

Induction Motors BH Series

Power Off Activated Electromagnetic Brake

200 W (1/4 HP)

Frame Size: □104 mm (□4.09 in.)



Right-Angle Hollow Shaft



Parallel Shaft

Features

- **High Power 200 W (1/4 HP)**
Smallest frame size among 200 W (1/4 HP) motors
- **Hypoid Gear Right-Angle Gearheads**
Right-angle gearheads employ hypoid gears. Hollow shafts and solid shafts are available to enable space-saving.
- **Tapped Hole at the Shaft End**
The gearhead shafts feature a tapped hole for convenient connection with a load.

● "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 | | Output Power | Voltage | Frequency | Current | Starting Torque | Rated Torque | Rated Speed | Capacitor |
|--|-------------------|--------------|------------------|-----------|---------|-----------------|--------------|-------------|-----------|
| Combination Type | Round Shaft Type | W HP | VAC | Hz | A | N-m oz-in | N-m oz-in | r/min | μF |
| (TP) BHI62FMT-□RH BHI62FMT-□RA BHI62FMT-□ | BHI62FMT-A | 200 1/4 | Single-Phase 110 | 60 | 3 | 0.88 | 1.27 | 1500 | 40 |
| | | | Single-Phase 115 | | | 0.98 | | | |
| (TP) BHI62EMT-□RH BHI62EMT-□RA BHI62EMT-□ | BHI62EMT-A | 200 1/4 | Single-Phase 220 | 50 | 1.5 | 0.98 139 | 1.52 | 1250 | 10 |
| | | | | 60 | | | 1.27 | | |
| | | | Single-Phase 230 | 50 | | | 1.52 | 1250 | |
| | | | | 60 | | | 1.27 | | |
| (TP) BHI62SMT-□RH BHI62SMT-□RA BHI62SMT-□ | BHI62SMT-A | 200 1/4 | Three-Phase 200 | 50 | 1.1 | 1.49 | 1.49 | 1250 | - |
| | | | | 60 | | 1.25 | | | |
| | | | Three-Phase 220 | 60 | 0.95 | 1.23 | 1.23 | 1550 | |
| | | | | 60 | | 1.18 | | | |
| | | | Three-Phase 230 | 60 | 1.18 | 1.18 | 1600 | | |

- The values for each specification applies to the motor only.
- Details of safety standards → Page H-2
- For detailed product safety standard information including standards, file number and certification body, please visit www.orientalmotor.com.
- (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. (The power supply to the electromagnetic brake is kept and the brake is released.)
When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor power off before inspecting.

● Electromagnetic Brake (Power Off Activated Type)

| Motor Model | Voltage | Frequency | Current | Input | Holding Brake Torque |
|--|------------------|-----------|---------|-------|----------------------|
| | VAC | Hz | A | W | N-m oz-in |
| BHI62FMT-□RH, BHI62FMT-□RA BHI62FMT-□, BHI62FMT-A | Single-Phase 110 | 60 | 0.17 | 12 | 1.5 |
| | Single-Phase 115 | | | | 210 |
| BHI62EMT-□RH, BHI62EMT-□RA BHI62EMT-□, BHI62EMT-A | Single-Phase 220 | 50 | 0.09 | 12 | 1.5 |
| | | 60 | | | 210 |
| | Single-Phase 230 | 50 | 0.09 | 12 | 1.5 |
| | | 60 | | | 210 |
| BHI62SMT-□RH, BHI62SMT-□RA BHI62SMT-□, BHI62SMT-A | Single-Phase 200 | 50 | 0.09 | 12 | 1.5 |
| | | 60 | | | 210 |
| | Single-Phase 220 | 60 | 0.09 | 12 | 1.5 |
| | | 60 | | | 210 |

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

Product Line

● Combination Type (RoHS)

◇ Right-Angle Shaft

| Type | Voltage | Model | Gear Ratio |
|--------------|--------------------------------|---------------------|---|
| Hollow Shaft | Single-Phase 110/115 VAC | BHI62FMT-□RH | 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180 |
| | Single-Phase 220/230 VAC | BHI62EMT-□RH | |
| | Three-Phase 200/220/230 VAC | BHI62SMT-□RH | |
| Solid Shaft | Single-Phase 110/115 VAC | BHI62FMT-□RA | |
| | Single-Phase 220/230 VAC | BHI62EMT-□RA | |
| | Three-Phase 200/220/230 VAC | BHI62SMT-□RA | |

