**Induction Motors BH Series**

**200 W (1/4 HP)**

Frame Size: □ 4.09 in. (□ 104 mm sq.)

### Features
- BH Series motors provide 200W output power and up to 530 lb-in (60 N·m) of torque in a compact 4.09 in. sq. (104 mm sq.) mounting configuration.
- Right-angle gearheads are available.
- For easy installation, the BH Series motor and gearhead come pre-assembled.

※ Motors and gearheads are also available separately.

### Specifications — Continuous Rating

<table>
<thead>
<tr>
<th>Model</th>
<th>Output Power</th>
<th>Voltage</th>
<th>Frequency</th>
<th>Current</th>
<th>Starting Torque</th>
<th>Rated Torque</th>
<th>Rated Speed</th>
<th>Capacitor</th>
<th>Gear Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BH162F-□RH</strong></td>
<td>Single-Phase 110</td>
<td>60</td>
<td>3</td>
<td>124</td>
<td>0.88</td>
<td>180</td>
<td>1.27</td>
<td>1500</td>
<td>40</td>
</tr>
<tr>
<td><strong>BH162F-□RA</strong></td>
<td>Single-Phase 115</td>
<td>60</td>
<td>3</td>
<td>139</td>
<td>0.98</td>
<td>210</td>
<td>1.52</td>
<td>1500</td>
<td>10</td>
</tr>
<tr>
<td><strong>BH162F-□(BH162F-A)</strong></td>
<td>Single-Phase 220</td>
<td>60</td>
<td>1.5</td>
<td>139</td>
<td>0.98</td>
<td>210</td>
<td>1.52</td>
<td>1500</td>
<td>10</td>
</tr>
<tr>
<td><strong>BH162F-□(BH162F-A)</strong></td>
<td>Single-Phase 230</td>
<td>50</td>
<td>1.5</td>
<td>139</td>
<td>0.98</td>
<td>210</td>
<td>1.52</td>
<td>1500</td>
<td>10</td>
</tr>
<tr>
<td><strong>BH162F-□(BH162F-A)</strong></td>
<td>Three-Phase 200</td>
<td>50</td>
<td>1.1</td>
<td>210</td>
<td>1.49</td>
<td>210</td>
<td>1.49</td>
<td>1250</td>
<td>—</td>
</tr>
<tr>
<td><strong>BH162F-□(BH162F-A)</strong></td>
<td>Three-Phase 220</td>
<td>60</td>
<td>1.1</td>
<td>177</td>
<td>1.25</td>
<td>177</td>
<td>1.25</td>
<td>1500</td>
<td>—</td>
</tr>
<tr>
<td><strong>BH162F-□(BH162F-A)</strong></td>
<td>Three-Phase 230</td>
<td>60</td>
<td>0.95</td>
<td>174</td>
<td>1.23</td>
<td>174</td>
<td>1.23</td>
<td>1550</td>
<td>—</td>
</tr>
</tbody>
</table>

**: Contains a built-in thermal protector. If a motor overheats for any reason, the thermal protector is opened and the motor stops.

When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.

- Details of Safety Standard — Page G-2
- Enter the gear ratio in the box (□) within the model name.
- The values in the table are for the motor only.

### Product Line

- **Combination Type**
- **Right-Angle Shaft**

<table>
<thead>
<tr>
<th>Type</th>
<th>Power Supply Voltage</th>
<th>Model</th>
<th>Gear Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hollow Shaft Cable Type</td>
<td>Single-Phase 110/115 VAC</td>
<td>BH162F-□RH</td>
<td>6 – 180</td>
</tr>
<tr>
<td>Hollow Shaft Terminal Box Type</td>
<td>Single-Phase 220/230 VAC</td>
<td>BH162F-□RH</td>
<td>6 – 180</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>220/230 VAC</td>
<td>BH162F-□RH</td>
<td>6 – 180</td>
</tr>
<tr>
<td>Solid Shaft Cable Type</td>
<td>Single-Phase 110/115 VAC</td>
<td>BH162F-□RA</td>
<td>6 – 180</td>
</tr>
<tr>
<td>Solid Shaft Terminal Box Type</td>
<td>Single-Phase 220/230 VAC</td>
<td>BH162F-□RA</td>
<td>6 – 180</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>220/230 VAC</td>
<td>BH162F-□RA</td>
<td>6 – 180</td>
</tr>
</tbody>
</table>

