

Standard AC Motors

Constant Speed Motors

Induction Motors

Induction Motors

	<u>Page</u>
Features and Types of Induction Motors	C-20
General Specifications	C-25
World K Series [1 W~90 W (1/750 HP~1/8 HP)] ...	C-28
BH Series [200 W (1/4 HP)]	C-58
2-Pole, High-Speed Type [40 W~150 W (1/19 HP~1/5 HP)] ...	C-70

Introduction

Induction Motors

Reversible Motors

Electromagnetic Brake Motors

V Series

Clutch & Brake Motors

Synchronous Motors

Low-Speed Synchronous Motors

Waterright Dust-Resistant Motors

Torque Motors

Right-Angle Gearheads

Linear Heads

Brake Pack

Accessories

Installation

Features and Types of Induction Motors

Features of Induction Motors

● Optimal for Uni-Directional and Continuous Operation

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

● Easy Operation

All you need is to connect a capacitor and plug the motor into an AC power supply and the motor can be easily operated. (No capacitor is needed for a three-phase motor.)



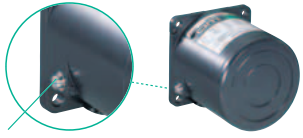


● Extensive Lineup

The World **K** Series and **BH** Series are available. We have models with an output power range of 1 W (1/750 HP) to 200 W (1/4 HP), so you can find a motor that meets your specific application.

● Compatible with Various Gearheads

Combination with a gearhead allows the motor speed to be reduced to the required speed or generate higher torque.

Types of Induction Motors

Series	Features, Lineup									
<p>World K Series</p>  <p>  </p>	<ul style="list-style-type: none"> ● Conforms to Safety Standards All World K Series models have an overheat protection device built-in and conform to major safety standards. ● Applicable Standards UL/CSA Standards Certified under the China Compulsory Certification System* (CCC System) CE Marking (Low Voltage Directive) *Except Conduit Box Type ● Motor Overheat Protection Device Thermal protector, Impedance protected ● Global Voltage Specifications The World K Series supports the power supply voltages used in major countries. Motors meeting the local voltage standard are readily available in major countries in Europe, Asia and North America. 	<ul style="list-style-type: none"> ● The Motor Bearing Life is Twice as Long as a Conventional Type A motor's life is determined by its bearing. We adopted high-performance bearing grease to lubricate this important component. As a result, the bearings of World K Series motors last twice as long as conventional bearings. [Excluding 1 W (1/750 HP) and 3 W (1/250 HP) type.] ● Protective Earth Terminal on the Motor  <p>Protective Earth Terminal</p> <ul style="list-style-type: none"> ● Lineup <table border="1"> <tr> <td>Frame Size</td> <td>□42 mm (□1.65 in.)~□90 mm (□3.54 in.)</td> </tr> <tr> <td>Output Power</td> <td>Lead Wire Type: 1 W~90 W (1/750 HP~1/8 HP) Terminal Box Type: 25 W~90 W (1/30 HP~1/8 HP) Conduit Box Type: 25 W~90 W (1/30 HP~1/8 HP) 2-Pole, High-Speed Type: 40 W~150 W (1/19 HP~1/5 HP)</td> </tr> <tr> <td>Voltage</td> <td>Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC</td> </tr> </table>	Frame Size	□42 mm (□1.65 in.)~□90 mm (□3.54 in.)	Output Power	Lead Wire Type: 1 W~90 W (1/750 HP~1/8 HP) Terminal Box Type: 25 W~90 W (1/30 HP~1/8 HP) Conduit Box Type: 25 W~90 W (1/30 HP~1/8 HP) 2-Pole, High-Speed Type: 40 W~150 W (1/19 HP~1/5 HP)	Voltage	Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC		
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Voltage	Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC									
<p>BH Series</p>  <p>  </p>	<ul style="list-style-type: none"> ● Smallest Frame Size among 200 W (1/4 HP) Motors These motors achieve a high output of 200 W (1/4 HP) with a frame size of 104 mm (4.09 in.). ● Hypoid Gear Right Angle Type is Available. ● "Combination Type" for Easy Installation With each combination type, the motor and gearhead come pre-assembled for easy installation into your equipment. ● Conforms to Safety Standards and Global Voltage Specifications 	<ul style="list-style-type: none"> ● Tapped Hole at the Shaft End The gearhead shaft features a tapped hole for convenient connection with loads. ● Lineup <table border="1"> <tr> <td>Frame Size</td> <td>□104 mm (□4.09 in.)</td> </tr> <tr> <td>Output Power</td> <td>200 W (1/4 HP)</td> </tr> <tr> <td>Type</td> <td>Cable Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type Terminal Box Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type</td> </tr> <tr> <td>Voltage</td> <td>Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC</td> </tr> </table>	Frame Size	□104 mm (□4.09 in.)	Output Power	200 W (1/4 HP)	Type	Cable Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type Terminal Box Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type	Voltage	Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC
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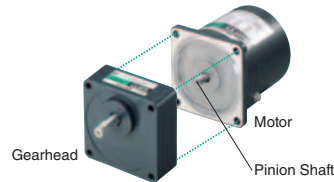
Features of Gearheads

Easy Speed Reduction and Torque Increase

Combination with a gearhead allows the motor speed to be reduced to the required speed or generate higher torque.


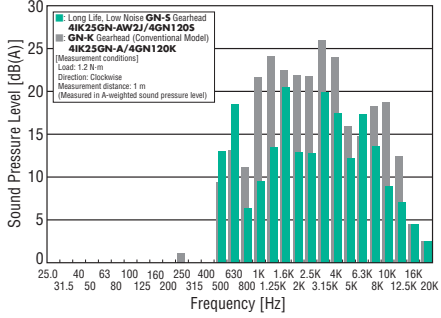


Wide Variety of Products

Gearheads come in various types including the long life, low noise gearhead and right-angle gearhead. Most gearheads are available with 20 different gear ratios from 3:1 to 180:1.



- Combine gearheads with a pinion shaft type motor.
- Gearheads of World **K** Series are sold separately.
- **BH** Series comes with the gearhead pre-assembled.

Types of Gearheads

Types	Features
<p>Long Life, Low Noise GN-S Gearhead</p> 	<ul style="list-style-type: none"> ● Long Rated Life of 10000 Hours The GN-S gearhead achieves a long rated life of 10000 hours, twice the level of a conventional gearhead, by adopting a large, specially designed bearing and reinforced gears. ● Low Noise Design The GN-S gearhead generates less noise thanks to gears with a special shape and surface machining assembled with the use of advanced technology. ● Applicable Products 6 W (1/125 HP), 15 W (1/50 HP), 25 W (1/30 HP) or 40 W (1/19 HP) GN pinion motor 
<p>Long Life GE-S Gearhead</p> 	<ul style="list-style-type: none"> ● Long Rated Life of 10000 Hours The GE-S gearhead achieves a long rated life of 10000 hours, twice the level of a conventional gearhead, by adopting a large, specially designed bearing and reinforced gears. ● The GE-S gearhead comes with a tapped hole at the tip of the shaft. ● Applicable Products 60 W (1/12 HP) or 90 W (1/8 HP) GE pinion motor
<p>Right-Angle Gearhead → Page C-227</p> 	<ul style="list-style-type: none"> ● Ideal Space-Saving Solution The gear shaft is positioned at right angles with the motor shaft, enabling space-saving. ● Hollow Shaft and Solid Shaft Types are Available Select an appropriate type that suits your specific application. ● Solid shaft type of GE pinion gearhead comes with a tapped hole at the tip of the shaft. ● Applicable Products 25 W (1/30 HP), 40 W (1/19 HP), 60 W (1/12 HP) or 90 W (1/8 HP) pinion motor

High Strength, Long Life, Low Noise V Series

Highest Maximum Permissible torque, 10,000 hours of life and quiet operation. For more details on **V** Series see page C-149 or visit www.orientalmotor.com.



Product Line of Induction Motors

Series	Voltage (VAC)	Type	Motor Frame Size, Output Power										
			□42 mm (□1.65 in.)	□60 mm (□2.36 in.)	□70 mm (□2.76 in.)	□80 mm (□3.15 in.)			□90 mm (□3.54 in.)			□104 mm (□4.09 in.)	
			1 W, 3 W (1/750 HP, 1/250 HP)	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)	40 W (1/19 HP)	60 W (1/12 HP)	90 W (1/8 HP)	150 W (1/5 HP)	200 W (1/4 HP)
World K Series	Single-Phase 110/115	Lead Wire	●	●	●	●			●	●	●		
		Terminal Box				●			●	●	●		
		Conduit Box				●			●	●	●		
	Single-Phase 220/230	Lead Wire		●	●	●			●	●	●		
		Terminal Box				●			●	●	●		
		Conduit Box				●			●	●	●		
	Three-Phase 200/220/230	Lead Wire		●	●	●			●	●	●		
		Terminal Box		●		●			●	●	●		
		Conduit Box				●			●	●	●		
2-Pole, High-Speed Type	Single-Phase 110/115	Lead Wire					●	●		●	●	●	
	Single-Phase 220/230	Lead Wire					●	●		●	●	●	
	Three-Phase 200/220/230	Lead Wire							●	●	●	●	
BH Series	Single-Phase 110/115	Cable											●
		Terminal Box											●
	Single-Phase 220/230	Cable											●
		Terminal Box											●
	Three-Phase 200/220/230	Cable											●
		Terminal Box											●


Product Line of Gearheads

Gearhead		Applicable Motor			Rated Life (hours)	Low Noise	
Type of Gearhead	Type of Pinion	Series	Output Power	Type of Pinion			
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	GN Type Pinion Shaft	World K Series	6 W~40 W (1/125 HP~1/19 HP)	GN Type Pinion Shaft	10000	●
	GN-K Gearhead	GN Type Pinion Shaft	World K Series	1 W~40 W (1/750 HP~1/19 HP)	GN Type Pinion Shaft	5000	
	Long Life GE-S Gearhead	GE Type Pinion Shaft	World K Series	60 W, 90 W (1/12 HP, 1/8 HP)	GE Type Pinion Shaft	10000	
Right-Angle Shaft	Hollow Shaft Gearhead	GN Type Pinion Shaft	World K Series	25 W, 40 W (1/30 HP, 1/19 HP)	GN Type Pinion Shaft	5000	
		GE Type Pinion Shaft	World K Series	60 W, 90 W (1/12 HP, 1/8 HP)	GE Type Pinion Shaft	5000	
	Solid Shaft Gearhead	GN Type Pinion Shaft	World K Series	25 W, 40 W (1/30 HP, 1/19 HP)	GN Type Pinion Shaft	5000	
		GE Type Pinion Shaft	World K Series	60 W, 90 W (1/12 HP, 1/8 HP)	GE Type Pinion Shaft	5000	

System Configuration



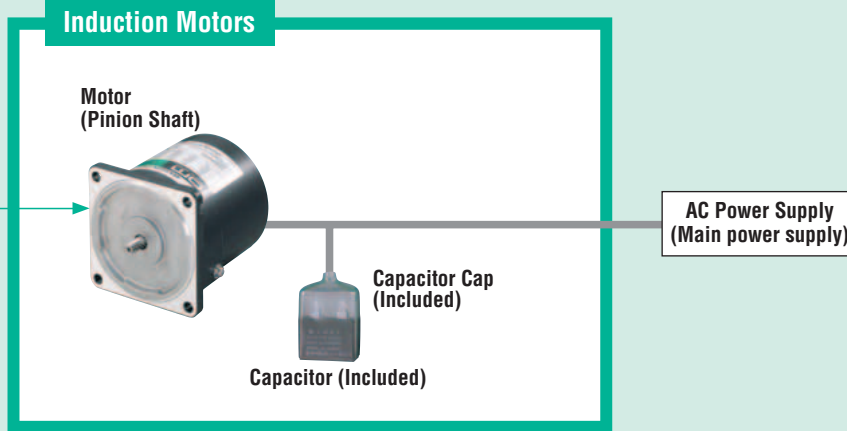
Gearheads (Sold separately)

Parallel Shaft Gearheads (→ Page C-21)




Right-Angle Gearheads (→ Page C-227)

Hollow Shaft Type **Solid Shaft Type**






Peripheral Equipment (Sold separately)


Brake Pack SB50W
(→ Page C-253)




Speed Controller FE100/FE200
(→ Page D-178)



Accessories (Sold separately)



Mounting Brackets
(→ Page C-264)



Flexible Couplings
(→ Page C-269)

● Example of System Configuration

Induction Motor (Pinion shaft)	Sold Separately		+	Sold Separately	
	Long Life, Low Noise Gearhead			Mounting Bracket	Flexible Coupling
4IK25GN-AW2U	4GN25SA		SOL4U10	MCL30F06F06	

● Gearheads cannot be combined with round shaft type motors.

