



# Standard AC Motors



# Standard AC Motors

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This catalogue contains information necessary for informed product selection. Additional product details and information not outlined in this catalogue can be found in each product's individual operating manual. Operating manuals can be downloaded from our website or obtained by contacting technical support or your nearest Oriental Motor sales office.

# Overview of Standard AC Motors

Standard AC motors are used generally as power sources for automated devices because these motors can be operated easily through connection to an AC power supply.

Oriental Motor offers standard AC motors incorporating various operating functions. A standard AC motor can be combined with a brake pack or speed control circuit product and also combined with mechanical component such as a gearhead or linear head. For this reason, various applications can be supported.

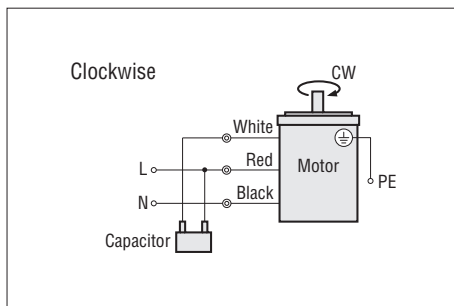
## Features

### Easy Operation

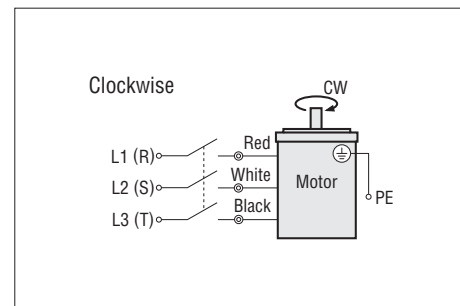
Standard AC motors include single-phase motors used with a single-phase power supply and three-phase motors used with a three-phase power supply.

A single-phase motor can be operated simply by connecting it to a single-phase power supply via the supplied capacitor.

A three-phase motor does not require a capacitor. All you need is to connect the motor to a three-phase power supply.



Induction Motors: Connection example for single-phase power-supply input type



Induction Motors: Connection example for three-phase power-supply input type

### The Power Supply Frequency Determines the Speed

The basic rotation speed (synchronous speed\*) of a standard AC motor is determined by the power supply frequency and the number of poles.

Many of our products have four poles, so their synchronous speed is as follows:

50 Hz: 1500 r/min

60 Hz: 1800 r/min

The actual speed varies according to the load torque.

With our products, the speed roughly falls within the following ranges at a load torque equivalent to the rated torque:

50 Hz: 1200 to 1300 r/min

60 Hz: 1450 to 1600 r/min

The rated speed of our standard AC motors are set within the above ranges and are shown on each product's page.

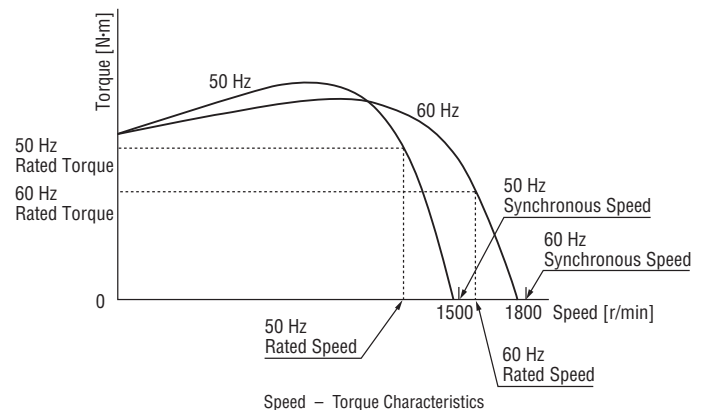
To calculate a more accurate machine speed, use the rated speed as a reference.

The power supply frequency varies depending on the region. In the case of automated devices used in different regions, change the gear ratio of the gearhead or take other appropriate measures.

### An Optimal Motor can be Selected According to the Load Torque

The torque generated by each standard AC motor is different depending on the motor frame size and length.

Oriental Motor systemizes motor size and output and offers products with a frame size of 60 mm to 104 mm and an output of 6 W to 200 W. Select an optimal motor from the wide-ranging variations according to the load torque.



\*The synchronous speed is calculated by the formula below.

$$N_s = \frac{120 \times f}{P}$$

$N_s$  : Synchronous speed [r/min]

$f$  : Power supply frequency [Hz]

$P$  : Number of poles (Many of our products have four poles.)

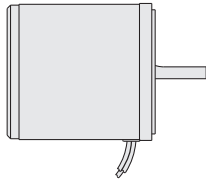
## Product Line

### Motors

We have induction motors and other products offering various operating functions to meet the diverse needs of customers.