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

### Parallel Shaft

<table>
<thead>
<tr>
<th>Type</th>
<th>Power Supply Voltage</th>
<th>Model</th>
<th>Gear Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable Type</td>
<td>Single-Phase 110/115 VAC</td>
<td>BH162F-□</td>
<td>3.6 – 180</td>
</tr>
<tr>
<td>Terminal Box Type</td>
<td>Single-Phase 220/230 VAC</td>
<td>BH162F-□</td>
<td>3.6 – 180</td>
</tr>
<tr>
<td>Three-Phase</td>
<td>220/230 VAC</td>
<td>BH162F-□</td>
<td>3.6 – 180</td>
</tr>
</tbody>
</table>

- Enter the gear ratio in the box (□) within the model name.
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 size of the load.

### Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) ➔ Page A-11
Gearhead ➔ Page A-11

### Permissible Load Inertia J for Gearhead

➔ Page A-12
Mounting Method for Hollow Shaft Gearheads

● Stepped-Down Shaft

These diagrams 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 inner diameter of the load shaft to prevent binding. Recommended load shaft dimensions are shown below.

Recommended size of inner diameter for the hollow shaft and load shaft

<table>
<thead>
<tr>
<th>Model</th>
<th>BH6G2-_RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner diameter of hollow shaft H8</td>
<td>0.9843 ± 0.0013 (0.25 ± 0.025)</td>
</tr>
<tr>
<td>Recommended load shaft diameter h7</td>
<td>0.9843 ± 0.0008 (0.25 ± 0.003)</td>
</tr>
</tbody>
</table>

- Replace the safety cover after installing the load shaft.
- Be careful not to apply a shock to the hollow shaft when mounting a load. It may damage the bearing inside the gearhead.

Note:
Dimensions

Scale 1/4, Unit = inch (mm)
Mounting screws are included with the combination type parallel shaft. → Page A-223
Enter the gear ratio in the box ( ) within the model name.

◆ Combination Type Right-Angle, Hollow Shaft Cable Type
BHI62F-□ RH, BHI62E-□ RH
Weight: 22 lb. (10.0 kg) including gearhead
Motor Model: BHI62F-G2, BHI62E-G2
Gearhead Model: BH6G2-□ RH

Dimensions Scale 1/4, Unit = inch (mm)
Mounting screws are included with the combination type parallel shaft. → Page A-223
Enter the gear ratio in the box ( ) within the model name.

◆ Combination Type Right-Angle, Hollow Shaft Cable Type
BHI62F-□ RH, BHI62E-□ RH
Weight: 22 lb. (10.0 kg) including gearhead
Motor Model: BHI62F-G2, BHI62E-G2
Gearhead Model: BH6G2-□ RH

Dimensions Scale 1/4, Unit = inch (mm)
Mounting screws are included with the combination type parallel shaft. → Page A-223
Enter the gear ratio in the box ( ) within the model name.
Combination Type Right-Angle, Solid Shaft Cable Type

**BHI62F-G2 RA, BHI62E-G2 RA**

- Weight: 22 lb. (10.0 kg) including gearhead
- Motor Model: BHI62F-G2, BHI62E-G2
- Gearhead Model: BH6G2-G2 RA

**Features**

- Standard AC Motors
  - Combination Type Right-Angle, Solid Shaft
  - Cable Type

**Specifications**

- **Motor Model:** BHI62F-G2, BHI62E-G2
- **Gearhead Model:** BH6G2-G2 RA

**Cable**

- **Cable φ0.31 (φ7.8)**
- 20 inch (500 mm) Length
- Conductors: UL Style 3271, AWG20

**Conductors**

- **Conductor Bundles:**
  - 1/2 Bundle
  - 3/4 Bundle
  - 1 Bundle

**Dimensions**

- **Key and Key Slot (Included) (Scale 1/2)**
  - At the time of shipment, a parallel key is inserted on the gearhead's shaft.
Combination Type Right-Angle, Hollow Shaft with Terminal Box

**BHI62FT-RH, BHI62ET-RH, BHI62ST-RH**

Weight: 22 lb. (10.0 kg) including gearhead
Gearhead Model: BH6G2-RH

**OXF A301**

- Use cable (VCTF) with a diameter of φ0.24 inch (φ6 mm) ~ φ0.47 inch (φ12 mm).
- Details of Terminal Box → Page A-224

**Key (Included) (Scale 1/2)**

- Key (Included) (Scale 1/2)
**Combination Type Right-Angle, Solid Shaft with Terminal Box**