● The system configuration shown above is an example. Other combinations are available.

Product Number Code

World K Series

5 I K 40 GN - AW 2 T U

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Motor Frame Size	0: 42 mm (1.65 in.)	2: 60 mm (2.36 in.)	3: 70 mm (2.76 in.)	4: 80 mm (3.15 in.)	5: 90 mm (3.54 in.)
②	Motor Type	I: Induction Motor				
③	Series	K: K Series				
④	Output Power (W)	(Example) 40: 40 W (1/19 HP)				
⑤	Motor Shaft Type, Type of Pinion	A: Round Shaft GN: GN Type Pinion Shaft GE: GE Type Pinion Shaft				
⑥	Power Supply Voltage/ Number of Poles	AW: Single-Phase 110/115 VAC 4-Pole		BW: Single-Phase 110/115 VAC 2-Pole		CW: Single-Phase 220/230 VAC 4-Pole
		DW: Single-Phase 220/230 VAC 2-Pole		SW: Three-Phase 200/220/230 VAC 4-Pole		TW: Three-Phase 200/220/230 VAC 2-Pole
⑦	2, 3: RoHS-Compliant					
⑧	T: Terminal Box Type					
⑨	Included Capacitor	U: For Single-Phase 110/115 VAC E: For Single-Phase 220/230 VAC Blank: Three-Phase Type				

● The **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. (Example) Model: **5IK40GN-AW2U** → Motor nameplate and product approved under various safety standards: **5IK40GN-AW2**

Conduit Box Type

5 I K 40 GN - F C H

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Motor Frame Size	4: 80 mm (3.15 in.)	5: 90 mm (3.54 in.)
②	Motor Type	I: Induction Motor	
③	Series	K: K Series	
④	Output Power (W)	(Example) 40: 40 W (1/19 HP)	
⑤	Motor Shaft Type, Type of Pinion	A, AA: Round Shaft GN: GN Type Pinion Shaft GE: GE Type Pinion Shaft	
⑥	Power Supply Voltage	F: Single-Phase 110/115 VAC	E: Single-Phase 220/230 VAC S: Three-Phase 200/220/230 VAC
⑦	C: With Capacitor		
⑧	H: Conduit Box Type		

Gearhead

5 GN 50 SA

① ② ③ ④

①	Gearhead Frame Size	0: 42 mm (1.65 in.)	2: 60 mm (2.36 in.)	3: 70 mm (2.76 in.)	4: 80 mm (3.15 in.)	5: 90 mm (3.54 in.)
②	Type of Pinion	GN: GN Type Pinion GE: GE Type Pinion				
③	Gear Ratio	(Example) 50: Gear Ratio of 50:1 10X denotes the decimal gearhead of gear ratio 10:1				
④	GN Type Pinion	SA: Long Life, Low Noise GN-S Gearhead KA: GN-K Gearhead				
	GE Type Pinion	SA: Long Life GE-S Gearhead RH: Right-Angle, Hollow Shaft Gearhead RAA: Right-Angle, Solid Shaft Gearhead				

BH Series

BH I 6 2 FT - 100 RH

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Series	BH: BH Series				
②	Motor Type	I: Induction Motor				
③	Motor Frame Size	6: 104 mm (4.09 in.)				
④	Output Power (W)	(Example) 2: 200 W (1/4 HP)				
⑤	Power Supply Voltage	F: Single-Phase 110/115 VAC E: Single-Phase 220/230 VAC S: Three-Phase 200/220/230 VAC				
⑥	T: Terminal Box Type	Blank: Cable Type				
⑦	Gear Ratio, Motor Shaft Type	A: Round Shaft Type Number: Gear Ratio of Combination Type				
⑧	Type of Gearhead (Combination type only)	RH: Right-Angle, Hollow Shaft Type RA: Right-Angle, Solid Shaft Type Blank: Parallel Shaft Type				

General Specifications

World K Series

◇ 1 W (1/750 HP), 3 W (1/250 HP) Type

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after rated operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 75°C (135°F) or less measured by the resistance change method after rated operation under normal ambient temperature and humidity with connecting a gearhead or equivalent heat radiation plate*.
Thermal Class	UL/CSA standards: 105 (A), EN standards: 120 (E)
Overheat Protection	Impedance protected
Ambient Temperature	-10~+40°C (+14~+104°F) (non-freezing)
Ambient Humidity	85% or less (non-condensing)
Degree of Protection	IP20

◇ 6 W (1/125 HP)~90 W (1/8 HP) Type, 2-Pole/High-Speed Type

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after rated operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 80°C (144°F) or less measured by the resistance change method after rated operation under normal ambient temperature and humidity with connecting a gearhead or equivalent heat radiation plate*. [Three-phase type: 70°C (126°F) or less]
Thermal Class	130 (B)
Overheat Protection	6 W (1/125 HP) type has impedance protection. Other Types Built-in thermal protector (automatic return type) Open: 130±5°C (266±9°F), Close: 82±15°C (179.6±27°F) Three-Phase 15 W Type Open: 130±5°C (266±9°F), Close: 90±15°C (194±27°F)
Ambient Temperature	Single-phase 110/115 VAC, Single-phase 220/230 VAC, Three-phase 220/230 VAC: -10~+40°C (+14~+104°F) (non-freezing) Three-phase 200 VAC: -10~+50°C (+14~+122°F) (non-freezing)
Ambient Humidity	85% or less (non-condensing)
Degree of Protection	Lead Wire Type: IP20 Terminal Box Type, Conduit Box Type: IP54 (excluding the installation surface of the round shaft type)

* Heat radiation plate (Material: Aluminum)

Motor Type	Size: mm (in.)	Thickness: mm (in.)
1 W (1/750 HP), 3 W (1/250 HP) Type	80×80 (3.15×3.15)	5 (0.20)
6 W (1/125 HP) Type	115×115 (4.53×4.53)	
15 W (1/50 HP) Type	125×125 (4.92×4.92)	
25 W (1/30 HP) Type (2-Pole, High-Speed 4IK40 Type, 4IK60 Type)	135×135 (5.31×5.31)	
40 W (1/19 HP) Type (2-Pole, High-Speed 5IK60 Type)	165×165 (6.50×6.50)	
60 W (1/12 HP), 90 W (1/8 HP), 150 W (1/5 HP) Type	200×200 (7.87×7.87)	

BH Series

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after rated operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 70°C (126°F) or less measured by the resistance change method after rated operation under normal ambient temperature and humidity with connecting a gearhead or equivalent heat radiation plate*.
Thermal Class	130 (B)
Overheat Protection	Built-in thermal protector (automatic return type) Open: 150±5°C, (302±9°F), Close: 96±15°C (204.8±27°F)
Ambient Temperature	Single-phase 110/115 VAC, Single-phase 220/230 VAC, Three-phase 220/230 VAC: -10~+40°C (+14~+104°F) (non-freezing) Three-phase 200 VAC: -10~+50°C (+14~+122°F) (non-freezing)
Ambient Humidity	85% or less (non-condensing)
Degree of Protection	Cable Type: IP40 Terminal Box Type: IP54 (excluding the installation surface of the round shaft type)

* Heat radiation plate: 230×230 mm (9.06×9.06 in.), Thickness: 5 mm (0.20 in.) (Material: Aluminum)

Connection Diagrams

● The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.

Lead Wire Type		Terminal Box Type	
Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Three-Phase 200/220/230 VAC	Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Three-Phase 200/220/230 VAC
<p>Clockwise</p>	<p>Clockwise</p> <p>Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>	<p>Clockwise</p>	<p>Clockwise</p> <p>Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>
<p>Counterclockwise</p>	<p>Counterclockwise</p>	<p>Counterclockwise</p>	<p>Counterclockwise</p>

Conduit Box Type	
Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Three-Phase 200/220/230 VAC
<p>Clockwise</p> <p>*NC: No connection</p> <p>Counterclockwise</p> <p>*NC: No connection</p>	<p>Clockwise</p> <p>Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>

PE: Protective Earth

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

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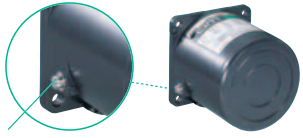


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■ Types of Induction Motors

Series	Features, Lineup									
<p>World K Series</p>  <p>  </p>	<ul style="list-style-type: none"> ● Conforms to Safety Standards All World K Series models have an overheat protection device built-in and conform to major safety standards. ● Applicable Standards UL/CSA Standards Certified under the China Compulsory Certification System* (CCC System) CE Marking (Low Voltage Directive) *Except Conduit Box Type ● Motor Overheat Protection Device Thermal protector, Impedance protected ● Global Voltage Specifications The World K Series supports the power supply voltages used in major countries. Motors meeting the local voltage standard are readily available in major countries in Europe, Asia and North America. 	<ul style="list-style-type: none"> ● The Motor Bearing Life is Twice as Long as a Conventional Type A motor's life is determined by its bearing. We adopted high-performance bearing grease to lubricate this important component. As a result, the bearings of World K Series motors last twice as long as conventional bearings. [Excluding 1 W (1/750 HP) and 3 W (1/250 HP) type.] ● Protective Earth Terminal on the Motor  <p>Protective Earth Terminal</p> <ul style="list-style-type: none"> ● Lineup <table border="1" data-bbox="974 1123 1485 1323"> <tr> <td>Frame Size</td> <td>□42 mm (□1.65 in.)~□90 mm (□3.54 in.)</td> </tr> <tr> <td>Output Power</td> <td>Lead Wire Type: 1 W~90 W (1/750 HP~1/8 HP) Terminal Box Type: 25 W~90 W (1/30 HP~1/8 HP) Conduit Box Type: 25 W~90 W (1/30 HP~1/8 HP) 2-Pole, High-Speed Type: 40 W~150 W (1/19 HP~1/5 HP)</td> </tr> <tr> <td>Voltage</td> <td>Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC</td> </tr> </table>	Frame Size	□42 mm (□1.65 in.)~□90 mm (□3.54 in.)	Output Power	Lead Wire Type: 1 W~90 W (1/750 HP~1/8 HP) Terminal Box Type: 25 W~90 W (1/30 HP~1/8 HP) Conduit Box Type: 25 W~90 W (1/30 HP~1/8 HP) 2-Pole, High-Speed Type: 40 W~150 W (1/19 HP~1/5 HP)	Voltage	Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC		
Frame Size	□42 mm (□1.65 in.)~□90 mm (□3.54 in.)									
Output Power	Lead Wire Type: 1 W~90 W (1/750 HP~1/8 HP) Terminal Box Type: 25 W~90 W (1/30 HP~1/8 HP) Conduit Box Type: 25 W~90 W (1/30 HP~1/8 HP) 2-Pole, High-Speed Type: 40 W~150 W (1/19 HP~1/5 HP)									
Voltage	Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC									
<p>BH Series</p>  <p>  </p>	<ul style="list-style-type: none"> ● Smallest Frame Size among 200 W (1/4 HP) Motors These motors achieve a high output of 200 W (1/4 HP) with a frame size of 104 mm (4.09 in.). ● Hypoid Gear Right Angle Type is Available. ● "Combination Type" for Easy Installation With each combination type, the motor and gearhead come pre-assembled for easy installation into your equipment. ● Conforms to Safety Standards and Global Voltage Specifications 	<ul style="list-style-type: none"> ● Tapped Hole at the Shaft End The gearhead shaft features a tapped hole for convenient connection with loads. ● Lineup <table border="1" data-bbox="974 1501 1485 1827"> <tr> <td>Frame Size</td> <td>□104 mm (□4.09 in.)</td> </tr> <tr> <td>Output Power</td> <td>200 W (1/4 HP)</td> </tr> <tr> <td>Type</td> <td>Cable Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type Terminal Box Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type</td> </tr> <tr> <td>Voltage</td> <td>Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC</td> </tr> </table>	Frame Size	□104 mm (□4.09 in.)	Output Power	200 W (1/4 HP)	Type	Cable Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type Terminal Box Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type	Voltage	Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC
Frame Size	□104 mm (□4.09 in.)									
Output Power	200 W (1/4 HP)									
Type	Cable Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type Terminal Box Type: Right-Angle, Hollow Shaft Type, Right-Angle, Solid Shaft Type, Parallel Shaft Type, Round Shaft Type									
Voltage	Single-Phase 110/115 VAC Single-Phase 220/230 VAC Three-Phase 200/220/230 VAC									

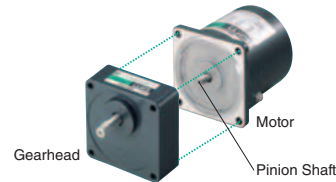
Features of Gearheads

Easy Speed Reduction and Torque Increase

Combination with a gearhead allows the motor speed to be reduced to the required speed or generate higher torque.


