



# Induction Motors

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# Induction Motors



World **K** Series  
(Lead Wire Type)



World **K** Series  
(Conduit Box Type)



**V** Series  
(Terminal Box Type)



**BH** Series  
(Terminal Box Type)

\* Gearheads shown in the photograph are sold separately. The **V** Series and the **BH** Series are Combination Type. (Pre-assembled Gearmotor)

## Features

### ● Optimal for Uni-Directional Continuous Operation

Induction Motors are optimal for uni-directional continuous operation such as a conveyor system.

### ● Wide Variety of Products

World **K** Series, **K** Series, **V** Series and **BH** Series motors are available. For the connection with the power supply, you can select from lead wire type, terminal box type and conduit box type.

### ● Conform to Safety Standards and Global Power Supply Voltages

Conforms to UL/CSA/EN standards and the CE Marking is being used in accordance with the low voltage directive. Also, our wide range of products includes those that meet the power supply voltages of North America, Asia and major countries in Europe.

\* Some models are not certified by EN standards.

### Combination Type (Pre-assembled Gearmotors) (V Series, BH Series)

The Combination type (pre-assembled gearmotors) come with the motor and its dedicated gearhead already assembled. This simplifies installation in equipment. Motors and gearheads are also available separately so they can be on hand to make changes or repair.

## Safety Standards and CE Marking

### ● World K Series, V Series, K Series (Conduit Box Type)

Standards	Certification Body	Standards File No.	CE Marking
UL1004 UL2111	UL	E64199 (6 W) E64197 (15 W~90 W)	Low Voltage Directives
CSA C22.2 No.100 CSA C22.2 No.77			
EN60950 *1	VDE	114919 (6 W) 6751 (15 W~90 W)*3	
	DEMKO	138642 (Three-Phase 90 W)*3	
EN60034-1 EN60034-5 IEC60034-11 *2	Conform to EN/IEC Standards		

\*1 Excluding conduit box types.

\*2 15 W~90 W types.

\*3 Except **V** Series 90 W.

● When the motor is approved under various standards, the model name on the nameplate is the approved model name.

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● **K Series**

Standards	Certification Body	Standards File No.	CE Marking
UL1004 UL519	UL	E64199	Low Voltage Directives
CSA C22.2 No.100*1 CSA C22.2 No.77*1	CSA	LR47296	
EN60950*2	VDE	5876ÜG	

\*1 Only 1 W type.