*BHI62FT-RA, BHI62ET-RA, BHI62ST-RA*

- Weight: 22 lb. (10.0 kg) including gearhead
- Gearhead Model: BH6G2-RA

---

**Features**

- **1/750 HP**
- **1 W**
- **1/125 HP**
- **6 W**
- **1/50 HP**
- **15 W**
- **1/30 HP**
- **25 W**
- **1/19 HP**
- **40 W**
- **1/12 HP**
- **60 W**
- **1/8 HP**
- **90 W**
- **1/4 HP**
- **200 W**
- **1/19-1/8 HP**
- **40-90 W** (2-Pole)

---

**Specifications**

- **Weight:** 22 lb. (10.0 kg) including gearhead
- **Motor Model:** BHI62FT-G2, BHI62ET-G2, BHI62ST-G2
- **Gearhead Model:** BH6G2-RA

---

**Key and Key Slot (Included) (Scale 1/2)**

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

---

**Use cable (VCTF) with a diameter of **0.24** inch (φ6 mm) — **0.47** inch (φ12 mm).**

**Details of Terminal Box**

- Page A-224
◆ Combination Type, Parallel Shaft Type  Cable Type

**BHI62F, BHI62E**

Weight: 18 lb. (8.0 kg) including gearhead
Motor Model: BHI62F-G2, BHI62E-G2
Gearhead Model: BH6G2

**Dimensions**

- **Height**: 6.30 (160)
- **Width**: 2.83 (72)
- **Depth**: 1.65 (42)

**Key and Key Slot (Included) (Scale 1/2)**

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

---

◆ Combination Type, Parallel Shaft Type with Terminal Box

**BHI62FT, BHI62ET, BHI62ST**

Weight: 18 lb. (8.0 kg) including gearhead
Gearhead Model: BH6G2

**Dimensions**

- **Height**: 6.30 (160)
- **Width**: 2.83 (72)
- **Depth**: 1.65 (42)

**Key and Key Slot (Included) (Scale 1/2)**

- At the time of shipment, a parallel key is inserted on the gearhead’s shaft.
**Round Shaft Type  Cable Type**

BH162F-A, BH162E-A

Weight: 11 lb. (5 kg)

- **Features**
  - Cable ø0.31 (ø 7.8)
  - 20 inch (500 mm) Length
  - Conductors: UL Style 3271, AWG 20

- **Specifications**
  - BHI62F-A, BHI62E-A
  - Weight: 11 lb. (5 kg)

**Round Shaft Type with Terminal Box**

BH162FT-A, BH162ET-A, BH162ST-A

Weight: 11 lb. (5 kg)

- **Capacitor** (Included with single-phase motors)
  - Use cable (VCTF) with a diameter of ø 0.24 inch (ø 6 mm) → ø 0.47 inch (ø 12 mm).
  - Details of Terminal Box → Page A-224

**Capacitor Dimensions** Unit = inch (mm)

<table>
<thead>
<tr>
<th>Model</th>
<th>Terminal Box Type</th>
<th>Capacitor Model</th>
<th>A (in)</th>
<th>B (in)</th>
<th>C (in)</th>
<th>Weight oz. (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BH162F-RH</td>
<td>BH162FT-RH</td>
<td>CH400CFAUL2</td>
<td>2.28</td>
<td>1.61</td>
<td>2.28</td>
<td>6.18</td>
</tr>
<tr>
<td>BH162F-RA</td>
<td>BH162FT-RA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH162F-A</td>
<td>BH162FT-A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH162E-RH</td>
<td>BH162ET-RH</td>
<td>CH1008FAUL</td>
<td>2.28</td>
<td>1.38</td>
<td>1.97</td>
<td>4.66</td>
</tr>
<tr>
<td>BH162E-RA</td>
<td>BH162ET-RA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH162E-A</td>
<td>BH162ET-A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- If you need to order a capacitor without a motor, add “-C” to the capacitor model name shown. A capacitor cap is included with a capacitor.
- Enter the gear ratio in the box (□) within the model name.