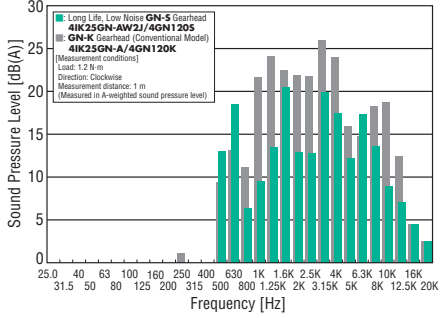


Wide Variety of Products

Gearheads come in various types including the long life, low noise gearhead and right-angle gearhead. Most gearheads are available with 20 different gear ratios from 3:1 to 180:1.



- Combine gearheads with a pinion shaft type motor.
- Gearheads of World **K** Series are sold separately.
- **BH** Series comes with the gearhead pre-assembled.

Types of Gearheads

Types	Features
<p>Long Life, Low Noise GN-S Gearhead</p> 	<ul style="list-style-type: none"> ● Long Rated Life of 10000 Hours The GN-S gearhead achieves a long rated life of 10000 hours, twice the level of a conventional gearhead, by adopting a large, specially designed bearing and reinforced gears. ● Low Noise Design The GN-S gearhead generates less noise thanks to gears with a special shape and surface machining assembled with the use of advanced technology. ● Applicable Products 6 W (1/125 HP), 15 W (1/50 HP), 25 W (1/30 HP) or 40 W (1/19 HP) GN pinion motor 
<p>Long Life GE-S Gearhead</p> 	<ul style="list-style-type: none"> ● Long Rated Life of 10000 Hours The GE-S gearhead achieves a long rated life of 10000 hours, twice the level of a conventional gearhead, by adopting a large, specially designed bearing and reinforced gears. ● The GE-S gearhead comes with a tapped hole at the tip of the shaft. ● Applicable Products 60 W (1/12 HP) or 90 W (1/8 HP) GE pinion motor
<p>Right-Angle Gearhead → Page C-227</p> 	<ul style="list-style-type: none"> ● Ideal Space-Saving Solution The gear shaft is positioned at right angles with the motor shaft, enabling space-saving. ● Hollow Shaft and Solid Shaft Types are Available Select an appropriate type that suits your specific application. ● Solid shaft type of GE pinion gearhead comes with a tapped hole at the tip of the shaft. ● Applicable Products 25 W (1/30 HP), 40 W (1/19 HP), 60 W (1/12 HP) or 90 W (1/8 HP) pinion motor

High Strength, Long Life, Low Noise V Series

Highest Maximum Permissible torque, 10,000 hours of life and quiet operation. For more details on **V** Series see page C-149 or visit www.orientalmotor.com.



Product Line of Induction Motors

Series	Voltage (VAC)	Type	Motor Frame Size, Output Power										
			□42 mm (□1.65 in.)	□60 mm (□2.36 in.)	□70 mm (□2.76 in.)	□80 mm (□3.15 in.)			□90 mm (□3.54 in.)			□104 mm (□4.09 in.)	
			1 W, 3 W (1/750 HP, 1/250 HP)	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)	40 W (1/19 HP)	60 W (1/12 HP)	90 W (1/8 HP)	150 W (1/5 HP)	200 W (1/4 HP)
World K Series	Single-Phase 110/115	Lead Wire	●	●	●	●			●	●	●		
		Terminal Box				●			●	●	●		
		Conduit Box				●			●	●	●		
	Single-Phase 220/230	Lead Wire		●	●	●			●	●	●		
		Terminal Box				●			●	●	●		
		Conduit Box				●			●	●	●		
	Three-Phase 200/220/230	Lead Wire		●	●	●			●	●	●		
		Terminal Box		●		●			●	●	●		
		Conduit Box				●			●	●	●		
2-Pole, High-Speed Type	Single-Phase 110/115	Lead Wire					●	●		●	●	●	
	Single-Phase 220/230	Lead Wire					●	●		●	●	●	
	Three-Phase 200/220/230	Lead Wire							●	●	●	●	
BH Series	Single-Phase 110/115	Cable											●
		Terminal Box											●
	Single-Phase 220/230	Cable											●
		Terminal Box											●
	Three-Phase 200/220/230	Cable											●
		Terminal Box											●


Product Line of Gearheads

Gearhead		Applicable Motor			Rated Life (hours)	Low Noise	
Type of Gearhead	Type of Pinion	Series	Output Power	Type of Pinion			
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	GN Type Pinion Shaft	World K Series	6 W~40 W (1/125 HP~1/19 HP)	GN Type Pinion Shaft	10000	●
	GN-K Gearhead	GN Type Pinion Shaft	World K Series	1 W~40 W (1/750 HP~1/19 HP)	GN Type Pinion Shaft	5000	
	Long Life GE-S Gearhead	GE Type Pinion Shaft	World K Series	60 W, 90 W (1/12 HP, 1/8 HP)	GE Type Pinion Shaft	10000	
Right-Angle Shaft	Hollow Shaft Gearhead	GN Type Pinion Shaft	World K Series	25 W, 40 W (1/30 HP, 1/19 HP)	GN Type Pinion Shaft	5000	
		GE Type Pinion Shaft	World K Series	60 W, 90 W (1/12 HP, 1/8 HP)	GE Type Pinion Shaft	5000	
	Solid Shaft Gearhead	GN Type Pinion Shaft	World K Series	25 W, 40 W (1/30 HP, 1/19 HP)	GN Type Pinion Shaft	5000	
		GE Type Pinion Shaft	World K Series	60 W, 90 W (1/12 HP, 1/8 HP)	GE Type Pinion Shaft	5000	

System Configuration



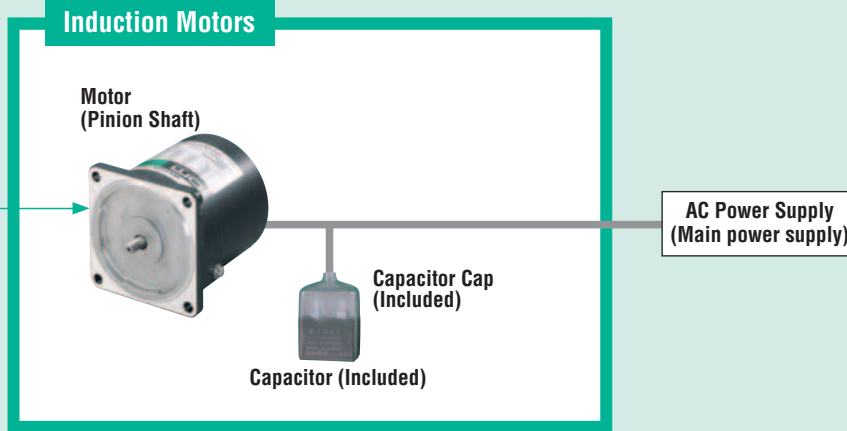
Gearheads (Sold separately)

Parallel Shaft Gearheads (→ Page C-21)




Right-Angle Gearheads (→ Page C-227)

Hollow Shaft Type **Solid Shaft Type**






Peripheral Equipment (Sold separately)


Brake Pack SB50W
(→ Page C-253)




Speed Controller FE100/FE200
(→ Page D-178)



Accessories (Sold separately)



Mounting Brackets
(→ Page C-264)



Flexible Couplings
(→ Page C-269)

● Example of System Configuration

Induction Motor (Pinion shaft)	Sold Separately	+	Sold Separately	
	Long Life, Low Noise Gearhead		Mounting Bracket	Flexible Coupling
4IK25GN-AW2U	4GN25SA		SOL4U10	MCL30F06F06

● Gearheads cannot be combined with round shaft type motors.

● The system configuration shown above is an example. Other combinations are available.

Product Number Code

World K Series

5 I K 40 GN - AW 2 T U

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Motor Frame Size	0: 42 mm (1.65 in.)	2: 60 mm (2.36 in.)	3: 70 mm (2.76 in.)	4: 80 mm (3.15 in.)	5: 90 mm (3.54 in.)
②	Motor Type	I: Induction Motor				
③	Series	K: K Series				
④	Output Power (W)	(Example) 40: 40 W (1/19 HP)				
⑤	Motor Shaft Type, Type of Pinion	A: Round Shaft GN: GN Type Pinion Shaft GE: GE Type Pinion Shaft				
⑥	Power Supply Voltage/ Number of Poles	AW: Single-Phase 110/115 VAC 4-Pole		BW: Single-Phase 110/115 VAC 2-Pole		CW: Single-Phase 220/230 VAC 4-Pole
		DW: Single-Phase 220/230 VAC 2-Pole		SW: Three-Phase 200/220/230 VAC 4-Pole		TW: Three-Phase 200/220/230 VAC 2-Pole
⑦	2, 3: RoHS-Compliant					
⑧	T: Terminal Box Type					
⑨	Included Capacitor	U: For Single-Phase 110/115 VAC E: For Single-Phase 220/230 VAC Blank: Three-Phase Type				

● The **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. (Example) Model: **5IK40GN-AW2U** → Motor nameplate and product approved under various safety standards: **5IK40GN-AW2**

Conduit Box Type

5 I K 40 GN - F C H

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Motor Frame Size	4: 80 mm (3.15 in.)	5: 90 mm (3.54 in.)
②	Motor Type	I: Induction Motor	
③	Series	K: K Series	
④	Output Power (W)	(Example) 40: 40 W (1/19 HP)	
⑤	Motor Shaft Type, Type of Pinion	A, AA: Round Shaft GN: GN Type Pinion Shaft GE: GE Type Pinion Shaft	
⑥	Power Supply Voltage	F: Single-Phase 110/115 VAC	E: Single-Phase 220/230 VAC S: Three-Phase 200/220/230 VAC
⑦	C: With Capacitor		
⑧	H: Conduit Box Type		

