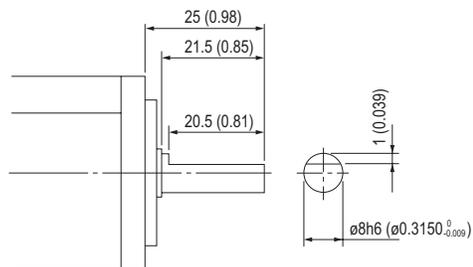
| Servo Amplifier Model MR-J4_ | Built-in Regenerative Resistor/Tolerable Regenerative Power (W) | Optional Regeneration Resistors/Tolerable Regenerative Power (W) (*2) | | | | | | | | | | |
|------------------------------|---|---|----------|----------|---------|-----------|----------|---------------|--------------|----------------|----------|----------|
| | | MR-RB | | | | | | | | | | |
| | | 032 (40Ω) | 12 (40Ω) | 30 (13Ω) | 3N (9Ω) | 31 (6.7Ω) | 32 (40Ω) | 50 (13Ω) (*1) | 5N (9Ω) (*1) | 51 (6.7Ω) (*1) | 14 (26Ω) | 34 (26Ω) |
| Stocked Item | - | S | S | S | S | S | S | S | S | S | - | - |
| MR-J4-10A/B | - | 30 | - | - | - | - | - | - | - | - | - | - |
| MR-J4-20A/B | 10 | 30 | 100 | - | - | - | - | - | - | - | - | - |
| MR-J4-40A/B | 10 | 30 | 100 | - | - | - | - | - | - | - | - | - |
| MR-J4-60A/B | 10 | 30 | 100 | - | - | - | - | - | - | - | - | - |
| MR-J4-70A/B | 20 | 30 | 100 | - | - | - | 300 | - | - | - | - | - |
| MR-J4-100A/B | 20 | 30 | 100 | - | - | - | 300 | - | - | - | - | - |
| MR-J4-200A/B | 100 | - | - | 300 | - | - | - | 500 | - | - | - | - |
| MR-J4-350A/B | 100 | - | - | - | 300 | - | - | - | 500 | - | - | - |
| MR-J4-500A/B | 130 | - | - | - | - | 300 | - | - | - | 500 | - | - |
| MR-J4-700A/B | 170 | - | - | - | - | 300 | - | - | - | 500 | - | - |
| MR-J4W2-22B | 20 | - | - | - | - | - | - | - | - | - | 100 | - |
| MR-J4W2-44B | 20 | - | - | - | - | - | - | - | - | - | 100 | - |
| MR-J4W2-77B | 100 | - | - | - | 300 | - | - | - | - | - | - | - |
| MR-J4W2-1010B | 100 | - | - | - | 300 | - | - | - | - | - | - | - |
| MR-J4W3-222B | 30 | - | - | - | - | - | - | - | - | - | 100 | 300 |
| MR-J4W3-444B | 30 | - | - | - | - | - | - | - | - | - | 100 | 300 |

Notes:

1. Be sure to cool the unit forcibly with a cooling fan (92 mm × 92 mm, minimum air flow: 1.0 m³/min). The cooling fan must be prepared by user.
2. The power values in this table are resistor-generated powers, not rated powers

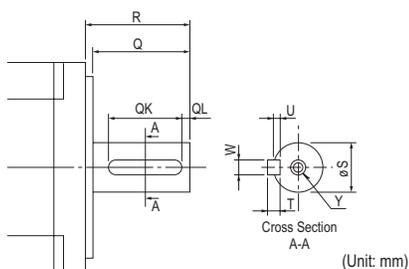
MR-J4 Motor Shaft Details and Servomotor Dimensions

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



Unit: mm (inch)

Keyway With Key Included

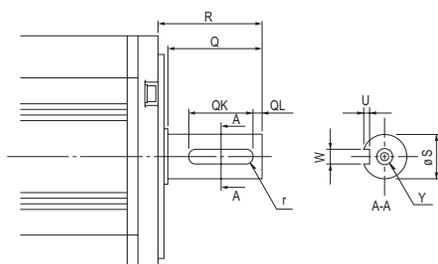


| Motor Model | Capacity (W) | Variable Dimensions | | | | | | | | |
|-------------|--------------|---------------------|---------------|-----------|----|----------|-----------|----------|------------|--------------------|
| | | T | S | R | Q | W | QK | QL | U | Y |
| HG-KR_K | 23(B), 43(B) | 5 (0.20)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