The following items are included in each product.
 Motor, Gearhead, Capacitor*, Capacitor Cap*, Parallel Key, Operating Manual
 * Only for single-phase motors

◇ Parallel Shaft

| Voltage | Model | Gear Ratio |
|--------------------------------|-------------------|---|
| Single-Phase 110/115 VAC | BHI62FMT-□ | 3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180 |
| Single-Phase 220/230 VAC | BHI62EMT-□ | |
| Three-Phase 200/220/230 VAC | BHI62SMT-□ | |

The following items are included in each product.
 Motor, Gearhead, Capacitor*, Capacitor Cap*, Mounting Screws, Parallel Key,
 Operating Manual
 * Only for single-phase motors

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

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 directions will be reversed for all right-angle shaft types.
- 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 = Upper values: N-m/Lower values: lb-in

| 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 |
| BHI62EMT-□RH/RA | 5.5 48 | 6.7 59 | 8.3 73 | 10.0 88 | 13.9 123 | 16.6 146 | 20.0 177 | 27.7 240 | 33.3 290 | 36.0 310 | 40.0 350 | 43.0 380 | 47.0 410 | 51.5 450 | 54.5 480 | 60 530 | 60 530 | 60 530 | |
| BHI62SMT-□RH/RA | 5.4 47 | 6.5 57 | 8.2 72 | 9.8 86 | 13.6 120 | 16.3 144 | 19.6 173 | 27.2 240 | 32.6 280 | 36.0 310 | 40.0 350 | 43.0 380 | 47.0 410 | 51.5 450 | 54.5 480 | 60 530 | 60 530 | 60 530 | |

● Right-Angle Shaft 60 Hz

Unit = Upper values: N-m/Lower values: lb-in

| 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 |
| BHI62FMT-□RH/RA BHI62EMT-□RH/RA | 4.6 40 | 5.6 49 | 7.0 61 | 8.3 73 | 11.6 102 | 13.9 123 | 16.7 147 | 23.2 200 | 27.8 240 | 33.4 290 | 40.0 350 | 43.0 380 | 47.0 410 | 51.5 450 | 54.5 480 | 60 530 | 60 530 | 60 530 | |
| BHI62SMT-□RH/RA (200 VAC) | 4.6 40 | 5.5 48 | 6.8 60 | 8.2 72 | 11.4 100 | 13.7 121 | 16.4 145 | 22.8 200 | 27.4 240 | 32.9 290 | 40.0 350 | 43.0 380 | 47.0 410 | 51.5 450 | 54.5 480 | 60 530 | 60 530 | 60 530 | |
| BHI62SMT-□RH/RA (220 VAC) | 4.5 39 | 5.4 47 | 6.7 59 | 8.1 71 | 11.2 99 | 13.5 119 | 16.2 143 | 22.4 198 | 26.9 230 | 32.3 280 | 40.0 350 | 43.0 380 | 47.0 410 | 51.5 450 | 54.5 480 | 60 530 | 60 530 | 60 530 | |
| BHI62SMT-□RH/RA (230 VAC) | 4.3 38 | 5.2 46 | 6.5 57 | 7.8 69 | 10.8 95 | 12.9 114 | 15.5 137 | 21.5 190 | 25.8 220 | 31.0 270 | 40.0 350 | 43.0 380 | 47.0 410 | 51.5 450 | 54.5 480 | 60 530 | 60 530 | 60 530 | |

● Round Shaft Type (RoHS)

| Voltage | Model |
|--------------------------------|-------------------|
| Single-Phase 110/115 VAC | BHI62FMT-A |
| Single-Phase 220/230 VAC | BHI62EMT-A |
| Three-Phase 200/220/230 VAC | BHI62SMT-A |

The following items are included in each product.
 Motor, Capacitor*, Capacitor Cap*, Operating Manual
 * Only for single-phase motors

● Parallel Shaft 50 Hz

Unit = Upper values: N-m/Lower values: lb-in

| 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 |
| BHI62EMT-□ | | 4.1 36 | 4.9 43 | 6.8 60 | 8.2 72 | 10.3 91 | 12.3 108 | 16.3 144 | 19.6 173 | 23.5 200 | 32.7 280 | 39.2 340 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 |
| BHI62SMT-□ | | 4.0 35 | 4.8 42 | 6.7 59 | 8.0 70 | 10.1 89 | 12.1 107 | 16.0 141 | 19.2 169 | 23.1 200 | 32.0 280 | 38.4 330 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 |