Gearhead

5 GN 50 SA

① ② ③ ④

①	Gearhead Frame Size	0: 42 mm (1.65 in.)	2: 60 mm (2.36 in.)	3: 70 mm (2.76 in.)	4: 80 mm (3.15 in.)	5: 90 mm (3.54 in.)
②	Type of Pinion	GN: GN Type Pinion		GE: GE Type Pinion		
③	Gear Ratio	(Example) 50: Gear Ratio of 50:1 10X denotes the decimal gearhead of gear ratio 10:1				
④	GN Type Pinion	SA: Long Life, Low Noise GN-S Gearhead KA: GN-K Gearhead				
	GE Type Pinion	RH: Right-Angle, Hollow Shaft Gearhead RAA: Right-Angle, Solid Shaft Gearhead				
		SA: Long Life GE-S Gearhead				
		RH: Right-Angle, Hollow Shaft Gearhead RAA: Right-Angle, Solid Shaft Gearhead				

BH Series

BH I 6 2 FT - 100 RH

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①	Series	BH: BH Series				
②	Motor Type	I: Induction Motor				
③	Motor Frame Size	6: 104 mm (4.09 in.)				
④	Output Power (W)	(Example) 2: 200 W (1/4 HP)				
⑤	Power Supply Voltage	F: Single-Phase 110/115 VAC E: Single-Phase 220/230 VAC S: Three-Phase 200/220/230 VAC				
⑥	T: Terminal Box Type	Blank: Cable Type				
⑦	Gear Ratio, Motor Shaft Type	A: Round Shaft Type Number: Gear Ratio of Combination Type				
⑧	Type of Gearhead (Combination type only)	RH: Right-Angle, Hollow Shaft Type RA: Right-Angle, Solid Shaft Type Blank: Parallel Shaft Type				

General Specifications

World K Series

◇ 1 W (1/750 HP), 3 W (1/250 HP) Type

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after rated operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 75°C (135°F) or less measured by the resistance change method after rated operation under normal ambient temperature and humidity with connecting a gearhead or equivalent heat radiation plate*.
Thermal Class	UL/CSA standards: 105 (A), EN standards: 120 (E)
Overheat Protection	Impedance protected
Ambient Temperature	-10~+40°C (+14~+104°F) (non-freezing)
Ambient Humidity	85% or less (non-condensing)
Degree of Protection	IP20

◇ 6 W (1/125 HP)~90 W (1/8 HP) Type, 2-Pole/High-Speed Type

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after rated operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 80°C (144°F) or less measured by the resistance change method after rated operation under normal ambient temperature and humidity with connecting a gearhead or equivalent heat radiation plate*. [Three-phase type: 70°C (126°F) or less]
Thermal Class	130 (B)
Overheat Protection	6 W (1/125 HP) type has impedance protection. Other Types Built-in thermal protector (automatic return type) Open: 130±5°C (266±9°F), Close: 82±15°C (179.6±27°F) Three-Phase 15 W Type Open: 130±5°C (266±9°F), Close: 90±15°C (194±27°F)
Ambient Temperature	Single-phase 110/115 VAC, Single-phase 220/230 VAC, Three-phase 220/230 VAC: -10~+40°C (+14~+104°F) (non-freezing) Three-phase 200 VAC: -10~+50°C (+14~+122°F) (non-freezing)
Ambient Humidity	85% or less (non-condensing)
Degree of Protection	Lead Wire Type: IP20 Terminal Box Type, Conduit Box Type: IP54 (excluding the installation surface of the round shaft type)

* Heat radiation plate (Material: Aluminum)

Motor Type	Size: mm (in.)	Thickness: mm (in.)
1 W (1/750 HP), 3 W (1/250 HP) Type	80×80 (3.15×3.15)	5 (0.20)
6 W (1/125 HP) Type	115×115 (4.53×4.53)	
15 W (1/50 HP) Type	125×125 (4.92×4.92)	
25 W (1/30 HP) Type (2-Pole, High-Speed 4IK40 Type, 4IK60 Type)	135×135 (5.31×5.31)	
40 W (1/19 HP) Type (2-Pole, High-Speed 5IK60 Type)	165×165 (6.50×6.50)	
60 W (1/12 HP), 90 W (1/8 HP), 150 W (1/5 HP) Type	200×200 (7.87×7.87)	

BH Series

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case for 1 minute after rated operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 70°C (126°F) or less measured by the resistance change method after rated operation under normal ambient temperature and humidity with connecting a gearhead or equivalent heat radiation plate*.
Thermal Class	130 (B)
Overheat Protection	Built-in thermal protector (automatic return type) Open: 150±5°C, (302±9°F), Close: 96±15°C (204.8±27°F)
Ambient Temperature	Single-phase 110/115 VAC, Single-phase 220/230 VAC, Three-phase 220/230 VAC: -10~+40°C (+14~+104°F) (non-freezing) Three-phase 200 VAC: -10~+50°C (+14~+122°F) (non-freezing)
Ambient Humidity	85% or less (non-condensing)
Degree of Protection	Cable Type: IP40 Terminal Box Type: IP54 (excluding the installation surface of the round shaft type)

* Heat radiation plate: 230×230 mm (9.06×9.06 in.), Thickness: 5 mm (0.20 in.) (Material: Aluminum)

Connection Diagrams

● The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.

Lead Wire Type		Terminal Box Type	
Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Three-Phase 200/220/230 VAC	Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Three-Phase 200/220/230 VAC
<p>Clockwise</p>	<p>Clockwise</p> <p>Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>	<p>Clockwise</p>	<p>Clockwise</p> <p>Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>
<p>Counterclockwise</p>	<p>Counterclockwise</p> <p>Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>	<p>Counterclockwise</p>	<p>Counterclockwise</p> <p>Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>

Conduit Box Type	
Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Three-Phase 200/220/230 VAC
<p>Clockwise</p> <p>*NC: No connection</p> <p>Counterclockwise</p> <p>*NC: No connection</p>	<p>Clockwise</p> <p>Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>

PE: Protective Earth

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

Introduction

Induction
Motors

Reversible
Motors

Electromagnetic
Brake Motors

V Series

Clutch &
Brake Motors

Synchronous
Motors

Low-Speed
Synchronous
Motors

Waterright,
Dust-Resistant
Motors

Torque
Motors

Right-Angle
Gearheads

Linear Heads

Brake Pack

Accessories

Installation

Induction Motors

1 W (1/750 HP), 3 W (1/250 HP)

Frame Size: □42 mm (□1.65 in.)



(Gearhead sold separately)

Specifications – Continuous Rating (RoHS)



Model Lead Wire Type		Output Power W HP	Voltage VAC	Frequency Hz	Current A	Starting Torque mN·m oz·in	Rated Torque mN·m oz·in	Rated Speed r/min	Capacitor μF
Pinion Shaft Type	Round Shaft Type								
Ⓟ OIK1GN-AW3U	OIK1A-AW3U	1 1/750	Single-Phase 110	60	0.074	8	8	1200	1.0
			Single-Phase 115		0.078	1.13	1.13		
Ⓟ OIK3GN-BW3U	OIK3A-BW3U	3 1/250	Single-Phase 110	60	0.115	6	10	3000	1.5
			Single-Phase 115		0.118	0.85	1.42		

- The **U** at the end of the model name indicates that the unit includes a capacitor. This letter is not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. → Page H-11
- Details of safety standards → Page H-2
- Ⓟ: Impedance protected.

Product Line

● Motor (RoHS)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	OIK1GN-AW3U	OIK1A-AW3U
	OIK3GN-BW3U	OIK3A-BW3U

The following items are included in each product.
Motor, Capacitor, Capacitor Cap, Operating Manual

● Parallel Shaft Gearhead (Sold separately) (RoHS)

Parallel Shaft	Gearhead Type GN-K Gearhead	Gearhead Model OGN□KA	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

The following items are included in each product.
Gearhead, Mounting Screws, Operating Manual

Gearmotor – Torque Table

- Enter the gear ratio in the box (□) within the gearhead 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 speed is calculated by dividing the motor's synchronous speed (4-pole type; 60 Hz: 1800 r/min, 2-pole type; 60 Hz: 3600 r/min) by the gear ratio. The actual speed is 2~33% less than the displayed value, depending on the load.

◇ 60 Hz

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

Model Motor/ Gearhead	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
OIK1GN-AW3U / OGN□KA		0.019 0.168	0.023 0.20	0.032 0.28	0.039 0.34	0.049 0.43	0.058 0.51	0.073 0.64	0.088 0.77	0.11 0.97	0.13 1.15	0.16 1.41	0.19 1.68	0.26 2.3	0.32 2.8	0.35 3.0	0.42 3.7	0.47 4.1	0.57 5.0	0.71 6.2	0.85 7.5

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

Model Motor/ Gearhead	Speed r/min	1200	1000	720	600	480	400	288	240	200	144	120	100	72	60	48	40	36	30	24	20
	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
OIK3GN-BW3U / OGN□KA		0.024 0.21	0.029 0.25	0.041 0.36	0.049 0.43	0.061 0.53	0.073 0.64	0.091 0.80	0.11 0.97	0.13 1.15	0.17 1.50	0.20 1.77	0.24 2.1	0.33 2.9	0.40 3.5	0.44 3.8	0.53 4.6	0.59 5.2	0.71 6.2	0.89 7.8	1 8.8

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) → Page C-17
Gearhead → Page C-17

Permissible Load Inertia J of Gearhead

→ Page C-18

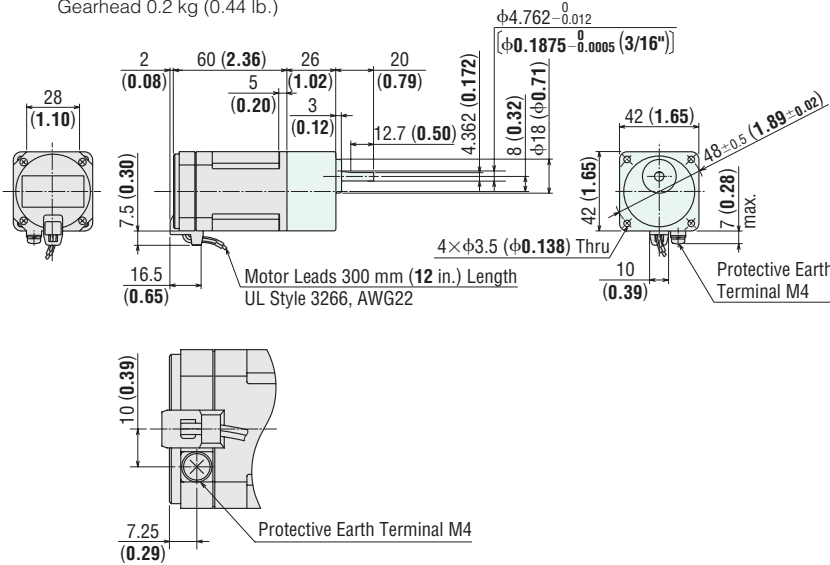
Dimensions Unit = mm (in.)

● Mounting screws are included with gearheads. Dimensions for mounting screws → Page C-280

◇ Lead Wire Type

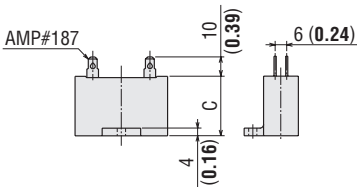
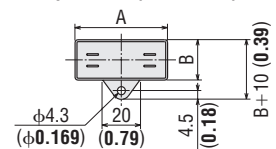
Motor Model	Gearhead Model	DXF
OIK1GN-AW3U OIK3GN-BW3U	OGN□KA	A441U

Mass: Motor 0.3 kg (0.66 lb.)
Gearhead 0.2 kg (0.44 lb.)



Detail Drawing of Protective Earth Terminal

◇ Capacitor (Included)



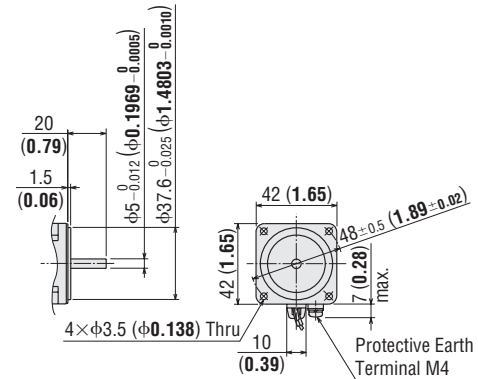
◇ Capacitor Dimensions Unit = mm (in.)

Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Pinion Shaft Type	Round Shaft Type						
OIK1GN-AW3U	OIK1A-AW3U	CH10FAUL	31 (1.22)	14.5 (0.57)	23.5 (0.93)	18 (0.64)	Included
OIK3GN-BW3U	OIK3A-BW3U	CH15FAUL	31 (1.22)	14.5 (0.57)	23.5 (0.93)	18 (0.64)	

◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

Motor Model	Mass	DXF
OIK1A-AW3U OIK3A-BW3U	0.3 kg (0.66 lb.)	A442



Connection Diagrams

→ Page C-26

Accessories and Peripheral Equipment

Instantaneous Stop
Brake Pack
→ Page C-253



Accessories
→ Page C-263



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

1 W, 3 W
(1/750 HP,
1/250 HP)

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)

2-Pole
40-150 W
(1/19-1/5 HP)

Induction Motors

6 W (1/125 HP)

Frame Size: □60 mm (□2.36 in.)



(Gearhead sold separately)

Specifications – Continuous Rating (RoHS)



Model Lead Wire Type		Output Power W HP	Voltage VAC	Frequency Hz	Current A	Starting Torque mN·m oz·in	Rated Torque mN·m oz·in	Rated Speed r/min	Capacitor μF
Pinion Shaft Type	Round Shaft Type								
ZP 2IK6GN-AW2U	2IK6A-AW2U	6 1/125	Single-Phase 110	60	0.178	40	41	1450	2.5
			Single-Phase 115		0.182	5.6	5.8		
ZP 2IK6GN-CW2E	2IK6A-CW2E	6 1/125	Single-Phase 220	50	0.103	38 5.3	49 6.9	1150	0.6
				60	0.091	40 5.6	41 5.8	1450	
			Single-Phase 230	50	0.107	45 6.3	49 6.9	1200	
				60	0.094	40 5.6	41 5.8	1450	
ZP 2IK6GN-SW2	2IK6A-SW2	6 1/125	Three-Phase 200	50	0.081	49 6.9	49 6.9	1200	-
				60	0.072	41 5.8	41 5.8	1400	
			Three-Phase 220	60	0.076	41 5.8	41 5.8	1500	
			Three-Phase 230	60	0.079	41 5.8	41 5.8	1500	

- The **U** and **E** at the end of the model indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. → Page H-11
- Details of safety standards → Page H-2
- ZP: Impedance protected.

Product Line

● Motor (RoHS)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	2IK6GN-AW2U	2IK6A-AW2U
	2IK6GN-CW2E	2IK6A-CW2E
	2IK6GN-SW2	2IK6A-SW2

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

● Parallel Shaft Gearhead (Sold separately) (RoHS)

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	2GN□SA	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
		2GN10XS (Decimal Gearhead)	

The following items are included in each product.
 Gearhead, Mounting Screws, Operating Manual

- The following gearheads are also available. For details, please refer to website (www.orientalmotor.com) or contact the nearest Oriental Motor sales office.

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	(RoHS) GN-K Gearhead	2GN□KA	3~180
		2GN10XK (Decimal Gearhead)	

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Highest Maximum Permissible torque,
 10,000 hours of life and quiet operation.
 For more details on V Series see page C-149 or
 visit www.orientalmotor.com.



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

Gearmotor – Torque Table

- Enter the gear ratio in the box (□) within the gearhead 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 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.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio 10:1) between the gearhead and the motor. In that case, the permissible torque is 3 N·m (26 lb-in).

◇ 50 Hz

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

Model Motor/ Gearhead	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
2IK6GN-CW2E 2IK6GN-SW2	2GN□SA	0.12	0.14	0.20	0.24	0.30	0.36	0.50	0.60	0.71	0.89	1.1	1.3	1.6	1.9	2.4	2.9	3	3	3	3
		1.06	1.23	1.77	2.1	2.6	3.1	4.4	5.3	6.2	7.8	9.7	11.5	14.1	16.8	21	25	26	26	26	26

◇ 60 Hz

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

Model Motor/ Gearhead	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
2IK6GN-AW2U 2IK6GN-CW2E 2IK6GN-SW2	2GN□SA	0.10	0.12	0.17	0.20	0.25	0.30	0.42	0.50	0.60	0.75	0.90	1.1	1.4	1.6	2.0	2.4	2.7	3	3	3
		0.88	1.06	1.50	1.77	2.2	2.6	3.7	4.4	5.3	6.6	7.9	9.7	12.3	14.1	17.7	21	23	26	26	26

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) → Page C-17

Gearhead → Page C-17

Permissible Load Inertia J of Gearhead

→ Page C-18

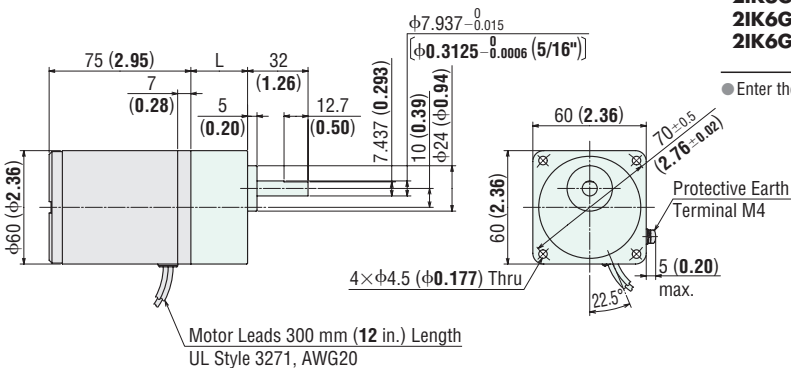
Dimensions Unit = mm (in.)

- Mounting screws are included with gearheads. Dimensions for mounting screws → Page C-280

Lead Wire Type

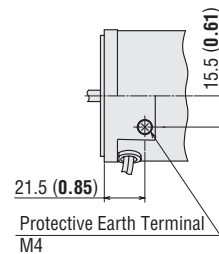
Mass: Motor 0.7 kg (1.54 lb.)

Gearhead 0.4 kg (0.88 lb.)



Motor Model	Gearhead Model	Gear Ratio	L	DXF
2IK6GN-AW2U 2IK6GN-CW2E 2IK6GN-SW2	2GN□SA	3~18	30 (1.18)	A443AU
		25~180	40 (1.57)	A443BU

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

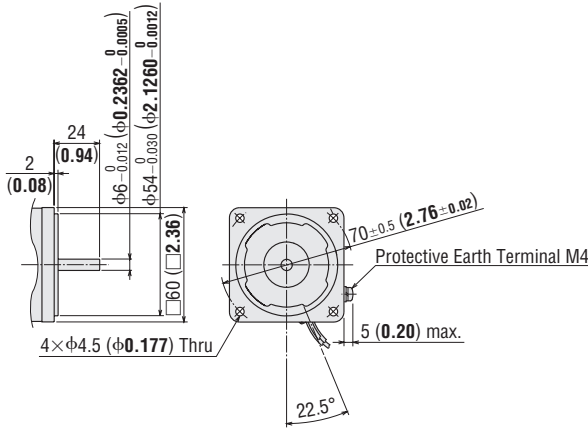


Detail Drawing of Protective Earth Terminal

◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

Motor Model	Mass	DXF
2IK6A-AW2U 2IK6A-CW2E 2IK6A-SW2	0.7 kg (1.54 lb.)	A444



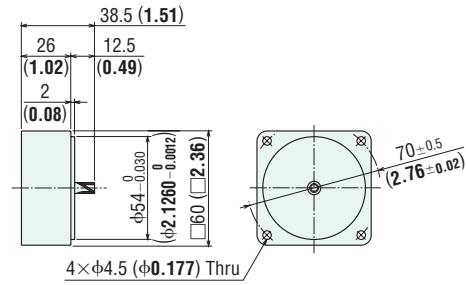
◇ Decimal Gearhead

Can be connected to **GN** pinion shaft type.

2GN10XS

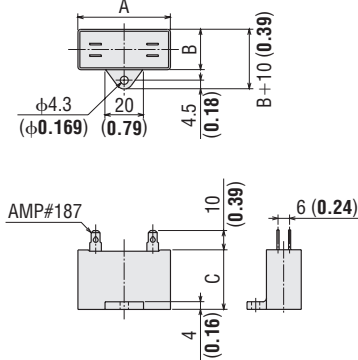
Mass: 0.2 kg (0.44 lb.)

DXF A003



◇ Capacitor

(Included with single-phase motors)






◇ Capacitor Dimensions Unit = mm (in.)

Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Pinion Shaft Type	Round Shaft Type						
2IK6GN-AW2U	2IK6A-AW2U	CH25FAUL2	31 (1.22)	17 (0.67)	27 (1.06)	21 (0.74)	Included
2IK6GN-CW2E	2IK6A-CW2E	CH06BFAUL	31 (1.22)	14.5 (0.57)	23.5 (0.93)	18 (0.64)	

■ Connection Diagrams

→ Page C-26

Accessories and Peripheral Equipment

<p>Instantaneous Stop Brake Pack →Page C-253</p> 	<p>Speed Control Speed Controller →Page D-178</p> 	<p>Accessories →Page C-263</p> 
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Induction Motors

15 W (1/50 HP)

Frame Size: □70 mm (□2.76 in.)



(Gearhead sold separately)

Specifications – Continuous Rating (RoHS)



Model Lead Wire Type		Output Power W HP	Voltage VAC	Frequency Hz	Current A	Starting Torque mN-m oz-in	Rated Torque mN-m oz-in	Rated Speed r/min	Capacitor μF
Pinion Shaft Type	Round Shaft Type								
ⓉP	3IK15GN-AW2U	15 1/50	Single-Phase 110	60	0.33	65	105	1450	4.5
			Single-Phase 115		0.34	9.2	14.9		
ⓉP	3IK15GN-CW2E	15 1/50	Single-Phase 220	50	0.19	70	125	1200	1.0
				60	0.16	65	105		
			Single-Phase 230	50	0.19	75	125	1200	
				60	0.16	65	105	1450	
ⓉP	3IK15GN-SW2	15 1/50	Three-Phase 200	50	0.17	110	110	1350	-
				60	0.14	85	100		
			Three-Phase 220	60	0.15	100	100	1650	
			Three-Phase 230	60	0.16	100	100	1650	

- The **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. → Page H-11
- Details of safety standards → Page H-2

ⓉP: 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. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor power off before inspecting.

Product Line

● Motor (RoHS)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	3IK15GN-AW2U	3IK15A-AW2U
	3IK15GN-CW2E	3IK15A-CW2E
	3IK15GN-SW2	3IK15A-SW2

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

● Parallel Shaft Gearhead (Sold separately) (RoHS)

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	3GN□SA	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
		3GN10XS (Decimal Gearhead)	

The following items are included in each product.
 Gearhead, Mounting Screws, Operating Manual

- The following gearheads are also available. For details, please refer to website (www.orientalmotor.com) or contact the nearest Oriental Motor sales office.

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	(RoHS) GN-K Gearhead	3GN□KA	3~180
		3GN10XK (Decimal Gearhead)	

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

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 10,000 hours of life and quiet operation.
 For more details on **V** Series see page C-149 or
 visit www.orientalmotor.com.



Gearmotor – Torque Table

- Enter the gear ratio in the box (□) within the gearhead 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 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.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio 10:1) between the gearhead and the motor. In that case, the permissible torque is 5 N·m (44 lb-in).

