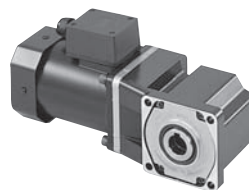


## High Power Induction Motors BH Series

200 W

Frame Size: □104 mm



Right-Angle Shaft



Parallel Shaft

## Features

## ● High Power 200 W

Smallest frame size among 200 W motors

## ● Hypoid Gear-Employed Right Angle Gearheads

Right angle gearheads employ hypoid gears. Hollow shafts and solid shafts are available to enable space-saving.

## ● (RoHS) RoHS-Compliant

BH Series conforms to the RoHS Directive that prohibits the use of six chemical substances including lead and cadmium.

● Details of RoHS Directive → Page G-23

## ● "Combination Type" for Easy Installation

The combination type comes with the motor and gearhead pre-assembled. This enables easy installation in equipment.

## Combination Type:

The combination type comes with the motor and its dedicated gearhead pre-assembled, which simplifies installation in equipment. Motors and gearheads are also available separately to facilitate changes or repairs.

## Specifications – Continuous Rating (RoHS)



| Model<br>Combination Type<br>( ): Round Shaft Type          | Output<br>Power<br>W | Voltage<br>VAC   | Frequency<br>Hz | Current<br>A | Starting<br>Torque<br>N·m | Rated<br>Torque<br>N·m | Rated<br>Speed<br>r/min | Capacitor<br>μF | Degree of<br>Protection |
|-------------------------------------------------------------|----------------------|------------------|-----------------|--------------|---------------------------|------------------------|-------------------------|-----------------|-------------------------|
| (TP) BHI62ET-□RH<br>BHI62ET-□RA<br>BHI62ET-□<br>(BHI62ET-A) | 200                  | Single-Phase 220 | 60              | 1.5          | 0.98                      | 1.27                   | 1500                    | 10              | IP54*                   |
|                                                             |                      |                  | 50              |              |                           | 1.52                   | 1250                    |                 |                         |
|                                                             |                      | Single-Phase 230 | 60              | 1.27         |                           | 1500                   |                         |                 |                         |
|                                                             |                      |                  | 50              | 1.49         |                           | 1.49                   | 1250                    |                 |                         |
| (TP) BHI62ST-□RH<br>BHI62ST-□RA<br>BHI62ST-□<br>(BHI62ST-A) | 200                  | Three-Phase 200  | 60              | 1.1          | 1.25                      | 1.25                   | 1500                    | -               | IP54*                   |
|                                                             |                      |                  | 60              |              | 1.23                      | 1.23                   | 1550                    |                 |                         |
|                                                             |                      | Three-Phase 220  | 60              | 0.95         | 1.18                      | 1.18                   | 1600                    |                 |                         |
|                                                             |                      |                  | Three-Phase 230 |              | 60                        |                        |                         |                 |                         |

● Enter the gear ratio in the box (□) within the model name. The values for each specification applies to the motor only.

● Details of safety standards → Page G-2

● List of safety standard approved products (Model, Standards, Standards File No., Certification Body) → Page G-10

● In addition to the products shown above, the products for single-phase 100 VAC, single-phase 110/115 VAC and single-phase 200 VAC are also available. Please contact the nearest Oriental Motor sales office.

\*Excluding the installation surface of the round shaft type.

(TP): Contains a built-in thermal protector (automatic return type). If a motor overheats for any reason, the thermal protector is activated and the motor is stopped. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.

## Product Line

## ● Combination Type (RoHS)

## ◇ Right-Angle Shaft

| Type                         | Voltage                        | Model       | Gear Ratio |
|------------------------------|--------------------------------|-------------|------------|
| Hollow Shaft<br>Terminal Box | Single-Phase<br>220/230 VAC    | BHI62ET-□RH | 5~180      |
|                              | Three-Phase<br>200/220/230 VAC | BHI62ST-□RH | 5~180      |
| Solid Shaft<br>Terminal Box  | Single-Phase<br>220/230 VAC    | BHI62ET-□RA | 5~180      |
|                              | Three-Phase<br>200/220/230 VAC | BHI62ST-□RA | 5~180      |

● Enter the gear ratio in the box (□) within the model name.

The following items are included in each product.

