OPERATION MANUAL

Induction Motors / Reversible Motors

REVOLUTION TECHNOLOGY™

The pioneers...

Thank you for Purchase Elimo Motors.
Please read this Operation Manual Carefully before installing
And Operating the Induction / Reversible Motors,
And always keep this manual where it is readily accessible.

1. Precautions

1.1 Precautions for Installation:

Indoors, the product is designed and manufactured to be mounted in machine
Ambient Temperature -10°C ~ + 40°C.
Ambient Humidity 0~85 % (Non Condensing).
No Explosive, Flammable and / or Corrosive Gas.
No Splashing of Water or Exposure to Dust or Debris.
No Oil or Grease, Organic Solvents Acid or Alkaline Chemicals.
No Continuous Vibrations or Excessive Shocks.
Height above See Level is not Exceed 1,000 Meters.
When Installing the Motor in to your equipments, ensure that the Motor Lead Wires are Fixed and not to move. In addition, do not apply any Pressure to these lead Wires.
The Induction / Reversible Motor housing (Lead Wire Type) must be mounted with Screw and Spring Washers to Ground point of the Equipment.
Installation must be performed by a Qualified Installer.

1.2 Precautions For Operation:

The Enclosure Temperature of the Motor can exceed 70°C (Depending on Operation conditions) In Case Motor is accessible during operation, please attach the following warning label so that it is Clearly visible. Always turn Off the Power to Motor before conducting the checks or performing work on the motor. Thermally protected motors will restarts automatically when motor temperature falls below a certain level.

Warning Label

2. Verifying the Product Name and Accessories

This Operation manual covers all Induction and Reversible Motors of 25 Watt, 40 Watt, 60 Watt, 90 Watt, 180 Watt, 200 Watt and 360 Watt having 960 / 1440 / 2880 RPM with Round Or Pinion Type Shafts. Check to see that the motor Type, Voltage , Output Speed and accessory Capacitors are the ones you ordered.

* Motor..... 1 Piece.
* Capacitor.....1 piece.

3. Installation

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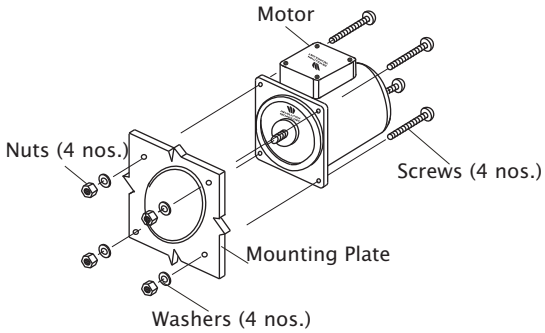
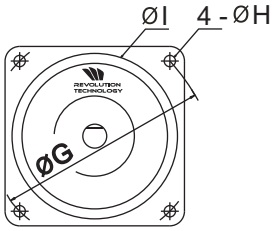
3.1 Mounting Of The Motor
Round Shaft Motor

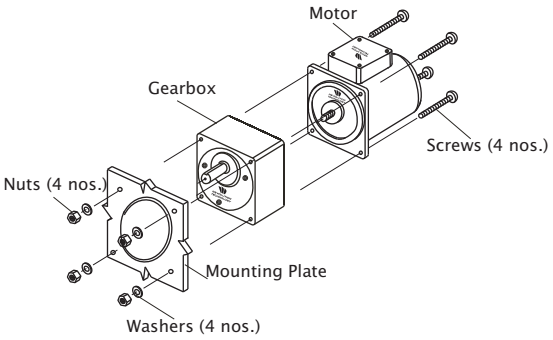


To Install the Motor to your Equipment, first make installation holes to the mounting plate or bracket. Use 4 No.s Screws and secure the motor so that there are no gaps between the motor flange surface and the mounting plate surface. 4- Screws are necessary for mounting (Not provided).Ensure that the spigot does not rest on the plate & has sufficient clearance.



Motor Frame Size In Square mm	Installation Hole Dimensions		
	G	H	I
□ 65	76	5.5	58
□ 80	94	5.5	73
□ 80	104	6 5.	83
□ 104	120	6.5	95

Pinion Shaft Motor and Gearbox:



To Install the Motor and Gearbox to your equipment, first make installation holes to the mounting plate or bracket. Use 4 No.s provided screws with gearbox and secure the motor so that there are no gaps between the motor flange surface, gearbox surface and the mounting plate surface. For the dimensions of the installation holes and the details of the mounting, please see the operation manual of gearbox. Be sure only Elimomotor's Gearboxes are used with Elimomotor's Motor of matching square frame.