◇ 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																			
3IK15GN-CW2E	3GN□SA	0.30	0.36	0.51	0.61	0.76	0.91	1.3	1.5	1.8	2.3	2.7	3.3	4.1	5	5	5	5	5	5	5
		2.6	3.1	4.5	5.3	6.7	8.0	11.5	13.2	15.9	20	23	29	36	44	44	44	44	44	44	44
3IK15GN-SW2	3GN□SA	0.27	0.32	0.45	0.53	0.67	0.80	1.1	1.3	1.6	2.0	2.4	2.9	3.6	4.4	5	5	5	5	5	5
		2.3	2.8	3.9	4.6	5.9	7.0	9.7	11.5	14.1	17.7	21	25	31	38	44	44	44	44	44	44

◇ 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																			
3IK15GN-AW2U 3IK15GN-CW2E	3GN□SA	0.26	0.31	0.43	0.51	0.64	0.77	1.1	1.3	1.5	1.9	2.3	2.8	3.5	4.2	5	5	5	5	5	5
		2.3	2.7	3.8	4.5	5.6	6.8	9.7	11.5	13.2	16.8	20	24	30	37	44	44	44	44	44	44
3IK15GN-SW2	3GN□SA	0.24	0.29	0.41	0.49	0.61	0.73	1.0	1.2	1.5	1.8	2.2	2.6	3.3	4.0	5	5	5	5	5	5
		2.1	2.5	3.6	4.3	5.3	6.4	8.8	10.6	13.2	15.9	19.4	23	29	35	44	44	44	44	44	44

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) → Page C-17

Gearhead → Page C-17

Permissible Load Inertia J of Gearhead

→ Page C-18

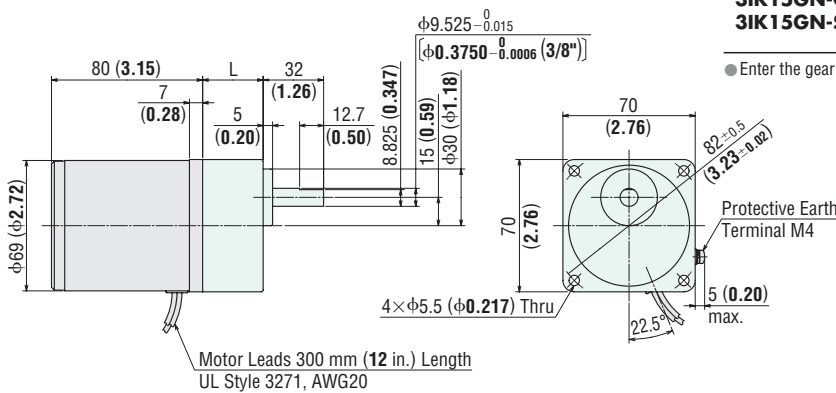
Dimensions Unit = mm (in.)

- Mounting screws are included with gearheads. Dimensions for mounting screws → Page C-280

◇ Lead Wire Type

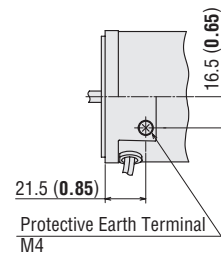
Mass: Motor 1.1 kg (2.4 lb.)

Gearhead 0.55 kg (1.21 lb.)



Motor Model	Gearhead Model	Gear Ratio	L	DXF
3IK15GN-AW2U 3IK15GN-CW2E 3IK15GN-SW2	3GN□SA	3~18	32 (1.26)	A447AU
		25~180	42 (1.65)	A447BU

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

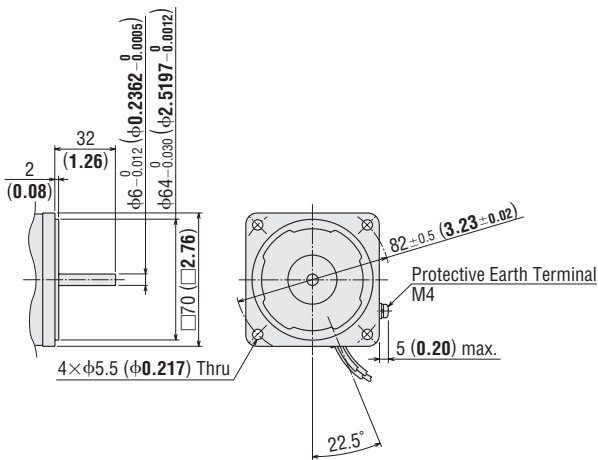


Detail Drawing of Protective Earth Terminal

◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

Motor Model	Mass	DXF
3IK15A-AW2U 3IK15A-CW2E 3IK15A-SW2	1.1 kg (2.4 lb.)	A448



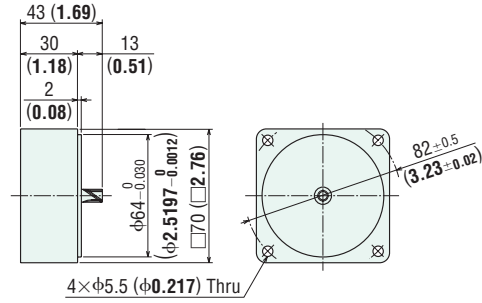
◇ Decimal Gearhead

Can be connected to **GN** pinion shaft type.

3GN10XS

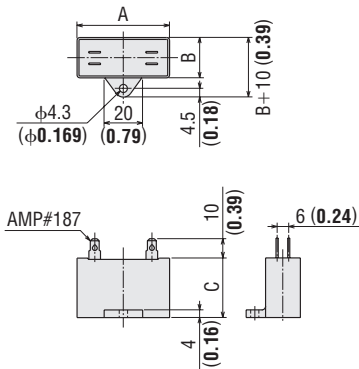
Mass: 0.3 kg (0.66 lb.)

DXF A009



◇ Capacitor

(Included with single-phase motors)



◇ Capacitor Dimensions Unit = mm (in.)

Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Pinion Shaft Type	Round Shaft Type						
3IK15GN-AW2U	3IK15A-AW2U	CH45FAUL2	37 (1.46)	18 (0.71)	27 (1.06)	26 (0.92)	Included
3IK15GN-CW2E	3IK15A-CW2E	CH10BFAUL	37 (1.46)	18 (0.71)	27 (1.06)	27 (0.95)	

■ Connection Diagrams

→ Page C-26

Accessories and Peripheral Equipment

- Instantaneous Stop Brake Pack → Page C-253
- Speed Control Speed Controller → Page D-178
- Accessories → Page C-263



Induction Motors

25 W (1/30 HP)

Frame Size: □80 mm (□3.15 in.)



Lead Wire Type



Terminal Box Type

(Gearhead sold separately)

Specifications – Continuous Rating (RoHS)



Model Upper Model Name: Pinion Shaft Type Lower Model Name (): Round Shaft Type			Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	Conduit Box Type Dimension ③	W HP	VAC	Hz	A	mN·m oz·in	mN·m oz·in	r/min	μF
TP 4IK25GN-AW2U (4IK25A-AW2U)	4IK25GN-AW2TU (4IK25A-AW2TU)	4IK25GN-FCH (4IK25AA-FCH)	25 1/30	Single-Phase 110 Single-Phase 115	60	0.46	120 17.0	170 24	1450	6.5
TP 4IK25GN-CW2E (4IK25A-CW2E)	4IK25GN-CW2TE (4IK25A-CW2TE)	-	25 1/30	Single-Phase 220	50	0.27	110 15.6	205 29	1200	1.5
					60	0.23		170 24	1450	
				Single-Phase 230	50	0.27	120 17.0	205 29	1200	
					60	0.23		170 24	1450	
TP -	-	4IK25GN-ECH (4IK25AA-ECH)	25 1/30	Single-Phase 220	60	0.22	120 17.0	170 24	1450	1.5
				Single-Phase 230	50	0.24		205 29	1200	
					60	0.22		170 24	1450	
TP 4IK25GN-SW2 (4IK25A-SW2)	4IK25GN-SW2T (4IK25A-SW2T)	4IK25GN-SH (4IK25AA-SH)	25 1/30	Three-Phase 200	50	0.23	240 34	190 26	1300	-
				Three-Phase 220	60	0.21	160 22	160 22	1550	
					Three-Phase 230	60	0.21	160 22	160 22	

● The **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate.
When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. → Page H-11

● Details of safety standards → Page H-2

* Conduit box type is not certified under the China Compulsory Certification System (CCC System).

ⓉP: 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.
When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor power off before inspecting.

Product Line

● Motor (RoHS)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	4IK25GN-AW2U	4IK25A-AW2U
	4IK25GN-CW2E	4IK25A-CW2E
	4IK25GN-SW2	4IK25A-SW2
Terminal Box	4IK25GN-AW2TU	4IK25A-AW2TU
	4IK25GN-CW2TE	4IK25A-CW2TE
	4IK25GN-SW2T	4IK25A-SW2T
Conduit Box	4IK25GN-FCH	4IK25AA-FCH
	4IK25GN-ECH	4IK25AA-ECH
	4IK25GN-SH	4IK25AA-SH

— The following items are included in each product. —

- Motor, Capacitor*, Capacitor Cap*, Operating Manual
- * Only for single-phase motors (Excluding conduit box type)

High Strength, Long Life, Low Noise
V Series

Highest Maximum Permissible torque,
10,000 hours of life and quiet operation.
For more details on **V** Series see page C-149 or
visit www.orientalmotor.com.



● Parallel Shaft Gearhead/Right-Angle Gearhead (Sold separately) (RoHS)

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	4GN□SA	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Hollow Shaft	4GN□RH	
Right-Angle Shaft	Solid Shaft	4GN□RAA	
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	4GN10XS (Decimal Gearhead)	

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

The following items are included in each product.

- Parallel Shaft Gearhead
Gearhead, Mounting Screws, Operating Manual
- Hollow Shaft Gearhead
Gearhead, Mounting Screws, Parallel Key, Safety Cover (with screws), Gasket, Operating Manual
- Solid Shaft Gearhead
Gearhead, Mounting Screws, Gasket, Operating Manual

● The following gearheads are also available. For details, please refer to website (www.orientalmotor.com) or contact the nearest Oriental Motor sales office.

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	(RoHS) GN-K Gearhead	4GN□KA	3~180
		4GN10XK (Decimal Gearhead)	

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

■ Gearmotor – Torque Table

- Enter the code that represents the terminal box type "T" in the box (□) within the motor model name.
- Enter the gear ratio in the box (□) within the gearhead 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 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.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio 10:1) between the gearhead and the motor. In that case, the permissible torque is 8 N·m (70 lb-in). When a gearhead of 25:1~36:1 is connected, the value for permissible torque is 6 N·m (53 lb-in).