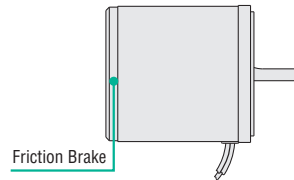
### Induction Motors

These motors can be operated easily from an AC power supply. Single-phase and three-phase motors are available.



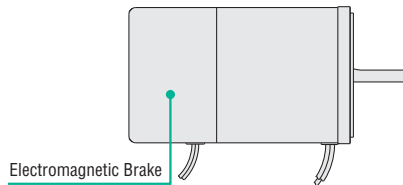
### Reversible Motors

Generating a greater starting torque and having a built-in friction brake, these single-phase motors allow for instantaneous switching of rotation direction.



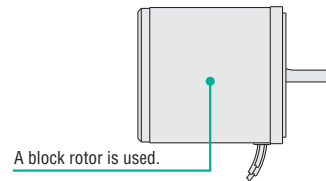
### Electromagnetic Brake Motors

These motors adopt a power off activated type electromagnetic brake to hold the load in position when the power is cut off.



### Torque Motors

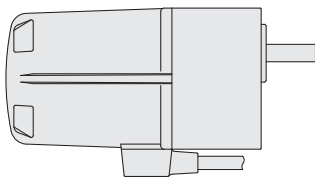
A block rotor is used to provide large starting torque and sloping characteristics (torque is highest at zero speed and decreases steadily with increasing speed). The torque of the motor can be changed by changing the applied voltage.



### Watertight, Dust-Resistant Motors

Gearmotors have an excellent watertight and dust-resistant performance structure.

These models conform to the IP67 rating for the degree of protection under the IEC Standards.



Introduction

Induction Motors

Reversible Motors  
Constant Speed Motors

Electromagnetic Brake Motors

V Series

TM Series  
Torque Motors

Torque Motors

Watertight,  
Dust-Resistant  
Motors

Right-Angle  
Gearheads

Brake Pack

Accessories

Installation

## ● Various Control Circuits are Available for Use with Motors

Using a standard AC motor with a control circuit suppresses overrun and enables speed control operation.

### Note

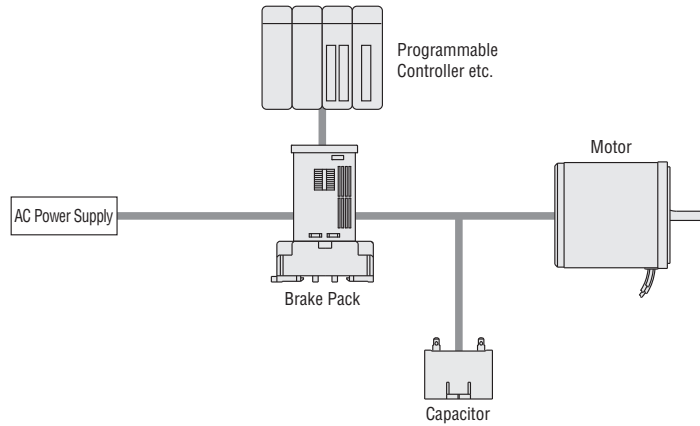
- Not all control circuits are compatible depending on the motor type, applicable voltage, etc.  
We also have many package products combining a control circuit with a motor.  
Check the page of each product for details.

## Brake Pack

Upon receipt of a command from a programmable controller etc., a large braking current from the brake pack stops the motor instantaneously.

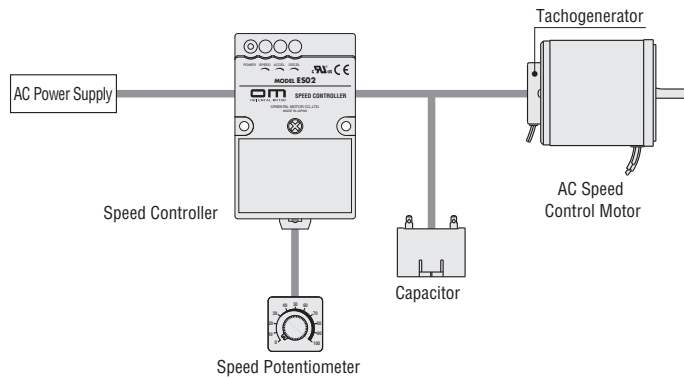
### <Applicable Products>

- Single-phase Induction Motors
- Reversible Motors
- Single-phase Electromagnetic Brake Motors



## AC Speed Control Motors

A dedicated AC speed control motor assembled with a tachogenerator is driven with a speed controller. Speed can be set with the built-in speed potentiometer of the speed controller or the external speed potentiometer.