—if A-62
### Connection Diagrams

<table>
<thead>
<tr>
<th>Motor Type</th>
<th>Single-Phase Induction Motor</th>
<th>Three-Phase Induction Motor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable Type</td>
<td>Terminal Box Type</td>
<td>Terminal Box Type</td>
</tr>
<tr>
<td>Clockwise: To rotate the motor in a clockwise(CW) direction, flip SW to CW.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counterclockwise: To rotate the motor in a counterclockwise(CCW) direction, flip SW to CCW.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62</strong></td>
<td><strong>-3.6 - 9</strong></td>
<td><strong>BHI62ST-3.6 - 9</strong></td>
</tr>
<tr>
<td><strong>BHI62</strong></td>
<td><strong>-60 - 180</strong></td>
<td><strong>BHI62ST-60 - 180</strong></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-6RA</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-6RH</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-60</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-3.6</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-15</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-36</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-60</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-3.6</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-15</strong></td>
<td></td>
</tr>
<tr>
<td><strong>BHI62ST</strong></td>
<td><strong>-36</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### Inner Connection Diagram for 4-Terminal Capacitor

Terminals of the capacitor are connected as shown in the figure. For lead wire connection, use one lead wire per terminal.

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

- To rotate the motor in a clockwise(CW) direction, flip SW to CW.
- To rotate the motor in a counterclockwise(CCW) direction, flip SW to CCW.

- Enter F or E (power supply voltage) in the box ([ ]) within the model name.
- Connecting to the terminal block for terminal box type

Note:
- 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, the motor may ignore the reversing command or change its direction of rotation after some delay.
- To protect the contact point of switches, connect a CR circuit. Connecting CR circuit, contact capacity → Page A-226
- For increased safety, provide a breaker or fuse on the power-supply input.
- How to Connect a Capacitor → Page A-225

- Applicable lead wire: AWG 24 – 12 (0.2 mm² – 4.0 mm²)
- Strip length: 0.31 inch (8 mm)

- Motor Type
- Parallel Shaft Combination Type
- Right-Angle Shaft Combination Type
- Round Shaft Type

- To protect the contact point of switches, connect a CR circuit. Connecting CR circuit, contact capacity → Page A-226
- For increased safety, provide a breaker or fuse on the power-supply input.
- How to Connect a Capacitor → Page A-225

- Applicable lead wire: AWG 24 – 12 (0.2 mm² – 4.0 mm²)
- Strip length: 0.31 inch (8 mm)
### List of Motor and Gearhead Combinations

#### Combination Type  Right-Angle Shaft

<table>
<thead>
<tr>
<th>Model</th>
<th>Motor Model</th>
<th>Gearhead Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHI62F-RH</td>
<td>BHI62F-G2</td>
<td>BHI62F-G2</td>
</tr>
<tr>
<td>BHI62F-RA</td>
<td>BHI62F-G2</td>
<td>BHI62F-G2</td>
</tr>
<tr>
<td>BHI62FT-RH</td>
<td>BHI62FT-G2</td>
<td>BHI62FT-G2</td>
</tr>
<tr>
<td>BHI62FT-RA</td>
<td>BHI62FT-G2</td>
<td>BHI62FT-G2</td>
</tr>
<tr>
<td>BHI62E-RH</td>
<td>BHI62E-G2</td>
<td>BHI62E-G2</td>
</tr>
<tr>
<td>BHI62E-RA</td>
<td>BHI62E-G2</td>
<td>BHI62E-G2</td>
</tr>
<tr>
<td>BHI62ET-RH</td>
<td>BHI62ET-G2</td>
<td>BHI62ET-G2</td>
</tr>
<tr>
<td>BHI62ET-RA</td>
<td>BHI62ET-G2</td>
<td>BHI62ET-G2</td>
</tr>
<tr>
<td>BHI62ST-RA</td>
<td>BHI62ST-G2</td>
<td>BHI62ST-G2</td>
</tr>
</tbody>
</table>

#### Combination Type  Parallel Shaft

<table>
<thead>
<tr>
<th>Model</th>
<th>Motor Model</th>
<th>Gearhead Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>BHI62F</td>
<td>BHI62F-G2</td>
<td>BHI62F-G2</td>
</tr>
<tr>
<td>BHI62FT</td>
<td>BHI62FT-G2</td>
<td>BHI62FT-G2</td>
</tr>
<tr>
<td>BHI62E</td>
<td>BHI62E-G2</td>
<td>BHI62E-G2</td>
</tr>
<tr>
<td>BHI62ET</td>
<td>BHI62ET-G2</td>
<td>BHI62ET-G2</td>
</tr>
<tr>
<td>BHI62ST</td>
<td>BHI62ST-G2</td>
<td>BHI62ST-G2</td>
</tr>
</tbody>
</table>

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