● Parallel Shaft 60 Hz

Unit = Upper values: N-m/Lower values: lb-in

| 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 |
| BHI62FMT-□ | | 3.4 30 | 4.1 36 | 5.7 50 | 6.9 61 | 8.6 76 | 10.3 91 | 13.7 121 | 16.4 145 | 19.7 174 | 27.3 240 | 32.8 290 | 39.3 340 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 |
| BHI62EMT-□ | | 3.4 30 | 4.1 36 | 5.6 49 | 6.8 60 | 8.4 74 | 10.1 89 | 13.4 118 | 16.1 142 | 19.4 171 | 26.9 230 | 32.3 280 | 38.7 340 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 |
| BHI62SMT-□ (200 VAC) | | 3.4 30 | 4.1 36 | 5.6 49 | 6.8 60 | 8.4 74 | 10.1 89 | 13.4 118 | 16.1 142 | 19.4 171 | 26.9 230 | 32.3 280 | 38.7 340 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 |
| BHI62SMT-□ (220 VAC) | | 3.3 29 | 4.0 35 | 5.5 48 | 6.6 58 | 8.3 73 | 10.0 88 | 13.2 116 | 15.9 140 | 19.0 168 | 26.4 230 | 31.7 280 | 38.1 330 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 |
| BHI62SMT-□ (230 VAC) | | 3.2 28 | 3.8 33 | 5.3 46 | 6.4 56 | 8.0 70 | 9.6 84 | 12.7 112 | 15.2 134 | 18.3 161 | 25.4 220 | 30.4 260 | 36.5 320 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 | 40 350 |

■ Permissible Overhung Load and Permissible Thrust Load

Combination Type → Page C-17

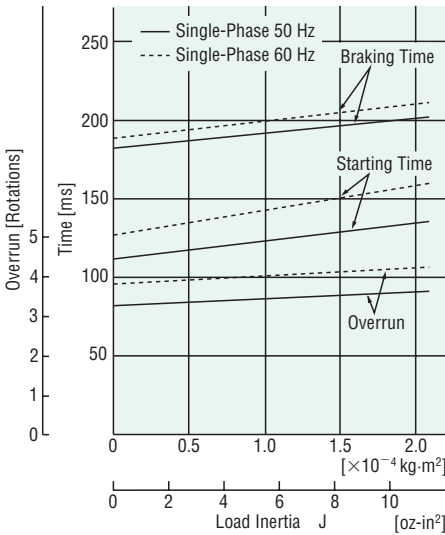
Round Shaft Type → Page C-17

■ Permissible Load Inertia J of Gearhead

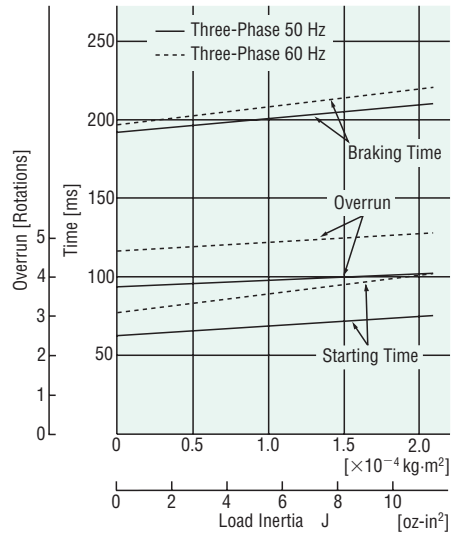
→ Page C-18

■ Starting and Braking Characteristics (Reference values)

● Single-Phase Motor



● Three-Phase Motor



Dimensions Unit = mm (in.)