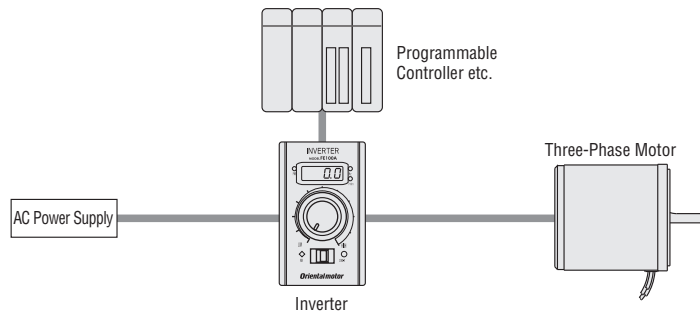


## Inverters

Combined use of an inverter with a three-phase motor enables operation with speed control. Speed can be set with the inverter's built-in speed potentiometer or by using an external speed potentiometer.

### <Applicable Products>

- Three-Phase Induction Motors
- Three-Phase Electromagnetic Brake Motors



## ● Various Mechanism Products are Available for Assembly with Motors

We have various gearheads that convert the speed and torque of a standard AC motor to the speed or torque required by automated devices. Linear heads that convert rotation to linear motion are also available.

Since standard AC motors are designed with a standard flange-installation surface, a desired mechanical component can be assembled according to your specific application.

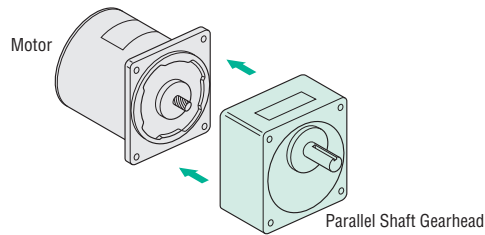
These products can also be used with pinion shaft type motors.

### Note

- Available mechanism products vary depending on the motor type.
- Not all mechanism products are compatible. For details, check the pages where each product is listed.

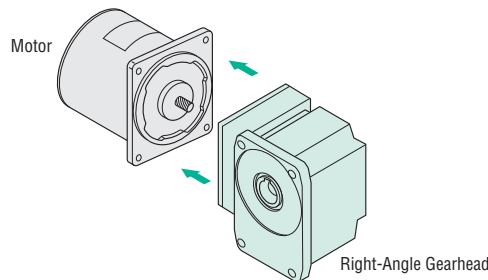
## Parallel Shaft Gearheads

The output shaft of the gearhead is positioned in the same direction as (in parallel with) the output shaft of the motor. Decimal gearheads are also available.



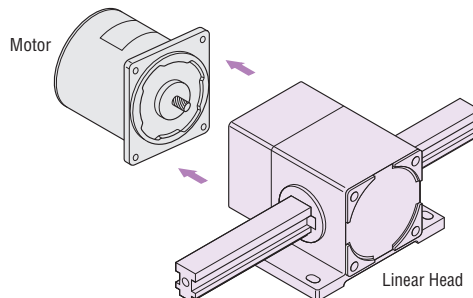
## Right-Angle Gearheads

The gear shaft is perpendicular (90°) to the motor shaft. A solid shaft type and hollow shaft type are available.



## Linear Heads

Motor rotation is converted to linear motion using a rack-and-pinion mechanism. Both a horizontal-drive type and vertical-drive type are available.



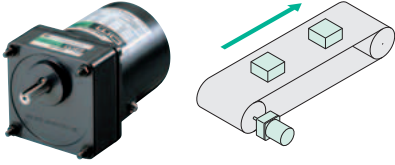
■ Applications and Classifications

**Constant Speed Motors**

→ Page C-9

**For Continuous Operation  
Induction Motors**

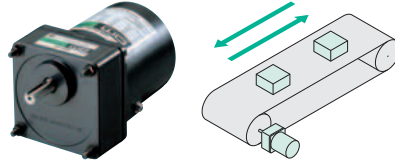
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Suitable for applications where the motor is operated continuously in one direction.

**For Bi-Directional Operation  
Reversible Motors**

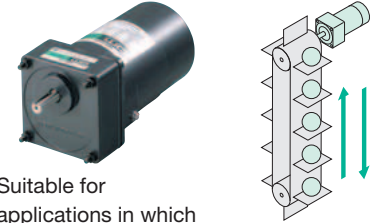
→ Page C-73



Suitable for applications where the motor must frequently switch direction.

**For Load Holding  
Electromagnetic Brake Motors**

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Suitable for applications in which the load must be held.

**High-Strength, Long Life, Low Noise  
V Series**

→ Page C-149

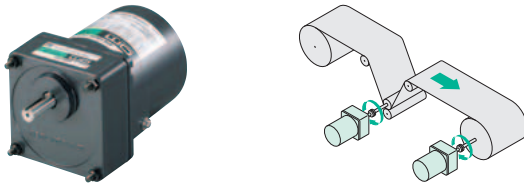


Induction Motors  
Reversible Motors  
Electromagnetic Brake Motors

Suitable for applications where noise reduction, high strength and long life is required.