◇ 50 Hz

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

Model Motor/ Gearhead	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
4IK25GN-CW2□E 4IK25GN-ECH	4GN□SA	0.50	0.60	0.83	1.0	1.2	1.5	2.1	2.5	3.0	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8
		4.4	5.3	7.3	8.8	10.6	13.2	18.5	22	26	32	39	47	60	70	70	70	70	70	70	70
4IK25GN-SW2□ 4IK25GN-SH	4GN□SA	0.46	0.55	0.77	0.92	1.2	1.4	1.9	2.3	2.8	3.5	4.2	5.0	6.3	7.5	8	8	8	8	8	8
		4.0	4.8	6.8	8.1	10.6	12.3	16.8	20	24	30	37	44	55	66	70	70	70	70	70	70

◇ 60 Hz

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

Model Motor/ Gearhead	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
4IK25GN-AW2□U 4IK25GN-CW2□E 4IK25GN-FCH 4IK25GN-ECH	4GN□SA	0.41	0.50	0.69	0.83	1.0	1.2	1.7	2.1	2.5	3.1	3.7	4.5	5.6	6.7	8	8	8	8	8	8
		3.6	4.4	6.1	7.3	8.8	10.6	15.0	18.5	22	27	32	39	49	59	70	70	70	70	70	70
4IK25GN-SW2□ 4IK25GN-SH	4GN□SA	0.39	0.47	0.65	0.78	0.97	1.2	1.6	1.9	2.3	2.9	3.5	4.2	5.3	6.3	7.9	8	8	8	8	8
		3.4	4.1	5.7	6.9	8.5	10.6	14.1	16.8	20	25	30	37	46	55	69	70	70	70	70	70

■ Gearmotor – Torque Table When Right-Angle Gearhead is Attached

→ Page C-238

■ Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) → Page C-17

Gearhead → Page C-17

■ Permissible Load Inertia J of Gearhead

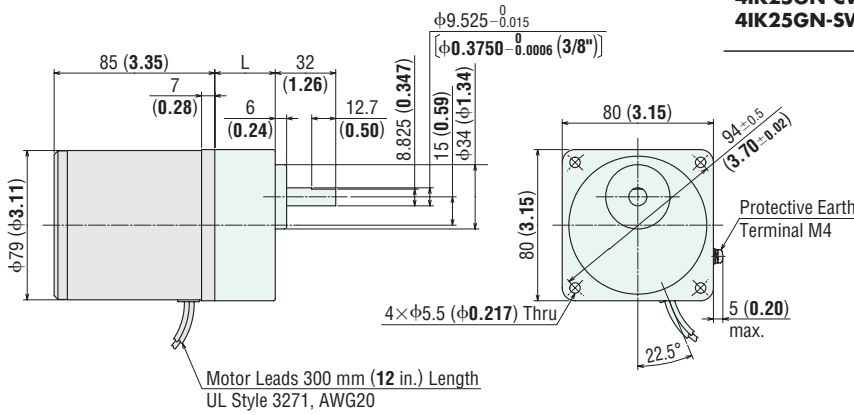
→ Page C-18

Dimensions Unit = mm (in.)

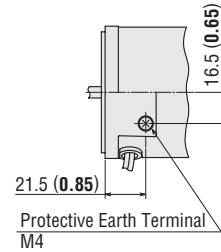
● Mounting screws are included with gearheads. Dimensions for mounting screws → Page C-280

◇ Lead Wire Type ①

Mass: Motor 1.5 kg (3.3 lb.)
Gearhead 0.65 kg (1.43 lb.)



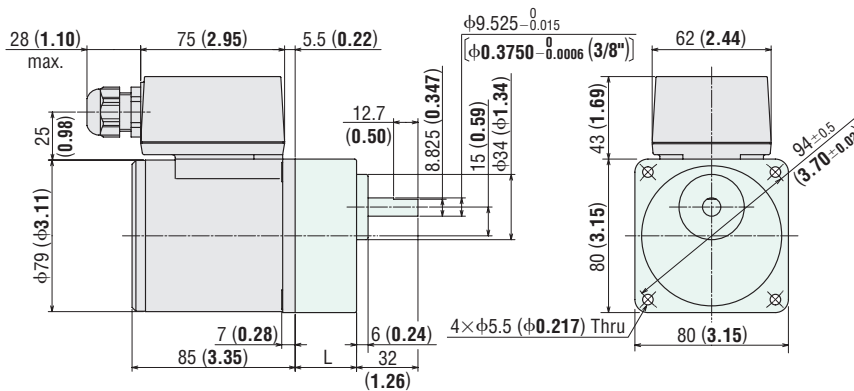
Motor Model	Gearhead Model	Gear Ratio	L	DXF
4IK25GN-AW2U 4IK25GN-CW2E 4IK25GN-SW2	4GN□SA	3~18	32 (1.26)	A449AU
25~180		42.5 (1.67)	A449BU	



Detail Drawing of Protective Earth Terminal

◇ Terminal Box Type ②

Mass: Motor 1.7 kg (3.7 lb.)
Gearhead 0.65 kg (1.43 lb.)

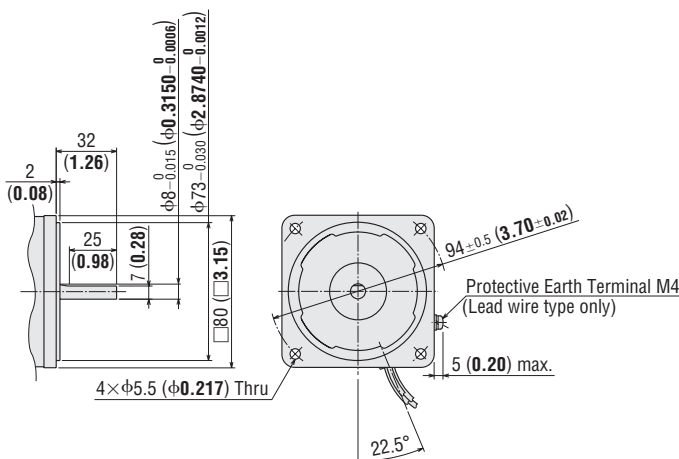


Motor Model	Gearhead Model	Gear Ratio	L	DXF
4IK25GN-AW2TU 4IK25GN-CW2TE 4IK25GN-SW2T	4GN□SA	3~18	32 (1.26)	A451AU
25~180		42.5 (1.67)	A451BU	

- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.



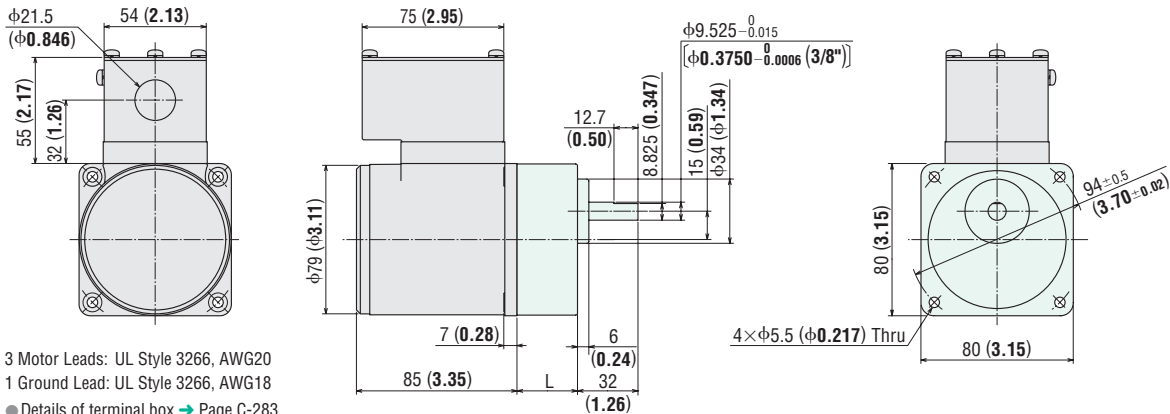
Motor Model	Mass	DXF
4IK25A-AW2U 4IK25A-CW2E 4IK25A-SW2	1.5 kg (3.3 lb.)	A450
4IK25A-AW2TU 4IK25A-CW2TE 4IK25A-SW2T	1.7 kg (3.7 lb.)	A328

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

◇ Conduit Box Type ③

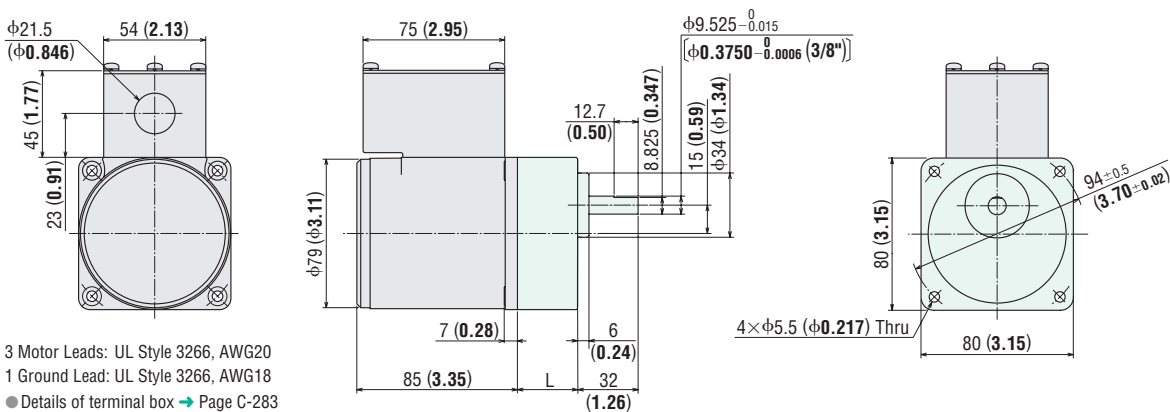
Motor Model	Gearhead Model	Gear Ratio	L	DXF
4IK25GN-FCH	4GN□SA	3~18	32 (1.26)	A900AU
4IK25GN-ECH		25~180	42.5 (1.67)	A900BU

Mass: Motor 1.9 kg (4.2 lb.)
Gearhead 0.65 kg (1.43 lb.)



Motor Model	Gearhead Model	Gear Ratio	L	DXF
4IK25GN-SH	4GN□SA	3~18	32 (1.26)	A901AU
		25~180	42.5 (1.67)	A901BU

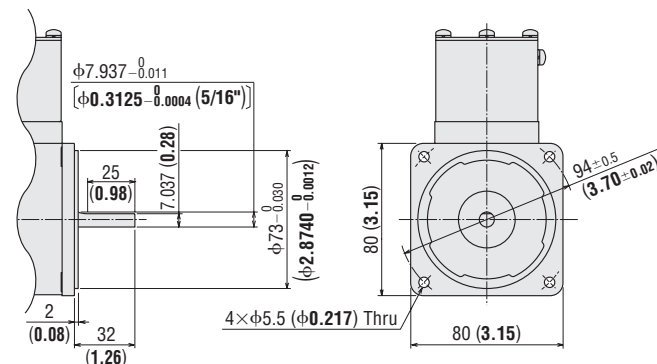
Mass: Motor 1.7 kg (3.7 lb.)
Gearhead 0.65 kg (1.43 lb.)



◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

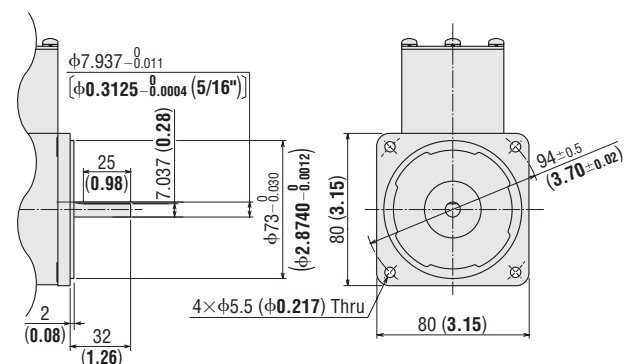
Motor Model	Mass	DXF
4IK25AA-FCH	1.9 kg (4.2 lb.)	A809
4IK25AA-ECH		



◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

Motor Model	Mass	DXF
4IK25AA-SH	1.7 kg (3.7 lb.)	A810



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

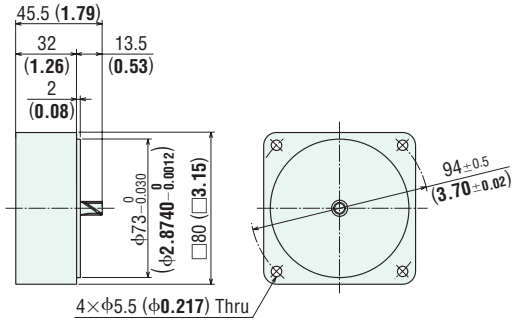
◇ Decimal Gearhead

Can be connected to **GN** pinion shaft type.

4GN10XS

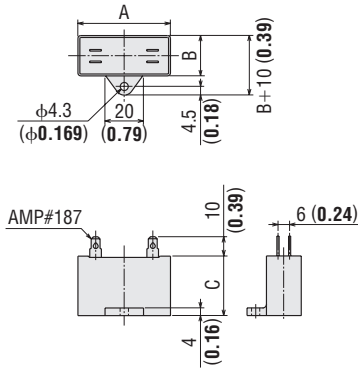
Mass: 0.4 kg (0.88 lb.)