Motor, Gearhead, Capacitor\*, Capacitor Cap\*, Parallel Key, Operating Manual  
\*Only for single-phase motors

## ◇ Parallel Shaft (RoHS)

| Type         | Voltage                        | Model     | Gear Ratio |
|--------------|--------------------------------|-----------|------------|
| Terminal Box | Single-Phase<br>220/230 VAC    | BHI62ET-□ | 3~180      |
|              | Three-Phase<br>200/220/230 VAC | BHI62ST-□ | 3~180      |

● Enter the gear ratio in the box (□) within the model name.

The following items are included in each product.

Motor, Gearhead, Capacitor\*, Capacitor Cap\*, Mounting Screws, Parallel Key, Operating Manual  
\*Only for single-phase motors

## ● Round Shaft Type (RoHS)

| Type         | Voltage                        | Model     |
|--------------|--------------------------------|-----------|
| Terminal Box | Single-Phase<br>220/230 VAC    | BHI62ET-A |
|              | Three-Phase<br>200/220/230 VAC | BHI62ST-A |

The following items are included in each product.

Motor, Capacitor\*, Capacitor Cap\*, Operating Manual  
\*Only for single-phase motors

Speed Control  
Inverter  
→ Page A-195

Accessories  
→ Page A-229



## ■ Gearmotor – Torque Table for Combination Type

- Enter the gear ratio in the box (□) within the model name.
- A colored background (□) indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio.  
The actual speed is 2-20% less than the displayed value, depending on the load.
- Decimal gearheads are not available for the **BH** series.

### ● Right-Angle Shaft 50 Hz

Unit = N·m

| Model                           | Speed r/min | 300 | 250 | 200 | 167  | 120  | 100  | 83   | 60   | 50   | 42   | 30   | 25   | 20   | 17   | 15   | 12.5 | 10  | 8.3 |
|---------------------------------|-------------|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|
|                                 | Gear Ratio  | 5   | 6   | 7.5 | 9    | 12.5 | 15   | 18   | 25   | 30   | 36   | 50   | 60   | 75   | 90   | 100  | 120  | 150 | 180 |
| <b>BHI62ET-□RH, BHI62ET-□RA</b> |             | 5.5 | 6.7 | 8.3 | 10.0 | 13.9 | 16.6 | 20.0 | 27.7 | 33.3 | 36.0 | 40.0 | 43.0 | 47.0 | 51.5 | 54.5 | 60   | 60  | 60  |
| <b>BHI62ST-□RH, BHI62ST-□RA</b> |             | 5.4 | 6.5 | 8.2 | 9.8  | 13.6 | 16.3 | 19.6 | 27.2 | 32.6 | 36.0 | 40.0 | 43.0 | 47.0 | 51.5 | 54.5 | 60   | 60  | 60  |

### ● Right-Angle Shaft 60 Hz

Unit = N·m

| Model                                     | Speed r/min | 360 | 300 | 240 | 200 | 144  | 120  | 100  | 72   | 60   | 50   | 36   | 30   | 24   | 20   | 18   | 15  | 12  | 10  |
|-------------------------------------------|-------------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|
|                                           | Gear Ratio  | 5   | 6   | 7.5 | 9   | 12.5 | 15   | 18   | 25   | 30   | 36   | 50   | 60   | 75   | 90   | 100  | 120 | 150 | 180 |
| <b>BHI62ET-□RH, BHI62ET-□RA</b>           |             | 4.6 | 5.6 | 7.0 | 8.3 | 11.6 | 13.9 | 16.7 | 23.2 | 27.8 | 33.4 | 40.0 | 43.0 | 47.0 | 51.5 | 54.5 | 60  | 60  | 60  |
| <b>BHI62ST-□RH, BHI62ST-□RA (200 VAC)</b> |             | 4.6 | 5.5 | 6.8 | 8.2 | 11.4 | 13.7 | 16.4 | 22.8 | 27.4 | 32.9 | 40.0 | 43.0 | 47.0 | 51.5 | 54.5 | 60  | 60  | 60  |
| <b>BHI62ST-□RH, BHI62ST-□RA (220 VAC)</b> |             | 4.5 | 5.4 | 6.7 | 8.1 | 11.2 | 13.5 | 16.2 | 22.4 | 26.9 | 32.3 | 40.0 | 43.0 | 47.0 | 51.5 | 54.5 | 60  | 60  | 60  |
| <b>BHI62ST-□RH, BHI62ST-□RA (230 VAC)</b> |             | 4.3 | 5.2 | 6.5 | 7.8 | 10.8 | 12.9 | 15.5 | 21.5 | 25.8 | 31.0 | 40.0 | 43.0 | 47.0 | 51.5 | 54.5 | 60  | 60  | 60  |