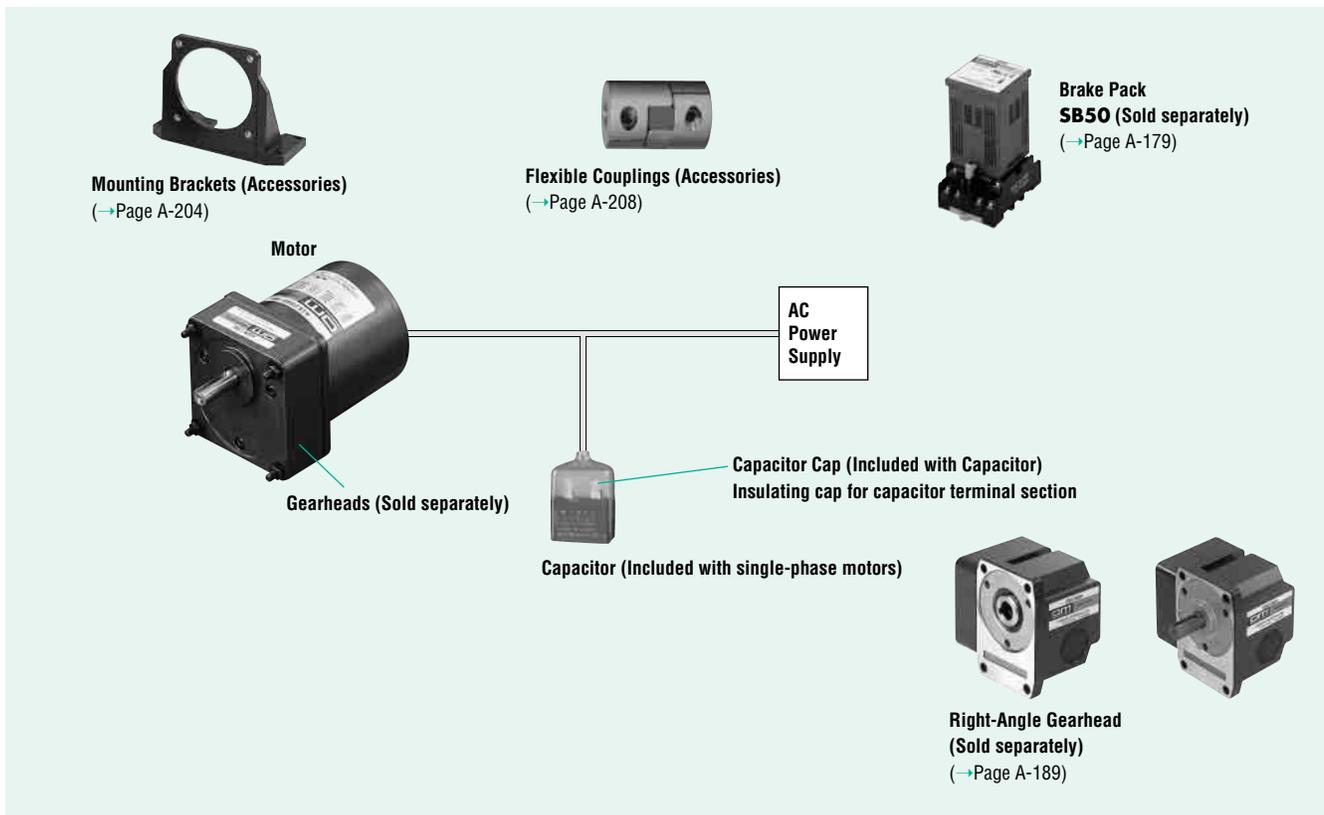
\*2 Except **4IK40A-BA**.

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● **BH Series**

Standards	Certification Body	Standards File No.	CE Marking
UL1004 UL2111	UL	E64197	Low Voltage Directives
CSA C22.2 No.100 CSA C22.2 No.77			
EN60950 EN60034-1 EN60034-5 IEC60034-11	Conform to EN/IEC Standards		

■ **System Configuration**



The system configuration shown is an example. Other configurations are available.

## Product Number Codes

### World K Series

# 5 I K 40 GN - A W T U

**Output Power**  
(Example)  
**40**: 40 W

**Motor Series**  
**K**: K series

**Motor Type**

**I**: Induction motor

**Motor Frame Size**

**2**: 2.36 in. sq. (60 mm sq.)  
**3**: 2.76 in. sq. (70 mm sq.)  
**4**: 3.15 in. sq. (80 mm sq.)  
**5**: 3.54 in. sq. (90 mm sq.)

**Voltage and No. of Poles**

**AW**: Single-Phase 100/110/115 VAC, 4 Poles  
**CW**: Single-Phase 200/220/230 VAC, 4 Poles  
**SW**: Three-Phase 200/220/230 VAC, 4 Poles

**Motor Shaft Type**

**GN**: Pinion shaft (for use with **GN**-type gearhead)  
**GU**: Pinion shaft (for use with **GU**-type gearhead)  
**A**: Round shaft

**Included Capacitor**  
**U**: For Single-Phase 110/115 VAC  
**E**: For Single-Phase 220/230 VAC  
**None**: Three-Phase type

**T**: Terminal Box Type

**Type of Bearings and Shaft Type**

**KA**: Ball Bearing Type (inch-size)  
**RAA**: Right Angle Solid Shaft Type (inch size)  
**RH**: Right Angle Hollow Shaft Type