● Mounting screws are included with the combination type, parallel shaft. Dimensions for mounting screws → Page C-280

◇ Combination Type: Right-Angle, Hollow Shaft

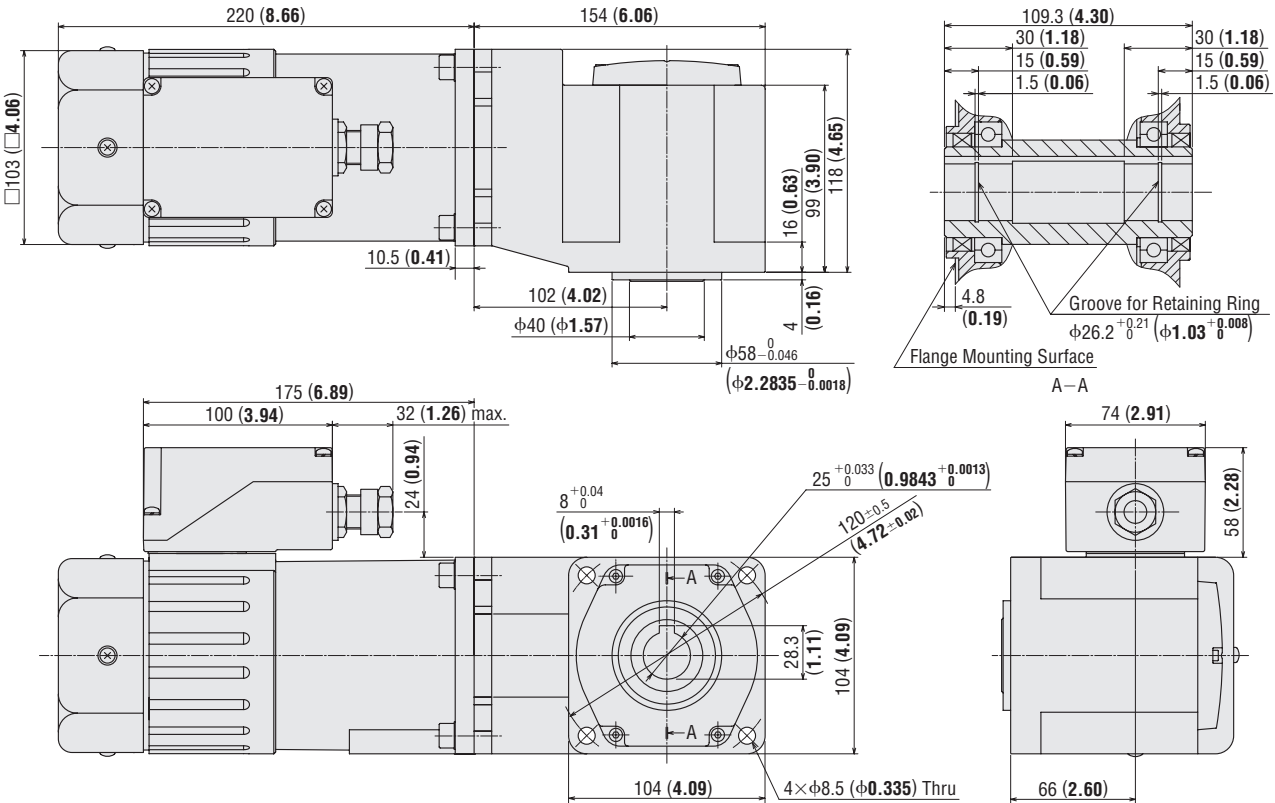
BHI62FMT-□RH, BHI62EMT-□RH, BHI62SMT-□RH

Mass: 11.5 kg (25 lb.)

Motor: BHI62FMT-G2, BHI62EMT-G2, BHI62SMT-G2

Gearhead: BH6G2-□RH

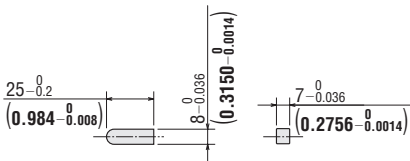
DXF A384



● Use cable with a diameter of $\phi 8 \sim \phi 12$ mm ($\phi 0.31 \sim \phi 0.47$ in.).

● Details of terminal box → Page C-283

◇ Key (Included)



