# Precautions for replacing MR-J2 series with MR-J4 series

## 1. OUTLINE

This document describes the changes that are applied to when replacing a system using the MR-J2 series with a system using the MR-J4 series. The functions and performance of the MR-J4 series are greatly improved from the MR-J2 series. The mounting dimensions for the 1 kW or less capacities are interchangeable, but the mounting screw position (pitch) for the 2 kW to 3.5 kW capacities has been changed.

## 2. REPLACEMENT MODEL

- This section shows the basic models recommended for replacing the amplifier and motor as a set.

### ■ Servo amplifier

| Series | Model | Example of replacement model | Attachment compatibility (○: Compatible) | Precautions |
|---|---|---|---|---|
| 3-phase 200 V general-purpose interface | MR-J2-10A | MR-J4-10A | ○ | Refer to Section 3 or later for the detailed specifications and differences in functions. |
| | MR-J2-20A | MR-J4-20A | ○ | |
| | MR-J2-40A | MR-J4-40A | ○ | |
| | MR-J2-60A | MR-J4-60A | ○ | |
| | MR-J2-70A | MR-J4-70A | ○ | |
| | MR-J2-100A | MR-J4-100A | ○ | |
| | MR-J2-200A | MR-J4-200A | Note 1 | |
| | MR-J2-350A | MR-J4-350A | Note 1 | |
| 3-phase 200 V SSCNET interface | MR-J2-10B | MR-J4-10B | ○ | |
| | MR-J2-20B | MR-J4-20B | ○ | |
| | MR-J2-40B | MR-J4-40B | ○ | |
| | MR-J2-60B | MR-J4-60B | ○ | |
| | MR-J2-70B | MR-J4-70B | ○ | |
| | MR-J2-100B | MR-J4-100B | ○ | |
| | MR-J2-200B | MR-J4-200B | Note 1 | |
| | MR-J2-350B | MR-J4-350B | Note 1 | |

Note 1: Refer to the comparison of servo amplifier dimensions below for dimensions of mounting holes.

<Servo amplifier dimensions>

The following table shows comparison of the MR-J2 series and MR-J4 series dimensions. The height and width of the MR-J4 series are the same or smaller than the MR-J2 series. Please note the following when replacing: The depth is larger for the 400 W and 600 W capacities. For the mounting dimensions, the 1 kW or less capacity types are interchangeable. The number of mounting screws will be changed for the 2 kW and 3.5 kW capacities.

**Comparison of dimensions (comparison between the same capacity types) Unit: mm**

| Model MR-J2 series | Model MR-J4 series | Height | | Width | | Depth | | Mounting screw pitch | |
|---|---|---|---|---|---|---|---|---|---|
| | | MR-J2 | MR-J4 | MR-J2 | MR-J4 | MR-J2 | MR-J4 | MR-J2 | MR-J4 |
| MR-J2-10(A/B) | MR-J4-10(A/B) | 168 | 168 | 50 | **40** | 135 | 135 | 156 (Vertical) (2 places) | 156 (Vertical) (2 places) |
| MR-J2-20(A/B) | MR-J4-20(A/B) | | | | | | | | |
| MR-J2-40(A/B) | MR-J4-40(A/B) | | | 70 | | | **170** (Note 1) | | |
| MR-J2-60(A/B) | MR-J4-60(A/B) | | | | | | | | |
| MR-J2-70(A/B) | MR-J4-70(A/B) | | | | **60** | 190 | **185** | 156 (Vertical)/42 (Horizontal) (3 places) | 156 (Vertical)/42 (Horizontal) (3 places) |
| MR-J2-100(A/B) | MR-J4-100(A/B) | | | | | | | | |
| MR-J2-200(A/B) | MR-J4-200(A/B) | | | 90 | 90 | 195 | 195 | 156 (Vertical)/78 (Horizontal) (4 places) | 156 (Vertical)/78 (Horizontal) **(3 places)** (Note 2) |
| MR-J2-350(A/B) | MR-J4-350(A/B) | | | | | | | | |

Note 1: The depth will increase.

Note 2: The number of mounting screws will be changed.

## ■ Servo motor

### 2.1 Servo Motor Replacement Models and Compatibility

This section shows compatibility in mounting of replacement models.
For compatibility of servo motor dimensions, reducer specifications, moment of inertia, connector specifications, torque characteristics, refer to "2.2 Comparison of Servo Motor Specifications".

| Series | Production discontinuation time | Model | Example of replacement model | Compatibility (○: Compatible) | Precautions |
|---|---|---|---|---|---|
| Small capacity, ultra-low inertia HC-MF series Standard/With brake<br><br>(B): With brake | Dec. 2005 | HC-MF053(B) | HG-MR053(B) | ○ | |
| | Dec. 2005 | HC-MF13(B) | HG-MR13(B) | | |
| | Dec. 2005 | HC-MF23(B) | HG-MR23(B) | | |
| | Dec. 2005 | HC-MF43(B) | HG-MR43(B) | | |
| | Dec. 2005 | HC-MF73(B) | HG-MR73(B) | | |
| Small capacity, ultra-low inertia HC-MF series with general reducer (G1)<br><br>(B): With brake | Dec. 2005 | HC-MF053(B)G1 1/5 | HG-KR053(B)G1 1/5 | ○ | ・The HG-MR series does not support the geared model. The geared model is supported with the HG-KR series.<br>・Actual reduction ratio of the reducer marked with ◆ is different. Setting of the electronic gear is required. For details, refer to "2.2.4 Comparison of actual reduction ratios for servo motors with reducer". |
| | Dec. 2005 | HC-MF053(B)G1 1/12 | HG-KR053(B)G1 1/12 | | |
| | Dec. 2005 | HC-MF053(B)G1 1/20 | HG-KR053(B)G1 1/20 | | |
| | Dec. 2005 | HC-MF13(B)G1 1/5 | HG-KR13(B)G1 1/5 | | |
| | Dec. 2005 | HC-MF13(B)G1 1/12 | HG-KR13(B)G1 1/12 | | |
| | Dec. 2005 | HC-MF13(B)G1 1/20 | HG-KR13(B)G1 1/20 | | |
| | Dec. 2005 | HC-MF23(B)G1 1/5 | HG-KR23(B)G1 1/5 | | |
| | Dec. 2005 | HC-MF23(B)G1 1/12 | HG-KR23(B)G1 1/12 ◆ | | |
| | Dec. 2005 | HC-MF23(B)G1 1/20 | HG-KR23(B)G1 1/20 ◆ | | |
| | Dec. 2005 | HC-MF43(B)G1 1/5 | HG-KR43(B)G1 1/5 | | |
| | Dec. 2005 | HC-MF43(B)G1 1/12 | HG-KR43(B)G1 1/12 ◆ | | |
| | Dec. 2005 | HC-MF43(B)G1 1/20 | HG-KR43(B)G1 1/20 ◆ | | |
| | Dec. 2005 | HC-MF73(B)G1 1/5 | HG-KR73(B)G1 1/5 | | |
| | Dec. 2005 | HC-MF73(B)G1 1/12 | HG-KR73(B)G1 1/12 ◆ | | |
| | Dec. 2005 | HC-MF73(B)G1 1/20 | HG-KR73(B)G1 1/20 | | |
| Small capacity, ultra-low inertia HC-MF series with high precision reducer (G2)<br><br>(B): With brake | Dec. 2005 | HC-MF053(B)G2 1/5 | HG-KR053(B)G7 1/5 | (Note 1) | ・The HG-MR series does not support the geared model. The geared model is supported with the HG-KR series. |
| | Dec. 2005 | HC-MF053(B)G2 1/9 | HG-KR053(B)G7 1/11 | | |
| | Dec. 2005 | HC-MF053(B)G2 1/20 | HG-KR053(B)G7 1/21 | | |
| | Dec. 2005 | HC-MF053(B)G2 1/29 | HG-KR053(B)G7 1/33 | | |
| | Dec. 2005 | HC-MF13(B)G2 1/5 | HG-KR13(B)G7 1/5 | | |
| | Dec. 2005 | HC-MF13(B)G2 1/9 | HG-KR13(B)G7 1/11 | | |
| | Dec. 2005 | HC-MF13(B)G2 1/20 | HG-KR13(B)G7 1/21 | | |
| | Dec. 2005 | HC-MF13(B)G2 1/29 | HG-KR13(B)G7 1/33 | | |
| | Dec. 2005 | HC-MF23(B)G2 1/5 | HG-KR23(B)G7 1/5 | | |
| | Dec. 2005 | HC-MF23(B)G2 1/9 | HG-KR23(B)G7 1/11 | | |
| | Dec. 2005 | HC-MF23(B)G2 1/20 | HG-KR23(B)G7 1/21 | | |
| | Dec. 2005 | HC-MF23(B)G2 1/29 | HG-KR23(B)G7 1/33 | | |
| | Dec. 2005 | HC-MF43(B)G2 1/5 | HG-KR43(B)G7 1/5 | | |
| | Dec. 2005 | HC-MF43(B)G2 1/9 | HG-KR43(B)G7 1/11 | | |
| | Dec. 2005 | HC-MF43(B)G2 1/20 | HG-KR43(B)G7 1/21 | | |
| | Dec. 2005 | HC-MF43(B)G2 1/29 | HG-KR43(B)G7 1/33 | | |
| | Dec. 2005 | HC-MF73(B)G2 1/5 | HG-KR73(B)G7 1/5 | | |
| | Dec. 2005 | HC-MF73(B)G2 1/9 | HG-KR73(B)G7 1/11 | | |
| | Dec. 2005 | HC-MF73(B)G2 1/20 | HG-KR73(B)G7 1/21 | | |
| | Dec. 2005 | HC-MF73(B)G2 1/29 | HG-KR73(B)G7 1/33 | | |
| Small capacity, low inertia HA-FF series Standard/With brake<br><br>(B): With brake | Dec. 2005 | HA-FF053(B) | HG-KR053(B) | (Note 1) | ・When the replacement model marked with ◇ is used, the capacity of compatible servo amplifier is different. The MR-J4-70□ servo amplifier is compatible with HG-KR73. |
| | Dec. 2005 | HA-FF13(B) | HG-KR13(B) | | |
| | Dec. 2005 | HA-FF23(B) | HG-KR23(B) | | |
| | Dec. 2005 | HA-FF33(B) | HG-KR43(B) | | |
| | Dec. 2005 | HA-FF43(B) | HG-KR43(B) | | |
| | Dec. 2005 | HA-FF63(B) ◇ | HG-KR73(B) | | |

Note 1: Refer to "2.2.2 Detailed comparison of servo motor mounting dimensions" and "2.2.3 Comparison of mounting dimensions for servo motors with reducer" for mounting dimensions.

Note 2: The power supply and encoder connector will be changed. For details, refer to "2.2.6 Comparison of servo motor connector specifications".

| Series | Production discontinuation time | Model | Example of replacement model | Compatibility (○: Compatible) | Precautions |
|---|---|---|---|---|---|
| Small capacity, low inertia HA-FF series with general reducer (G1)<br><br>(B): With brake | Dec. 2005 | HA-FF053(B)G1 1/5 | HG-KR053(B)G1 1/5 | (Note 1) | ・Actual reduction ratio of the reducer marked with ◆ is different. Setting of the electronic gear is required. For details, refer to "2.2.4 Comparison of actual reduction ratios for servo motors with reducer".<br>・The reduction ratio of the reducer marked with ● is remarkably different. Check the output torque.<br>・When the replacement model marked with ◇ is used, the capacity of compatible servo amplifier is different. The MR-J4-70□ servo amplifier is compatible with HG-KR73. |
| | Dec. 2005 | HA-FF053(B)G1 1/10 | HG-KR053(B)G1 1/12 | | |
| | Dec. 2005 | HA-FF053(B)G1 1/20 | HG-KR053(B)G1 1/20 ◆ | | |
| | Dec. 2005 | HA-FF053(B)G1 1/30 | HG-KR053(B)G1 1/20 ● | | |
| | Dec. 2005 | HA-FF13(B)G1 1/5 | HG-KR13(B)G1 1/5 | | |
| | Dec. 2005 | HA-FF13(B)G1 1/10 | HG-KR13(B)G1 1/12 | | |
| | Dec. 2005 | HA-FF13(B)G1 1/20 | HG-KR13(B)G1 1/20 ◆ | | |
| | Dec. 2005 | HA-FF13(B)G1 1/30 | HG-KR13(B)G1 1/20 ● | | |
| | Dec. 2005 | HA-FF23(B)G1 1/5 | HG-KR23(B)G1 1/5 ◆ | | |
| | Dec. 2005 | HA-FF23(B)G1 1/10 | HG-KR23(B)G1 1/12 | | |
| | Dec. 2005 | HA-FF23(B)G1 1/20 | HG-KR23(B)G1 1/20 ◆ | | |
| | Dec. 2005 | HA-FF23(B)G1 1/30 | HG-KR23(B)G1 1/20 ● | | |
| | Dec. 2005 | HA-FF33(B)G1 1/5 | HG-KR43(B)G1 1/5 ◆ | | |
| | Dec. 2005 | HA-FF33(B)G1 1/10 | HG-KR43(B)G1 1/12 | | |
| | Dec. 2005 | HA-FF33(B)G1 1/20 | HG-KR43(B)G1 1/20 ◆ | | |
| | Dec. 2005 | HA-FF33(B)G1 1/30 | HG-KR43(B)G1 1/20 ● | | |
| | Dec. 2005 | HA-FF43(B)G1 1/5 | HG-KR43(B)G1 1/5 ◆ | | |
| | Dec. 2005 | HA-FF43(B)G1 1/10 | HG-KR43(B)G1 1/12 | | |
| | Dec. 2005 | HA-FF43(B)G1 1/20 | HG-KR43(B)G1 1/20 ◆ | | |
| | Dec. 2005 | HA-FF43(B)G1 1/30 | HG-KR43(B)G1 1/20 ● | | |
| | Dec. 2005 | HA-FF63(B)G1 1/5 ◇ | HG-KR73(B)G1 1/5 ◆ | | |
| | Dec. 2005 | HA-FF63(B)G1 1/10 ◇ | HG-KR73(B)G1 1/12 | | |
| | Dec. 2005 | HA-FF63(B)G1 1/20 ◇ | HG-KR73(B)G1 1/20 ◆ | | |
| | Dec. 2005 | HA-FF63(B)G1 1/30 ◇ | HG-KR73(B)G1 1/20 ● | | |
| Small capacity, low inertia HA-FF series with high precision reducer (G2)<br><br>(B): With brake | Dec. 2005 | HA-FF053(B)G2 1/5 | HG-KR053(B)G7 1/5 | (Note 1) | ・When the replacement model marked with ◇ is used, the capacity of compatible servo amplifier is different. The MR-J4-70□ servo amplifier is compatible with HG-KR73. |
| | Dec. 2005 | HA-FF053(B)G2 1/10 | HG-KR053(B)G7 1/11 | | |
| | Dec. 2005 | HA-FF053(B)G2 1/15 | HG-KR053(B)G7 1/21 | | |
| | Dec. 2005 | HA-FF053(B)G2 1/25 | HG-KR053(B)G7 1/33 | | |
| | Dec. 2005 | HA-FF13(B)G2 1/5 | HG-KR13(B)G7 1/5 | | |
| | Dec. 2005 | HA-FF13(B)G2 1/10 | HG-KR13(B)G7 1/11 | | |
| | Dec. 2005 | HA-FF13(B)G2 1/15 | HG-KR13(B)G7 1/21 | | |
| | Dec. 2005 | HA-FF13(B)G2 1/25 | HG-KR13(B)G7 1/33 | | |
| | Dec. 2005 | HA-FF13(B)G2 1/45 | HG-KR13(B)G7 1/45 | | |
| | Dec. 2005 | HA-FF23(B)G2 1/5 | HG-KR23(B)G7 1/5 | | |
| | Dec. 2005 | HA-FF23(B)G2 1/10 | HG-KR23(B)G7 1/11 | | |
| | Dec. 2005 | HA-FF23(B)G2 1/15 | HG-KR23(B)G7 1/21 | | |
| | Dec. 2005 | HA-FF23(B)G2 1/20 | HG-KR23(B)G7 1/21 | | |
| | Dec. 2005 | HA-FF23(B)G2 1/29 | HG-KR23(B)G7 1/33 | | |
| | Dec. 2005 | HA-FF23(B)G2 1/45 | HG-KR23(B)G7 1/45 | | |
| | Dec. 2005 | HA-FF33(B)G2 1/5 | HG-KR43(B)G7 1/5 | | |
| | Dec. 2005 | HA-FF33(B)G2 1/10 | HG-KR43(B)G7 1/11 | | |
| | Dec. 2005 | HA-FF33(B)G2 1/20 | HG-KR43(B)G7 1/21 | | |
| | Dec. 2005 | HA-FF33(B)G2 1/29 | HG-KR43(B)G7 1/33 | | |
| | Dec. 2005 | HA-FF33(B)G2 1/45 | HG-KR43(B)G7 1/45 | | |
| | Dec. 2005 | HA-FF43(B)G2 1/5 | HG-KR43(B)G7 1/5 | | |
| | Dec. 2005 | HA-FF43(B)G2 1/9 | HG-KR43(B)G7 1/11 | | |
| | Dec. 2005 | HA-FF43(B)G2 1/20 | HG-KR43(B)G7 1/21 | | |
| | Dec. 2005 | HA-FF43(B)G2 1/29 | HG-KR43(B)G7 1/33 | | |
| | Dec. 2005 | HA-FF43(B)G2 1/45 | HG-KR43(B)G7 1/45 | | |
| | Dec. 2005 | HA-FF63(B)G2 1/5 ◇ | HG-KR73(B)G7 1/5 | | |
| | Dec. 2005 | HA-FF63(B)G2 1/9 ◇ | HG-KR73(B)G7 1/11 | | |
| | Dec. 2005 | HA-FF63(B)G2 1/20 ◇ | HG-KR73(B)G7 1/21 | | |
| | Dec. 2005 | HA-FF63(B)G2 1/29 ◇ | HG-KR73(B)G7 1/33 | | |
| | Dec. 2005 | HA-FF63(B)G2 1/45 ◇ | HG-KR73(B)G7 1/45 | | |

Note 1: For mounting dimensions, refer to "2.2.3 Comparison of mounting dimensions for servo motors with reducer".

