Oriental motor

HM-9157-9

Thank you for purchasing ORIENTAL MOTOR products. Please read this operating manual thoroughly before installing and operating the motor, and always keep the manual where it is readily accessible.

# BH Series

Electromagnetic Brake Motors

# OPERATING MANUAL



<Table of contents>


1. Safety precautions ..... Page 1
2. Checking the package contents ..... Page 2
3. Installation ..... Page 3
4. Connection and operation ..... Page 5
5. Time rating ..... Page 8
6. Maintenance · inspection ..... Page 8
7. Locked rotor burnout protection of motor ..... Page 8
8. Troubleshooting ..... Page 8


## 1. Safety precautions

The precautions described below are intended to prevent danger or injury to the user and other personnel through safe, correct use of the product. Use the product only after carefully reading and fully understanding these instructions.

### ⚠WARNING

Handling the product without observing the instructions that accompany a “WARNING” symbol may result in serious injury or death.

### ⚠CAUTION

Handling the product without observing the instructions that accompany a “CAUTION” symbol may result in injury or property damage.

### Note

The items under this heading contain important handling instructions that the user should observe to ensure safe use of the product.

### ⚠WARNING

- Do not use the product in explosive or corrosive environments, in the presence of flammable gases, locations subjected to splashing water, or near combustibles. Doing so may result in fire, electric shock or injury.
- Assign qualified personnel the task of installing, wiring, operating/controlling, inspecting and troubleshooting the product. Failure to do so may result in fire, electric shock or injury.
- Do not transport, install the product, perform connections or inspections when the power is on. Always turn the power off before carrying out these operations. Failure to do so may result in electric shock.
- Do not use the motor’s built-in electromagnetic brake mechanism for stopping or for safety purposes. Using it for purposes other than holding the moving parts and motor in position may cause injury or damage to equipment.
- Turn off the power in the event the overheat protection device (thermal protector) is triggered. Failure to do so may result in injury or damage to equipment, since the motor will start abruptly when the overheat protection device (thermal protector) is automatically reset.
- The load-holding force will be lost if the motor’s overheat protection device (thermal protector) is activated. Provide a safety measure by using a separate circuit interrupter to engage the brake. Failure to do so may result in injury or damage to equipment.
- The motor is Class Ⅰ equipment.
  Install the motor so as to avoid contact with hands, or ground it to prevent the risk of electric shock.
- Install the motor in an enclosure in order to prevent electric shock or injury.
- Keep the input-power voltage within the specification to avoid fire and electric shock.
- Connect the cables securely according to the wiring diagram in order to prevent fire and electric shock.
- Do not forcibly bend, pull or pinch the cable. Doing so may fire and electric shock.
- Be sure to insulate the connection terminal of the capacitor. Failure to do so may result in electric shock.
- Turn off the power in the event of a power failure, or the motor may suddenly start when the power is restored and may cause injury or damage to equipment.
- Do not touch the connection terminals of the capacitor immediately after the power is turned off (for a period of 30 seconds). The residual voltage may cause electric shock.
- Do not disassemble or modify the motor. This may cause electric shock or injury. Refer all such internal inspections and repairs to the branch or sales office from which you purchased the product.

### ⚠CAUTION

- Do not use the motor beyond its specifications, or electric shock, injury or damage to equipment may result.
- Do not touch the motor during operation or immediately after stopping. The surface is hot and may cause a burn.
- Do not hold the motor output shaft or motor cable. This may cause injury.
- Keep the area around the motor free of combustible materials in order to prevent fire or a burn.
- To prevent the risk of damage to equipment, leave nothing around the motor that would obstruct ventilation.
- Provide a cover over the rotating parts (output shaft) of the motor to prevent injury.
- When an abnormality is noted, stop the operation immediately, or fire, electric shock or injury may occur.
- The motor’s surface temperature may exceed 70°C, even under normal operating onditions. If a motor is accessible during operation, post a warning label shown in the figure in a conspicuous position to prevent the risk of burns.
- Dispose the product correctly in accordance with laws and regulations, or instructions of local governments.

Warning label

# 2. Checking the package contents

## 2. 1 Checking the contents

Make sure that you have received all of the items listed below. If an accessory is missing or damaged, contact the nearest ORIENTAL MOTOR office.

- Motor ..... 1
- Capacitor ..... 1 (for only single-phase motors)
- Capacitor cap ..... 1 (for only single-phase motors)
- Key ..... 1 (for only combination types)
  For **BH6G2-□** and **BH6G2-□RA**, a key is fixed on the gearhead's shaft.
- Set of mounting bolts ..... 1
  (for only combination types **BH6G2-□**)
  - Mounting screws ..... 4
  - Nuts ..... 4
  - Washers ..... 4
  - Spring washers ..... 4
- Instructions and Precautions for Safe Use ..... 1

## 2. 2 Checking the product name

This operation manual covers the following products.
Make sure that the product is the one you ordered and is listed below by checking the model number listed on the nameplate.
Verify that the voltage and output listed on the nameplate are appropriate for your application and that the correct value capacitor has been provided.