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

HG-SR Series

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

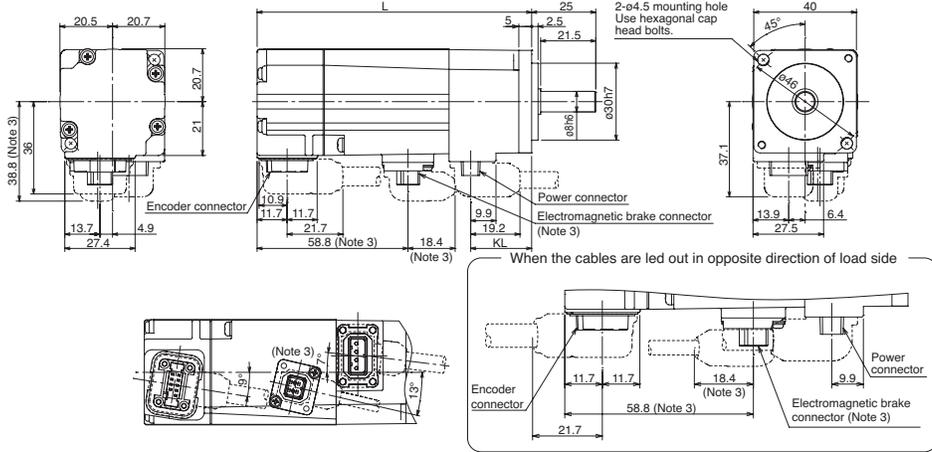


| Motor Model | Capacity (W) | Variable Dimensions | | | | | | | | | Key Dimensions | Key Model Number | Stocked Item | |
|-------------|--------------------------------|----------------------------------|----|----|-----------------------------------|----|----------|--------------------------------|---|---|-------------------|------------------|-----------------|---|
| | | S | R | Q | W | QK | QL | U | r | Y | | | | |
| HG-SR_K | 51(B), 81(B) | 14h6 (0.554) | 55 | 50 | 8 ⁰ _{-0.030} | 36 | 5 (0.20) | 4 ^{+0.2} ₀ | 4 | 4 | M8 screw depth 20 | 8x7x28 | MTR KEY 8-7-28 | S |
| | 121(B), 201(B), 301(B), 421(B) | 35 ^{+0.01} ₀ | 79 | 75 | 10 ⁰ _{-0.030} | 55 | 5 (0.20) | 5 ^{+0.2} ₀ | 5 | 5 | | 10x8x45 | MTR KEY 10-8-45 | S |

| Motor Model | Capacity (W) | Variable Dimensions | | | | | | | | | Key Dimensions | Key Model Number | Stocked Item | |
|-------------|--------------------------------|----------------------------------|----|----|-----------------------------------|----|----------|--------------------------------|---|---|-------------------|------------------|-----------------|---|
| | | S | R | Q | W | QK | QL | U | r | Y | | | | |
| HG-SR_K | 52(B), 102(B), 152(B) | 14h6 (0.554) | 55 | 50 | 8 ⁰ _{-0.030} | 36 | 5 (0.20) | 4 ^{+0.2} ₀ | 4 | 4 | M8 screw depth 20 | 8x7x28 | MTR KEY 8-7-28 | S |
| | 202(B), 352(B), 502(B), 702(B) | 35 ^{+0.01} ₀ | 79 | 75 | 10 ⁰ _{-0.030} | 55 | 5 (0.20) | 5 ^{+0.2} ₀ | 5 | 5 | | 10x8x45 | MTR KEY 10-8-45 | S |

HG-KR/HG-MR Series Dimensions (*1, *5, *6)

HG-KR053(B), HG-KR13(B)
HG-MR053(B), HG-MR13(B)



Power connector



| Pin No. | Signal name |
|---------|-------------|
| 1 | ⊕ (PE) |
| 2 | U |
| 3 | V |
| 4 | W |

Electromagnetic brake connector (Note 2)