Note 2: The power supply and encoder connector will be changed. For details, refer to "2.2.6 Comparison of servo motor connector specifications".

| Series | Production discontinuation time | Model | Example of replacement model | Compatibility (○: Compatible) | Precautions |
|---|---|---|---|---|---|
| Medium capacity, medium inertia HC-SF series Standard/With brake<br><br>(B): With brake | Dec. 2005 | HC-SF81(B) | HG-SR81(B) | ○ | ・The total length of the motor will be shorter, so confirm that the motor connector does not interfere with the device side.<br>・The HG-SR servo motor does not have an oil seal. Use HG-SR□J when an oil seal is required. |
| | Dec. 2005 | HC-SF121(B) | HG-SR121(B) | | |
| | Dec. 2005 | HC-SF201(B) | HG-SR201(B) | | |
| | Dec. 2005 | HC-SF301(B) | HG-SR301(B) | | |
| | Dec. 2005 | HC-SF52(B) | HG-SR52(B) | | |
| | Dec. 2005 | HC-SF102(B) | HG-SR102(B) | | |
| | Dec. 2005 | HC-SF152(B) | HG-SR152(B) | | |
| | Dec. 2005 | HC-SF202(B) | HG-SR202(B) | | |
| | Dec. 2005 | HC-SF352(B) | HG-SR352(B) | | |
| | Dec. 2005 | HC-SF53(B) | HG-SR52(B) | | |
| | Dec. 2005 | HC-SF103(B) | HG-SR102(B) | | |
| | Dec. 2005 | HC-SF153(B) | HG-SR152(B) | | |
| | Dec. 2005 | HC-SF203(B) | HG-SR202(B) | | |
| | Dec. 2005 | HC-SF353(B) | HG-SR352(B) | | |
| Medium capacity, medium inertia HC-SF series with general reducer (G1)<br><br>(B): With brake<br><br>G1: Flange-mounting<br>G1H: Foot-mounting | Dec. 2005 | HC-SF52(B)G1(H) 1/6 | HG-SR52(B)G1(H) 1/6 | ○ | ・The total length of the motor will be shorter, so confirm that the motor connector does not interfere with the device side. |
| | Dec. 2005 | HC-SF52(B)G1(H) 1/11 | HG-SR52(B)G1(H) 1/11 | | |
| | Dec. 2005 | HC-SF52(B)G1(H) 1/17 | HG-SR52(B)G1(H) 1/17 | | |
| | Dec. 2005 | HC-SF52(B)G1(H) 1/29 | HG-SR52(B)G1(H) 1/29 | | |
| | Dec. 2005 | HC-SF52(B)G1(H) 1/35 | HG-SR52(B)G1(H) 1/35 | | |
| | Dec. 2005 | HC-SF52(B)G1(H) 1/43 | HG-SR52(B)G1(H) 1/43 | | |
| | Dec. 2005 | HC-SF52(B)G1(H) 1/59 | HG-SR52(B)G1(H) 1/59 | | |
| | Dec. 2005 | HC-SF102(B)G1(H) 1/6 | HG-SR102(B)G1(H) 1/6 | | |
| | Dec. 2005 | HC-SF102(B)G1(H) 1/11 | HG-SR102(B)G1(H) 1/11 | | |
| | Dec. 2005 | HC-SF102(B)G1(H) 1/17 | HG-SR102(B)G1(H) 1/17 | | |
| | Dec. 2005 | HC-SF102(B)G1(H) 1/29 | HG-SR102(B)G1(H) 1/29 | | |
| | Dec. 2005 | HC-SF102(B)G1(H) 1/35 | HG-SR102(B)G1(H) 1/35 | | |
| | Dec. 2005 | HC-SF102(B)G1(H) 1/43 | HG-SR102(B)G1(H) 1/43 | | |
| | Dec. 2005 | HC-SF102(B)G1(H) 1/59 | HG-SR102(B)G1(H) 1/59 | | |
| | Dec. 2005 | HC-SF152(B)G1(H) 1/6 | HG-SR152(B)G1(H) 1/6 | | |
| | Dec. 2005 | HC-SF152(B)G1(H) 1/11 | HG-SR152(B)G1(H) 1/11 | | |
| | Dec. 2005 | HC-SF152(B)G1(H) 1/17 | HG-SR152(B)G1(H) 1/17 | | |
| | Dec. 2005 | HC-SF152(B)G1(H) 1/29 | HG-SR152(B)G1(H) 1/29 | | |
| | Dec. 2005 | HC-SF152(B)G1(H) 1/35 | HG-SR152(B)G1(H) 1/35 | | |
| | Dec. 2005 | HC-SF152(B)G1(H) 1/43 | HG-SR152(B)G1(H) 1/43 | | |
| | Dec. 2005 | HC-SF152(B)G1(H) 1/59 | HG-SR152(B)G1(H) 1/59 | | |
| | Dec. 2005 | HC-SF202(B)G1(H) 1/6 | HG-SR202(B)G1(H) 1/6 | | |
| | Dec. 2005 | HC-SF202(B)G1(H) 1/11 | HG-SR202(B)G1(H) 1/11 | | |
| | Dec. 2005 | HC-SF202(B)G1(H) 1/17 | HG-SR202(B)G1(H) 1/17 | | |
| | Dec. 2005 | HC-SF202(B)G1(H) 1/29 | HG-SR202(B)G1(H) 1/29 | | |
| | Dec. 2005 | HC-SF202(B)G1(H) 1/35 | HG-SR202(B)G1(H) 1/35 | | |
| | Dec. 2005 | HC-SF202(B)G1(H) 1/43 | HG-SR202(B)G1(H) 1/43 | | |
| | Dec. 2005 | HC-SF202(B)G1(H) 1/59 | HG-SR202(B)G1(H) 1/59 | | |
| | Dec. 2005 | HC-SF352(B)G1(H) 1/6 | HG-SR352(B)G1(H) 1/6 | | |
| | Dec. 2005 | HC-SF352(B)G1(H) 1/11 | HG-SR352(B)G1(H) 1/11 | | |
| | Dec. 2005 | HC-SF352(B)G1(H) 1/17 | HG-SR352(B)G1(H) 1/17 | | |
| | Dec. 2005 | HC-SF352(B)G1(H) 1/29 | HG-SR352(B)G1(H) 1/29 | | |
| | Dec. 2005 | HC-SF352(B)G1(H) 1/35 | HG-SR352(B)G1(H) 1/35 | | |
| | Dec. 2005 | HC-SF352(B)G1(H) 1/43 | HG-SR352(B)G1(H) 1/43 | | |
| | Dec. 2005 | HC-SF352(B)G1(H) 1/59 | HG-SR352(B)G1(H) 1/59 | | |

Note 1: The power supply and encoder connector will be changed. For details, refer to "2.2.6 Comparison of servo motor connector specifications".

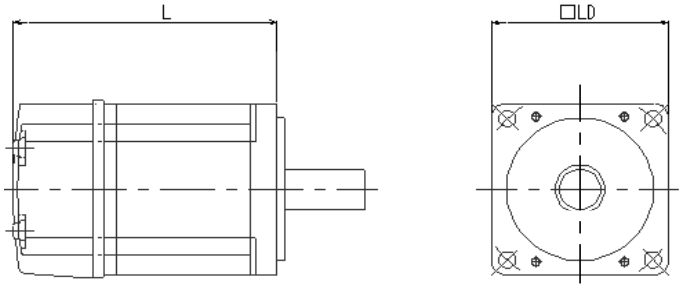
| Series | Production discontinuation time | Model | Example of replacement model | Compatibility (○: Compatible) | Precautions |
|---|---|---|---|---|---|
| Medium capacity, medium inertia HC-SF series with high precision reducer (G2)<br><br>(B): With brake | Dec. 2005 | HC-SF52(B)G2 1/5 | HG-SR52(B)G7 1/5 | (Note 1) | ・The total length of the motor will be shorter, so confirm that the motor connector does not interfere with the device side. |
| | Dec. 2005 | HC-SF52(B)G2 1/9 | HG-SR52(B)G7 1/11 | | |
| | Dec. 2005 | HC-SF52(B)G2 1/20 | HG-SR52(B)G7 1/21 | | |
| | Dec. 2005 | HC-SF52(B)G2 1/29 | HG-SR52(B)G7 1/33 | | |
| | Dec. 2005 | HC-SF52(B)G2 1/45 | HG-SR52(B)G7 1/45 | | |
| | Dec. 2005 | HC-SF102(B)G2 1/5 | HG-SR102(B)G7 1/5 | | |
| | Dec. 2005 | HC-SF102(B)G2 1/9 | HG-SR102(B)G7 1/11 | | |
| | Dec. 2005 | HC-SF102(B)G2 1/20 | HG-SR102(B)G7 1/21 | | |
| | Dec. 2005 | HC-SF102(B)G2 1/29 | HG-SR102(B)G7 1/33 | | |
| | Dec. 2005 | HC-SF102(B)G2 1/45 | HG-SR102(B)G7 1/45 | | |
| | Dec. 2005 | HC-SF152(B)G2 1/5 | HG-SR152(B)G7 1/5 | | |
| | Dec. 2005 | HC-SF152(B)G2 1/9 | HG-SR152(B)G7 1/11 | | |
| | Dec. 2005 | HC-SF152(B)G2 1/20 | HG-SR152(B)G7 1/21 | | |
| | Dec. 2005 | HC-SF152(B)G2 1/29 | HG-SR152(B)G7 1/33 | | |
| | Dec. 2005 | HC-SF152(B)G2 1/45 | HG-SR152(B)G7 1/45 | | |
| | Dec. 2005 | HC-SF202(B)G2 1/5 | HG-SR202(B)G7 1/5 | | |
| | Dec. 2005 | HC-SF202(B)G2 1/9 | HG-SR202(B)G7 1/11 | | |
| | Dec. 2005 | HC-SF202(B)G2 1/20 | HG-SR202(B)G7 1/21 | | |
| | Dec. 2005 | HC-SF202(B)G2 1/29 | HG-SR202(B)G7 1/33 | | |
| | Dec. 2005 | HC-SF202(B)G2 1/45 | HG-SR202(B)G7 1/45 | | |
| | Dec. 2005 | HC-SF352(B)G2 1/5 | HG-SR352(B)G7 1/5 | | |
| | Dec. 2005 | HC-SF352(B)G2 1/9 | HG-SR352(B)G7 1/11 | | |
| | Dec. 2005 | HC-SF352(B)G2 1/20 | HG-SR352(B)G7 1/21 | | |
| Medium capacity, ultra-low inertia HC-RF series Standard/With brake<br>(B): With brake | Dec. 2005 | HC-RF103(B) | HG-RR103(B) | ○ | |
| | Dec. 2005 | HC-RF153(B) | HG-RR153(B) | | |
| | Dec. 2005 | HC-RF203(B) | HG-RR203(B) | | |
| Medium capacity, ultra-low inertia HC-RF series with high precision reducer (G2)<br><br>(B): With brake | Dec. 2005 | HC-RF103(B)G2 1/5 ◇ | HG-SR102(B)G7 1/5 | (Note 1) | ・The HG-RR series does not support the geared model. The geared model will be supported with the HG-SR series.<br>・When the replacement model marked with ◇ is used, the capacity of compatible servo amplifier is different. The MR-J4-100□ servo amplifier is compatible with HG-SR102, and the MR-J4-200□ servo amplifier is compatible with HG-SR202. |
| | Dec. 2005 | HC-RF103(B)G2 1/9 ◇ | HG-SR102(B)G7 1/11 | | |
| | Dec. 2005 | HC-RF103(B)G2 1/20 ◇ | HG-SR102(B)G7 1/21 | | |
| | Dec. 2005 | HC-RF103(B)G2 1/29 ◇ | HG-SR102(B)G7 1/33 | | |
| | Dec. 2005 | HC-RF103(B)G2 1/45 ◇ | HG-SR102(B)G7 1/45 | | |
| | Dec. 2005 | HC-RF153(B)G2 1/5 | HG-SR152(B)G7 1/5 | | |
| | Dec. 2005 | HC-RF153(B)G2 1/9 | HG-SR152(B)G7 1/11 | | |
| | Dec. 2005 | HC-RF153(B)G2 1/20 | HG-SR152(B)G7 1/21 | | |
| | Dec. 2005 | HC-RF153(B)G2 1/29 | HG-SR152(B)G7 1/33 | | |
| | Dec. 2005 | HC-RF153(B)G2 1/45 | HG-SR152(B)G7 1/45 | | |
| | Dec. 2005 | HC-RF203(B)G2 1/5 ◇ | HG-SR202(B)G7 1/5 | | |
| | Dec. 2005 | HC-RF203(B)G2 1/9 ◇ | HG-SR202(B)G7 1/11 | | |
| | Dec. 2005 | HC-RF203(B)G2 1/20 ◇ | HG-SR202(B)G7 1/21 | | |
| | Dec. 2005 | HC-RF203(B)G2 1/29 ◇ | HG-SR202(B)G7 1/33 | | |
| | Dec. 2005 | HC-RF203(B)G2 1/45 ◇ | HG-SR202(B)G7 1/45 | | |
| Medium capacity, flat type HC-UF series<br><br>(B): With brake | Dec. 2005 | HC-UF72(B) | HG-UR72(B) | ○ | |
| | Dec. 2005 | HC-UF152(B) | HG-UR152(B) | | |
| | Dec. 2005 | HC-UF202(B) | HG-UR202(B) | | |
| Small capacity, flat type HC-UF series<br>(B): With brake | Dec. 2005 | HC-UF13(B) | HG-KR13(B) | (Note 1) | ・The HG-KR servo motor does not have an oil seal. Use HG-KR□J when an oil seal is required. |
| | Dec. 2005 | HC-UF23(B) | HG-KR23(B) | | |
| | Dec. 2005 | HC-UF43(B) | HG-KR43(B) | | |
| | Dec. 2005 | HC-UF73(B) | HG-KR73(B) | | |

Note 1: Refer to "2.2.2 Detailed comparison of servo motor mounting dimensions" and "2.2.3 Comparison of mounting dimensions for servo motors with reducer" for mounting dimensions.

Note 2: The power supply and encoder connector will be changed. For details, refer to "2.2.6 Comparison of servo motor connector specifications".

## 2.2 Comparison of Servo Motor Specifications

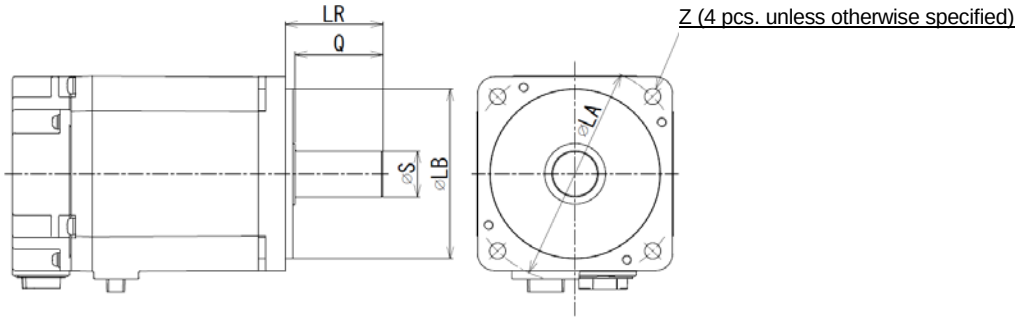
### 2.2.1 Comparison of servo motor mounting dimensions




| Target product | | | Replacement product | | | Precautions |
|---|---|---|---|---|---|---|
| Model | L | LD | Model | L | LD | |
| HC-MF053(B) | 81.5 (109.5) | 40 | HG-MR053(B) | 66.4 (107) | 40 | |
| HC-MF13(B) | 96.5 (124.5) | | HG-MR13(B) | 82.4 (123) | | |
| HC-MF23(B) | 99.5 (131.5) | 60 | HG-MR23(B) | 76.6 (113.4) | 60 | |
| HC-MF43(B) | 124.5 (156.5) | | HG-MR43(B) | 98.3 (135.1) | | |
| HC-MF73(B) | 142 (177.5) | 80 | HG-MR73(B) | 112 (152.3) | 80 | |
| HA-FF053(B) | 106 (141) | 54 | HG-KR053(B) | 66.4 (107) | 40 | No compatibility in mounting. For details, refer to "2.2.2 Detailed comparison of servo motor mounting dimensions". |
| HA-FF13(B) | 123 (158) | | HG-KR13(B) | 82.4 (123) | | |
| HA-FF23(B) | 131 (168) | 76 | HG-KR23(B) | 76.6 (113.4) | 60 | |
| HA-FF33(B) | 148 (186) | | HG-KR43(B) | 98.3 (135.1) | | |
| HA-FF43(B) | 155 (192) | 100 | | | | |
| HA-FF63(B) | 170 (207) | | HG-KR73(B) | 112 (152.3) | 80 | |
| HC-SF81(B) | 170 (203) | 130 | HG-SR81(B) | 146.5 (181) | 130 | |
| HC-SF121(B) | 145 (193) | 176 | HG-SR121(B) | 138.5 (188) | 176 | |
| HC-SF201(B) | 187 (235) | | HG-SR201(B) | 162.5 (212) | | |
| HC-SF301(B) | 208 (256) | | HG-SR301(B) | 178.5 (228) | | |
| HC-SF52(B)<br>HC-SF53(B) | 120 (153) | 130 | HG-SR52(B) | 118.5 (153) | 130 | |
| HC-SF102(B)<br>HC-SF103(B) | 145 (178) | | HG-SR102(B) | 132.5 (167) | | |
| HC-SF152(B)<br>HC-SF153(B) | 170 (203) | | HG-SR152(B) | 146.5 (181) | | |
| HC-SF202(B)<br>HC-SF203(B) | 145 (193) | 176 | HG-SR202(B) | 138.5 (188) | 176 | |
| HC-SF352(B)<br>HC-SF353(B) | 187 (235) | | HG-SR352(B) | 162.5 (212) | | |
| HC-RF103(B) | 147 (185) | 100 | HG-RR103(B) | 145.5 (183) | 100 | |
| HC-RF153(B) | 172 (210) | | HG-RR153(B) | 170.5 (208) | | |
| HC-RF203(B) | 197 (235) | | HG-RR203(B) | 195.5 (233) | | |
| HC-UF72(B) | 110.5 (144) | 176 | HG-UR72(B) | 109 (142.5) | 176 | |
| HC-UF152(B) | 120 (153.5) | | HG-UR152(B) | 118.5 (152) | | |
| HC-UF202(B) | 118 (161) | 220 | HG-UR202(B) | 116.5 (159.5) | 220 | |
| HC-UF13(B) | 70 (100) | 60 | HG-KR13(B) | 82.4 (123) | 40 | No compatibility in mounting. For details, refer to "2.2.2 Detailed comparison of servo motor mounting dimensions". |
| HC-UF23(B) | 77 (111) | 80 | HG-KR23(B) | 76.6 (113.4) | 60 | |
| HC-UF43(B) | 92 (126) | | HG-KR43(B) | 98.3 (135.1) | | |
| HC-UF73(B) | 85 (111) | 123 | HG-KR73(B) | 112 (152.3) | 80 | |

Note 1: As for the dimensions not listed here, refer to the catalog or Instruction Manual. ( ): With brake [Unit: mm]

### 2.2.2 Detailed comparison of servo motor mounting dimensions




| Target product | | | | | | | Replacement product | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Model | LA | LB | LR | Q | S | Z | Model | LA | LB | LR | Q | S | Z |
| HA-FF053(B) | 60 | 50 | 30 | - | 8 | 4.5 | HG-KR13(B) | 46 | 30 | 25 | 21.5 | 8 | 2-4.5 |
| HA-FF13(B) | 60 | 50 | 30 | - | 8 | 4.5 | HG-KR13(B) | 46 | 30 | 25 | 21.5 | 8 | 2-4.5 |
| HA-FF23(B) * Note 2 | 90 | 70 | 30 | 25 | 11 | 5.5 | HG-KR23(B) | 70 | 50 | 30 | 26 | 14 | 5.8 |
| HA-FF33(B) * Note 2 | 90 | 70 | 30 | 25 | 11 | 5.5 | HG-KR43(B) | 70 | 50 | 30 | 26 | 14 | 5.8 |
| HA-FF43(B) * Note 2 | 115 | 95 | 40 | 35 | 16 | 9 | HG-KR43(B) | 70 | 50 | 30 | 26 | 14 | 5.8 |
| HA-FF63(B) * Note 2 | 115 | 95 | 40 | 35 | 16 | 9 | HG-KR73(B) | 90 | 70 | 40 | 36 | 19 | 6.6 |
| HC-UF13(B) | 70 | 50 | 25 | - | 8 | 5.8 | HG-KR13(B) | 46 | 30 | 25 | 21.5 | 8 | 2-4.5 |
| HC-UF23(B) | 90 | 70 | 30 | - | 14 | 6.6 | HG-KR23(B) | 70 | 50 | 30 | 26 | 14 | 5.8 |
| HC-UF43(B) | 90 | 70 | 30 | - | 14 | 6.6 | HG-KR43(B) | 70 | 50 | 30 | 26 | 14 | 5.8 |
| HC-UF73(B) | 145 | 110 | 40 | 32.5 | 19 | 9 | HG-KR73(B) | 90 | 70 | 40 | 36 | 19 | 6.6 |

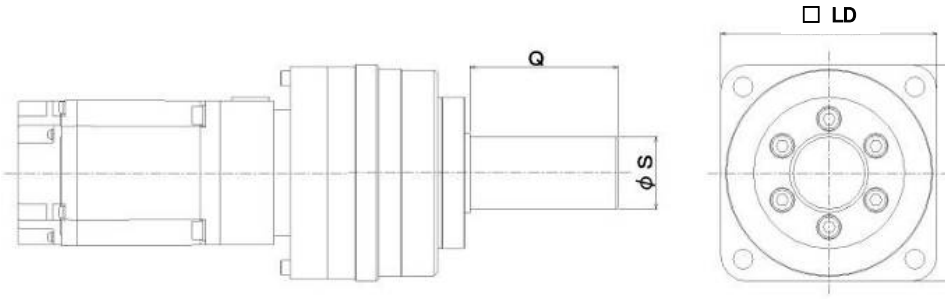
Note 1: As for the dimensions not listed here, refer to the catalog or Instruction Manual. ( ): With brake [Unit: mm]

Note 2: Specification with the shaft end key.