### ■ Combination types

| Model ∗1 | Motor model | Capacitor model | Gearhead model ∗2 |
|---|---|---|---|
| **BHI62AMT-□** | **BHI62AMT-G2** | **CH470CFAUL** | **BH6G2-□**<br>**BH6G2-□RA**<br>**BH6G2-□RH** |
| **BHI62CMT-□** | **BHI62CMT-G2** | **CH120BFAUL** | |
| **BHI62EMT-□** | **BHI62EMT-G2** | **CH100BFAUL** | |
| **BHI62FMT-□** | **BHI62FMT-G2** | **CH400CFAUL2** | |
| **BHI62SMT-□** | **BHI62SMT-G2** | — | |

### ■ Separate types (Pinion shaft types), Round shaft types

| Model | Shaft type | Capacitor model | Gearhead model ∗2 |
|---|---|---|---|
| **BHI62AMT-G2** | Pinion Shaft | **CH470CFAUL** | **BH6G2-□**, **BH6G2-□RA**, **BH6G2-□RH** |
| **BHI62AMT-A** | Round Shaft | **CH470CFAUL** | — |
| **BHI62CMT-G2** | Pinion Shaft | **CH120BFAUL** | **BH6G2-□**, **BH6G2-□RA**, **BH6G2-□RH** |
| **BHI62CMT-A** | Round Shaft | **CH120BFAUL** | — |
| **BHI62EMT-G2** | Pinion Shaft | **CH100BFAUL** | **BH6G2-□**, **BH6G2-□RA**, **BH6G2-□RH** |
| **BHI62EMT-A** | Round Shaft | **CH100BFAUL** | — |
| **BHI62FMT-G2** | Pinion Shaft | **CH400CFAUL2** | **BH6G2-□**, **BH6G2-□RA**, **BH6G2-□RH** |
| **BHI62FMT-A** | Round Shaft | **CH400CFAUL2** | — |
| **BHI62SMT-G2** | Pinion Shaft | — | **BH6G2-□**, **BH6G2-□RA**, **BH6G2-□RH** |
| **BHI62SMT-A** | Round Shaft | — | — |

Gearheads are sold separately.

With combination types, the motor and gearhead are pre-assembled.
∗1 The gear ratio appears at the position in the model number indicated by the box (□).
For example, **BHI62SMT-50** means that the model is equippedwith a 50 : 1 gear ratio.
For right angle shaft type, there is **RA** or **RH** in the end of themodel number.
∗2 The gear ratio appears at the position in the gearhead model number indicated by the box (□).

Motors are recognized by UL.

◆ **Standards** UL1004-1, UL1004-3, CSA C22.2 No.100, CSA C22.2 No.77, GB/T 12350

◆ **Certification body** UL File No. E64197, CQC

◆ **Applications for standards** EN60950-1, EN60034-1, EN60034-5, EN60664-1

A running heating test and a locked-rotor test has been conducted with a aluminium radiation plate of size indicated below. For the motor with a gearhead, tests has been conducted with a gearhead instead of the radiation plate. [Unit: mm (inch)]

| Size | Thickness | Material |
|---|---|---|
| 230×230 (9.06×9.06) | 5 (0.20) | aluminium |

◆ **Installation conditions** Overvoltage category Ⅲ , Pollution degree 3 (except for the motor installation surface of the round shaft type), Class Ⅰ equipment (For EN standard)

◆ **Standards for accessories** Capacitor: UL File No. E83671 (CYWT2)
Capacitor cap: UL File No. E56078 (YDTU2)

◆ **Electrical appliance and material safety law**

The three-phase round shaft motor type bears a (PS E) mark.
Measurement of noise power and noise terminal voltage, as required by the electrical appliance and material safety law is conducted with a mains filter connected. For the mains filter, use the following product or equivalent.

| Manufacturer | Three-phase 200-230V |
|---|---|
| Schaffner EMC | FN3025HP-10-71 |
| SOSHIN ELECTRIC CO.,LTD | HF3010C-SZA |

◆ **RoHS Directive** This product does not contain the substances exceeding the restriction values.

# 3. Installation

### Installation conditions

Install the motor and capacitor in a location that meets the following conditions.
Using the motor and capacitor in a location that does not satisfy these conditions could damage it.

- ◆ Indoors
- ◆ Ambient temperature : –10°C (14°F) ~ +40°C (104°F) (avoid freezing)
  (–10°C (14°F) ~ +50°C (122°F) for 100/200V)
- ◆ Ambient humidity: 85% max. (avoid condensation)
- ◆ Not exposed to explosive, flammable, or corrosive gases
- ◆ Not exposed to direct sunlight
- ◆ Not exposed to dust
- ◆ Not exposed to water or oil
- ◆ A place where heat can escape easily
- ◆ Not exposed to continuous vibration or excessive impact
- ◆ 1000m or less above sea level

## 3. 1 Install the motor

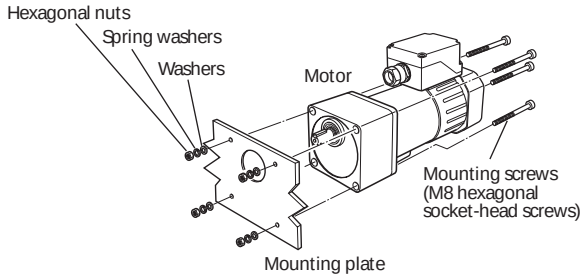
### 1) Assembling the Motor and Gearhead (For only separate type)

Use the gearhead of the **BH6G2** type. Confirm gearhead compatibility by checking the table in section **2. 2**.
For the detail of assembling the motor and gearhead, see the operating manual of gearhead.