### ● Parallel Shaft 50 Hz

Unit = N·m

| Model            | Speed r/min | 500 | 417 | 300 | 250 | 200  | 167  | 120  | 100  | 83   | 60   | 50   | 42 | 30 | 25 | 20 | 17 | 15  | 12.5 | 10  | 8.3 |
|------------------|-------------|-----|-----|-----|-----|------|------|------|------|------|------|------|----|----|----|----|----|-----|------|-----|-----|
|                  | Gear Ratio  | 3   | 3.6 | 5   | 6   | 7.5  | 9    | 12.5 | 15   | 18   | 25   | 30   | 36 | 50 | 60 | 75 | 90 | 100 | 120  | 150 | 180 |
| <b>BHI62ET-□</b> |             | 4.1 | 4.9 | 6.8 | 8.2 | 10.3 | 12.3 | 16.3 | 19.6 | 23.5 | 32.7 | 39.2 | 40 | 40 | 40 | 40 | 40 | 40  | 40   | 40  | 40  |
| <b>BHI62ST-□</b> |             | 4.0 | 4.8 | 6.7 | 8.0 | 10.1 | 12.1 | 16.0 | 19.2 | 23.1 | 32.0 | 38.4 | 40 | 40 | 40 | 40 | 40 | 40  | 40   | 40  | 40  |

### ● Parallel Shaft 60 Hz

Unit = N·m

| Model                      | Speed r/min | 600 | 500 | 360 | 300 | 240 | 200  | 144  | 120  | 100  | 72   | 60   | 50   | 36 | 30 | 24 | 20 | 18  | 15  | 12  | 10  |
|----------------------------|-------------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|----|----|----|----|-----|-----|-----|-----|
|                            | Gear Ratio  | 3   | 3.6 | 5   | 6   | 7.5 | 9    | 12.5 | 15   | 18   | 25   | 30   | 36   | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
| <b>BHI62ET-□</b>           |             | 3.4 | 4.1 | 5.7 | 6.9 | 8.6 | 10.3 | 13.7 | 16.4 | 19.7 | 27.3 | 32.8 | 39.3 | 40 | 40 | 40 | 40 | 40  | 40  | 40  | 40  |
| <b>BHI62ST-□ (200 VAC)</b> |             | 3.4 | 4.1 | 5.6 | 6.8 | 8.4 | 10.1 | 13.4 | 16.1 | 19.4 | 26.9 | 32.3 | 38.7 | 40 | 40 | 40 | 40 | 40  | 40  | 40  | 40  |
| <b>BHI62ST-□ (220 VAC)</b> |             | 3.3 | 4.0 | 5.5 | 6.6 | 8.3 | 10.0 | 13.2 | 15.9 | 19.0 | 26.4 | 31.7 | 38.1 | 40 | 40 | 40 | 40 | 40  | 40  | 40  | 40  |
| <b>BHI62ST-□ (230 VAC)</b> |             | 3.2 | 3.8 | 5.3 | 6.4 | 8.0 | 9.6  | 12.7 | 15.2 | 18.3 | 25.4 | 30.4 | 36.5 | 40 | 40 | 40 | 40 | 40  | 40  | 40  | 40  |

## ■ Permissible Overhung Load and Permissible Thrust Load

Combination Type → Page A-15

Round Shaft Type → Page A-15

## ■ Permissible Load Inertia of Gearhead: J

→ Page A-16

## Dimensions (Unit = mm)

● Mounting screws are included with the combination type, parallel shaft. Dimensions for mounting screws → Page A-246

● Enter the gear ratio in the box (□) within the model name.