Note 3: Dimensions with differences are shown with shading.

### 2.2.3 Comparison of mounting dimensions for servo motors with reducer

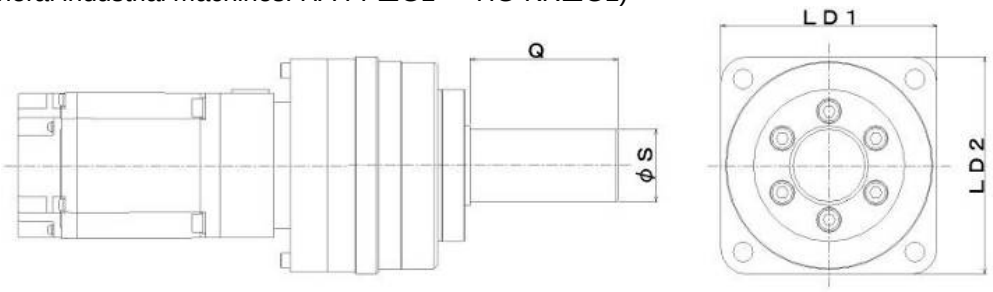
(For high precision applications: HC-MF□G2 → HG-KR□G7)




| Output (W) | HC-MF series (G2) | | | | HG-KR series (G7) | | | |
|---|---|---|---|---|---|---|---|---|
| | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD |
| 50 | 1/5 | 25 | 16 | 70 | 1/5 | 28 | 16 | 60 |
| | 1/9 | 25 | 16 | 70 | 1/11 | 28 | 16 | 60 |
| | 1/20 | 25 | 16 | 70 | 1/21 | 28 | 16 | 60 |
| | 1/29 | 25 | 16 | 70 | 1/33 | 28 | 16 | 60 |
| 100 | 1/5 | 25 | 16 | 70 | 1/5 | 28 | 16 | 60 |
| | 1/9 | 25 | 16 | 70 | 1/11 | 28 | 16 | 60 |
| | 1/20 | 35 | 20 | 85 | 1/21 | 28 | 16 | 60 |
| | 1/29 | 35 | 20 | 85 | 1/33 | 42 | 25 | 90 |
| 200 | 1/5 | 25 | 16 | 70 | 1/5 | 28 | 16 | 60 |
| | 1/9 | 35 | 20 | 85 | 1/11 | 28 | 16 | 60 |
| | 1/20 | 40 | 25 | 100 | 1/21 | 42 | 25 | 90 |
| | 1/29 | 40 | 25 | 100 | 1/33 | 42 | 25 | 90 |
| 400 | 1/5 | 35 | 20 | 85 | 1/5 | 28 | 16 | 60 |
| | 1/9 | 40 | 25 | 100 | 1/11 | 42 | 25 | 90 |
| | 1/20 | 50 | 32 | 115 | 1/21 | 42 | 25 | 90 |
| | 1/29 | 50 | 32 | 115 | 1/33 | 82 | 40 | 120 |
| 750 | 1/5 | 40 | 25 | 100 | 1/5 | 42 | 25 | 90 |
| | 1/9 | 50 | 32 | 115 | 1/11 | 42 | 25 | 90 |
| | 1/20 | 60 | 40 | 130 | 1/21 | 82 | 40 | 120 |
| | 1/29 | 60 | 40 | 130 | 1/33 | 82 | 40 | 120 |

Note 1: As for the dimensions not listed here, refer to the catalog or Instruction Manual. [Unit: mm]

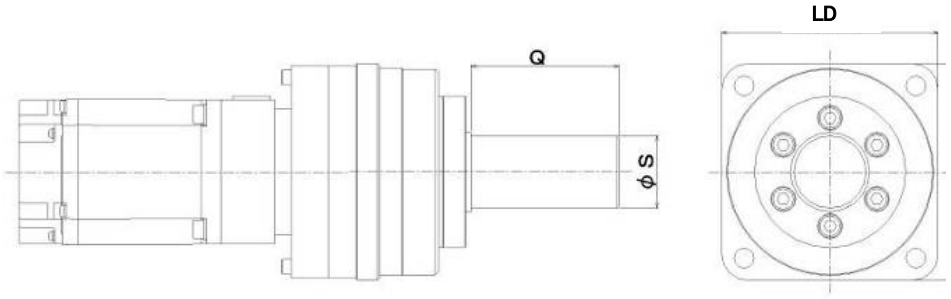
(For general industrial machines: HA-FF□G1 → HG-KR□G1)




| HA-FF series (G1) | | | | | HG-KR series (G1) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Output (W) | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD1 x LD2 | Output (W) | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD1 x LD2 |
| 50 | 1/5 | 33 | 15 | □90 | 50 | 1/5 | 25 | 16 | □65 |
| | 1/10 | 33 | 15 | □90 | | 1/12 | 25 | 16 | □65 |
| | 1/20 | 33 | 15 | □90 | | 1/20 | 25 | 16 | □65 |
| | 1/30 | 33 | 15 | □90 | | - | - | - | - |
| 100 | 1/5 | 33 | 15 | □90 | 100 | 1/5 | 25 | 16 | □65 |
| | 1/10 | 33 | 15 | □90 | | 1/12 | 25 | 16 | □65 |
| | 1/20 | 33 | 15 | □90 | | 1/20 | 25 | 16 | □65 |
| | 1/30 | 33 | 15 | □90 | | - | - | - | - |
| 200 | 1/5 | 25 | 16 | 145 x 150 | 200 | 1/5 | 35 | 25 | □90 |
| | 1/10 | 25 | 16 | 145 x 150 | | 1/12 | 35 | 25 | □90 |
| | 1/20 | 25 | 16 | 145 x 150 | | 1/20 | 35 | 25 | □90 |
| | 1/30 | 25 | 16 | 145 x 150 | | - | - | - | - |
| 300 400 | 1/5 | 28 | 19 | 145 x 160 | 400 | 1/5 | 35 | 25 | □90 |
| | 1/10 | 28 | 19 | 145 x 160 | | 1/12 | 35 | 25 | □90 |
| | 1/20 | 28 | 19 | 145 x 160 | | 1/20 | 50 | 32 | □100 |
| | 1/30 | 28 | 19 | 145 x 160 | | - | - | - | - |
| 600 | 1/5 | 36 | 22 | 185 x 192.5 | 750 | 1/5 | 50 | 32 | □100 |
| | 1/10 | 36 | 22 | 185 x 192.5 | | 1/12 | 50 | 32 | □100 |
| | 1/20 | 36 | 22 | 185 x 192.5 | | 1/20 | 60 | 40 | □120 |
| | 1/30 | 36 | 22 | 185 x 192.5 | | - | - | - | - |

Note 1: As for the dimensions not listed here, refer to the catalog or Instruction Manual. [Unit: mm]

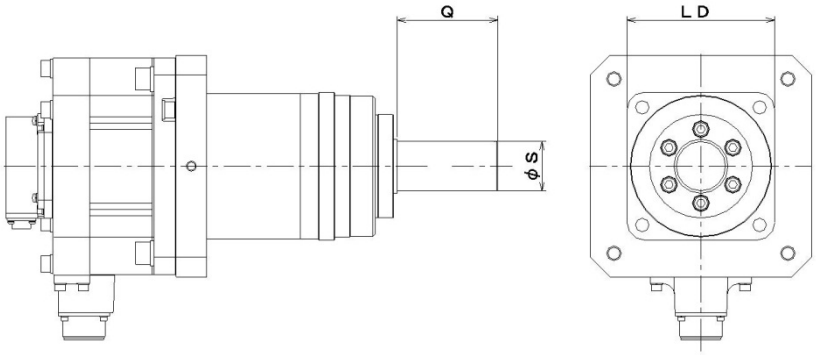
(For high precision applications: HA-FF□G2 → HG-KR□G7)




| HA-FF series (G2) | | | | | HG-KR series (G7) | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Output (W) | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD | Output (W) | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD |
| 50 | 1/5 | 20 | 10 | □74 | 50 | 1/5 | 28 | 16 | □60 |
| | 1/10 | 20 | 10 | □74 | | 1/11 | 28 | 16 | □60 |
| | 1/15 | 20 | 10 | □74 | | 1/21 | 28 | 16 | □60 |
| | 1/25 | 25 | 14 | □87 | | 1/33 | 28 | 16 | □60 |
| 100 | 1/5 | 20 | 10 | □74 | 100 | 1/5 | 28 | 16 | □60 |
| | 1/10 | 25 | 14 | □87 | | 1/11 | 28 | 16 | □60 |
| | 1/15 | 25 | 14 | □87 | | 1/21 | 28 | 16 | □60 |
| | 1/25 | 40 | 22 | □118 | | 1/33 | 42 | 25 | □90 |
| | 1/45 | 40 | 25 | □120 | | 1/45 | 42 | 25 | □90 |
| 200 | 1/5 | 25 | 14 | □87 | 200 | 1/5 | 28 | 16 | □60 |
| | 1/10 | 40 | 22 | □118 | | 1/11 | 28 | 16 | □60 |
| | 1/15 | 40 | 22 | □118 | | 1/21 | 42 | 25 | □90 |
| | 1/20 | 40 | 25 | □120 | | 1/21 | 42 | 25 | □90 |
| | 1/29 | 40 | 25 | □120 | | 1/33 | 42 | 25 | □90 |
| | 1/45 | 55 | 35 | □140 | | 1/45 | 42 | 25 | □90 |
| 300 | 1/5 | 40 | 22 | □118 | 400 | 1/5 | 28 | 16 | □60 |
| | 1/10 | 40 | 22 | □118 | | 1/11 | 42 | 25 | □90 |
| | 1/20 | 40 | 25 | □120 | | 1/21 | 42 | 25 | □90 |
| | 1/29 | 55 | 35 | □140 | | 1/33 | 82 | 40 | □120 |
| | 1/45 | 55 | 35 | □140 | | 1/45 | 82 | 40 | □120 |
| 400 | 1/5 | 40 | 22 | □118 | 400 | 1/5 | 28 | 16 | □60 |
| | 1/9 | 40 | 25 | □120 | | 1/11 | 42 | 25 | □90 |
| | 1/20 | 55 | 35 | □140 | | 1/21 | 42 | 25 | □90 |
| | 1/29 | 55 | 35 | □140 | | 1/33 | 82 | 40 | □120 |
| | 1/45 | 55 | 35 | □140 | | 1/45 | 82 | 40 | □120 |
| 600 | 1/5 | 40 | 25 | □120 | 750 | 1/5 | 42 | 25 | □90 |
| | 1/9 | 40 | 25 | □120 | | 1/11 | 42 | 25 | □90 |
| | 1/20 | 55 | 35 | □140 | | 1/21 | 82 | 40 | □120 |
| | 1/29 | 55 | 35 | □140 | | 1/33 | 82 | 40 | □120 |
| | 1/45 | 75 | 50 | φ245 | | 1/45 | 82 | 40 | □120 |

Note 1: As for the dimensions not listed here, refer to the catalog or Instruction Manual. [Unit: mm]

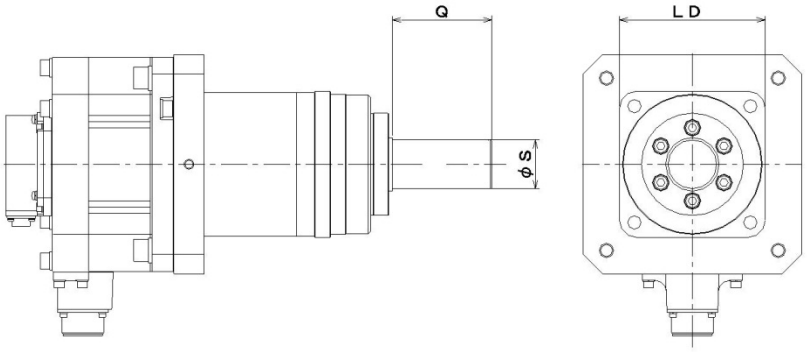
(For high precision applications: HC-SF□G2 → HG-SR□G7)




| Output (kW) | HC-SF series (G2) | | | | HG-SR series (G7) | | | |
|---|---|---|---|---|---|---|---|---|
| | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD |
| 0.5 | 1/5 | 55 | 35 | □140 | 1/5 | 42 | 25 | □90 |
| | 1/9 | 55 | 35 | □140 | 1/11 | 42 | 25 | □90 |
| | 1/20 | 55 | 35 | □140 | 1/21 | 82 | 40 | □120 |
| | 1/29 | 75 | 50 | φ245 | 1/33 | 82 | 40 | □120 |
| | 1/45 | 75 | 50 | φ245 | 1/45 | 82 | 40 | □120 |
| 1.0 | 1/5 | 55 | 35 | □140 | 1/5 | 42 | 25 | □90 |
| | 1/9 | 55 | 35 | □140 | 1/11 | 82 | 40 | □120 |
| | 1/20 | 75 | 50 | φ245 | 1/21 | 82 | 40 | □120 |
| | 1/29 | 75 | 50 | φ245 | 1/33 | 82 | 50 | □170 |
| | 1/45 | 90 | 60 | φ310 | 1/45 | 82 | 50 | □170 |
| 1.5 | 1/5 | 55 | 35 | □140 | 1/5 | 42 | 25 | □90 |
| | 1/9 | 75 | 50 | φ245 | 1/11 | 82 | 40 | □120 |
| | 1/20 | 75 | 50 | φ245 | 1/21 | 82 | 50 | □170 |
| | 1/29 | 90 | 60 | φ310 | 1/33 | 82 | 50 | □170 |
| | 1/45 | 90 | 60 | φ310 | 1/45 | 82 | 50 | □170 |
| 2.0 | 1/5 | 75 | 50 | φ245 | 1/5 | 82 | 40 | □120 |
| | 1/9 | 75 | 50 | φ245 | 1/11 | 82 | 40 | □120 |
| | 1/20 | 90 | 60 | φ310 | 1/21 | 82 | 50 | □170 |
| | 1/29 | 90 | 60 | φ310 | 1/33 | 82 | 50 | □170 |
| | 1/45 | 90 | 60 | φ310 | 1/45 | 82 | 50 | □170 |
| 3.5 | 1/5 | 90 | 60 | φ310 | 1/5 | 82 | 40 | □120 |
| | 1/9 | 90 | 60 | φ310 | 1/11 | 82 | 50 | □170 |
| | 1/20 | 90 | 60 | φ310 | 1/21 | 82 | 50 | □170 |

Note 1: As for the dimensions not listed here, refer to the catalog or Instruction Manual. [Unit: mm]

(For high precision applications: HC-RF□G2 → HG-SR□G7)




| Output (kW) | HC-RF series (G2) | | | | HG-SR series (G7) | | | |
|---|---|---|---|---|---|---|---|---|
| | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD | Reduction ratio | Shaft length Q | Shaft diameter S | Flange LD |
| 1.0 | 1/5 | 55 | 35 | □140 | 1/5 | 42 | 25 | □90 |
| | 1/9 | 55 | 35 | □140 | 1/11 | 82 | 40 | □120 |
| | 1/20 | 75 | 50 | φ245 | 1/21 | 82 | 40 | □120 |
| | 1/29 | 75 | 50 | φ245 | 1/33 | 82 | 50 | □170 |
| | 1/45 | 75 | 50 | φ245 | 1/45 | 82 | 50 | □170 |
| 1.5 | 1/5 | 55 | 35 | □140 | 1/5 | 42 | 25 | □90 |
| | 1/9 | 75 | 50 | φ245 | 1/11 | 82 | 40 | □120 |
| | 1/20 | 75 | 50 | φ245 | 1/21 | 82 | 50 | □170 |
| | 1/29 | 75 | 50 | φ245 | 1/33 | 82 | 50 | □170 |
| | 1/45 | 90 | 60 | φ310 | 1/45 | 82 | 50 | □170 |
| 2.0 | 1/5 | 55 | 35 | □140 | 1/5 | 82 | 40 | □120 |
| | 1/9 | 75 | 50 | φ245 | 1/11 | 82 | 40 | □120 |
| | 1/20 | 75 | 50 | φ245 | 1/21 | 82 | 50 | □170 |
| | 1/29 | 90 | 60 | φ310 | 1/33 | 82 | 50 | □170 |
| | 1/45 | 90 | 60 | φ310 | 1/45 | 82 | 50 | □170 |

Note 1: As for the dimensions not listed here, refer to the catalog or Instruction Manual. [Unit: mm]

### 2.2.4 Comparison of actual reduction ratios for servo motors with reducer

For replacement from HC-MF□G1 to HG-KR□G1, and from HA-FF□G1 to HG-KR□G1, actual reduction ratio of the reducer may be different. Setting of the electronic gear is required.