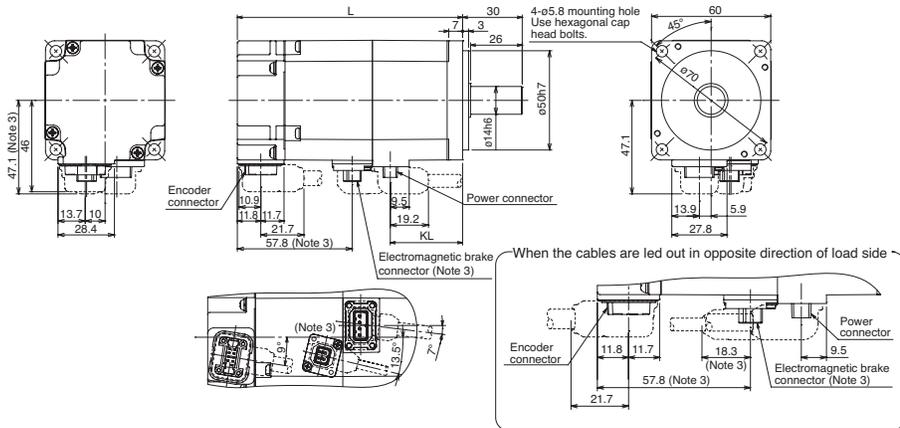


| Pin No. | Signal name |
|---------|-------------|
| 1 | B1 |
| 2 | B2 |

| Model | Variable dimensions (Note 4) | |
|----------------------------|------------------------------|------|
| | L | KL |
| HG-KR053(B) HG-MR053(B) | 66.4 (107) | 23.8 |
| HG-KR13(B) HG-MR13(B) | 82.4 (123) | 39.8 |

[Unit: mm]

HG-KR23(B), HG-KR43(B)
HG-MR23(B), HG-MR43(B)



Power connector



| Pin No. | Signal name |
|---------|-------------|
| 1 | ⊕ (PE) |
| 2 | U |
| 3 | V |
| 4 | W |

Electromagnetic brake connector (Note 2)

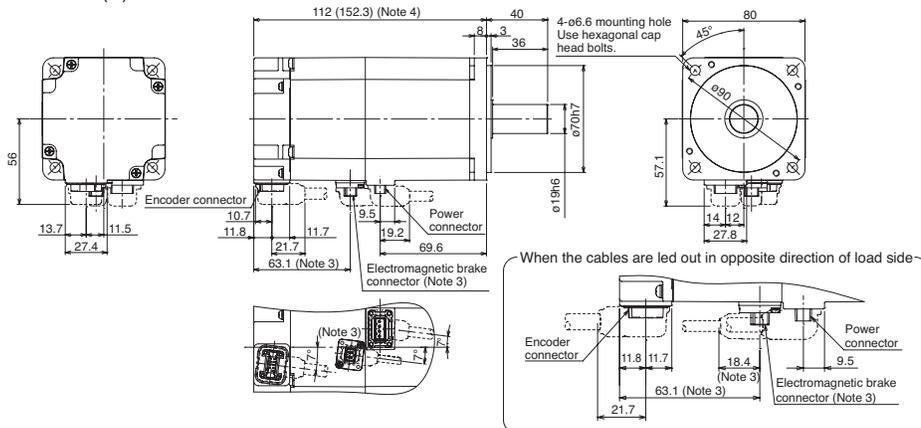


| Pin No. | Signal name |
|---------|-------------|
| 1 | B1 |
| 2 | B2 |

| Model | Variable dimensions (Note 4) | |
|--------------------------|------------------------------|------|
| | L | KL |
| HG-KR23(B) HG-MR23(B) | 76.6 (113.4) | 36.4 |
| HG-KR43(B) HG-MR43(B) | 98.3 (135.1) | 58.1 |

[Unit: mm]

HG-KR73(B)
HG-MR73(B)



Power connector



| Pin No. | Signal name |
|---------|-------------|
| 1 | ⊕ (PE) |
| 2 | U |
| 3 | V |
| 4 | W |

Electromagnetic brake connector (Note 2)



| Pin No. | Signal name |
|---------|-------------|
| 1 | B1 |
| 2 | B2 |

[Unit: mm]