### ◇ Combination Type: Right-Angle, Hollow Shaft (Terminal Box Type)

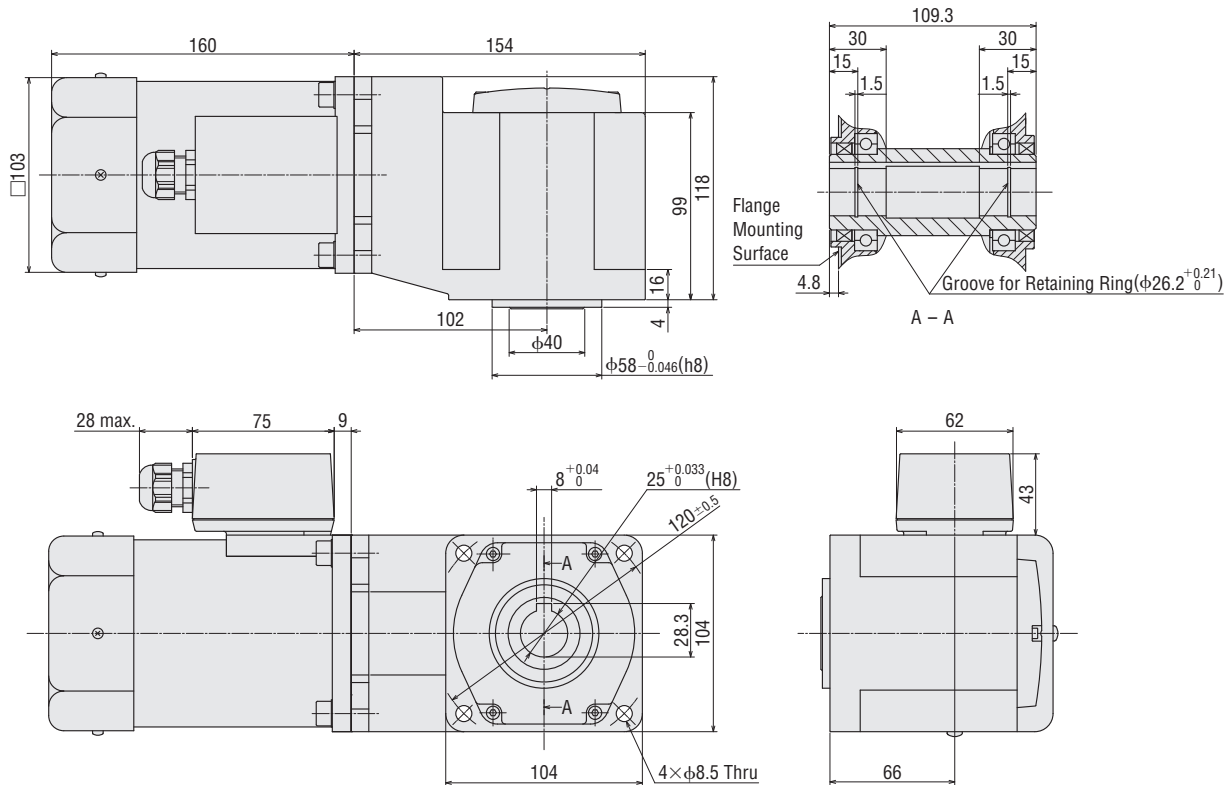
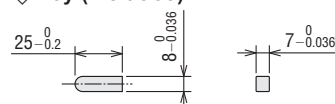
**BHI62ET-□RH, BHI62ST-□RH**

Mass: 10.0 kg

Motor: BHI62ET-G2, BHI62ST-G2

Gearhead: BH6G2-□RH

### ◇ Key (Included)



● Use cable with a diameter of  $\phi 6 \sim \phi 12$  mm.

● Details of terminal box → Page A-248

◇ Combination Type: Right-Angle, Solid Shaft (Terminal Box Type)