### 2) Installing the motor

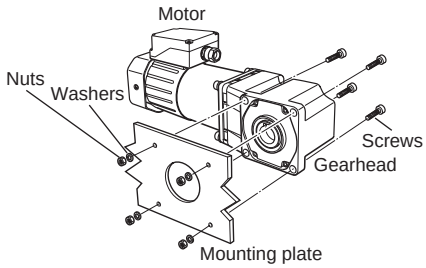
#### ■ Combination type, pinion shaft motor (separate type)

**Parallel shaft type**



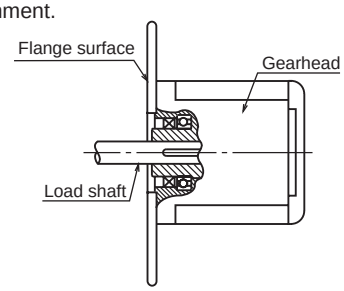

Drill holes in the mounting plate and fasten the motor to the mounting plate with the provided mounting screws, hexagonal nuts, washers and spring washers. Be sure that no gaps are left between the gearhead and the surface of the mounting.
Mounting plate thickness is 10mm (0.393in.) when using the provided mounting screws.

**Right angle type**

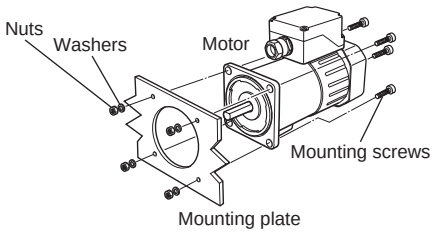



Drill holes in the mounting plate and fasten the motor to the mounting plate with screws, nuts, and washers (The mounting screws are not provided.). Be sure that no gaps are left between the motor and the surface of the mounting plate.
∗ Illustration shows **BH6G2-□RH**.

**Note**
- For **BH6G2-□RH**, when using the gearhead flange to mount the gearhead to equipment, proper alignment between the hollow shaft inside dimension and the load shaft is necessary.
- The diameter of the boss of the shaft is Ø58h8, use it as a guide for proper alignment.




#### ■ Round shaft motor




Drill holes in the mounting plate and fasten the motor to the mounting plate with screws, nuts, and washers (The mounting screws are not provided.). Be sure that no gaps are left between the motor and the surface of the mounting plate.

**Mounting screws**

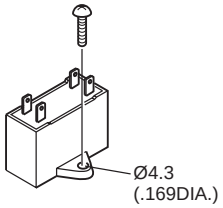
| Screw size | Tightening torque |
|---|---|
| M8 | 6.0N·m (53lb-in) |

**Note** Do not insert the motor into the mounting hole at an angle or force it in, as this may scratch the flange pilot section and damage the motor.

### 3) Cooling fan

When installing a motor with a cooling fan onto a device, leave 10mm (0.393in.) or more behind the fan cover or open a ventilation hole so that the cooling inlet on the back of the motor cover is not blocked.

## 3. 2 Mounting the capacitor (For only single-phase motors)



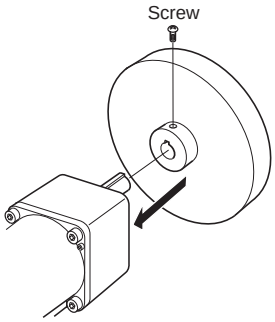

Before mounting the provided capacitor, check that the capacitor's capacitance matches that stated on the motor's name plate.
Use M4 screws to mount the capacitor (screws not provided).

∗ Dimensions in millimeters (inch).

**Note**
- Do not let the screw fastening torque exceed 1N·m (8.8lb-in) to prevent damage to the mounting feet.
- Mount capacitor at least 10cm (3.94in.) away from the motor. If it is located closer, the life of the capacitor will be shortened.

## 3. 3 Attaching Load

### ■ BH6G2-□, BH6G2-□RA

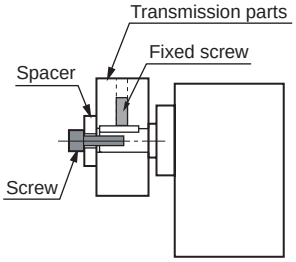



The shaft of the gearhead has been machined to an outer diameter tolerance of h7 and is provided with a key slot for connecting the transmission parts. When connecting the transmission parts, ensure that the shaft and parts have a clearance fit, and secure with a screw to prevent the parts from wobbling.