**Gear Ratio**  
(Example)

**50**: Gear ratio of 50:1  
**10X** denotes the decimal gearhead of gear ratio 10:1

**Gearhead Type**

**GN**: **GN** type (for use with **GN**-type pinion shaft motor)  
**GU**: **GU** type (for use with **GU**-type pinion shaft motor)

**Gearhead Frame Size**

**0**: 1.65 in. sq. (42 mm sq.)  
**2**: 2.36 in. sq. (60 mm sq.)  
**3**: 2.76 in. sq. (70 mm sq.)  
**4**: 3.15 in. sq. (80 mm sq.)  
**5**: 3.54 in. sq. (90 mm sq.)

**Note:**

- The "U" and "E" at the end of the model number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate.

### K Series

#### 1 W Type, 2-Pole Type

# 5 I K 90 A - B F UL

**UL**: UL recognized and CSA\*, VDE certified  
\* Only 1 W Type

**Output Power**  
(Example)  
**90**: 90 W

**Motor Series**  
**K**: K series

**Motor Type**

**I**: Induction motor

**Motor Frame Size**

**0**: 1.65 in. sq. (42 mm sq.)  
**4**: 3.15 in. sq. (80 mm sq.)  
**5**: 3.54 in. sq. (90 mm sq.)

**Voltage and No. of Poles**

**A**: Single-Phase 115 VAC, 4 Poles  
**B**: Single-Phase 115 VAC, 2 Poles

**F**: With built-in cooling fan

**Motor Shaft Type**

**GN**: Pinion shaft (for use with **GN**-type gearhead)  
**A**: Round shaft

- \* If the product code number ends with "A", this indicates an inch size shaft motor.

#### Conduit Box Type

# 5 I K 40 GN - F CH

**Output Power**  
(Example)  
**40**: 40 W

**Motor Series**  
**K**: K series

**Motor Type**

**I**: Induction motor

**Motor Frame Size**

**4**: 3.15 in. sq. (80 mm sq.)  
**5**: 3.54 in. sq. (90 mm sq.)

**H**: Conduit Box Type

**C**: With capacitor

**Voltage**

**F**: Single-phase 110/115 VAC  
**E**: Single-phase 220/230 VAC  
**S**: Three-phase 200/220/230 VAC

**Motor Shaft Type**

**GN**: Pinion shaft  
(for use with **GN**-type gearhead)  
**GU**: Pinion shaft  
(for use with **GU**-type gearhead)  
**A, AA**: Round shaft

### V Series

# V H I 5 40 A T - 300 U

**Motor Series**

**V**: V Series

High Power

**Motor Type**

**I**: Induction motor

**Motor Frame Size**

**2**: 2.36 in. sq. (60 mm sq.)  
**3**: 2.76 in. sq. (70 mm sq.)  
**4**: 3.15 in. sq. (80 mm sq.)  
**5**: 3.54 in. sq. (90 mm sq.)

**Gear Ratio**

(Example) **300**: Gear Ratio of 300:1

**T**: Terminal Box Type

**Included Capacitor**  
**U**: For Single-Phase 110/115 VAC  
**E**: For Single-Phase 220/230 VAC  
**None**: Three-Phase type

**Voltage**

**A**: Single-Phase 100/110/115 VAC  
**C**: Single-Phase 200/220/230 VAC  
**S**: Three-Phase 200/220/230 VAC

**Output Power**

(Example) **40**: 40 W

**Note:**

- The "U" and "E" at the end of the model number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate.