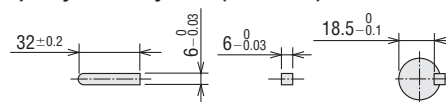
**BHI62ET-□RA, BHI62ST-□RA**

Mass: 10.0 kg

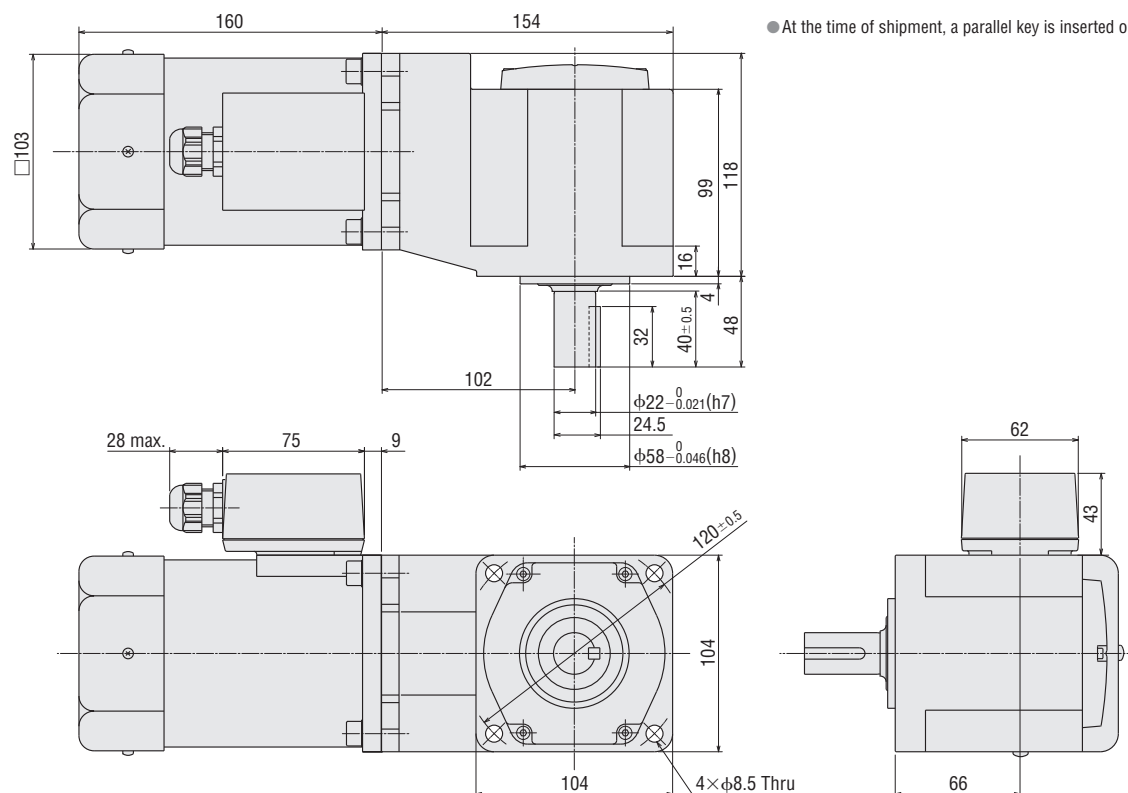
Motor: BHI62ET-G2, BHI62ST-G2

Gearhead: BH6G2-□RA

◇ Key and Key Slot (Included)



● At the time of shipment, a parallel key is inserted on the gearhead's shaft.



- Use cable with a diameter of  $\phi 6 \sim \phi 12$  mm.
- Details of terminal box → Page A-248

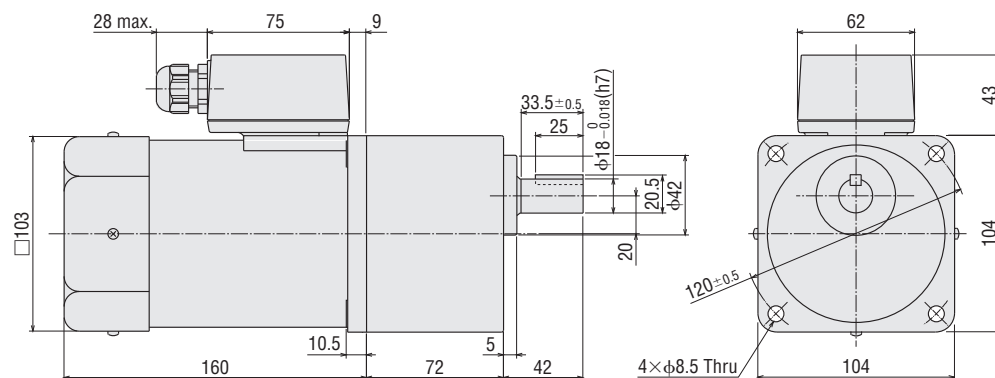
◇ Combination Type: Parallel Shaft (Terminal Box Type)