(For general industrial machines: HC-MF□G1 → HG-KR□G1)

| Output (W) | Reduction ratio | Actual reduction ratio | |
|---|---|---|---|
| | | HC-MF series | HG-KR series |
| 50 | 1/5 | 9/44 | 9/44 |
| | 1/12 | 49/576 | 49/576 |
| | 1/20 | 25/484 | 25/484 |
| 100 | 1/5 | 9/44 | 9/44 |
| | 1/12 | 49/576 | 49/576 |
| | 1/20 | 25/484 | 25/484 |
| 200 | 1/5 | 19/96 | 19/96 |
| | 1/12 | 25/288 | 961/11664 |
| | 1/20 | 253/5000 | 513/9984 |
| 400 | 1/5 | 19/96 | 19/96 |
| | 1/12 | 25/288 | 961/11664 |
| | 1/20 | 253/5000 | 7/135 |
| 750 | 1/5 | 1/5 | 1/5 |
| | 1/12 | 525/6048 | 7/87 |
| | 1/20 | 625/12544 | 625/12544 |

Note 1: Actual reduction ratios with differences are shown with shading.

(For general industrial machines: HA-FF□G1 → HG-KR□G1)

| HA-FF series | | | HG-KR series | | |
|---|---|---|---|---|---|
| Output (W) | Reduction ratio | Actual reduction ratio | Output (W) | Reduction ratio | Actual reduction ratio |
| 50 | 1/5 | 9/44 | 50 | 1/5 | 9/44 |
| | 1/10 | 3/29 | | 1/12 | 49/576 |
| | 1/20 | 99/1972 | | 1/20 | 25/484 |
| | 1/30 | 144/4205 | | - | - |
| 100 | 1/5 | 9/44 | 100 | 1/5 | 9/44 |
| | 1/10 | 3/29 | | 1/12 | 49/576 |
| | 1/20 | 99/1972 | | 1/20 | 25/484 |
| | 1/30 | 144/4205 | | - | - |
| 200 | 1/5 | 57/280 | 200 | 1/5 | 19/96 |
| | 1/10 | 39/400 | | 1/12 | 961/11664 |
| | 1/20 | 51/980 | | 1/20 | 513/9984 |
| | 1/30 | 1/30 | | - | - |
| 300<br>400 | 1/5 | 19/94 | 400 | 1/5 | 19/96 |
| | 1/10 | 39/376 | | 1/12 | 961/11664 |
| | 1/20 | 72/1363 | | 1/20 | 7/135 |
| | 1/30 | 11/329 | | - | - |
| 600 | 1/5 | 10/49 | 750 | 1/5 | 1/5 |
| | 1/10 | 243/2401 | | 1/12 | 7/87 |
| | 1/20 | 153/2891 | | 1/20 | 625/12544 |
| | 1/30 | 27/784 | | - | - |

Note 1: Actual reduction ratios with differences are shown with shading.

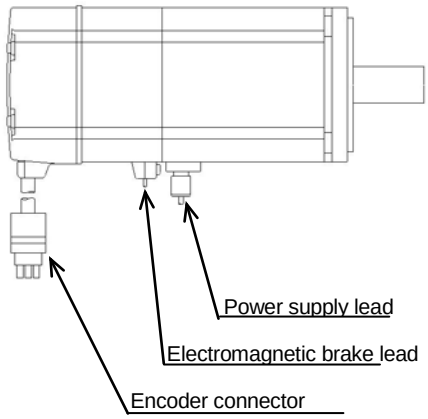
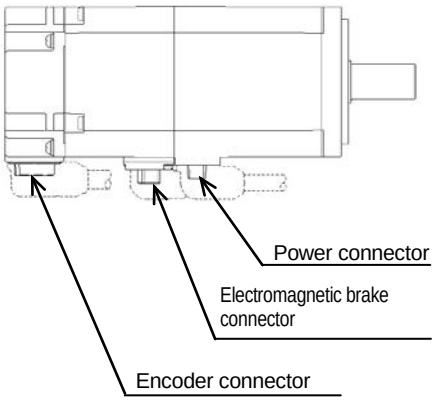
### 2.2.5 Comparison of moment of inertia

| Series | Target product | | | Replacement product | | |
|---|---|---|---|---|---|---|
| | Model | Moment of inertia × $10^{-4}$ kg·$m^2$ | Recommended load to motor inertia ratio | Model | Moment of inertia × $10^{-4}$ kg·$m^2$ | Recommended load to motor inertia ratio |
| Small capacity, ultra-low inertia | HC-MF053(B) | 0.019(0.022) | 30 times or less | HG-MR053(B) | 0.0162(0.0224) | 35 times or less |
| | HC-MF13(B) | 0.030(0.032) | | HG-MR13(B) | 0.0300(0.0362) | 32 times or less |
| | HC-MF23(B) | 0.088(0.136) | | HG-MR23(B) | 0.0865(0.109) | |
| | HC-MF43(B) | 0.143(0.191) | | HG-MR43(B) | 0.142(0.164) | |
| | HC-MF73(B) | 0.600(0.725) | | HG-MR73(B) | 0.586(0.694) | |
| Small capacity, low inertia | HA-FF053(B) | 0.063(0.080) | 10 times or less | HG-KR053(B) | 0.0450(0.0472) | 17 times or less |
| | HA-FF13(B) | 0.095(0.113) | | HG-KR13(B) | 0.0777(0.0837) | |
| | HA-FF23(B) | 0.35(0.483) | | HG-KR23(B) | 0.221(0.243) | 26 times or less |
| | HA-FF33(B) | 0.50(0.633) | | HG-KR43(B) | 0.371(0.393) | 25 times or less |
| | HA-FF43(B) | 0.98(1.325) | | | | |
| | HA-FF63(B) | 1.20(1.55) | | HG-KR73(B) | 1.26(1.37) | 17 times or less |
| Medium capacity, medium inertia | HC-SF81(B) | 20.0(22.0) | 15 times or less | HG-SR81(B) | 16.0(18.2) | 17 times or less |
| | HC-SF121(B) | 42.5(52.5) | | HG-SR121(B) | 46.8(56.5) | 15 times or less |
| | HC-SF201(B) | 82.0(92.0) | | HG-SR201(B) | 78.6(88.2) | |
| | HC-SF301(B) | 101(111) | | HG-SR301(B) | 99.7(109) | |
| | HC-SF52(B)<br>HC-SF53(B) | 6.6(8.6) | | HG-SR52(B) | 7.26(9.48) | 15 times or less |
| | HC-SF102(B)<br>HC-SF103(B) | 13.7(15.7) | | HG-SR102(B) | 11.6(13.8) | 17 times or less |
| | HC-SF152(B)<br>HC-SF153(B) | 20(22) | | HG-SR152(B) | 16.0(18.2) | |
| | HC-SF202(B)<br>HC-SF203(B) | 42.5(52.5) | | HG-SR202(B) | 46.8(56.5) | 15 times or less |
| | HC-SF352(B)<br>HC-SF353(B) | 82(92) | | HG-SR352(B) | 78.6(88.2) | |
| Medium capacity, ultra-low inertia | HC-RF103(B) | 1.5(1.85) | 5 times or less | HG-RR103(B) | 1.50(1.85) | 5 times or less |
| | HC-RF153(B) | 1.9(2.25) | | HG-RR153(B) | 1.90(2.25) | |
| | HC-RF203(B) | 2.3(2.65) | | HG-RR203(B) | 2.30(2.65) | |
| Medium capacity, flat type | HC-UF72(B) | 10.4(12.4) | 15 times or less | HG-UR72(B) | 10.4(12.5) | 15 times or less |
| | HC-UF152(B) | 22.1(24.1) | | HG-UR152(B) | 22.1(24.2) | |
| | HC-UF202(B) | 38.2(46.8) | | HG-UR202(B) | 38.2(46.8) | |
| Small capacity, flat type | HC-UF13(B) | 0.066(0.074) | 15 times or less | HG-KR13(B) | 0.0777(0.0837) | 17 times or less |
| | HC-UF23(B) | 0.241(0.323) | | HG-KR23(B) | 0.221(0.243) | 26 times or less |
| | HC-UF43(B) | 0.365(0.447) | | HG-KR43(B) | 0.371(0.393) | 25 times or less |
| | HC-UF73(B) | 5.9(6.1) | | HG-KR73(B) | 1.26(1.37) | 17 times or less |

Note 1: As for the dimensions not listed here, refer to the catalog or Instruction Manual. ( ): With brake

### 2.2.6 Comparison of servo motor connector specifications>

(1) HC-MF/-UF motor

<table>
<tr><td></td><td>MR-J2 series (HC-MF/UF)</td><td>MR-J4 series (HG-KR/MR)</td></tr>
<tr><td>Motor appearance</td><td> 
</td><td> 
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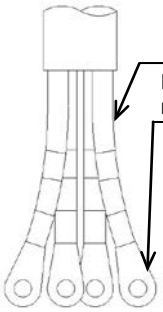
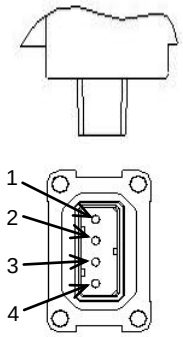
<tr><td>Power connector</td><td> 

Power supply lead color assignment
<table>
<tr><th>Lead color</th><th>Signal name</th></tr>
<tr><td>Red</td><td>U</td></tr>
<tr><td>White</td><td>V</td></tr>
<tr><td>Black</td><td>W</td></tr>
<tr><td>Green/ yellow</td><td>Earth</td></tr>
</table></td><td> 

Power connector pin assignment
<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
<tr><td>1</td><td>Earth</td></tr>
<tr><td>2</td><td>U</td></tr>
<tr><td>3</td><td>V</td></tr>
<tr><td>4</td><td>W</td></tr>
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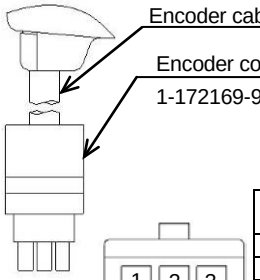
<tr><td>Encoder connector</td><td> 

Encoder connector pin assignment
<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
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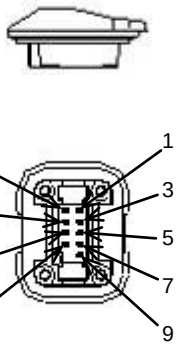
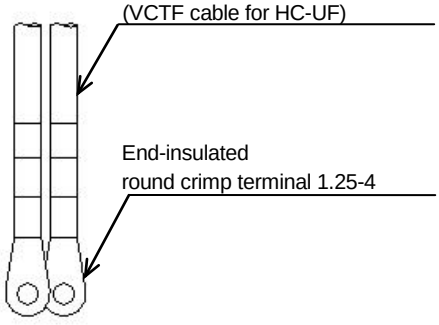
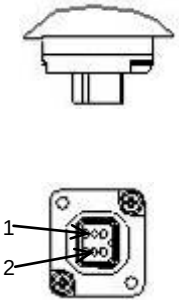
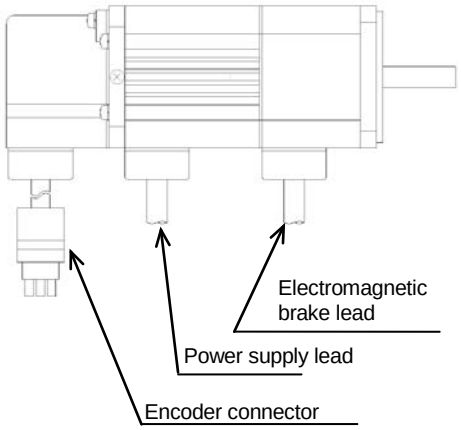
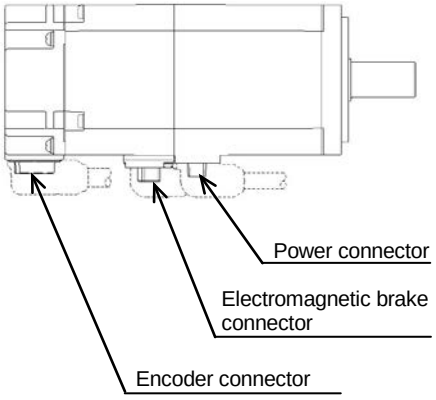
<tr><td>3</td><td>BAT</td></tr>
<tr><td>4</td><td>MD</td></tr>
<tr><td>5</td><td>MDR</td></tr>
<tr><td>6</td><td></td></tr>
<tr><td>7</td><td>P5</td></tr>
<tr><td>8</td><td>LG</td></tr>
<tr><td>9</td><td>SHD</td></tr>
</table></td><td> 

Encoder connector pin assignment
<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
<tr><td>1</td><td></td></tr>
<tr><td>2</td><td>BAT</td></tr>
<tr><td>3</td><td>P5</td></tr>
<tr><td>4</td><td>MRR</td></tr>
<tr><td>5</td><td>MR</td></tr>
<tr><td>6</td><td>LG</td></tr>
<tr><td>7</td><td></td></tr>
<tr><td>8</td><td></td></tr>
<tr><td>9</td><td>SHD</td></tr>
</table></td></tr>
<tr><td>Electromagnetic brake connector</td><td> 
</td><td> 

Electromagnetic brake connector pin assignment
<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
<tr><td>1</td><td>B1</td></tr>
<tr><td>2</td><td>B2</td></tr>
</table></td></tr>
</table>

(2) HA-FF motor

<table>
<tr><td></td><td>MR-J2 series (HA-FF)</td><td>MR-J4 series (HG-KR)</td></tr>
<tr><td>Motor appearance</td><td> 
</td><td> 
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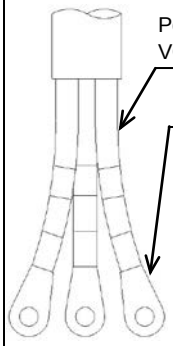
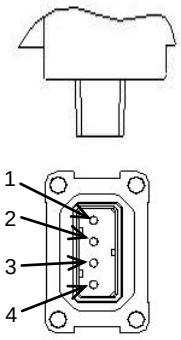
<tr><td>Power connector</td><td> 

Power supply lead color assignment
<table>
<tr><th>Lead color</th><th>Signal name</th></tr>
<tr><td>Red</td><td>U</td></tr>
<tr><td>White</td><td>V</td></tr>
<tr><td>Black</td><td>W</td></tr>
</table></td><td> 

Power connector pin assignment
<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
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<tr><td>3</td><td>V</td></tr>
<tr><td>4</td><td>W</td></tr>
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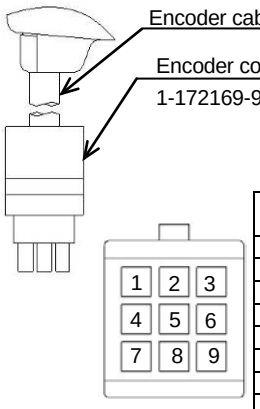
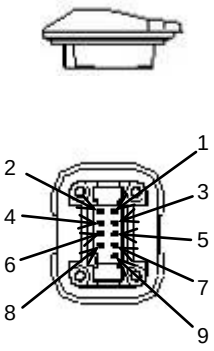
<tr><td>Encoder connector</td><td> 

Encoder connector pin assignment
<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
<tr><td>1</td><td>MR</td></tr>
<tr><td>2</td><td>MRR</td></tr>
<tr><td>3</td><td>BAT</td></tr>
<tr><td>4</td><td>MD</td></tr>
<tr><td>5</td><td>MDR</td></tr>
<tr><td>6</td><td></td></tr>
<tr><td>7</td><td>P5</td></tr>
<tr><td>8</td><td>LG</td></tr>
<tr><td>9</td><td>SHD</td></tr>
</table></td><td> 

Encoder connector pin assignment
<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
<tr><td>1</td><td></td></tr>
<tr><td>2</td><td>BAT</td></tr>
<tr><td>3</td><td>P5</td></tr>
<tr><td>4</td><td>MRR</td></tr>
<tr><td>5</td><td>MR</td></tr>
<tr><td>6</td><td>LG</td></tr>
<tr><td>7</td><td></td></tr>
<tr><td>8</td><td></td></tr>
<tr><td>9</td><td>SHD</td></tr>
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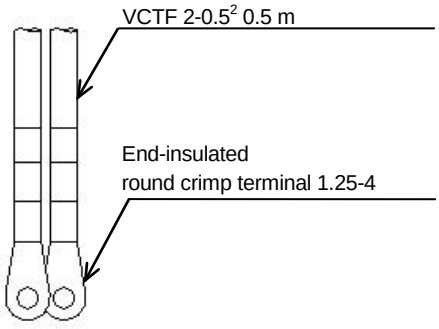
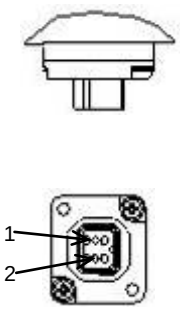
<tr><td>Electromagnetic brake connector</td><td> 
</td><td> 

Electromagnetic brake connector pin assignment
<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
<tr><td>1</td><td>B1</td></tr>
<tr><td>2</td><td>B2</td></tr>
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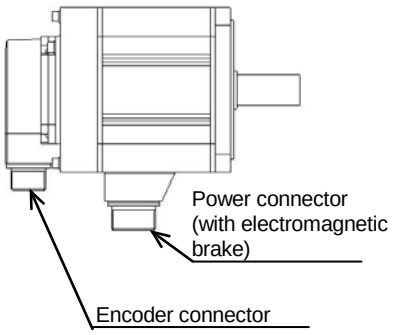
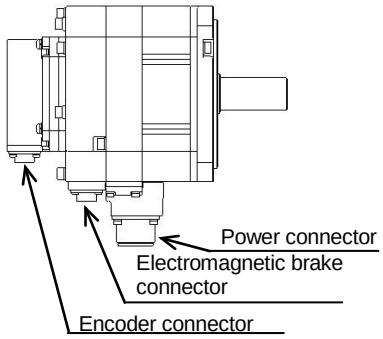
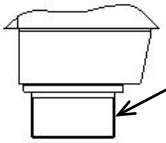
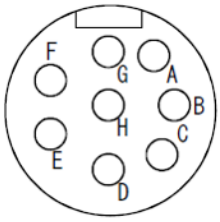
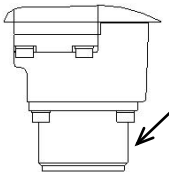
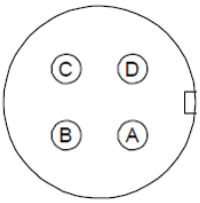
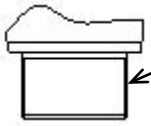
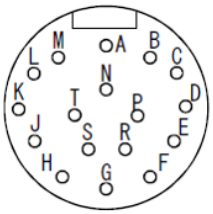
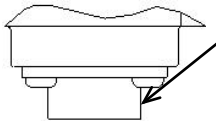
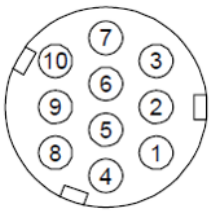
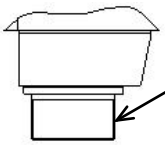
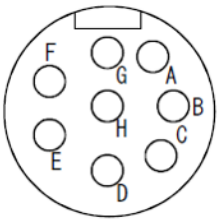
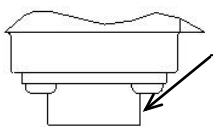
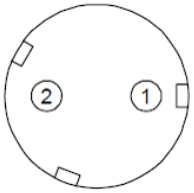
</table>