**Note** Do not use excessive force, or hammer the transmission parts onto the gearmotor shaft as damage may occur.

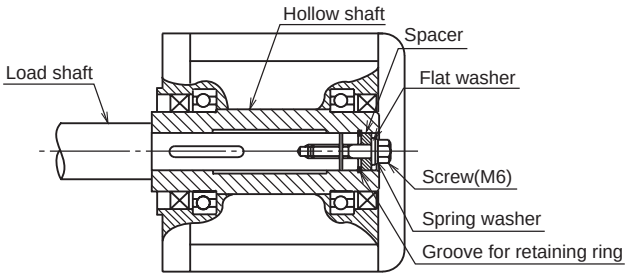
**When using the output axis tip screw hole of a gearhead**

Use a screw hole [M6, effective depth 12 mm (0.47 in.)] provided at the tip of the output shaft of the gearhead as an auxiliary means for preventing the transfer mechanism from disengaging.

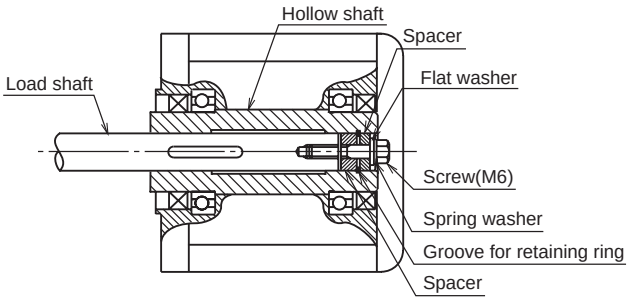



### ■ BH6G2-□RH (Hollow shaft type)

**When the load shaft is stepped**




**When the load shaft is not stepped**




Refer to chart below for hollow shaft inside dimensions and the recommended load shaft dimensions.
Attach the load according to load shaft conditions as shown in either figure above or below. The hollow shaft inside dimension is processed to a tolerance of H8, and incorporates a key slot for load shaft attachment. A load shaft tolerance of h7 is recommended. Apply a lubricant such as molybdenum disulphide grease etc. to the load shaft and to the inner circumference of the hollow shaft.

**Hollow shaft inside dimensions and recommended load shaft dimensions**

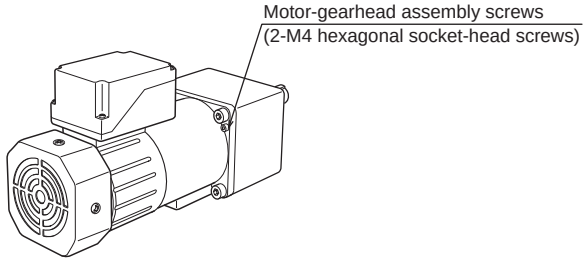
[Unit: mm (inch)]

| Gearhead Model | BH6G2-□RH |
|---|---|
| Hollow shaft inside dimensions (H8) | Ø25 $^{+0.033}_{0}$ ( $^{.9855DIA.}_{.9843DIA.}$ ) |
| Recommended load shaft dimensions (h7) | Ø25 $^{0}_{-0.021}$ ( $^{.9843DIA.}_{.9834DIA.}$ ) |

After attaching the load, attach the safety cover.

**Note**
- Do not apply excessive force when inserting the load shaft into the gearhead. Excessive or abrupt force may damage the gearhead internal bearings.
- When the hollow-shaft gearhead or solid-shaft gearhead with a low gear ratio (5, 6, 7.5, or 9) is combined with a single-phase motor, noise (resonasce sound) may occur during operation under no or light load. This noise can be reduced by adding a frictional load.

## 3. 4 Disassembling the motor and gearhead (For only combination types)




∗ Illustration shows parallel shaft type.

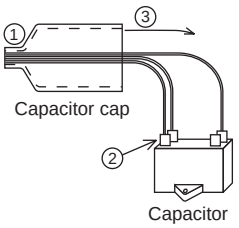
In combination types, motor and gearhead are attached by means of motor-gearhead assembly screws (hexagonal sockethead screws). These screws must be removed in order to replace the gearhead.
Once the gearhead has been replaced, reassemble the unit using the screws included with the gearhead for this purpose.
To install the unit in machinery, use the mounting screws, and follow the instructions given in section **3. 1 ~ 3. 3**. The screw tightening torque for assembling motor and gearhead is shown in the below chart.

| Motor model | Screw size∗ | Tightening torque |
|---|---|---|
| **BH6G2-□** | M4 | 1.0N·m (8.8lb-in) |
| **BH6G2-□RH**, **BH6G2-□RA** | M8 | 10N·m (88lb-in) |

∗ The number of screws is two for **BH6G2-□** and four with other models.

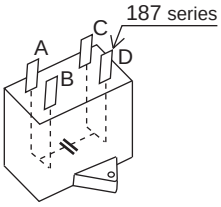
# 4. Connection and operation

- Connect the motor according to the **"4. 2 Basic connection diagram"** on page 6.
- Insulate all the wire connections, such as the connection between the motor and the capacitor connection. Capacitor cap are available to insulate capacitor connection.