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

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

◇ Combination Type: Right-Angle, Solid Shaft

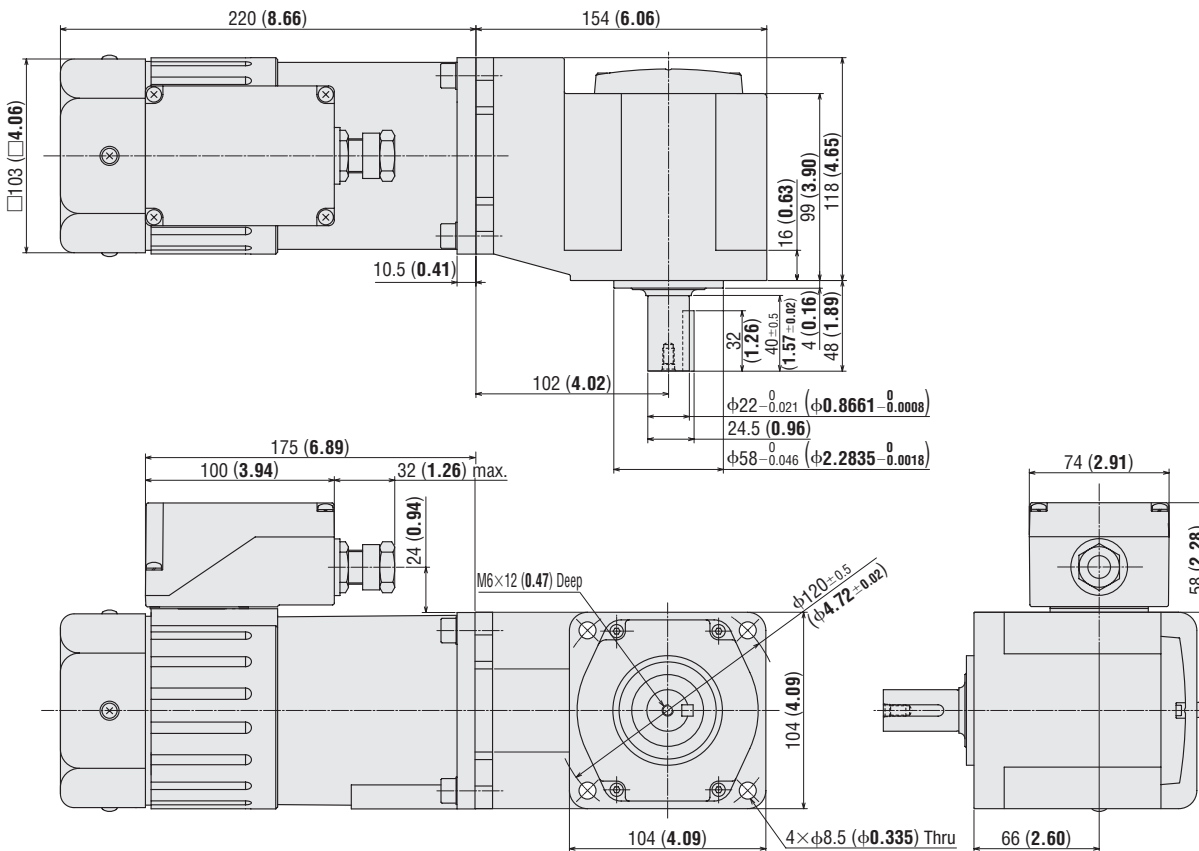
BHI62FMT-□RA, BHI62EMT-□RA, BHI62SMT-□RA

Mass: 11.5 kg (25 lb.)

Motor: BHI62FMT-G2, BHI62EMT-G2, BHI62SMT-G2

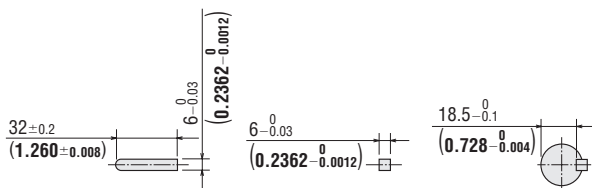
Gearhead: BH6G2-□RA

DXF A385



- Use cable with a diameter of $\phi 8 \sim \phi 12$ mm ($\phi 0.31 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

◇ Key and Key Slot (Included)



- At the shipment, a parallel key is inserted on the gearhead's shaft.