(3) HC-SF motor

<table>
<tr><td>Motor appearance</td><td>MR-J2 series (HC-SF)<br>Target models: HC-SF81(B)<br>HC-SF52(B) to HC-SF152(B)<br>HC-SF53(B) to HC-SF153(B)<br>  <br></td><td>MR-J4 series (HG-SR)<br>Target models: HG-SR81(B)<br>HG-SR52(B) to HG-SR152(B)<br>  <br></td></tr>
<tr><td>Power connector</td><td>  <br><br>  <br><br>Power connector<br>pin assignment<br><table><tr><th>Pin number</th><th>Signal name</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Earth</td></tr><tr><td>E</td><td></td></tr><tr><td>F</td><td></td></tr><tr><td>G</td><td></td></tr><tr><td>H</td><td></td></tr></table></td><td>  <br><br>  <br><br>Power connector<br>pin assignment<br><table><tr><th>Pin number</th><th>Signal name</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Earth</td></tr></table></td></tr>
<tr><td>Encoder connector</td><td>  <br><br>  <br><br>Encoder connector<br>pin assignment<br><table><tr><th>Pin number</th><th>Signal name</th></tr><tr><td>A</td><td>MD</td></tr><tr><td>B</td><td>MDR</td></tr><tr><td>C</td><td>MR</td></tr><tr><td>D</td><td>MRR</td></tr><tr><td>E</td><td></td></tr><tr><td>F</td><td>BAT</td></tr><tr><td>G</td><td>LG</td></tr><tr><td>H</td><td></td></tr><tr><td>J</td><td></td></tr><tr><td>K</td><td></td></tr><tr><td>L</td><td></td></tr><tr><td>M</td><td></td></tr><tr><td>N</td><td>SHD</td></tr><tr><td>P</td><td></td></tr><tr><td>R</td><td>LG</td></tr><tr><td>S</td><td>P5</td></tr><tr><td>T</td><td></td></tr></table></td><td>  <br><br>  <br><br>Encoder connector<br>pin assignment<br><table><tr><th>Pin number</th><th>Signal name</th></tr><tr><td>1</td><td>MR</td></tr><tr><td>2</td><td>MRR</td></tr><tr><td>3</td><td></td></tr><tr><td>4</td><td>BAT</td></tr><tr><td>5</td><td>LG</td></tr><tr><td>6</td><td></td></tr><tr><td>7</td><td></td></tr><tr><td>8</td><td>P5</td></tr><tr><td>9</td><td></td></tr><tr><td>10</td><td>SHD</td></tr></table></td></tr>
<tr><td>Electromagnetic brake connector<br>(power connector)</td><td>  <br><br>  <br><br>Power connector<br>(with brake)<br>pin assignment<br><table><tr><th>Pin number</th><th>Signal name</th></tr><tr><td>A</td><td>U</td></tr><tr><td>B</td><td>V</td></tr><tr><td>C</td><td>W</td></tr><tr><td>D</td><td>Earth</td></tr><tr><td>E</td><td></td></tr><tr><td>F</td><td></td></tr><tr><td>G</td><td>B1</td></tr><tr><td>H</td><td>B2</td></tr></table></td><td>  <br><br>  <br><br>Electromagnetic<br>brake connector<br>pin assignment<br><table><tr><th>Pin number</th><th>Signal name</th></tr><tr><td>1</td><td>B1</td></tr><tr><td>2</td><td>B2</td></tr></table></td></tr>
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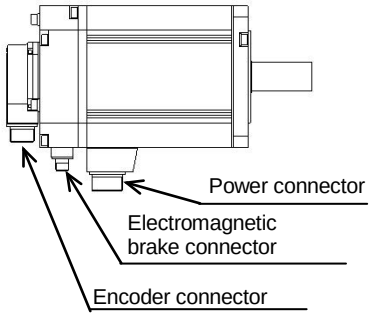
<td>MR-J2 series (HC-SF)<br>Target models: HC-SF121(B) to HC-SF301(B)<br>HC-SF202(B), HC-SF352(B)<br>HC-SF203(B), HC-SF353(B)<br> 
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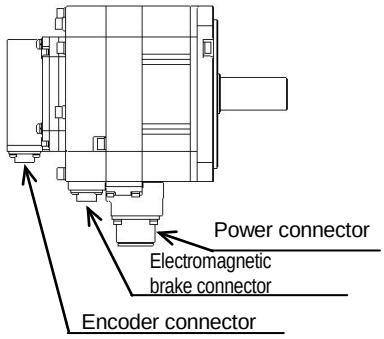
<td>MR-J4 series (HG-SR)<br>Target models: HG-SR121(B) to HG-SR301(B)<br>HG-SR202(B), HG-SR352(B)<br> 
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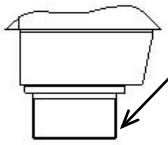
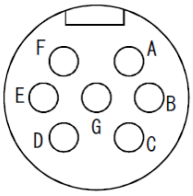
<td> 
Power connector<br>CE05-2A24-10P<br>Power connector pin assignment<br> 

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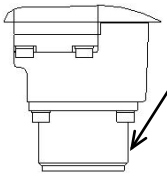
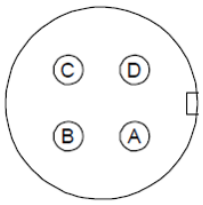
<td> 
Power connector<br>MS3102A22-22P<br>Power connector pin assignment<br> 

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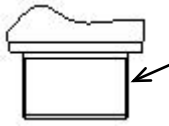
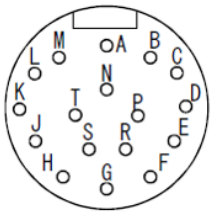
<td> 
Encoder connector<br>MS3102A20-29P<br>Encoder connector pin assignment<br> 

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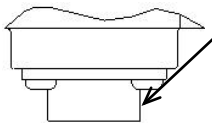
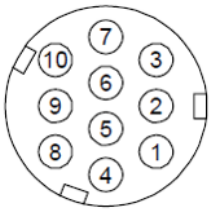
<td> 
Encoder connector<br>CMV1-R10P<br>Encoder connector pin assignment<br> 

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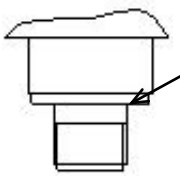
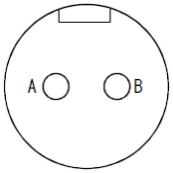
<td> 
Electromagnetic brake connector<br>MS3102A10SL-4P<br>Electromagnetic brake connector pin assignment<br> 

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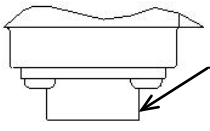
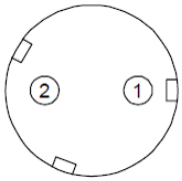
<td> 
Brake connector<br>CMV1-R2P<br>Electromagnetic brake connector pin assignment<br> 

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(4) HC-RF motor

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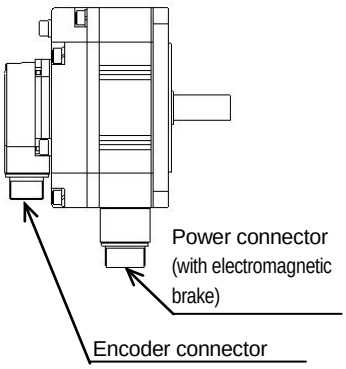
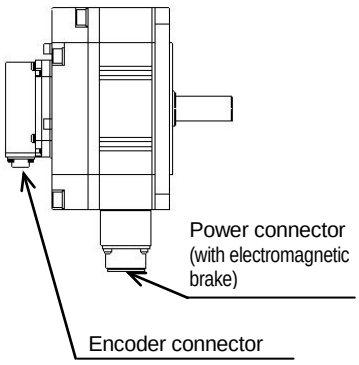
<tr><td>Motor appearance</td><td>MR-J2 series (HC-RF)<br>Target models: HC-RF103(B), RF153(B), RF203(B)<br> 
</td><td>MR-J4 series (HG-RR)<br>Target models: HG-RR103(B), RR153(B), RR203(B)<br> 
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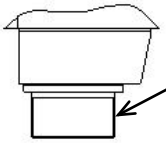
<tr><td>Power connector</td><td> 
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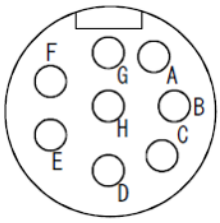
pin assignment<br> 

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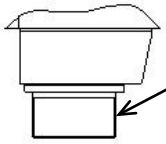
</table></td><td> 
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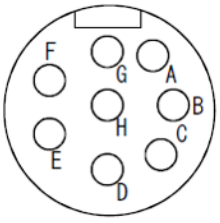
pin assignment<br> 

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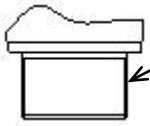
<tr><td>Encoder connector</td><td> 
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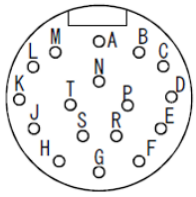
pin assignment<br> 

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<tr><td>A</td><td>MD</td></tr>
<tr><td>B</td><td>MDR</td></tr>
<tr><td>C</td><td>MR</td></tr>
<tr><td>D</td><td>MRR</td></tr>
<tr><td>E</td><td></td></tr>
<tr><td>F</td><td>BAT</td></tr>
<tr><td>G</td><td>LG</td></tr>
<tr><td>H</td><td></td></tr>
<tr><td>J</td><td></td></tr>
<tr><td>K</td><td></td></tr>
<tr><td>L</td><td></td></tr>
<tr><td>M</td><td></td></tr>
<tr><td>N</td><td>SHD</td></tr>
<tr><td>P</td><td></td></tr>
<tr><td>R</td><td>LG</td></tr>
<tr><td>S</td><td>P5</td></tr>
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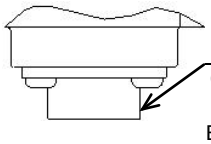
</table></td><td> 
Encoder connector
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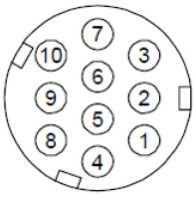
pin assignment<br> 

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<tr><td>5</td><td>LG</td></tr>
<tr><td>6</td><td></td></tr>
<tr><td>7</td><td></td></tr>
<tr><td>8</td><td>P5</td></tr>
<tr><td>9</td><td></td></tr>
<tr><td>10</td><td>SHD</td></tr>
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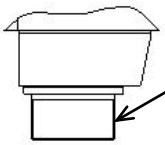
<tr><td>Electromagnetic brake connector<br>(power connector)</td><td> 
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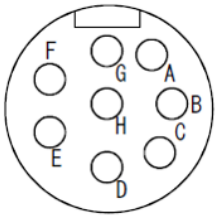
pin assignment<br> 

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<tr><td>B</td><td>V</td></tr>
<tr><td>C</td><td>W</td></tr>
<tr><td>D</td><td>Earth</td></tr>
<tr><td>E</td><td></td></tr>
<tr><td>F</td><td></td></tr>
<tr><td>G</td><td>B1</td></tr>
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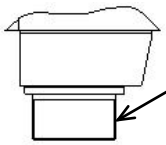
</table></td><td> 
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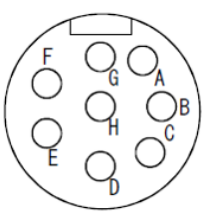
(with brake)
pin assignment<br> 

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<tr><td>B</td><td>V</td></tr>
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<tr><td>D</td><td>Earth</td></tr>
<tr><td>E</td><td></td></tr>
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<tr><td>G</td><td>B1</td></tr>
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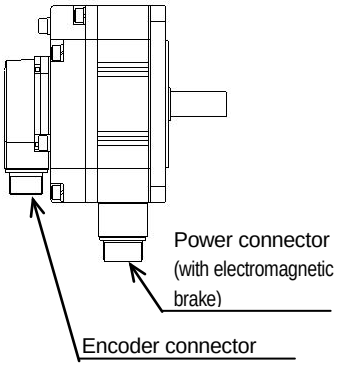
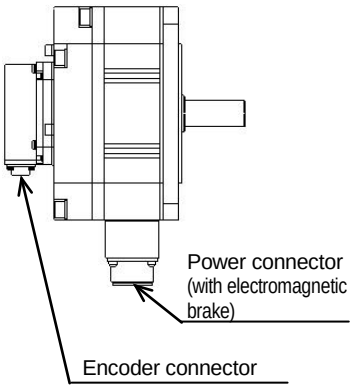
(5) HC-UF motor

<table>
<tr><td>Motor appearance</td><td>MR-J2 series (HC-UF)<br>Target models: HC-UF72(B) and UF152(B)<br> 
</td><td>MR-J4 series (HG-UR)<br>Target models: HG-UR72(B) and UR152(B)<br> 
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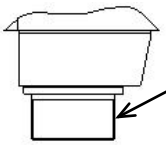
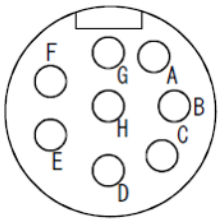
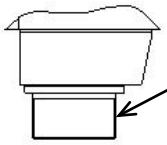
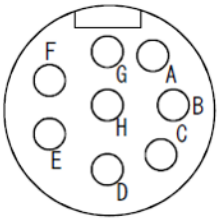
<tr><td>Power connector</td><td> 
Power connector<br>CE05-2A22-23P<br> 

Power connector<br>pin assignment<br>
| Pin number | Signal name |
|---|---|
| A | U |
| B | V |
| C | W |
| D | Earth |
| E | |
| F | |
| G | |
| H | |
</td><td> 
Power connector<br>CE05-2A22-23P<br> 

Power connector<br>pin assignment<br>
| Pin number | Signal name |
|---|---|
| A | U |
| B | V |
| C | W |
| D | Earth |
| E | |
| F | |
| G | |
| H | |
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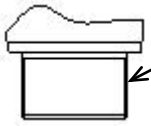
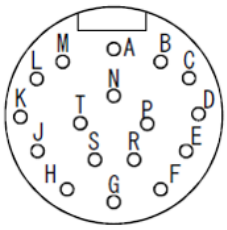
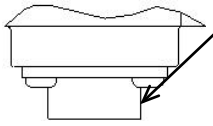
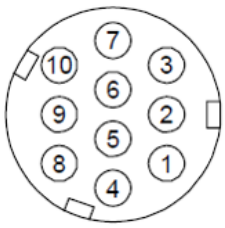
<tr><td>Encoder connector</td><td> 
Encoder connector<br>MS3102A20-29P<br> 

Encoder connector<br>pin assignment<br>
| Pin number | Signal name |
|---|---|
| A | MD |
| B | MDR |
| C | MR |
| D | MRR |
| E | |
| F | BAT |
| G | LG |
| H | |
| J | |
| K | |
| L | |
| M | |
| N | SHD |
| P | |
| R | LG |
| S | P5 |
| T | |
</td><td> 
Encoder connector<br>CMV1-R10P<br> 

Encoder connector<br>pin assignment<br>
| Pin number | Signal name |
|---|---|
| 1 | MR |
| 2 | MRR |
| 3 | |
| 4 | BAT |
| 5 | LG |
| 6 | |
| 7 | |
| 8 | P5 |
| 9 | |
| 10 | SHD |
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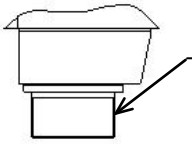
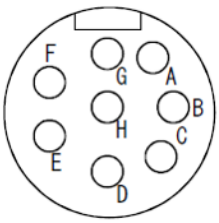
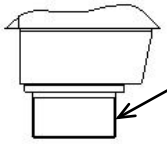
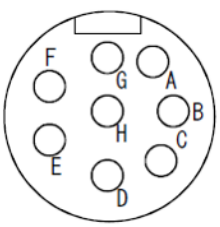
<tr><td>Electromagnetic brake connector<br>(power connector)</td><td> 
Power connector<br>CE05-2A22-23P<br> 

Power connector<br>(with brake)<br>pin assignment<br>
| Pin number | Signal name |
|---|---|
| A | U |
| B | V |
| C | W |
| D | Earth |
| E | |
| F | |
| G | B1 |
| H | B2 |
</td><td> 
Power connector<br>CE05-2A22-23P<br> 

Power connector<br>(with brake)<br>pin assignment<br>
| Pin number | Signal name |
|---|---|
| A | U |
| B | V |
| C | W |
| D | Earth |
| E | |
| F | |
| G | B1 |
| H | B2 |
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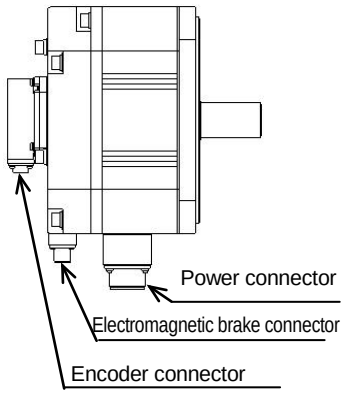
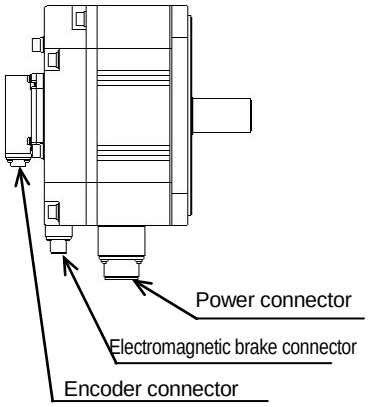
<tr><td>Motor appearance</td><td>MR-J2 series (HC-UF)<br>Target model: HC-UF202(B)<br> 
</td><td>MR-J4 series (HG-UR)<br>Target model: HG-UR202(B)<br> 
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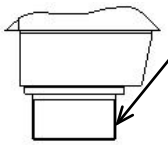
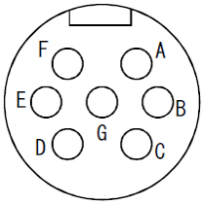
<tr><td>Power connector</td><td> 
<br>Power connector<br>pin assignment<br> 

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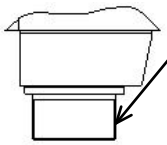
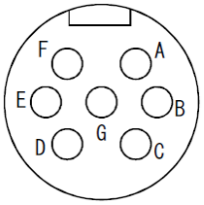
</table></td><td> 
<br>Power connector<br>pin assignment<br> 

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<tr><td>D</td><td>Earth</td></tr>
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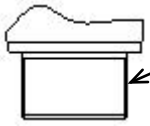
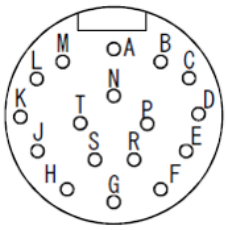
<tr><td>Encoder connector</td><td> 
<br>Encoder connector<br>pin assignment<br> 

<table>
<tr><th>Pin number</th><th>Signal name</th></tr>
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<tr><td>B</td><td>MDR</td></tr>
<tr><td>C</td><td>MR</td></tr>
<tr><td>D</td><td>MRR</td></tr>
<tr><td>E</td><td></td></tr>
<tr><td>F</td><td>BAT</td></tr>
<tr><td>G</td><td>LG</td></tr>
<tr><td>H</td><td></td></tr>
<tr><td>J</td><td></td></tr>
<tr><td>K</td><td></td></tr>
<tr><td>L</td><td></td></tr>
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<tr><td>P</td><td></td></tr>
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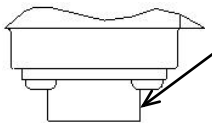
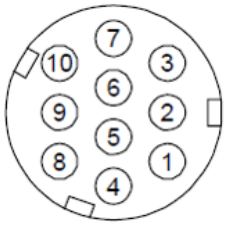
</table></td><td> 
<br>Encoder connector<br>pin assignment<br> 