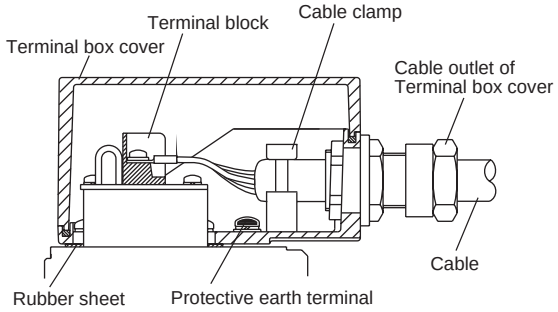

Capacitor caps
① Pass the lead wires through the capacitor cap as shown in the figure.
② Connect the lead wires to the terminals or use terminal ends.
③ Cover the capacitor with the capacitor cap.

### ■ Capacitor connection (For only single-phase motors)




The capacitor internal wiring is as follows:
Capacitor terminals are internally electrically connected in twos; A-B and C-D for easy connection.
For easy to install terminals use 187 series FASTON Terminals. (TE Connectivity)
For lead wire connection, use one lead wire for each individual terminal.

## 4. 1 Connection method to a terminal block



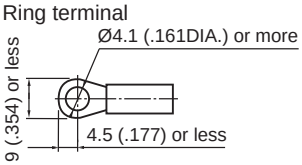

To ensure safety, ground the motor using the protective earth terminal ⏚ inside the terminal box.

〈Appropriate cable〉
Cable diameter: Ø8.0 ~ Ø12.0mm (0.315 ~ 0.472inch DIA.)

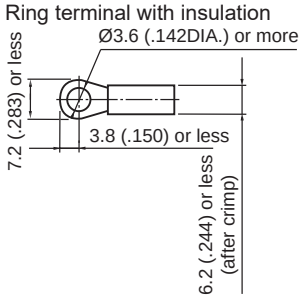
〈Appropriate lead wire〉
AWG18 (0.75mm$^2$) min.

〈Appropriate crimp terminal〉
Use the crimp terminal as below for connection (not supplied). Dimensions in millimeters (inch).

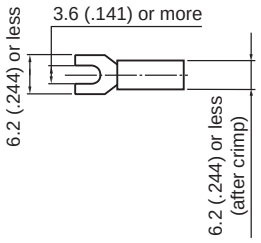
◆ For connection to earth terminal
Tightening torque 1.0 ~ 1.5N·m (8.8 ~13.3lb-in)
Ring terminal



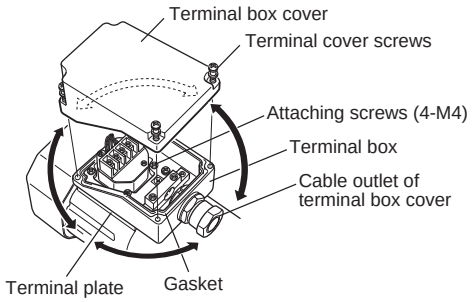

◆ For connection to terminal block
Tightening torque 0.8 ~ 1.0N·m (7.0 ~8.8lb-in)
Ring terminal with insulation