**Torque Motors**

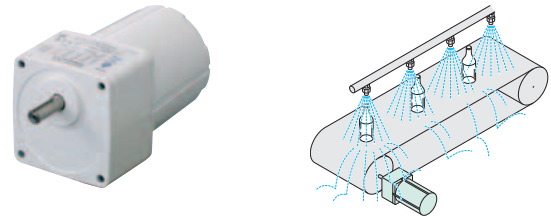
→ Page C-173



Suitable for winding and other operations involving tension control as well as push-motion operation.

**Watertight, Dust-Resistant Motors**

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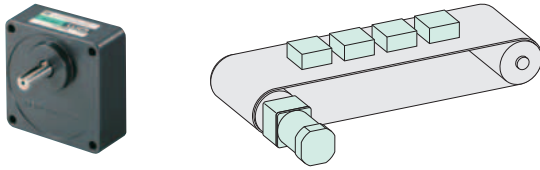


Suitable for applications where the equipment comes in contact with water or needs to be washed with water.

## Gearheads

### Parallel Shaft Gearheads

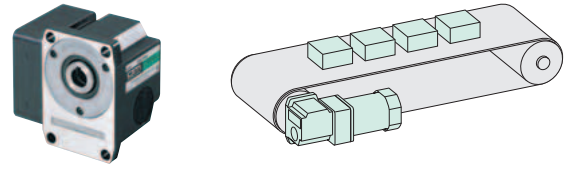
→ Refer to the page of each motor.



Installing a parallel shaft gearhead on a pinion shaft type motor allows the motor to reduce the speed and generate greater torque.

### Right-Angle Gearheads

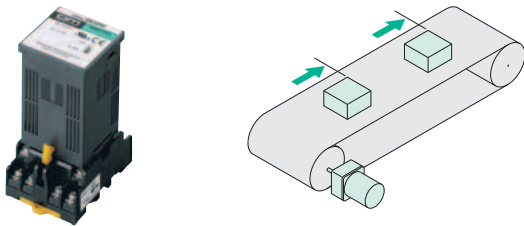
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Suitable for applications where space saving with equipment is required.

### Instantaneous Stop Brake Pack

→ Page C-229



Suitable for applications where the overrun of an induction motor, reversible motor or electromagnetic brake motor should be suppressed.

### Accessories

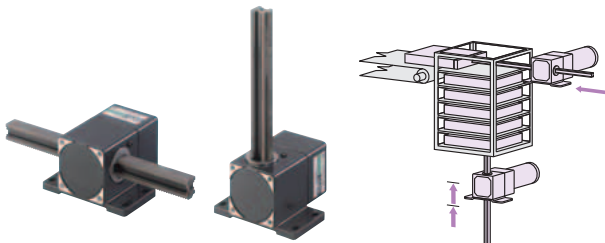
→ Page C-239



Various accessories are available that can be combined effectively with motors and gearheads. Selection is easy once you know which product you will be using.

### Linear Motion Linear Heads

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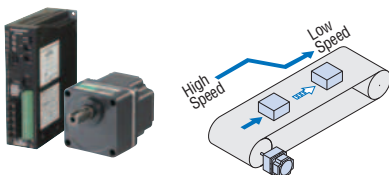
Linear motion can be achieved easily by attaching a linear head on a pinion shaft type motor.

## Speed Control Motors

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### Brushless Motors

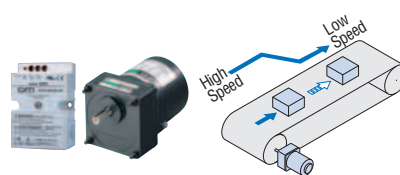
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Suitable for applications where a wide speed control range is required.

### AC Speed Control Motors

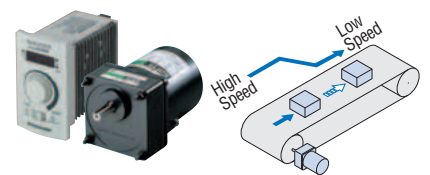
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Suitable for applications where the motor speed needs to be varied.

### Inverters

→ Page D-133



Suitable for applications where the motor speed needs to be varied.

Introduction

Induction Motors

Reversible Motors  
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Electromagnetic Brake Motors

V Series

TM Series  
Torque Motors

Torque Motors

Water-tight,  
Dust-Resistant Motors

Right-Angle Gearheads

Brake Pack

Accessories

Installation



# Product Line-up of Standard AC Motors

We offer a wide range of standard AC motors with different features to meet the demand for many applications.

## ■ Induction Motors, Reversible Motors, Electromagnetic Brake Motors, V Series, Watertight, Dust-Resistant Motors, Torque Motors