3.2 Mounting Of The Capacitor
(For Single Phase Motors Only.)

Before mounting the provided Capacitor, check the Capacitor's capacitance matches that stated on the motor's name plate. Keep the capacitor connected all the time after the motor has been installed.
Use clamp to mount the capacitor (not provided).

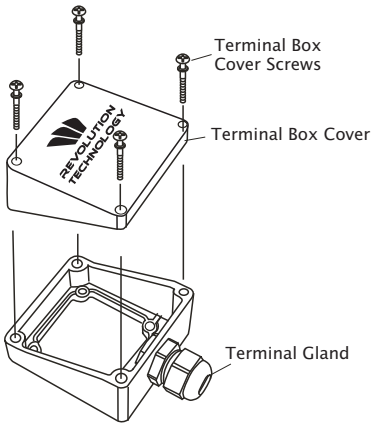
Note: Mount the capacitor at lease 10 cm away from the motor.
If it is located closer to motor, the life of the capacitor will be shortened.

4. Connection and Operation

Make sure that the temperature of the motor case does not exceed 90^0C during motor operation. When the motor is operating, some heat in the motor is unavoidable since heating is produced by energy loss in the motor, if the motor is operated at high temperature, however, the life of the windings and the bearings will be shortened. The temperature of the motor case can be measured by fixing a thermometer to motor surface, or by by using thermotape or thermocouple.
Before reversing the direction of the rotation of induction motor make sure that the motor has stopped completely.
Do not operate any AC 415 V Motors with an invertor. It will result in damage to the insulation of the motor wires.

4.1: Lead Wire Type

4.2: Terminal Box Type



Clamping Torque	N.m
Terminal Box Cover	0.5 ~ 1.0
Cable Gland	1.5 ~ 2.0
Wire Connecting Terminals	0.5 ~ 0.8

Connection differs depending on the motor model and the required direction of rotation. Connection diagrams are shown below. Directions of rotation in the diagram are shown as viewed from the flange surface of the motor. Remember that the depending on reduction ratio, some gearbox models reverse the direction of rotation of the motor shaft (see gearbox manual). In such a case, the desired direction of rotation can be achieved by reversing the direction of the motor rotation.

To ensure safely, ground the motor using the grounding terminal inside the terminal box. For wiring, be sure to use cable that meets the following specifications.
Cable Diameter: Diameter is 6.0 mm ~ 12.0 mm.
Lead Thickness is 0.2 mm square ~ 0.5 mm square.
Length of strip is 8 mm.

While fitting the terminal cover, ensure that no scraps or particles get caught between the contact surfaces. The terminal cover screws are specially designed for mounting the terminal cover. In order to maintain a tight seal around the terminal box, use only the provided screws. Also this terminal box is constructed to hold a "O" ring,. If this "O" ring comes out of the box, please fix it correctly on the box.

Note: To make shielding function fully effective, use a cable of an appropriate diameter. Also refer to the clamping torque table at left to determine the appropriate clamping torque to use while fastening the terminal box cover and cable gland.

5. Connection Diagram

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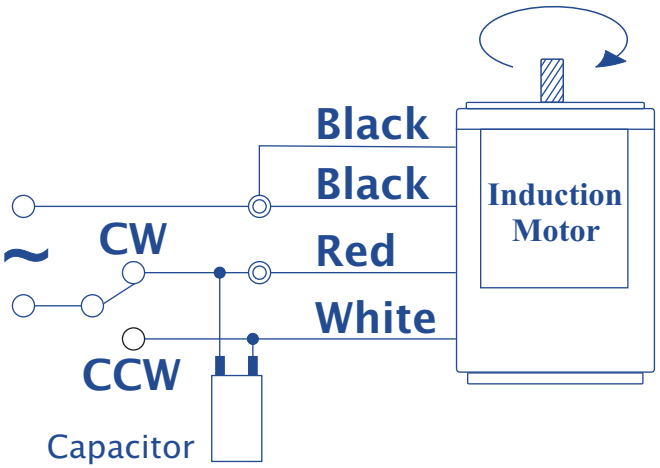
Wiring diagram for Single Phase Motors

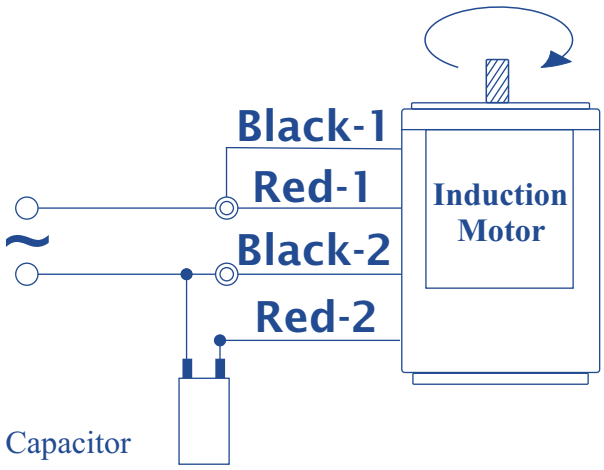
Standard Single Phase Motor



Short the Black wires and connect as shown in fig., To rotate the motor in Clockwise direction.