Fork terminal with insulation




### ■ Installation of the terminal box




**Tightening torque**

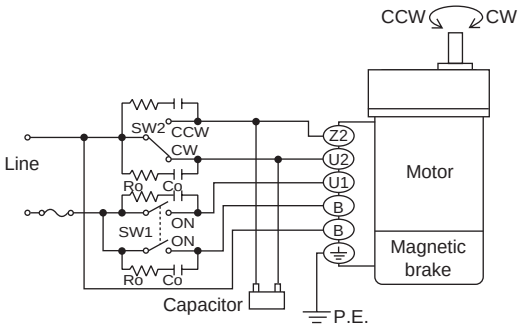
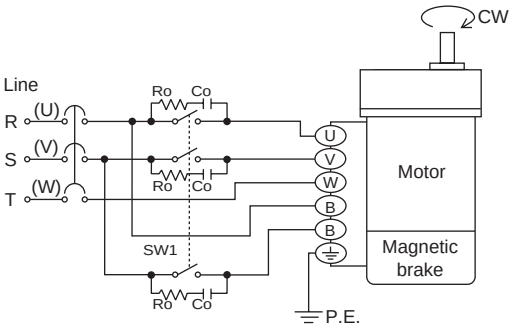
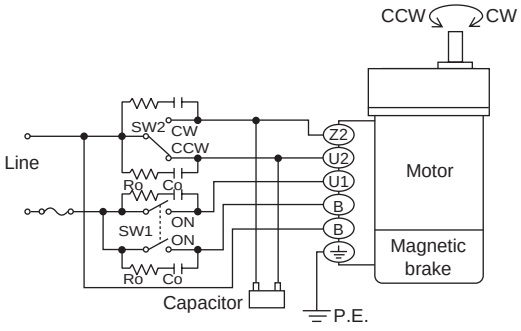
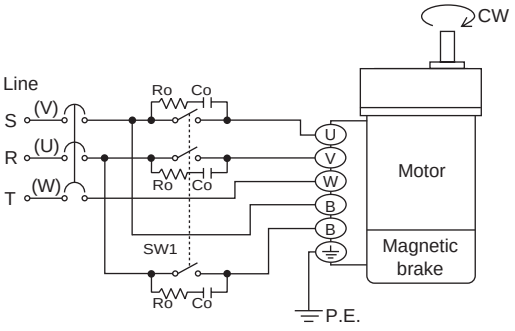
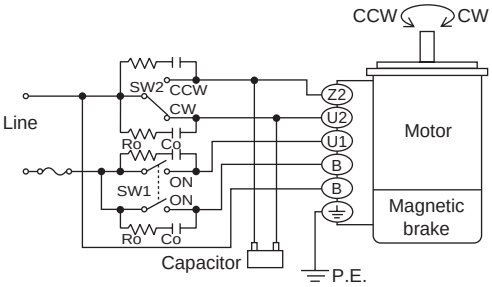
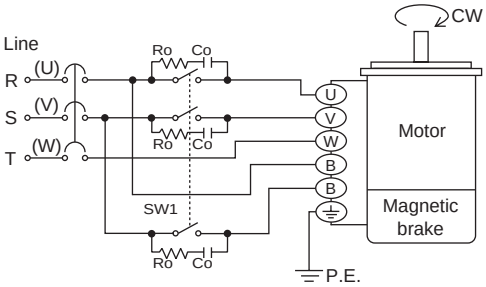
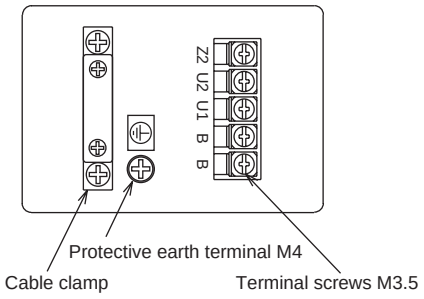
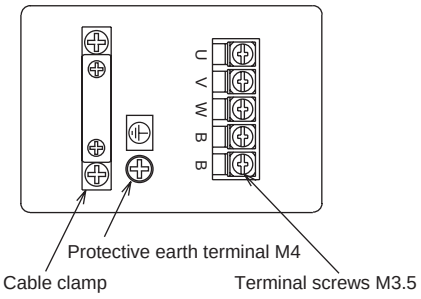
| | |
|---|---|
| Terminal box cover | 1.0 ~ 1.5N·m (8.8 ~ 13.3lb-in) |
| Cable outlet of terminal box cover | 3.2 ~ 8.0N·m (28 ~ 70lb-in) |
| Cable clamp | 0.2 ~ 0.3N·m (1.77 ~ 2.6lb-in) |
| Attaching screws | 1.0 ~ 1.5N·m (8.8 ~ 13.3lb-in) |

- When sealing the terminal box cover, ensure that no scraps or particles get caught between the contact surfaces.
  Also, this terminal box is constructed to hold a gasket. If this gasket comes out of the box, please reseal it correctly on the box.
- Refer to the tightening torque table (left) to determine the appropriate tightening torque to use when fastening the terminal box cover, cable outlet of terminal box cover and so on.
- Cable entry is possible at any of the four sides of the terminal box.
  Undo the screws which attach the terminal box to the motor case (M4, four), position the terminal box so that the outlet faces in the desired direction and refasten the screws.
  In order to maintain a tight seal around the terminal box, a rubber sheet is used between the terminal box and terminal plate. Also this terminal box is constructed to hold a rubber sheet. If this rubber comes out of the box, please seat it correctly on the box.

**Note** To make shielding function fully effective, use a cable of an appropriate diameter.

## 4. 2 Basic connection diagram

The direction of rotation is as viewed from the side of the motor's output shaft. "CW" indicates clockwise and "CCW" counterclockwise. The gearhead's output shaft may, depending on the gear ratio, turn in the opposite direction of the motor shaft. For right angle type, it turns in the opposite direction of the motor shaft.

| Motor model ※ | Wiring diagram | |
|---|---|---|
| | Single-phase motor | Three-phase motor |
| **BHI62□MT-3 ~ 9**<br>**BHI62□MT-50 ~ 180** |  |  |
| **BHI62□MT-12.5 ~ 36**<br>**BHI62□MT-5 ~ 180RA**<br>**BHI62□MT-5 ~ 180RH** |  |  |
| **BHI62□MT-A** |  |  |
| Direction of rotation | [Direction of rotation]<br>To rotate the motor in a clockwise (CW) direction, flip switch SW to CW.<br>To rotate the motor in a counterclockwise (CCW) direction, flip switch SW to CCW. | To change the direction of rotation, change any two connections between U, V and W. |
| Layout terminals |  |  |

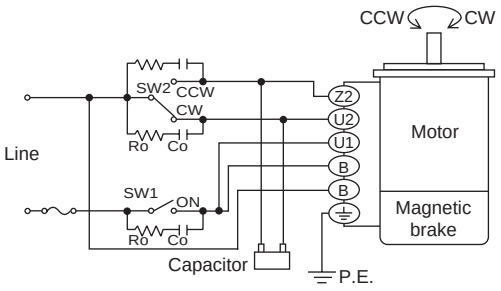
∗ **A**, **C**, **E**, **F**, **S**appear at the position in the model number indicated by the box (□).