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

◇ Combination Type: Parallel Shaft

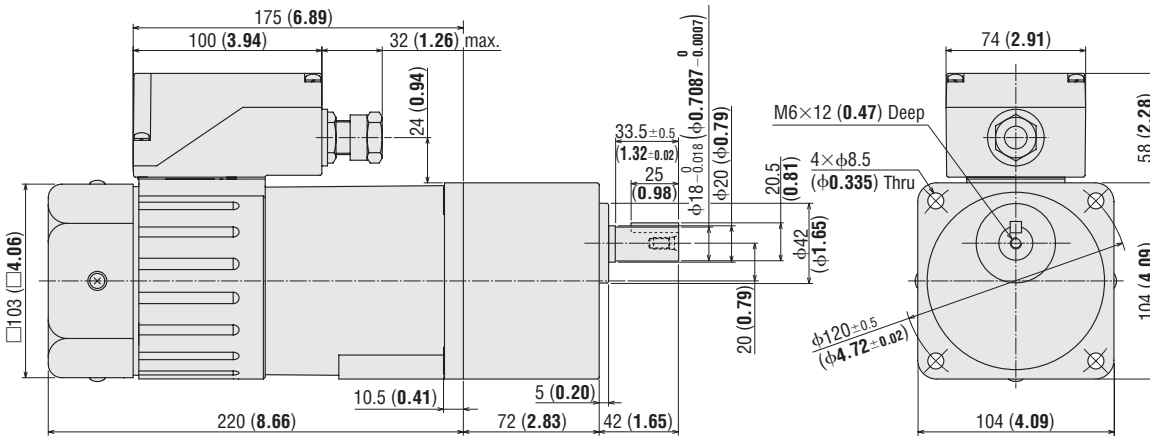
BHI62FMT-□, BHI62EMT-□, BHI62SMT-□

Mass: 9.5 kg (21 lb.)

Motor: BHI62FMT-G2, BHI62EMT-G2, BHI62SMT-G2

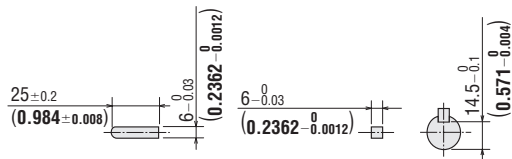
Gearhead: BH6G2-□

DXF A386



- Use cable with a diameter of $\phi 8 \sim \phi 12$ mm ($\phi 0.31 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

◇ Key and Key Slot (Included)



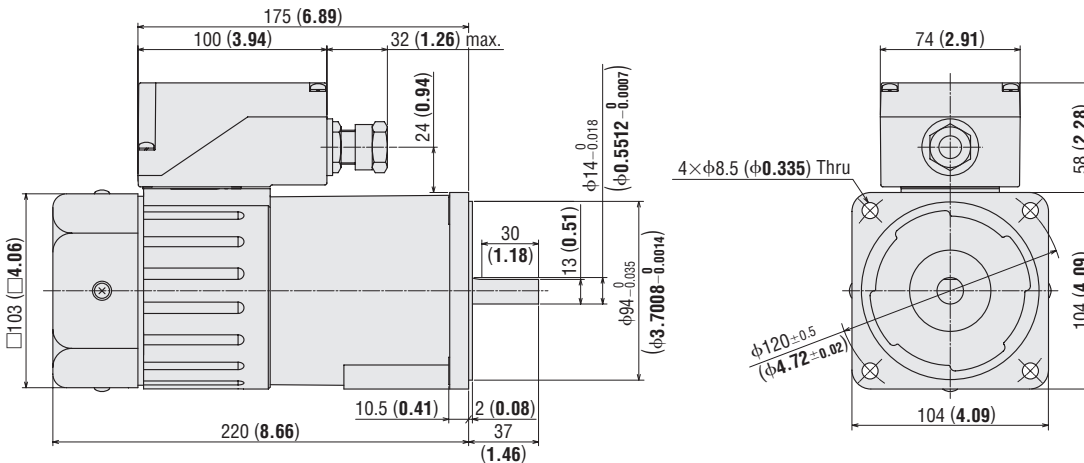
- At the shipment, a parallel key is inserted on the gearhead's shaft.

◇ Round Shaft Type

BHI62FMT-A, BHI62EMT-A, BHI62SMT-A

Mass: 6.5 kg (14 lb.)