<table>
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<tr><td>2</td><td>MRR</td></tr>
<tr><td>3</td><td></td></tr>
<tr><td>4</td><td>BAT</td></tr>
<tr><td>5</td><td>LG</td></tr>
<tr><td>6</td><td></td></tr>
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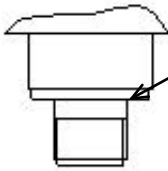
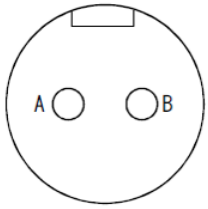
<tr><td>Electromagnetic brake connector</td><td> 
<br>Electromagnetic<br>brake connector<br>pin assignment<br> 

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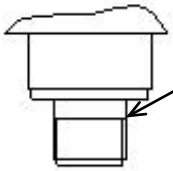
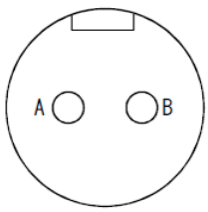
</table></td><td> 
<br>Electromagnetic<br>brake connector<br>pin assignment<br> 

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<tr><th>Pin number</th><th>Signal name</th></tr>
<tr><td>A</td><td>B1</td></tr>
<tr><td>B</td><td>B2</td></tr>
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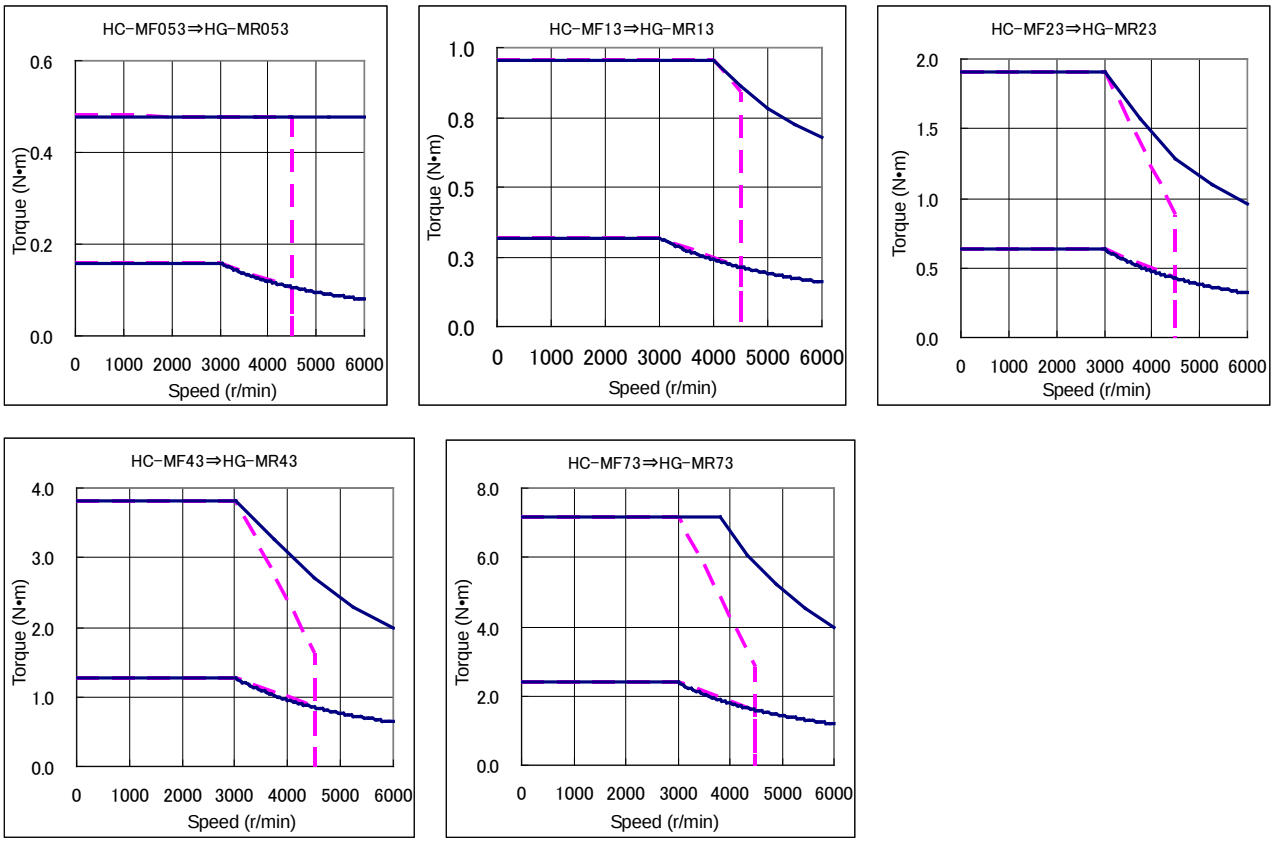
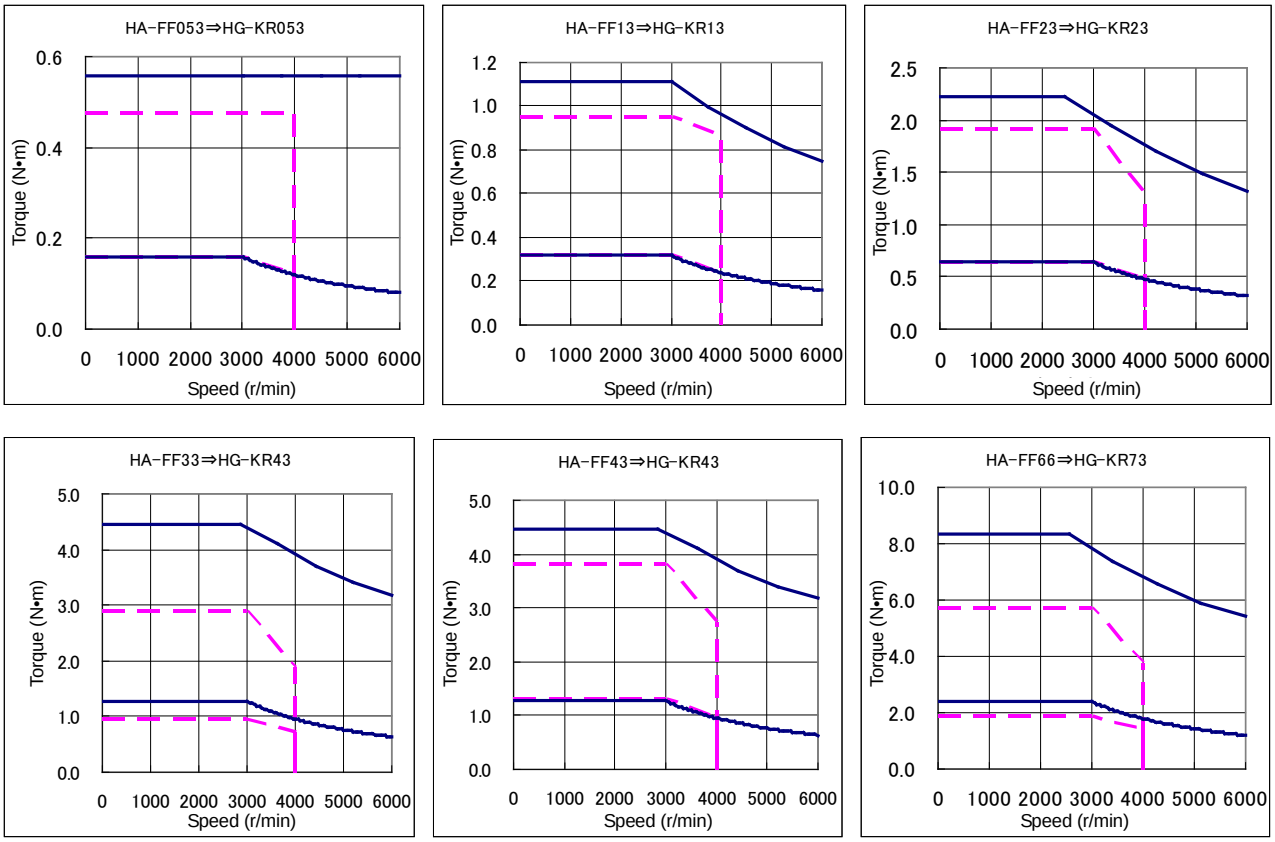
### 2.2.7 Comparison of servo motor torque characteristics

◆ Comparison of torque characteristics between the HG-MR and HC-MF series ( ——: HG-MR, - - - -: HC-MF)

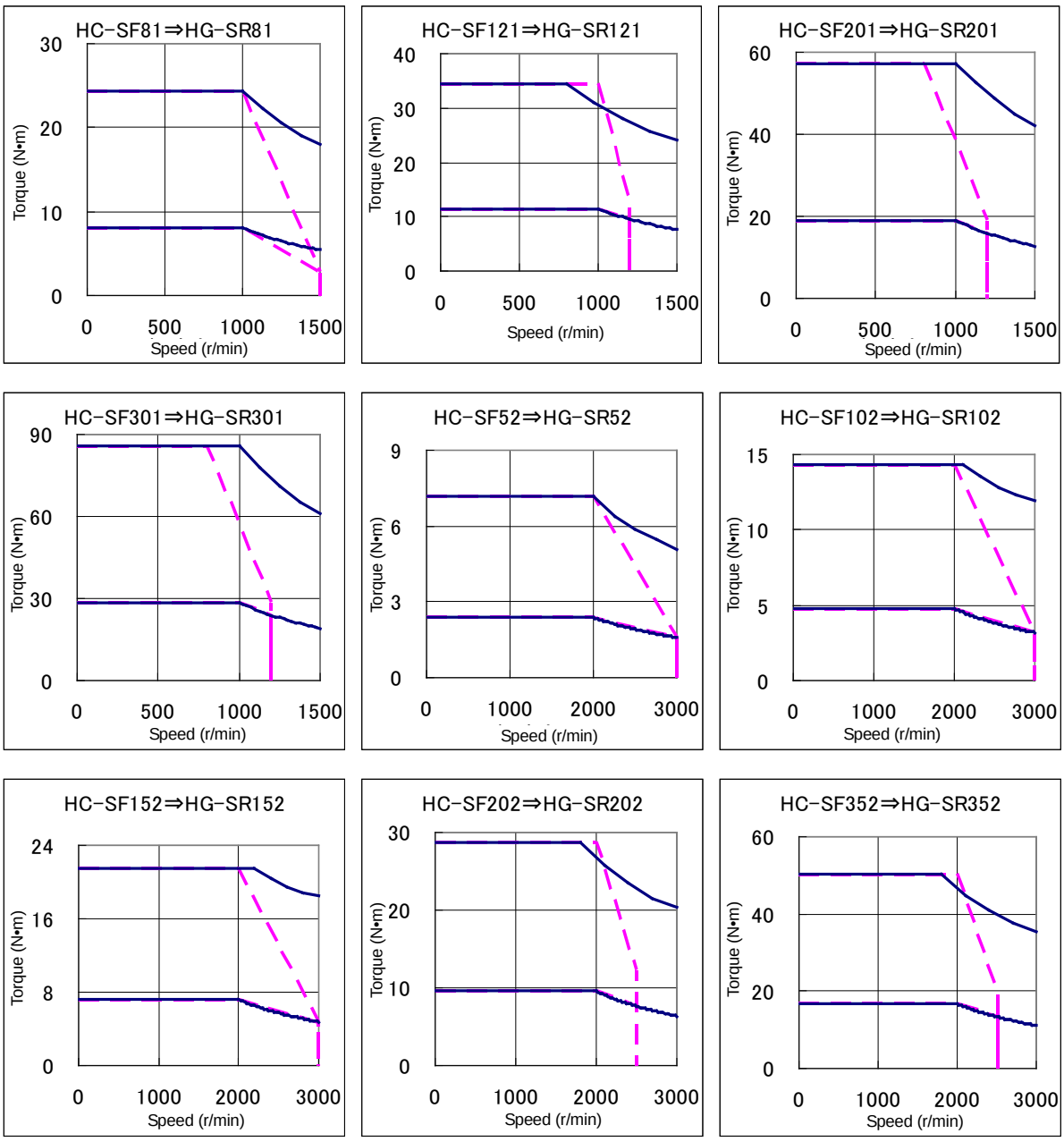



◆ Comparison of torque characteristics between the HG-KR and HA-FF series ( ——: HG-KR, - - - -: HA-FF)



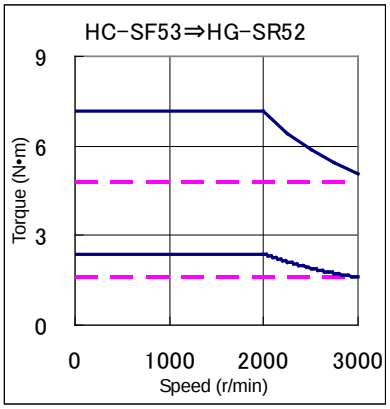

Note 1: The above torque characteristics are for three-phase 200 VAC.

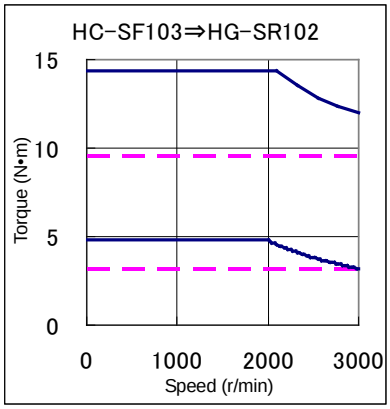
◆ Comparison of torque characteristics between the HG-SR and HC-SF series (—— : HG-SR, ---- : HC-SF)

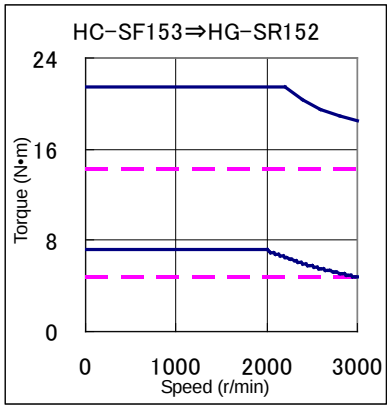


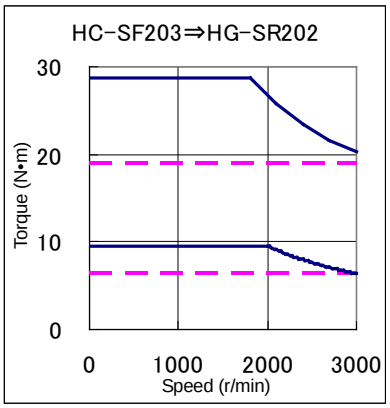

Note 1: The above torque characteristics are for three-phase 200 VAC.

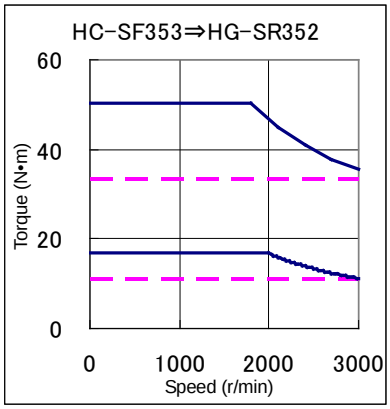
◆ Comparison of torque characteristics between the HG-SR and HC-SF series (—— : HG-SR, - - - - : HC-SF)



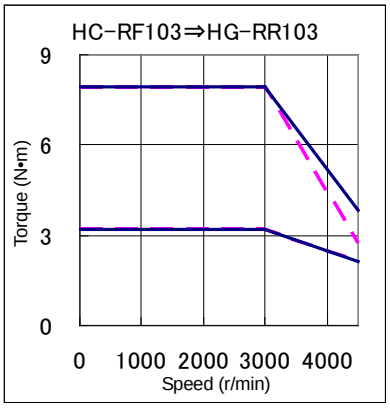



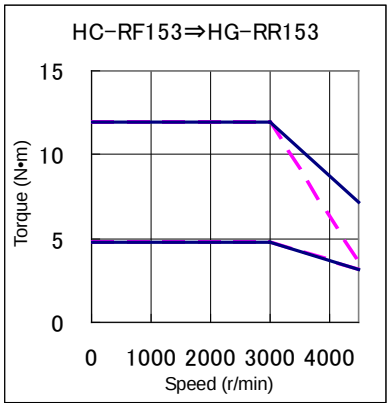



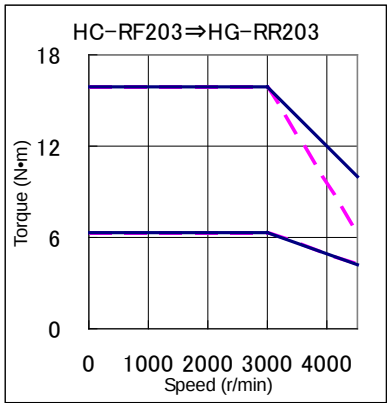




◆ Comparison of torque characteristics between the HG-RR and HC-RF series (—— : HG-RR, - - - - : HC-RF)

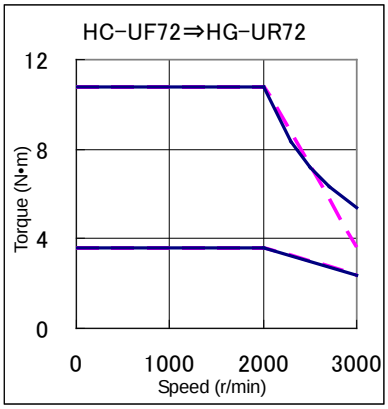


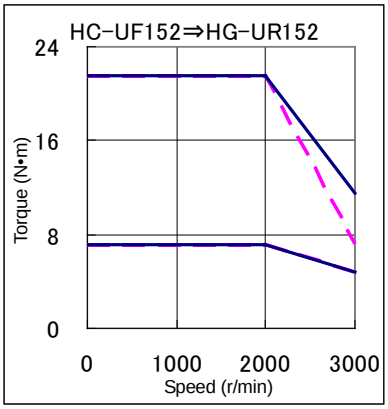



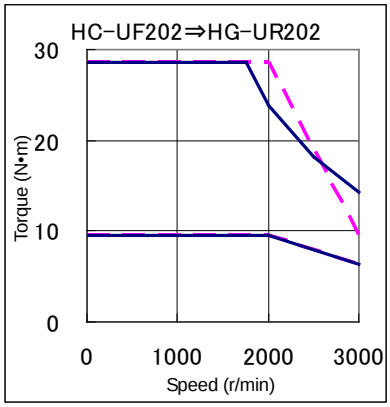




Note 1: The above torque characteristics are for three-phase 200 VAC.