| No. of switch | Specification | | | Note |
|---|---|---|---|---|
| | Single-phase 100V/110V/115V | Single-phase 200V/220V/230V | Three-phase 200V/220V/230V | |
| SW1 | AC125V 5A or more Inductive load | AC250V 5A or more Inductive load | AC250V 5A or more Inductive load | Switched simultaneously |
| SW2 | | | — | — |

SW1 emits sparks when turned on and off. In order to protect the relay contacts, CR circuit (⌐ww⊣⊢) must be connected.
Ro = 5 ~ 200Ω
Co = 0.1 ~ 0.2μF 250WV
Option of the ORIENTAL MOTOR's surge absorber is available.
Optional product name **EPCR1201-2** (sold separately)

For increased safety, provide a breaker or fuse (∘~∘) on the power-supply input.

### ■ Simplifined connection



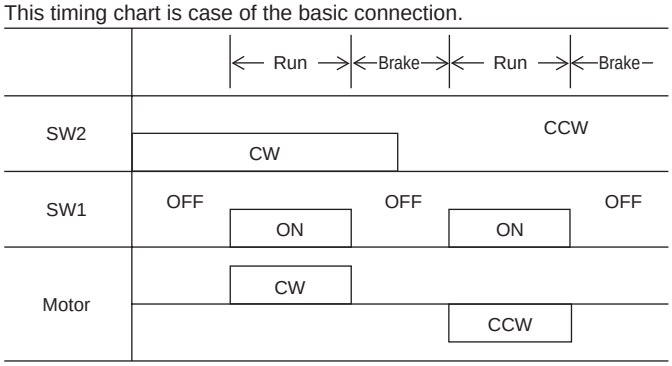

**Note** Wiring cannot be simplified for vertical drive applications or three-phase motors.

Connection can be simplified by using the connecting diagrams shown below when changing the swich RUN/STOP of the motor and the electromagnetic brake by one swich. Using the connection shown below, however, results in a 120msec increase in braking time over that of the basic connection with a corresponding increase in overrun. The reason for this is that an electromagnetic energy of motor electromagnetic brake, so that the electromagnetic continues to operate for about 120msec even though the swich SW1 has been turned off. The brake thus takes longer to engage.

## 4. 3 Operation

**Note**
- This motor is B type insulation motor.
  Make sure that the motor case temperature does not exceed 90° C (194° F) during motor operation.
  Operating the motor above 90° C (194° F) will shorten the life of the coil and the ball bearings.
  Motor case temperature can be measured by fastening a thermometer to the motor's surface, or with thermo-tape.
- Bring motors to a complete stop before switching the direction of rotation.
  If you try to switch the direction of rotation before the motor has stopped, it may not change or may require time.
  This may damage the motor.
- Use the provided capacitor for single-phase motors and always keep the capacitor connected after the motor is started.
- Refer to the capacitor connection method on page 5.

[Timing chart]
This timing chart is case of the basic connection.




### ■ Starting and stopping

SW1 operates motor and electromagnetic brake action.
Motor will rotate when SW1 is switched simultaneously to ON (short circuit). When SW1 is swiched simultaneously to OFF (open), the motor stops immediately by electromagnetic brake and holds the load.

**Note** When operating the electromagnetic brake, this may make a friction noise because this is the braking system by friction, but this is not a problem.

### ■ Other ways of operating

**Note** When driving a vertical load, this method cannot be applied because this may cause the load to fall.

- Hastening the motor's starting time
  If the electromagnetic brake is left release, the motor can be started much faster.
  Optimum timing for release of the brake is at least 10msec before starting up the motor.

- Releasing Electromagnetic brake
  If you wish to release the brake while the motor is stopped, apply voltage between only two terminals for magnetic brake (B).
  The electromagnetic brake is released and the motor shaft can be rotated easily by hand.

## 5. Time rating

This motor can be operated continuously (continuous rating).

## 6. Maintenance · inspection

### 6. 1 Inspection

It is recommended that periodic inspections would be conducted for the items listed below after each operation of the motor. If an abnormal condition is noted, discontinue any use and contact your nearest Oriental Motor sales office.

**■ Inspection item**

- Check if any of the mounting screws of the motor and gearhead are loose.
- Check if the bearing part (ball bearings) of the motor generates unusual noises.
- Check if the bearing part (ball bearings) or gear meshing part of the gearhead generates unusual noises.
- Check if the output shaft of the motor and gearhead and a load shaft are out of alignment.

### 6. 2 Warranty

Check on the Oriental Motor Website for the product warranty.

### 6. 3 Disposal

Dispose the product correctly in accordance with laws and regulations, or instructions of local governments.

## 7. Locked rotor burnout protection of motor

This motor is equipped with a feature listed below to prevent the motor from burning out as a result of abnormal heating which may be caused by misapplication.