To change the direction, flip CW to CCW.

SR Type Single Phase Motor

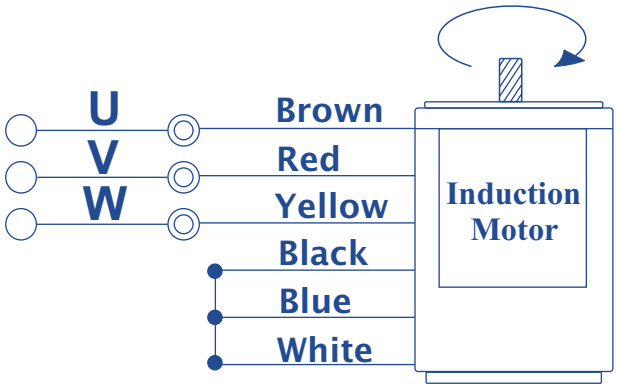


Black Wires are for Starting purpose and Red wires for the Running purpose, as shown in fig.,

To change the direction, interchange Black wires or Red wires.

Wiring diagram for Three Phase Motors

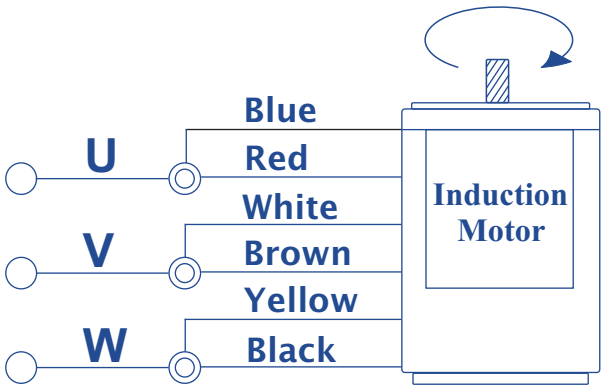
Star Connection



For the Voltage 415 VAC, 3-Phase Supply, Wires are connected as shown in the fig.
Short Blue, Black and White and then insulate it carefully.

To change the direction, interchange any two wires between U, V & W.

Delta Connection



For the Voltage 230 VAC, 3-Phase Supply, Wires are connected as shown in the fig.
Short Blue & Red, Black & Yellow, and White& Red as per the fig. Shown.

To change the direction, interchange any two wires between U, V & W.

Change the direction of the motor only after it stops rotating, if the attempt is made during rotation, the motor may ignore the reversing command or change the direction after some time.

6. Duty Cycle

Induction motors have a continuos rating.
Reversible motors have 30 minutes rating.

7. Overheat burnout Protection

To prevent burning of windings as a result of overheating explained below.

Thermal Protected Motors;

Thermal protector: Automatic Return Type

operating temperature of thermal protectors

Open : 120 °C ± 5 °C
Close : 70 °C ± 15 °C.

8. Troubleshooting

If your motor does not operate normally, check the following points and take the necessary steps.

Motor does not rotate or Motor rotates at low speed.	1. Is proper voltage applied to the motor? 2. Are lead wires properly and firmly connected? 3. Is the load too large or mechanical alignment correct? 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? 5. Is wiring correct as instructed in the wiring diagram? 6. Is the capacitor properly connected and is not leaked (for Single Phase Motors)
Motor rotates in wrong direction.	1. Is wiring correct as instructed in the wiring diagram? 2. Did you view the motor from the wrong direction? (The connecting diagram is shown assuming that you view the motor from the flange surface of the motor) Remember that the direction of rotation of the output shaft may be reversed due to reduction ratio of the gearhead.
Motor becomes abnormally hot.	1. Is proper power-source voltage applied? 2. Is the load too large? 3. Is wiring correct as instructed in the wiring diagram? 4. Is ambient temperature too high?
Motor is giving current in Body.	1. Is any screw of terminal box or fan cover changed to a longer one? 2. Is any foreign particle gone inside the motor body?

Specifications subject to change without notic

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