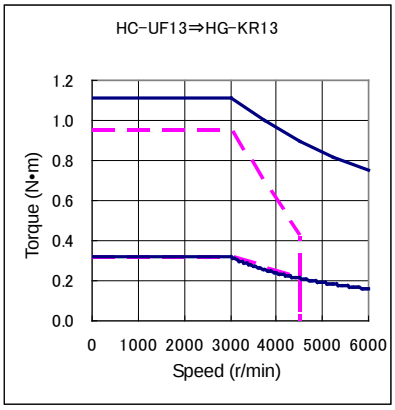
◆ Comparison of torque characteristics between the HG-UR and HC-UF series (—— : HG-UR, ---- : HC-UF)

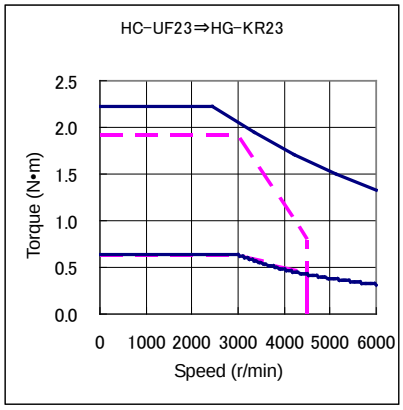


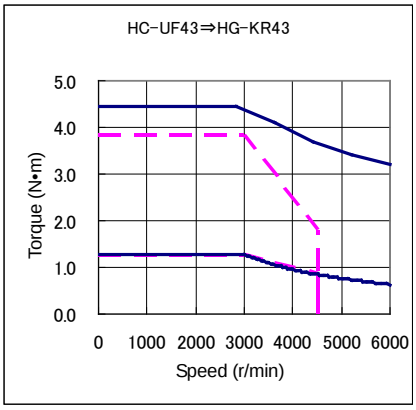



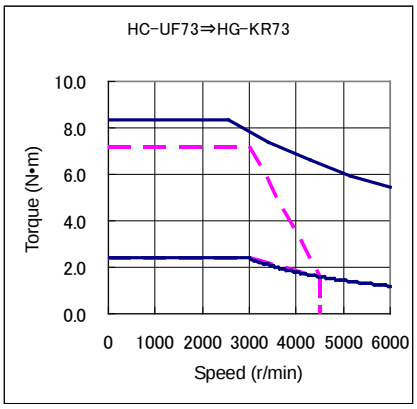




◆ Comparison of torque characteristics between the HG-KR and HC-UF series (—— : HG-KR, ---- : HC-UF)




Note 1: The above torque characteristics are for three-phase 200 VAC.

■ Regenerative options (for 200 V)

<Combination and regenerative power for the MR-J2 series>

| Servo amplifier model MR-J2- | Built-in regenerative resistor [W] | Permissible regenerative power of regenerative option [W] MR-RB | | | | |
|---|---|---|---|---|---|---|
| | | 032 [40 Ω] | 12 [40 Ω] | 32 [40 Ω] | 30 [13 Ω] | (Note 1) 50 [13 Ω] |
| 10A/B | | 30 | | | | |
| 20A/B | 10 | 30 | 100 | | | |
| 40A/B | 10 | 30 | 100 | | | |
| 60A/B | 10 | 30 | 100 | | | |
| 70A/B | 20 | 30 | 100 | 300 | | |
| 100A/B | 20 | 30 | 100 | 300 | | |
| 200A/B | 100 | | | | 300 | 500 |
| 350A/B | 100 | | | | 300 | 500 |

Note 1: Be sure to install a cooling fan.

<Combination and regenerative power for the MR-J4 series (replacement model)>

| Servo amplifier model MR-J4- | Built-in regenerative resistor [W] | Permissible regenerative power of regenerative option [W] MR-RB | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 032 [40 Ω] | 12 [40 Ω] | 30 [13 Ω] | 3N [9 Ω] | 32 [40 Ω] | (Note 1) 50 [13 Ω] | (Note 1) 5N [9 Ω] |
| 10A/B | | 30 | | | | | | |
| 20A/B | 10 | 30 | 100 | | | | | |
| 40A/B | 10 | 30 | 100 | | | | | |
| 60A/B | 10 | 30 | 100 | | | | | |
| 70A/B | 20 | 30 | 100 | | | 300 | | |
| 100A/B | 20 | 30 | 100 | | | 300 | | |
| 200A/B | 100 | | | 300 | | | 500 | |
| 350A/B | 100 | | | | 300 | | | 500 |

Note 1: Be sure to install a cooling fan.

Note 2: Items that differ from MR-J2 series are shown with shading.

■ Cable options

| Application | | MR-J2 series | MR-J4 series | | Compatibility | Precautions |
|---|---|---|---|---|---|---|
| Encoder cable | | MR-JCCBL□M-□ | MR-J3ENCBL□M-A□-□<br>MR-J3JCBL03M-A□-L<br>MR-EKCBL□M-□□ | | Note 1 | Connector shape will be changed.<br>Cable must be changed,<br>□M: Cable length<br>A□: Leading direction<br>-□: Bending life |
| | | MR-JHSCBL□M-□ | MR-J3JSCBL03M-A□-L<br>MR-J3ENECBL□M-H | | Note 1 | □M: Cable length<br>A□: Leading direction |
| Encoder connector set | | MR-J2CNM | MR-ECNM | | Note 1 | Connector shape will be changed.<br>Cable must be changed,<br>□: Encoder side connector shape |
| | | MR-J2CNS | MR-J3SCNS□<br>MR-ENCNS2□ | | Note 1 | |
| Controller to amplifier cable | B type | MR-J2HBUS□M-A | MR-J2HBUS□M | | Note 1 | Connector will be changed due to change from metal communication to optical communication.<br>□: Cable length |
| CN1 connector set | | MR-J2CN1-A | MR-CCN1 | | Note 1 | |
| Controller to amplifier cable | A type | MR-J2HBUS□M | MR-J2M-CN1TBL□M | | Note 1 | Connector shape and the number of pin poles will be changed.<br>□: Cable length |
| CN1 connector set | | MR-J2CN1 | MR-J3CN1 | | Note 1 | |
| Servo motor power supply cable | | - | MR-PWS1CBL□M-A□-□ | | Note 1 | Cable options are available for J4.<br>□M: Cable length<br>A□: Leading direction<br>-□: Bending life |
| | | | MR-PWS2CBL03M-A□-L | | | |
| Power connector set<br>(Servo motor side power connector) | | MR-PWCNK□<br>MR-PWCNS□ | MR-PWCNS□ | | Note 1 | Connector shape will be changed.<br>□: The number of poles will be different. |
| Electromagnetic brake cable | | - | MR-BKS1CBL□M-A□-□ | | Note 1 | Cable options are available for J4.<br>□M: Cable length<br>A□: Leading direction<br>-□: Bending life |
| | | | MR-BKS2CBL03M-A□-L | | | |
| Electromagnetic brake connector set | | MR-BKCN | MR-BKCNS1□<br>MR-BKCNS2□ | | Note 1 | Connector shape will be changed.<br>□: Connector shape |
| Servo amplifier power connector (to 1 kW) | | - | 06JFAT-SAXGDK-H7.5 | CNP1 | Note 1 | Change from screw-type to connector-type |
| | | | 05JFAT-SAXGDK-H5.0 | CNP2 | Note 1 | |
| | | | 03JFAT-SAXGDK-H7.5 | CNP3 | Note 1 | |
| Servo amplifier power connector (2 kW) | | | 06JFAT-SAXGFK-XL | CNP1 | Note 1 | |
| | | | 05JFAT-SAXGDK-H5.0 | CNP2 | Note 1 | |
| | | | 03JFAT-SAXGFK-XL | CNP3 | Note 1 | |
| Servo amplifier power connector (3.5 kW) | | | 06JFAT-SAXGFK-XL | CNP1 | Note 1 | |
| | | | 05JFAT-SAXGDK-H5.0 | CNP2 | Note 1 | |
| | | | 03JFAT-SAXGFK-XL | CNP3 | Note 1 | |
| CN3 communication cable | | MR-CPCATCBL3M | MR-J3USBCBL3M | | Note 1 | Change from RS-232C communication to USB communication |

Note 1: These replacement models do not have compatibility in mounting.

## 3. COMPARISON OF FUNCTIONS

| Item | | MR-J2 series | MR-J4 series |
|---|---|---|---|
| 1 | Capacity range | 0.1 kW to 3.5 kW/200 V | 0.1 kW to 3.5 kW/200 V |
| 2 | Internal regenerative resistor | Built-in | Built-in |
| 3 | Dynamic brakes | Built-in | Built-in<br>**Coasting distance is different.** |
| 4 | Control circuit power | 1-phase 200 VAC to 230 VAC | 1-phase 200 VAC to **240** VAC |
| 5 | Main circuit power | 1-phase/3-phase 200 VAC to 230 VAC (to 750 W)<br>3-phase 200 VAC to 230 VAC (1 kW to 22 kW) | 1-phase/3-phase 200 VAC to **240** VAC (to 750 W)<br>3-phase 200 VAC to **240** VAC (1 kW to 22 kW) |
| 6 | 24 VDC power | Built-in | **External supply required** |
| 7 | Auto tuning | Real-time auto tuning: 5 scales | Real-time auto tuning: **40 scales**<br>**One-touch tuning** |
| 8 | Control mode | (A) General-purpose interface<br>・Position control mode (pulse command)<br>・Speed control mode (analog command)<br>・Torque control mode (analog command)<br>(B) SSCNET interface<br>・Position control mode<br>・Speed control mode | (A) General-purpose interface<br>・Position control mode (pulse command)<br>・Speed control mode (analog command)<br>・Torque control mode (analog command)<br>(B) **SSCNET III/H** interface<br>・Position control mode<br>・Speed control mode<br>・**Torque control mode** |
| 9 | Maximum input pulses | Differential pulse 400 kpps<br>Command pulse: Sink interface | Differential pulse **4** Mpps<br>Command pulse: Sink interface |
| 10 | The number of DIO points (excluding EM1) | (A) General-purpose interface<br>DI: 8 points, DO: 6 points<br>(B) SSCNET interface<br>DI: 0 points, DO: 2 points | (A) General-purpose interface<br>**DI: 9 points, DO: 6 points**<br>(B) SSCNET III/H interface<br>**DI: 3 points, DO: 3 points** |
| 11 | Encoder pulse output | ABZ-phase (differential)<br>(A) General-purpose interface<br>Z-phase (open collector) | ABZ-phase (differential)<br>(A) General-purpose interface<br>Z-phase (open collector) |
| 12 | DIO interface | Input: Sink interface Source interface<br>Output: Sink | Input: Sink interface/Source interface<br>Output: Sink interface/**Source interface** |
| 13 | Analog input/output | (A) General-purpose interface<br>(Input) 2ch<br>10-bit torque,<br>14-bit speed or equivalent<br>(Output) 10-bit or equivalent x 2ch<br>(B) SSCNET interface<br>(Output) 10-bit or equivalent x 2ch | (A) General-purpose interface<br>(Input) 2ch<br>10-bit torque,<br>14-bit speed or equivalent<br>(Output) 10-bit or equivalent x 2ch<br>(B) SSCNET III/H interface<br>(Output) 10-bit or equivalent x 2ch |
| 14 | The number of internal speed commands (type A) | 3 points | 7 points |
| 15 | Parameter setting method | MR Configurator (SETUP181)<br>Push-button (Type A) | **MR Configurator2**<br>Push-button (Type A) |
| 16 | Setup S/W communication | RS-232C | **USB** |
| 17 | Servo motor (Encoder resolution) | HA-FF series (13-bit ABS)<br>HC-MF, KF and UF series (13-bit ABS)<br>HC-SF, RF and UF series (14-bit ABS) | HG series (**22**-bit ABS) |
| 18 | Servo motor maximum torque | HC-KF 300% | HG-KR **350**% |
| | | HA-FF 300% | HG-KR **350**% |
| | | HC-MF 300% | HG-MR 300% |
| | | HC-SF 300% | HG-SR 300% |
| | | HC-UF 300% | HG-UR 300% |
| | | HC-RF 250% | HG-RR 250% |
| 19 | Button (type A) | Four buttons | Four buttons |

| Item | | MR-J2 series | MR-J4 series |
|---|---|---|---|
| 20 | LED display | (Type A) 7-segment 5-digit<br>(Type B) 7-segment 2-digit | (Type A) 7-segment 5-digit<br>(Type B) 7-segment **3**-digit |
| 21 | Advanced vibration suppression control II | Unprovided | **Provided** |
| 22 | Adaptive filter | Unprovided | Provided<br>(**II: with improved function**) |
| 23 | Notch filter | Provided (1 pc.) | Provided (**5** pcs.) |
| 24 | Tough drive | Unprovided | **Provided** |
| 25 | Drive recorder | Unprovided | **Provided** |
| 26 | Forced stop | EM1 (DB stop) | **Select EM1 (DB stop) or EM2 (deceleration to a stop)** |
| Note: | Changed items are **shown with shading**. | | |

## 4. COMPARISON OF NETWORKS

<Comparison of servo system network specifications>

<table>
<tr><td rowspan="2">Item</td><td>MR-J2 series</td><td rowspan="6">→</td><td colspan="2">MR-J4 series (Note 1)</td></tr>
<tr><td>SSCNET</td><td>SSCNET III</td><td>SSCNET III/H</td></tr>
<tr><td>Communication media</td><td>Metal cable</td><td colspan="2">Optical-fiber cable</td></tr>
<tr><td>Communication speed</td><td>5.6 Mbps</td><td>50 Mbps</td><td>150 Mbps</td></tr>
<tr><td rowspan="2">Transmission distance</td><td rowspan="2">Overall length<br>30 m</td><td colspan="2">[Standard cord inside cabinet/<br>standard cable outside cabinet]<br>Maximum distance between stations: 20 m<br>Maximum overall distance: 320 m<br>(20 m x 16 axes)</td></tr>
<tr><td>[Long distance cable]<br>Maximum distance between stations: 50 m<br>Maximum overall distance: 800 m<br>(50 m x 16 axes)</td><td>[Long distance cable]<br>Maximum distance between stations: 100 m<br>Maximum overall distance: 1600 m<br>(100 m x 16 axes)</td></tr>
</table>

Note 1: If the first controller communication is connected using SSCNET III/H in the factory setting, the operation mode will be fixed to the "J4 mode". If using SSCNET III, the mode will be fixed to "J3 compatible mode". To return to the factory setting or to select an arbitrary mode, change the setting with the application "MR-J4(W)-B mode selection".

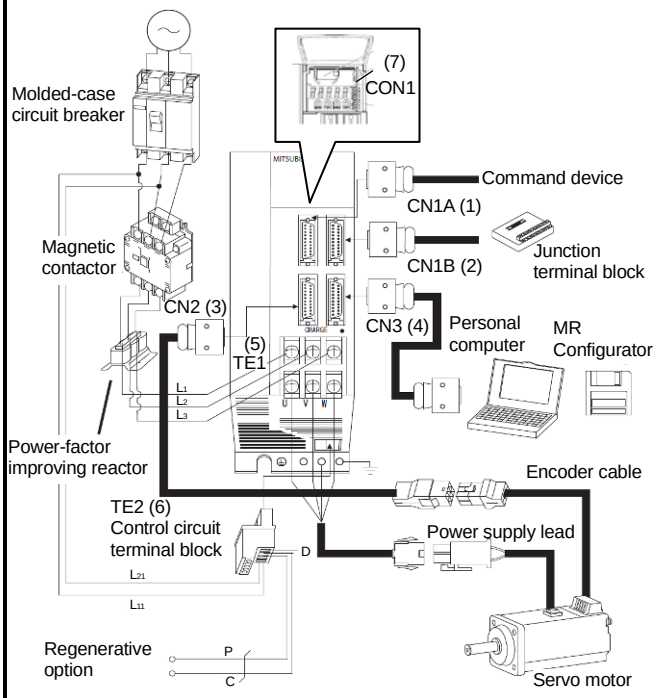
The application "MR-J4(W)-B mode selection" is available with MR Configurator2 Version 1.12N and later. When the version older than 1.12N is being used, please download the update version from a Mitsubishi Electric FA Global Website.

## 5. EXAMPLES OF CONNECTIONS FOR REPLACEMENT

### Comparison of MR-J2-A and MR-J4-A

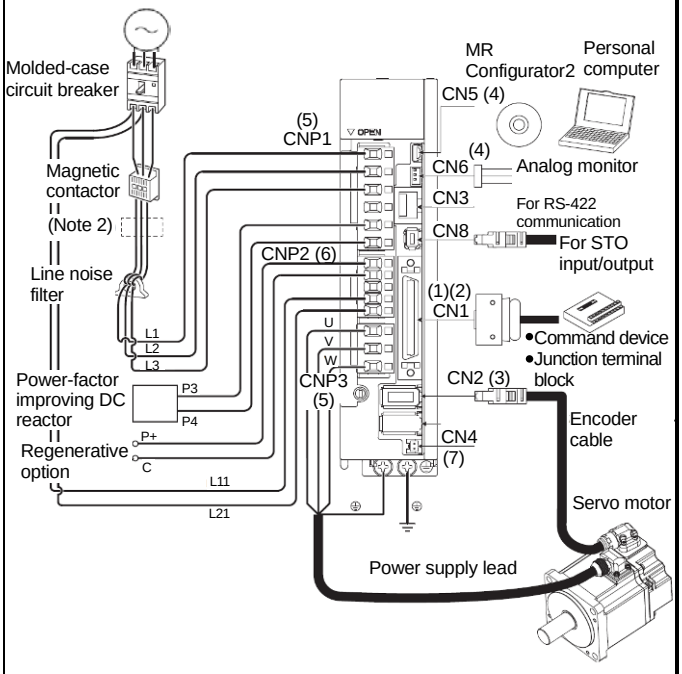
An example of connections with the peripheral equipment is shown below. Refer to the respective Instruction Manuals for details on the signals.

MR-J2-A




Note 1: The above configuration example is applied to the MR-J2-100A or less capacities.

MR-J4-A




Note 1: The above configuration example is applied to the MR-J4-200A or less capacities.
Note 2: The power factor improving AC reactor can also be used. In that case, the power factor improving DC reactor cannot be used.