**■ Thermal protection (“THERMALLY PROTECTED” “TP212” is stamped on the motor name plate)**

When the motor reaches a predetermined temperature, the internal thermal protector is activated and the motor is stopped.
In this stage, the electromagnetic brake is left released so that the motor does not keep hold of the load. Adopt another safety measure.
With the automatic resume feature, the motor automatically begins operating again as soon as the motor temperature falls.
Always turn the power off before performing inspections.

**Thermal protector activation range:** Power is turned off at 150°C ± 5°C (302°F ± 9°F)
Power is turned back on at 96°C ± 15°C (205°F ± 27°F)

## 8. Troubleshooting

When the motor is not functioning normally, perform an inspection covering the points listed in the table bellow.
If the inspection shows that everything is normal but the motor and control unit still are not functioning correctly, contact the nearest ORIENTAL MOTOR office.

| Problem | Things to check |
|---|---|
| The motor does not rotate or motor rotates at low speed | 1. Is the correct voltage being supplied to the motor?<br>2. Are lead wires properly and firmly connected?<br>3. Is the load too large?<br>4. If lead wires have been extended by using a terminal strip or terminal block, are the lead wires properly and firmly connected at all points?<br>5. For a single-phase motor, is the provided capacitor connected as shown in the wiring diagram of page 6?<br>6. Is the correct voltage being supplied to the terminals for magnetic brake (B)? |
| The motor rotate correctly or properly | 1. Are lead wires properly and firmly connected?<br>2. If lead wires have been extended by using a terminal strip or terminal block, are the lead wires properly and firmly connected at all points?<br>3. For a single-phase motor, is the provided capacitor connected as shown in the wiring diagram of page 6? |
| The motor rotates in the wrong direction | 1. Is the connected as shown in the wiring diagram? Check the wiring diagram of page 6 again.<br>2. The gearhead output shaft's rotation direction differs depending on the gearheads deceleration ratio. Refer to the gearhead operation manual.<br>3. For a single-phase motor, is the provided capacitor connected as shown in the wiring diagram of page 6?<br>4. Are you looking at the motor from the wrong side? Rotation is defined as viewed from the output shaftside. |
| The motor becomes extraordinarily hot (motor case temperature exceeds 90° C (194° F)) | 1. Is the correct voltage being supplied to the motor?<br>2. Does the ambient temperature exceed the specified range?<br>3. For a single-phase motor, is the provided capacitor connected as shown in the wiring diagram of page 6? |
| The motor makes a strange noise | 1. For separate type, or after disassembling the motor and gearhead, are the motor and gearhead correctly fastened? Refer to the operating manual of gearhead.<br>2. Is the coupled gearhead the same pinion type as the motor shaft? |

• Characteristics, specifications and dimensions are subject to change without notice.
• ***Orientalmotor*** is a registered trademark or trademark of Oriental Motor Co., Ltd., in Japan and other countries.
• Please contact your nearest Oriental Motor office for further information.

Published in February 2022

• Please contact your nearest Oriental Motor office for further information.

ORIENTAL MOTOR U.S.A. CORP.
Technical Support Tel:(800)468-3982
8:30 A.M. to 5:00 P.M., P.S.T. (M-F)
7:30 A.M. to 5:00 P.M., C.S.T. (M-F)
www.orientalmotor.com

ORIENTAL MOTOR DO BRASIL LTDA.
Tel:+55-11-3266-6018
www.orientalmotor.com.br

ORIENTAL MOTOR (EUROPA) GmbH
Schiessstraße 44, 40549 Düsseldorf, Germany
Technical Support Tel:00 800/22 55 66 22
www.orientalmotor.de

ORIENTAL MOTOR (UK) LTD.
Tel:01256-347090
www.oriental-motor.co.uk

ORIENTAL MOTOR (FRANCE) SARL
Tel:01 47 86 97 50
www.orientalmotor.fr

ORIENTAL MOTOR ITALIA s.r.l.
Tel:02-93906346
www.orientalmotor.it

ORIENTAL MOTOR ASIA PACIFIC PTE. LTD.
Singapore
Tel:1800-8420280
www.orientalmotor.com.sg

ORIENTAL MOTOR (MALAYSIA) SDN. BHD.
Tel:1800-806161
www.orientalmotor.com.my

ORIENTAL MOTOR (THAILAND) CO., LTD.
Tel:1800-888-881
www.orientalmotor.co.th

ORIENTAL MOTOR (INDIA) PVT. LTD.
Tel:+91-80-41125586
www.orientalmotor.co.in

TAIWAN ORIENTAL MOTOR CO., LTD.
Tel:0800-060708
www.orientalmotor.com.tw

SHANGHAI ORIENTAL MOTOR CO., LTD.
Tel:400-820-6516
www.orientalmotor.com.cn

INA ORIENTAL MOTOR CO., LTD.
Korea
Tel:080-777-2042
www.inaom.co.kr

ORIENTAL MOTOR CO., LTD.
Hong Kong Branch
Tel:+852-2427-9800

ORIENTAL MOTOR CO., LTD.
4-8-1 Higashiueno, Taito-ku, Tokyo
110-8536 Japan
Tel:03-6744-0361
www.orientalmotor.co.jp