### BH Series

# BH I 6 2 FT - 5 RH

**RH**: Right-Angle Hollow Shaft  
**RA**: Right-Angle Solid Shaft

**Number**: Gear Ratio  
**A**: Round Shaft Type

**T**: Terminal Box Type  
**None**: Cable Type

**Voltage**

**F**: Single-Phase 110/115 VAC  
**E**: Single-Phase 220/230 VAC  
**S**: Three-Phase 200/220/230 VAC

**Output Power**  
**2**: 200 W

**Motor Frame Size**

**6**: 4.09 in. sq. (104 mm sq.)

**Motor Type**

**I**: Induction motor

**BH Series**

## General Specifications

### World K Series, V Series, K Series (Conduit Box Type)

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kV at 50 Hz and 60 Hz applied between the windings and the frame for 1 minute after rated motor operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 144°F (80°C) or less measured by the resistance change method after rated motor operation with connecting a gearhead or equivalent heat radiation plate*. [Three-Phase 6 W type : 126°F (70°C)]
Insulation Class	Class B (266°F [130°C])
Overheat Protection	6 W type have impedance protection. All others have built-in thermal protector (Automatic return type) Operating temperature, open : 266°F±9°F (130°C±5°C) close: 179.6°F±27°F (82°C±15°C)
Ambient Temperature Range	14°F~104°F (-10°C~+40°C) [Three-phase 200 VAC: 14°F~122°F (-10°C~+50°C)] (nonfreezing)
Ambient Humidity	85% maximum (noncondensing)
Degree of Protection	Lead wire type (World <b>K</b> Series, <b>V</b> Series) : IP 20 Terminal box type (World <b>K</b> Series, <b>V</b> Series) : 25 W, 40 W IP 54 60 W, 90 W IP 44

### \* Heat radiation plate (material: Aluminum)

Type (output)	Size: in. (mm)	Thickness: in. (mm)
<b>2IK</b> Type (6 W)	4.53×4.53 (115×115)	0.20 (5)
<b>3IK</b> Type (15 W)	4.92×4.92 (125×125)	
<b>4IK</b> Type (25 W)	5.31×5.31 (135×135)	
<b>5IK40</b> Type (40 W)	6.50×6.50 (165×165)	
<b>5IK60</b> Type (60 W)	7.87×7.87 (200×200)	
<b>5IK90</b> Type (90 W)	7.87×7.87 (200×200)	

### K Series

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kV at 60 Hz applied between the windings and the frame for 1 minute after rated motor operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 135°F (75°C) or less measured by the resistance change method after rated motor operation.
Insulation Class	Class A (221°F [105°C]) ( <b>0IK1GN-AUL</b> , <b>0IK1A-AUL</b> , <b>5IK90A-BFUL</b> : UL/CSA Standards...Class A, EN Standards...Class E)
Overheat Protection	1 W type is impedance protected. All others have built-in thermal protector (Automatic return type) Operating temperature, open: 248°F±9°F (120°C±5°C) close: 170.6°F±27°F (77°C±15°C)
Ambient Temperature Range	14°F~104°F (-10°C~+40°C) (nonfreezing)
Ambient Humidity	85% maximum (noncondensing)
Degree of Protection	IP20

### BH Series

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kV at 50 Hz and 60 Hz applied between the windings and the frame for 1 minute after rated motor operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 144°F (80°C) or less measured by the resistance change method after rated motor operation with connecting a gearhead or equivalent heat radiation plate*. [Three-Phase type: 126°F (70°C)]
Insulation Class	Class B (266°F [130°C])
Overheat Protection	Built-in thermal protector (Automatic return type) Operating temperature, open : 302°F±9°F (150°C±5°C) close : 204.8°F±27°F (96°C±15°C)
Ambient Temperature Range	14°F~104°F (-10°C~+40°C) [Three-Phase 200 VAC: 14°F~122°F (-10°C~+50°C)] (nonfreezing)
Ambient Humidity	85% maximum (noncondensing)
Degree of Protection	Cable Type: IP40 Terminal Box Type: IP54

\* Heat radiation plate: 9.06 inch×9.06 inch (230 mm×230 mm), 0.20 inch (5 mm) thickness (Material: Aluminum)