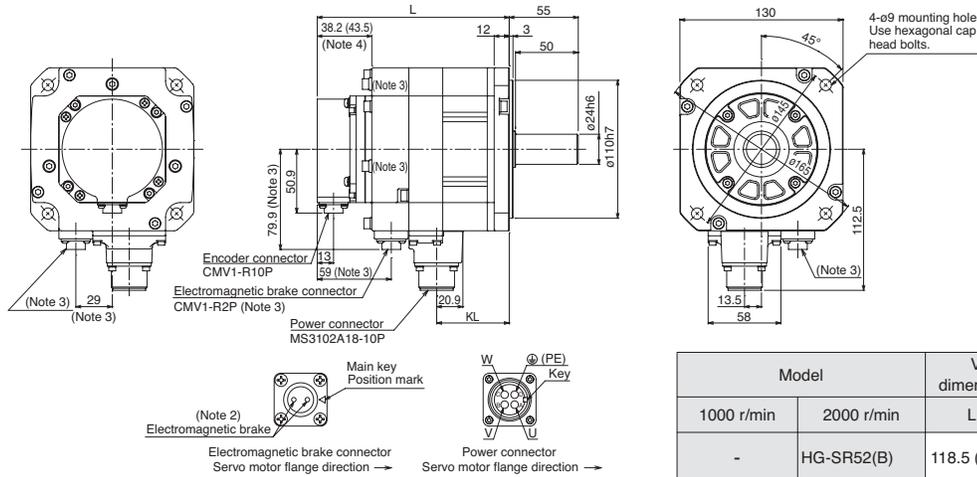
Notes:

- For dimensions without tolerance, general tolerance applies.
- The electromagnetic brake terminals (B1, B2) do not have polarity.
- Only for the models with electromagnetic brake.
- Dimensions inside () are for the models with electromagnetic brake.
- Use a friction coupling to fasten a load.
- Servo motors with oil seal (HG-KR_J and HG-MR_J) have different dimensions. Contact your local sales office for more details.

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

HG-SR51(B), HG-SR81(B)

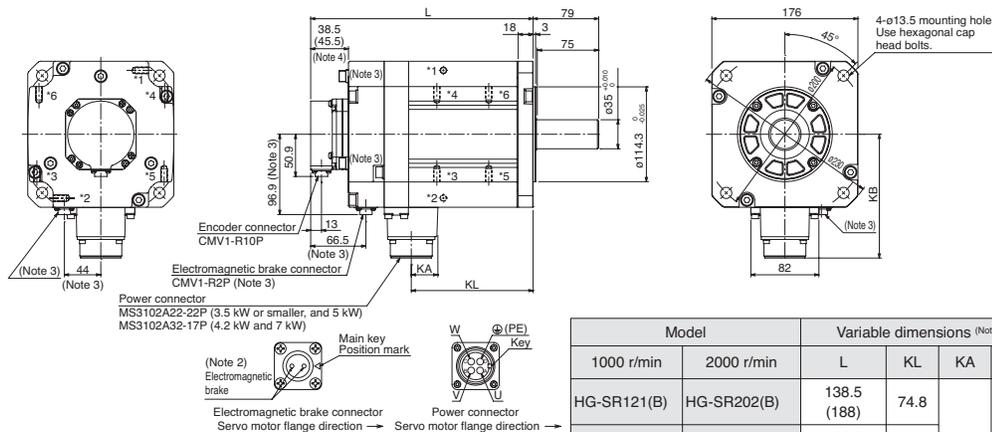
HG-SR52(B), HG-SR102(B), HG-SR152(B)



| Model | | Variable dimensions (Note 4) | |
|------------|-------------|------------------------------|------|
| 1000 r/min | 2000 r/min | L | KL |
| - | HG-SR52(B) | 118.5 (153) | 57.8 |
| HG-SR51(B) | HG-SR102(B) | 132.5 (167) | 71.8 |
| HG-SR81(B) | HG-SR152(B) | 146.5 (181) | 85.8 |

[Unit: mm]

HG-SR121(B), HG-SR201(B), HG-SR301(B), HG-SR421(B)
HG-SR202(B), HG-SR352(B), HG-SR502(B), HG-SR702(B)



| Model | | Variable dimensions (Note 4) | | | |
|-------------|-------------|------------------------------|-------|------|-------|
| 1000 r/min | 2000 r/min | L | KL | KA | KB |
| HG-SR121(B) | HG-SR202(B) | 138.5 (188) | 74.8 | | |
| HG-SR201(B) | HG-SR352(B) | 162.5 (212) | 98.8 | 24.8 | 140.9 |
| HG-SR301(B) | HG-SR502(B) | 178.5 (228) | 114.8 | | |
| HG-SR421(B) | HG-SR702(B) | 218.5 (268) | 146.8 | 32 | 149.1 |

[Unit: mm]

*1, *2, *3, *4, *5 and *6 are screw (M8) holes for eyebolt.

*HG-SR201(B): *301(B), *352(B), *502(B); *1, *2

*HG-SR421(B), *702(B): *3, *4, *5, *6