・List of connector and terminal block correspondence

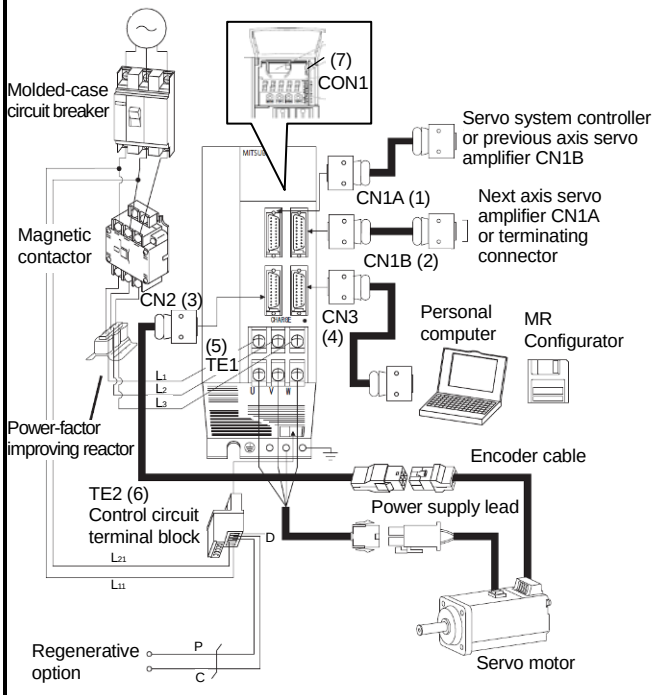
| | MR-J2-A | | | MR-J4-A | Precautions |
|---|---|---|---|---|---|
| (1) | I/O signal connector CN1A | | | I/O signal connector CN1 | Must fabricate a new cable. |
| (2) | I/O signal connector CN1B | | | | |
| (3) | Encoder connector CN2 | | | Encoder connector CN2 | Must switch to encoder cable (option) or fabricate a new cable. |
| (4) | Communication connector CN3 | PC connection | | USB communication connector CN5 | Must switch to USB cable (option). |
| | | Analog monitor | → | Analog monitor connector CN6 | Must switch to monitor cable (option). |
| (5) | Main circuit terminal block TE1 | Input power supply | | Main circuit power connector CNP1 | Must switch to power connector (enclosed with amplifier). |
| | | Servo motor power supply | | Servo motor power connector CNP3 | |
| (6) | Control circuit terminal block TE2 | | | Control circuit power connector CNP2 | |
| (7) | Battery connector CON1 | | | Battery connector CN4 | Must fabricate a new battery. |

Note: When not using the STO function, attach a short-circuit connector supplied with a servo amplifier onto CN8 (STO input signal connector).

**Comparison of MR-J2-B and MR-J4-B**

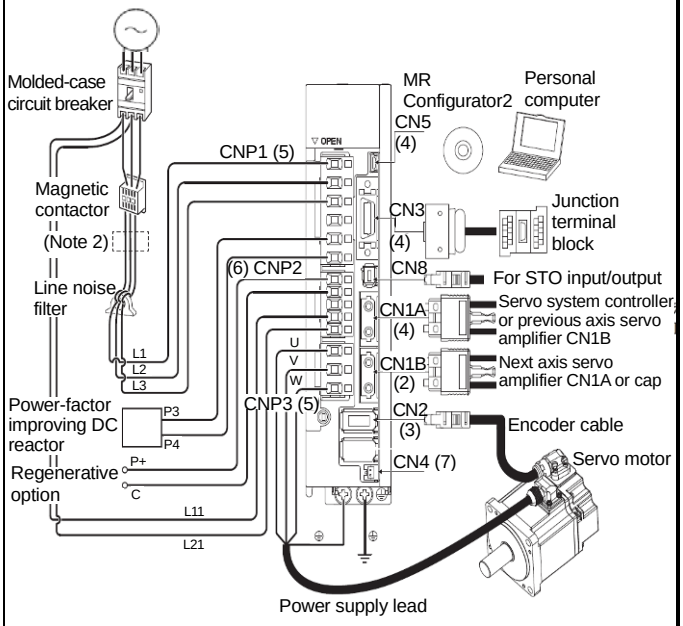
An example of connections with the peripheral equipment is shown below. Refer to the respective Instruction Manuals for details on the signals.

MR-J2-B




Note 1: The above configuration example is applied to the MR-J2-100B or less capacities.

MR-J4-B




Note 1: The above configuration example is applied to the MR-J4-200B or less capacities.
Note 2: The power factor improving AC reactor can also be used. In that case, the power factor improving DC reactor cannot be used.

・List of connector and terminal block correspondence

| | MR-J2-B | | | MR-J4-B | Precautions |
|---|---|---|---|---|---|
| (1) | Bus cable connection connector CN1A | | | SSCNET III cable connection connector CN1A | Must switch to SSCNET III cable (option). |
| (2) | Bus cable connection connector CN1B | | | SSCNET III cable connection connector CN1B | Must switch to SSCNET III cable (option). |
| (3) | Encoder connector CN2 | | | Encoder connector CN2 | Must switch to encoder cable (option) or fabricate a new cable. |
| (4) | Communication connector CN3 | PC connection | | USB communication connector CN5 | Must switch to USB cable (option). |
| | | Analog monitor | → | I/O signal connector CN3 | Must fabricate a new cable. |
| | | Encoder output pulse | | | |
| (5) | Main circuit terminal block TE1 | Input power supply | | Main circuit power connector CNP1 | Must switch to power connector (enclosed with amplifier). |
| | | Servo motor power supply | | Servo motor power connector CNP3 | |
| (6) | Control circuit terminal block TE2 | | | Control circuit power connector CNP2 | |
| (7) | Battery connector CON1 | | | Battery connector CN4 | Must fabricate a new battery. |

Note: When not using the STO function, attach a short-circuit connector supplied with a servo amplifier onto CN8 (STO input signal connector).

## 6. COMPARISON OF PARAMETERS

The correspondence of the MR-J2 series and MR-J4 series parameter numbers is shown below. Refer to the respective Instruction Manuals for detailed specifications of each parameter.

### Comparison of MR-J2-A and MR-J4-A

With MR-J4-A, the forced stop deceleration function is enabled in the factory setting. To disable the deceleration to a stop function, set PA04 to "0□□□".

| MR-J2-A | | MR-J4-A | | Precautions |
|---|---|---|---|---|
| No. | Name | No. | Name | |
| 0 | Select the control mode | PA01 | Control mode selection | |
| | Selection of regenerative option | PA02 | Regenerative option selection | The setting must be changed according to option model. |
| 1 | Input filter | PD29 | Input filter setting | Some of the settings cannot be set. |
| | CN1B-pin 19's function selection | | | No corresponding parameter. (Can substitute with PD23 to PD26, PD28.) |
| | CN1B-pin 18's function selection | | | No corresponding parameter (Can substitute with PD23 to PD26, PD28.) |
| | Selection of absolute position detection system | PA03 | Absolute position detection system selection | |
| 2 | Auto tuning response setting | PA09 | Auto tuning response | The setting value must be changed based on machine resonance frequency. |
| | Auto tuning gain adjustment mode setting | PA08 | Gain adjustment mode selection | The setting value must be changed according to the auto tuning mode. Some of the settings cannot be set. <Gain adjustment mode correspondence table> |
| 3 | Electronic gear numerator | PA06 | Electronic gear numerator | The setting value must be changed according to encoder resolution. |
| 4 | Electronic gear denominator | PA07 | Electronic gear denominator | |
| 5 | In-position range | PA10 | In-position range | Set it per command input pulse before electronic gear conversion for both J2-A and J4-A. |
| 6 | Position loop gain 1 | PB07 | Model loop gain | The unit system is different. (rad/s→0.1 rad/s) |
| 7 | Position command acceleration/deceleration time constant | PB03 | Position command acceleration/deceleration time constant | |
| 8 | Internal speed command 1/ internal speed limit 1 | PC05 | Internal speed command 1/ internal speed limit 1 | |
| 9 | Internal speed command 2/ internal speed limit 2 | PC06 | Internal speed command 2/ internal speed limit 2 | |
| 10 | Internal speed command 3/ internal speed limit 3 | PC07 | Internal speed command 3/ internal speed limit 3 | |
| 11 | Acceleration time constant | PC01 | Acceleration time constant | |
| 12 | Deceleration time constant | PC02 | Deceleration time constant | |
| 13 | S-pattern acceleration/ deceleration time constant | PC03 | S-pattern acceleration/ deceleration time constant | |
| 14 | Torque command time constant | PC04 | Torque command time constant | |
| 15 | For manufacturer setting | PC20 | Station number setting | |

<Gain adjustment mode correspondence table>

| MR-J2-A | MR-J4-A |
|---|---|
| Interpolation axis control (for speed loop only) | 2 gain adjustment mode 1 |
| For both position and speed loops | Auto tuning mode 1 |
| | Auto tuning mode 2 |
| Not applicable | Manual mode |

| MR-J2-A | | MR-J4-A | | Precautions |
|---|---|---|---|---|
| No. | Name | No. | Name | |
| 16 | Serial communication baud rate selection | | | |
| | Alarm history clear | PC18 | Alarm history clear selection | |
| 17 | Analog monitor output | PC14 | Analog monitor 1 output | The setting value must be changed according to monitor output data. |
| | | PC15 | Analog monitor 2 output | |
| 18 | Status display selection | PC36 | Status display selection | Change the setting as necessary. |
| 19 | Parameter write inhibit | PA19 | Parameter writing inhibit | Change the setting as necessary. |
| 20 | Restart after instantaneous power failure selection | | | Available in the future |
| | Selection of servo lock at stop | PC23 | Function selection C-2<br>Servo-lock selection at speed control stop | |
| | Slight vibration suppression control | PB24 | Slight vibration suppression control selection | |
| 21 | Function selection 3<br>(command pulse selection) | PA13 | Command pulse input form | |
| 22 | How to make a stop when LSP/LSN is valid | PD30 | Function selection D-1<br>Stop method selection when LSP/LSN is valid | |
| | VC/VLA voltage averaging | PC23 | Function selection C-2<br>VC/VLA voltage averaging selection | |
| | Machine resonance suppression filter | PB13 | Machine resonance suppression filter 1 | The setting methods are different. |
| | | PB14 | Notch shape selection 1 | |
| 23 | Feed forward gain | PB04 | Feed forward gain | |
| 24 | Zero speed | PC17 | Zero speed | |
| 25 | Analog speed command maximum speed/<br>Analog speed limit maximum speed | PC12 | Analog speed command - Maximum speed/<br>Analog speed limit - Maximum speed | |
| 26 | Analog torque command maximum output | PC13 | Analog torque command maximum output | The unit system is different. (%→0.1%) |
| 27 | Encoder output pulses | PA15 | Encoder output pulses | Max. output frequency is different. |
| 28 | Internal torque limit 1 | PA11 | Forward rotation torque limit | The unit system is different. (%→0.1%) |
| | | PA12 | Reverse rotation torque limit | |
| 29 | Analog speed command offset/<br>Analog speed limit offset | PC37 | Analog speed command offset/<br>Analog speed limit offset | Depends on H/W.<br>The setting values must be changed. |
| 30 | Analog torque command offset/<br>Analog torque limit offset | PC38 | Analog torque command offset/<br>Analog torque limit offset | Depends on H/W.<br>The setting values must be changed. |
| 31 | Analog monitor 1 offset | PC39 | Analog monitor 1 offset | Depends on H/W.<br>The setting values must be changed. |
| 32 | Analog monitor 2 offset | PC40 | Analog monitor 2 offset | Depends on H/W.<br>The setting values must be changed. |
| 33 | Electromagnetic brake sequence output | PC16 | Electromagnetic brake sequence output | |
| 34 | Ratio of load inertia moment to servo motor inertia moment | PB06 | Load to motor inertia ratio | The unit system is different. (0.1-fold→0.01-fold)<br>Pay attention to setting value |
| 35 | Position control gain 2 | PB08 | Position loop gain | The unit system is different. (rad/s→0.1 rad/s) |
| 36 | Speed control gain 1 | | | No corresponding parameter (Setting not required) |

| MR-J2-A | | MR-J4-A | | Precautions |
|---|---|---|---|---|
| No. | Name | No. | Name | |
| 37 | Speed control gain 2 | PB09 | Speed loop gain | |
| 38 | Speed integral compensation | PB10 | Speed integral compensation | The unit system is different. (ms→0.1 ms) |
| 39 | Speed differential compensation | PB11 | Speed differential compensation | |
| 40 | For manufacturer setting | | | |
| 41 | Input signal automatic ON selection | PD01 | Input signal automatic on selection 1 | The setting method changes. |
| 42 | Control change (LOP) input pin assignment | | | Can substitute with PD23 to PD26, and PD28. |
| | Clear (CR) selection | PD32 | Function selection D-3<br>Clear (CR) selection | |
| 43 | Input signal selection 2 (CN1B-5) | PD03 | Input signal device selection 1L | |
| | | PD04 | Input signal device selection 1H | |
| 44 | Input signal selection 3 (CN1B-14) | PD11 | Input signal device selection 5L | |
| | | PD12 | Input signal device selection 5H | |
| | | PD06 | Input signal device selection 2H | |
| 45 | Input signal selection 4 (CN1A-8) | PD13 | Input signal device selection 6L | |
| | | PD14 | Input signal device selection 6H | |
| 46 | Input signal selection 5 (CN1B-7) | PD05 | Input signal device selection 2L | |
| 47 | Input signal selection 6 (CN1B-8) | PD07 | Input signal device selection 3L | |
| | | PD08 | Input signal device selection 3H | |
| 48 | Input signal selection 7 (CN1B-9) | PD09 | Input signal device selection 4L | |
| | | PD10 | Input signal device selection 4H | |
| 49 | Setting of alarm code output | PD34 | Function selection D-5<br>Alarm code output | |
| | Setting of warning (WNG) output | | | No corresponding parameter (Can substitute with PD23 to PD26, PD28) |
| | Setting of battery warning (BWNG) output | | | No corresponding parameter (Can substitute with PD23 to PD26, PD28) |

**Comparison of MR-J2-B and MR-J4-B**

With MR-J4-B, the forced stop deceleration function is enabled in the factory setting. To disable the deceleration to a stop function, set PA04 to "0□□□".

<table>
<tr><th colspan="2">MR-J2-B</th><th colspan="2">MR-J4-B</th><th rowspan="2">Precautions</th></tr>
<tr><th>No.</th><th>Name</th><th>No.</th><th>Name</th></tr>
<tr><td>1</td><td>Amplifier setting</td><td>PA03</td><td>Absolute position detection system selection</td><td></td></tr>
<tr><td>2</td><td>Regenerative option selection</td><td>PA02</td><td>Regenerative option selection</td><td>The setting must be changed according to option model.</td></tr>
<tr><td>3</td><td>For manufacturer setting</td><td></td><td></td><td>No corresponding parameter<br>(Setting not required)</td></tr>
<tr><td>4</td><td>For manufacturer setting</td><td></td><td></td><td>No corresponding parameter<br>(Setting not required)</td></tr>
<tr><td>5</td><td>For manufacturer setting</td><td></td><td></td><td>No corresponding parameter<br>(Setting not required)</td></tr>
<tr><td>6</td><td>For manufacturer setting</td><td></td><td></td><td>No corresponding parameter<br>(Setting not required)</td></tr>
<tr><td>7</td><td>Rotation direction selection</td><td>PA14</td><td>Rotation direction selection</td><td></td></tr>
<tr><td>8</td><td>Auto tuning gain adjustment mode</td><td>PA08</td><td>Gain adjustment mode selection</td><td>The setting value must be changed according to the auto tuning mode.<br>Some settings cannot be set.<br><Gain adjustment mode correspondence table><br><table><tr><th>MR-J2-B</th><th>MR-J4-B</th></tr><tr><td>Interpolation axis control</td><td>2 gain adjustment mode 1</td></tr><tr><td>For both position and speed loops</td><td>Auto tuning mode 1</td></tr><tr><td></td><td>Auto tuning mode 2</td></tr><tr><td>Not applicable</td><td>Manual mode</td></tr></table></td></tr>
<tr><td>9</td><td>Servo response</td><td>PA09</td><td>Auto tuning response</td><td>The setting value must be changed based on machine resonance frequency.</td></tr>
<tr><td>10</td><td>Forward rotation torque limit</td><td></td><td></td><td rowspan="2">No corresponding parameter</td></tr>
<tr><td>11</td><td>Reverse rotation torque limit</td><td></td><td></td></tr>
<tr><td>12</td><td>Ratio of load inertia moment to servo motor inertia moment</td><td>PB06</td><td>Load to motor inertia ratio</td><td>The unit system is different.<br>(0.1-fold→0.01-fold)<br>Pay attention to setting value</td></tr>
<tr><td>13</td><td>Position control gain 1</td><td>PB07</td><td>Model loop gain</td><td>The unit system is different.<br>(rad/s→0.1 rad/s)</td></tr>
<tr><td>14</td><td>Speed control gain 1</td><td></td><td></td><td>No corresponding parameter<br>(Setting not required)</td></tr>
<tr><td>15</td><td>Position control gain 2</td><td>PB08</td><td>Position loop gain</td><td>The unit system is different.<br>(rad/s→0.1 rad/s)</td></tr>
<tr><td>16</td><td>Speed control gain 2</td><td>PB09</td><td>Speed loop gain</td><td></td></tr>
<tr><td>17</td><td>Speed integral compensation</td><td>PB10</td><td>Speed integral compensation</td><td>The unit system is different.<br>(ms→0.1 ms)</td></tr>
<tr><td rowspan="2">18</td><td rowspan="2">Machine resonance suppression filter 1</td><td>PB13</td><td>Machine resonance suppression filter 1</td><td rowspan="2">Change the setting value according to the frequency and depth.</td></tr>
<tr><td>PB14</td><td>Notch shape selection 1</td></tr>
<tr><td>19</td><td>Feed forward gain</td><td>PB04</td><td>Feed forward gain</td><td></td></tr>
<tr><td>20</td><td>In-position range</td><td>PA10</td><td>In-position range</td><td>Pay attention to the unit system.<br>J2-B: Set per feedback pulse.<br>J4-B: Set per command pulse.</td></tr>
<tr><td>21</td><td>Electromagnetic brake sequence output</td><td>PC02</td><td>Electromagnetic brake sequence output</td><td></td></tr>
<tr><td rowspan="2">22</td><td rowspan="2">Analog monitor output</td><td>PC09</td><td>Analog monitor 1 output</td><td rowspan="2">The setting value must be changed according to monitor output data.</td></tr>
<tr><td>PC10</td><td>Analog monitor 2 output</td></tr>
</table>

| MR-J2-B | | MR-J4-B | | Precautions |
|---|---|---|---|---|
| No. | Name | No. | Name | |
| 23 | Servo forced stop selection | PA04 | Function selection A-1<br>Servo forced stop selection | |
| 24 | Slight vibration suppression control selection | PB24 | Slight vibration suppression control selection | |
| | Motor-less operation selection | PC05 | Function selection C-2<br>Motor-less operation selection | |
| 25 | For manufacturer setting | | | |
| 26 | For manufacturer setting | | | |
| 27 | Analog monitor 1 offset | PC11 | Analog monitor 1 offset | Depends on H/W.<br>The setting values must be changed. |
| 28 | Analog monitor 2 offset | PC12 | Analog monitor 2 offset | Depends on H/W.<br>The setting values must be changed. |
| 29 | For manufacturer setting | | | |
| 30 | Zero speed | PC07 | Zero speed | |
| 31 | Error excessive alarm level | PC01 | Error excessive alarm level | J2B: 0.025 rev. unit selectable<br>J4B: 1/0.1/0.01/0.001 rev. unit selectable |
| | | PC06 | Function selection C-3<br>Error excessive alarm level unit selection | |
| 32 | PI-PID control switch over selection | PB24 | PI-PID switching control selection | Switching with PI-PID switching position droop is not possible. |
| 33 | For manufacturer setting | | | |
| 34 | PI-PID control switch-over position droop | | | No corresponding parameter |
| 35 | For manufacturer setting | | | |
| 36 | Speed differential compensation | PB11 | Speed differential compensation | |
| 37 | For manufacturer setting | | | |
| 38 | For manufacturer setting | | | |
| 39 | For manufacturer setting | | | |
| 40 | Parameter writing inhibit | PA19 | Parameter writing inhibit | Change the setting as necessary. |