**BHI62ET-□, BHI62ST-□**

Mass: 8.0 kg

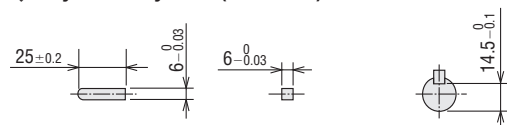
Motor: BHI62ET-G2, BHI62ST-G2

Gearhead: BH6G2-□



- Use cable with a diameter of  $\phi 6 \sim \phi 12$  mm.
- Details of terminal box → Page A-248

◇ Key and Key Slot (Included)

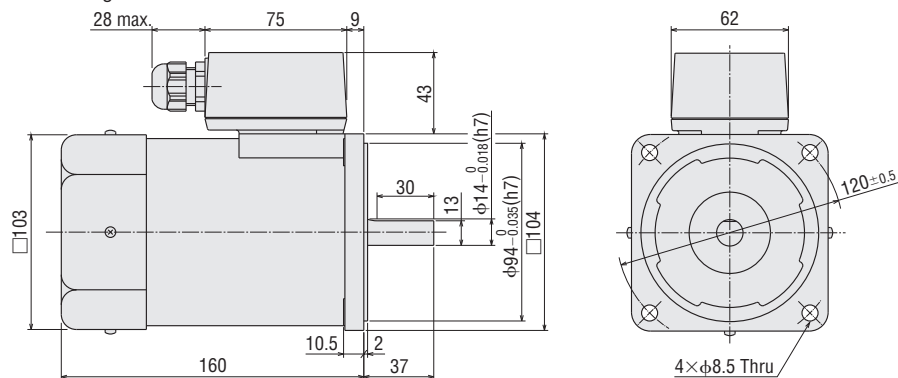


● At the time of shipment, a parallel key is inserted on the gearhead's shaft.

◇ Round Shaft Type (Terminal Box Type)

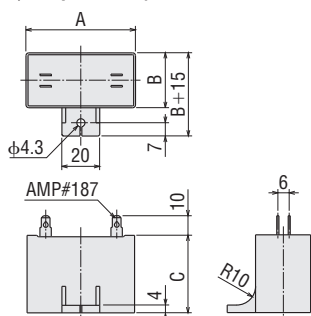
**BH162ET-A, BH162ST-A**

Mass: 5.0 kg



- Use cable with a diameter of φ6 ~ φ12 mm.
- Details of terminal box → Page A-248

◇ Capacitor (Included with single-phase motors)



◇ Capacitor Dimensions (mm)

| Model                                                                            | Capacitor Model | A  | B  | C  | Mass (g) |
|----------------------------------------------------------------------------------|-----------------|----|----|----|----------|
| <b>BH162ET-□RH</b><br><b>BH162ET-□RA</b><br><b>BH162ET-□</b><br><b>BH162ET-A</b> | CH100BFAUL      | 58 | 35 | 50 | 132      |

- A capacitor cap is included with a capacitor.
- Enter the gear ratio in the box (□) within the model name.

■ Mounting Method for Right Angle, Hollow Shaft Type

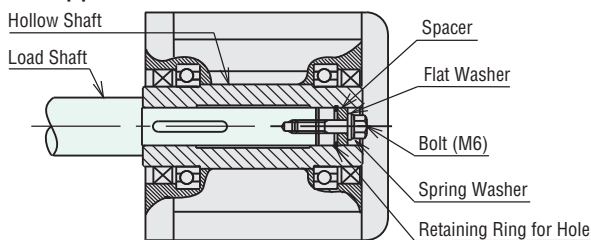
These figures below show how to mount loads depending on the shape of the shaft. The tolerance of the inner diameter for the hollow shaft is finished as H8, and "key slot" processing is given to mount the load shaft. The recommended tolerance of the load shaft is h7. Apply a coating of molybdenum disulfide or similar grease to the surface of load-shaft and to the inner diameter of the load shaft to prevent binding. Recommended load shaft diameter is shown in the table on the right.