DXF A387

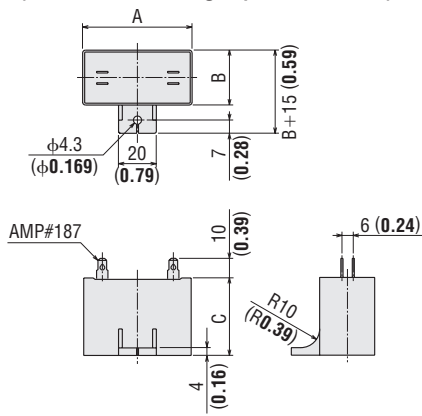


- Use cable with a diameter of $\phi 8 \sim \phi 12$ mm ($\phi 0.31 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

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

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

◇ Capacitor (Included with single-phase motors)



◇ Capacitor Dimensions Unit = mm (in.)

| Model | Capacitor Model | A | B | C | Mass g (oz.) | Capacitor Cap |
|--|-----------------|--------------|--------------|--------------|--------------|---------------|
| BHI62FMT-□RH BHI62FMT-□RA BHI62FMT-□ BHI62FMT-A | CH400CFAUL2 | 58 (2.28) | 41 (1.61) | 58 (2.28) | 175 (6.2) | Included |
| BHI62EMT-□RH BHI62EMT-□RA BHI62EMT-□ BHI62EMT-A | CH100BFAUL | 58 (2.28) | 35 (1.38) | 50 (1.97) | 132 (4.7) | |

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

■ Mounting Method for Right-Angle, Hollow Shaft Types

→ Page C-237

Connection Diagrams

- The direction of motor rotation is as viewed from the shaft end of the motor. CW indicates clockwise direction, while CCW counterclockwise direction.
- Enter the voltage (**F**, **E** or **S**) in the box (□) within the model name.

| Motor Type | Single-Phase Motor | Three-Phase Motor |
|---|---|--|
| <ul style="list-style-type: none"> ● Combination Type: Parallel Shaft BHI62□MT-3~9 BHI62□MT-50~180 ● Round Shaft Type BHI62□MT-A | | <p>Clockwise</p> |
| <ul style="list-style-type: none"> ● Combination Type: Parallel Shaft BHI62□MT-12.5~36 ● Combination Type: Right Angle Shaft BHI62□MT-5~180RA BHI62□MT-5~180RH | | <p>Clockwise</p> |
| Rotation Direction | <p>Clockwise: To rotate in a clockwise (CW) direction, turn SW2 to CW.</p> <p>Counterclockwise: To rotate in a counterclockwise (CCW) direction, turn SW2 to CCW.</p> | To change the rotation direction, change any two connections between R, S and T. |

PE: Protective Earth

SW1 operates both motor and electromagnetic brake action.

The electromagnetic brake will be released and the motor will rotate when SW1 is switched simultaneously to ON.

When SW1 is switched simultaneously to OFF, the motor stops immediately with the electromagnetic brake and holds the load.

| Switch No. | Specifications | | | Note |
|------------|--------------------------------------|--------------------------------------|--------------------------------------|-------------------------|
| | Single-Phase 110/115 VAC Input | Single-Phase 220/230 VAC Input | Three-Phase 200/220/230 VAC Input | |
| SW1 | 125 VAC 5 A minimum (Inductive Load) | 250 VAC 5 A minimum (Inductive Load) | 250 VAC 5 A minimum (Inductive Load) | Switched Simultaneously |
| SW2 | | | - | - |

Connect a CR circuit ($R_0 C_0$) for surge suppression shown on the diagrams to protect the contact.

$R_0=5\sim 200\ \Omega$ $C_0=0.1\sim 0.2\ \mu\text{F}$ 200 WV

EPCR1201-2 (CR circuit) is available as an accessory.

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, motor may ignore reversing command or change its direction of rotation after some delay.

- How to connect a capacitor → Page C-282

List of Motor and Gearhead Combinations

Motor and gearhead combinations are shown below.

● Combination Type: Right Angle Shaft

| Model | Motor Model | Gearhead Model |
|---------------------|-------------|----------------|
| BHI62FMT-□RH | BHI62FMT-G2 | BH6G2-□RH |
| BHI62FMT-□RA | | BH6G2-□RA |
| BHI62EMT-□RH | BHI62EMT-G2 | BH6G2-□RH |
| BHI62EMT-□RA | | BH6G2-□RA |
| BHI62SMT-□RH | BHI62SMT-G2 | BH6G2-□RH |
| BHI62SMT-□RA | | BH6G2-□RA |

● Combination Type: Parallel Shaft

| Model | Motor Model | Gearhead Model |
|-------------------|-------------|----------------|
| BHI62FMT-□ | BHI62FMT-G2 | BH6G2-□ |
| BHI62EMT-□ | BHI62EMT-G2 | |
| BHI62SMT-□ | BHI62SMT-G2 | |

Accessories

Accessories

→ Page C-263



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

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