● Inner Diameter of Hollow Shaft and Recommended Load Shaft Diameter

Unit = mm

| Model                              | <b>BH6G2-□RH</b>                   |
|------------------------------------|------------------------------------|
| Inner Diameter of Hollow Shaft H8  | φ25 <sup>+0.033</sup> <sub>0</sub> |
| Recommended Load Shaft Diameter h7 | φ25 <sup>0</sup> <sub>-0.021</sub> |

● Stepped Load Shaft

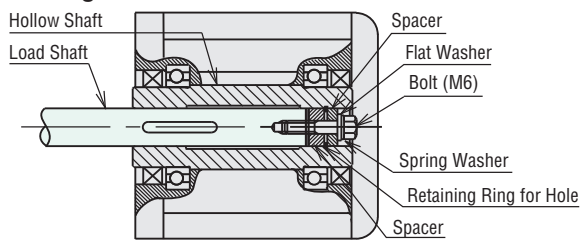


- After securing a load, attach the safety cover included.

Notes:

- Be careful not to apply a shock to the hollow shaft when mounting a load shaft. It may damage the bearing inside the gearhead.
- Bolts or other fasteners used to install the load shaft are not included. These parts must be purchased separately.

● Straight Load Shaft



## Connection Diagrams

The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.

### Combination Type: Parallel Shaft

| Single-Phase Induction Motor                | Three-Phase Induction Motor                                                                                 |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>BHI62ET-3~9</b><br><b>BHI62ET-50~180</b> | <b>BHI62ST-3~9</b><br><b>BHI62ST-50~180</b>                                                                 |
| <b>Clockwise</b><br>                        | <b>Clockwise</b><br>                                                                                        |
| <b>Counterclockwise</b><br>                 | <b>Counterclockwise</b><br>To change the rotation direction, change any two connections between R, S and T. |
| <b>BHI62ET-12.5~36</b>                      | <b>BHI62ST-12.5~36</b>                                                                                      |
| <b>Clockwise</b><br>                        | <b>Clockwise</b><br>                                                                                        |
| <b>Counterclockwise</b><br>                 | <b>Counterclockwise</b><br>To change the rotation direction, change any two connections between R, S and T. |

### Combination Type: Right Angle Shaft

| Single-Phase Induction Motor                         | Three-Phase Induction Motor                                                                                 |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>BHI62ET-5RH~180RH</b><br><b>BHI62ET-5RA~180RA</b> | <b>BHI62ST-5RH~180RH</b><br><b>BHI62ST-5RA~180RA</b>                                                        |
| <b>Clockwise</b><br>                                 | <b>Clockwise</b><br>                                                                                        |
| <b>Counterclockwise</b><br>                          | <b>Counterclockwise</b><br>To change the rotation direction, change any two connections between R, S and T. |

### Round Shaft Type

| Single-Phase Induction Motor | Three-Phase Induction Motor                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------------------|
| <b>BHI62ET-A</b>             | <b>BHI62ST-A</b>                                                                                            |
| <b>Clockwise</b><br>         | <b>Clockwise</b><br>                                                                                        |
| <b>Counterclockwise</b><br>  | <b>Counterclockwise</b><br>To change the rotation direction, change any two connections between R, S and T. |

Connecting to the terminal  
 Applicable lead wires: AWG24~12 (0.2~4.0 mm<sup>2</sup>)  
 Strip length: 8 mm

**Notes:**

- Change the direction of single-phase motor rotation only after bringing the motor to a stop. If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.
- Connect a CR circuit to protect the connector point of switches. Connecting CR circuit, contact capacity → page A-249
- For added safety, provide a breaker or fuse on the power supply input.

How to connect a capacitor → page A-247

## List of Motor and Gearhead Combinations

Motor and gearhead combinations are shown below.

### Combination Type: Right Angle Shaft

| Model              | Motor Type | Gearhead Type |
|--------------------|------------|---------------|
| <b>BHI62ET-□RH</b> | BHI62ET-G2 | BH6G2-□RH     |
| <b>BHI62ET-□RA</b> | BHI62ET-G2 | BH6G2-□RA     |
| <b>BHI62ST-□RH</b> | BHI62ST-G2 | BH6G2-□RH     |
| <b>BHI62ST-□RA</b> | BHI62ST-G2 | BH6G2-□RA     |

Enter the gear ratio in the box (□) within the model name.

### Combination Type: Parallel Shaft

| Model            | Motor Type | Gearhead Type |
|------------------|------------|---------------|
| <b>BHI62ET-□</b> | BHI62ET-G2 | BH6G2-□       |
| <b>BHI62ST-□</b> | BHI62ST-G2 | BH6G2-□       |

Enter the gear ratio in the box (□) within the model name.