DXF A013



◇ Capacitor

(Included with single-phase motors)



◇ Capacitor Dimensions Unit = mm (in.)


Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Upper Model Name: Pinion Shaft Type	Lower Model Name (): Round Shaft Type						
Lead Wire Type	Terminal Box Type						
4IK25GN-AW2U (4IK25A-AW2U)	4IK25GN-AW2TU (4IK25A-AW2TU)	CH65CFAUL2	48 (1.89)	19 (0.75)	29 (1.14)	35 (1.24)	Included
4IK25GN-CW2E (4IK25A-CW2E)	4IK25GN-CW2TE (4IK25A-CW2TE)	CH15BFAUL	38 (1.50)	21 (0.83)	31 (1.22)	37 (1.31)	

■ Connection Diagrams


→ Page C-26

Gearhead, Accessories and Peripheral Equipment


Space-Saving
Right-Angle Gearheads
→ Page C-227




Instantaneous Stop
Brake Pack
→ Page C-253



Speed Control
Speed Controller
→ Page D-178



Accessories
→ Page C-263



Induction Motors

40 W (1/19 HP)

Frame Size: □90 mm (□3.54 in.)



Lead Wire Type



Terminal Box Type

(Gearhead sold separately)

Specifications – Continuous Rating (RoHS)



Model Upper Model Name: Pinion Shaft Type Lower Model Name (): Round Shaft Type			Output Power W HP	Voltage VAC	Frequency Hz	Current A	Starting Torque mN·m oz·in	Rated Torque mN·m oz·in	Rated Speed r/min	Capacitor μF
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	Conduit Box Type Dimension ③								
TP 5IK40GN-AW2U (5IK40A-AW2U)	5IK40GN-AW2TU (5IK40A-AW2TU)	5IK40GN-FCH (5IK40AA-FCH)	40 1/19	Single-Phase 110 Single-Phase 115	60	0.68 0.67	200 28	260 36	1500	9.0
TP 5IK40GN-CW2E (5IK40A-CW2E)	5IK40GN-CW2TE (5IK40A-CW2TE)	5IK40GN-ECH*1 (5IK40AA-ECH)*1	40 1/19	Single-Phase 220 Single-Phase 230	50 60 50 60	0.39 0.35 0.39 0.34	200 28	315 44 260 36 300 42 260 36	1250 1500 1300 1500	2.3
TP 5IK40GN-SW2 (5IK40A-SW2)	5IK40GN-SW2T (5IK40A-SW2T)	5IK40GN-SH (5IK40AA-SH)	40 1/19	Three-Phase 200 Three-Phase 220 Three-Phase 230	50 60 60	0.32 0.30 0.30 0.31	400 56 260 36 260 36 260 36	300 42 260 36 260 36 260 36	1300 1550 1600 1600	-

● The **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate.
When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. → Page H-11

● Details of safety standards → Page H-2

*1 Single-Phase 220 VAC 50Hz type is not available for conduit box type.

*2 Conduit box type is not certified under the China Compulsory Certification System (CCC System).

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.
When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor power off before inspecting.

Product Line

● Motor (RoHS)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	5IK40GN-AW2U	5IK40A-AW2U
	5IK40GN-CW2E	5IK40A-CW2E
	5IK40GN-SW2	5IK40A-SW2
Terminal Box	5IK40GN-AW2TU	5IK40A-AW2TU
	5IK40GN-CW2TE	5IK40A-CW2TE
	5IK40GN-SW2T	5IK40A-SW2T
Conduit Box	5IK40GN-FCH	5IK40AA-FCH
	5IK40GN-ECH	5IK40AA-ECH
	5IK40GN-SH	5IK40AA-SH

The following items are included in each product.

Motor, Capacitor*, Capacitor Cap*, Operating Manual
* Only for single-phase motors (Excluding conduit box type)

● Parallel Shaft Gearhead/Right-Angle Gearhead (Sold separately) (RoHS)

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	5GN□SA	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
Right-Angle Shaft	Hollow Shaft	5GN□RH	
	Solid Shaft	5GN□RAA	
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	5GN10XS (Decimal Gearhead)	

The following items are included in each product.

- Parallel Shaft Gearhead
Gearhead, Mounting Screws, Operating Manual
- Hollow Shaft Gearhead
Gearhead, Mounting Screws, Parallel Key, Safety Cover (with screws), Gasket, Operating Manual
- Solid Shaft Gearhead
Gearhead, Mounting Screws, Gasket, Operating Manual

● The following gearheads are also available. For details, please refer to website (www.orientalmotor.com) or contact the nearest Oriental Motor sales office.

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	(RoHS)	5GN□KA	3~180
	GN-K Gearhead	5GN10XK (Decimal Gearhead)	

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

High Strength, Long Life, Low Noise V Series

Highest Maximum Permissible torque,
10,000 hours of life and quiet operation.
For more details on **V** Series see page
C-149 or visit www.orientalmotor.com.



Gearmotor – Torque Table

- Enter the code that represents the terminal box type "T" in the box (□) within the motor model name.
- Enter the gear ratio in the box (□) within the gearhead 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 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.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio 10:1) between the gearhead and the motor. In that case, the permissible torque is 10 N·m (88 lb-in).

◇ 50 Hz

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

Model Motor/ Gearhead	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
51K40GN-CW2 □E (Single-phase 220 VAC)	5GN □SA	0.77	0.92	1.3	1.5	1.9	2.3	3.2	3.8	4.6	5.7	6.9	8.3	10	10	10	10	10	10	10	10
		6.8	8.1	11.5	13.2	16.8	20	28	33	40	50	61	73	88	88	88	88	88	88	88	88
51K40GN-CW2 □E 51K40GN-ECH (Single-phase 230 VAC)	5GN □SA	0.73	0.87	1.2	1.5	1.8	2.2	3.0	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10
		6.4	7.6	10.6	13.2	15.9	19.4	26	31	38	48	58	69	87	88	88	88	88	88	88	88
51K40GN-SW2 □ 51K40GN-SH																					

◇ 60 Hz

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

Model Motor/ Gearhead	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
51K40GN-AW2 □U 51K40GN-CW2 □E 51K40GN-SW2 □	5GN □SA	0.63	0.76	1.1	1.3	1.6	1.9	2.6	3.2	3.8	4.7	5.7	6.8	8.6	10	10	10	10	10	10	10
		5.5	6.7	9.7	11.5	14.1	16.8	23	28	33	41	50	60	76	88	88	88	88	88	88	88
51K40GN-FCH 51K40GN-ECH 51K40GN-SH																					

Gearmotor – Torque Table When Right-Angle Gearhead is Attached

→ Page C-238

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) → Page C-17

Gearhead → Page C-17

Permissible Load Inertia J of Gearhead

→ Page C-18

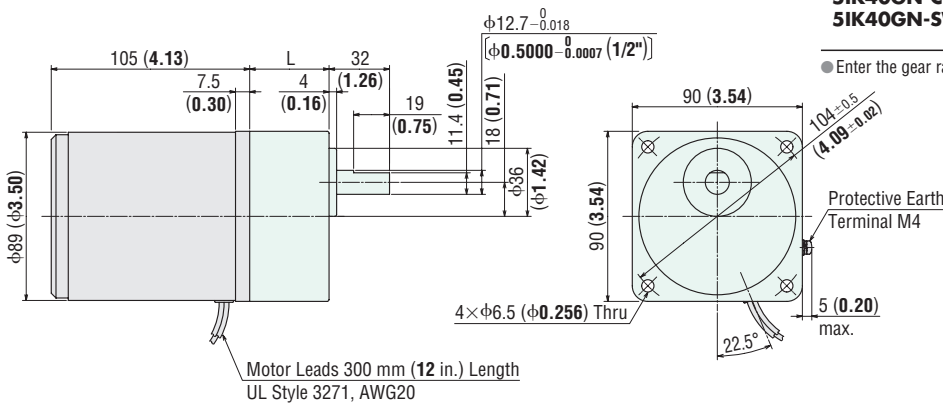
Dimensions Unit = mm (in.)

- Mounting screws are included with gearheads. Dimensions for mounting screws → Page C-280

◇ Lead Wire Type ①

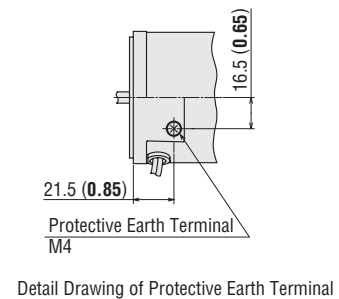
Mass: Motor 2.5 kg (5.5 lb.)

Gearhead 1.5 kg (3.3 lb.)



Motor Model	Gearhead Model	Gear Ratio	L	DXF
51K40GN-AW2U 51K40GN-CW2E 51K40GN-SW2	5GN □SA	3~18	42 (1.65)	A452AU
		25~180	60 (2.36)	A452BU

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

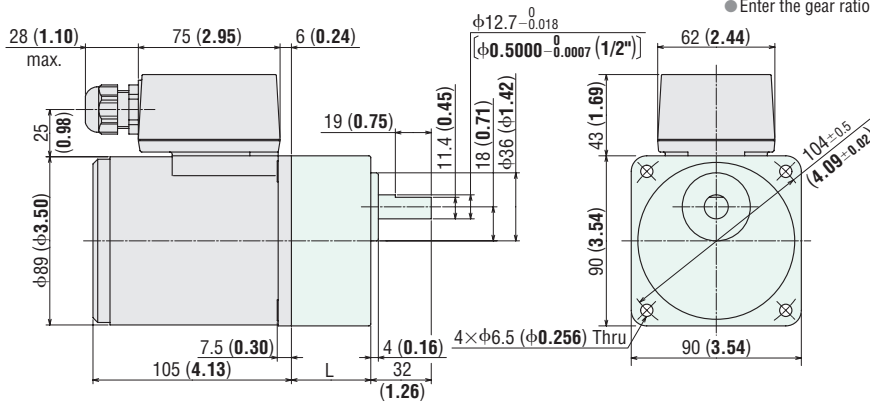


◇ Terminal Box Type ②

Mass: Motor 2.6 kg (5.7 lb.)
Gearhead 1.5 kg (3.3 lb.)

Motor Model	Gearhead Model	Gear Ratio	L	DXF
5IK40GN-AW2TU 5IK40GN-CW2TE 5IK40GN-SW2T	5GN□SA	3~18	42 (1.65)	A454AU
		25~180	60 (2.36)	A454BU

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

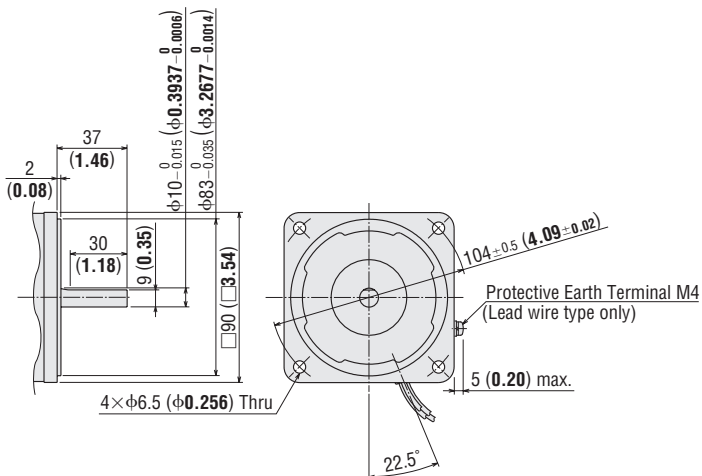


- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

Motor Model	Mass	DXF
5IK40A-AW2U 5IK40A-CW2E 5IK40A-SW2	2.5 kg (5.5 lb.)	A453
5IK40A-AW2TU 5IK40A-CW2TE 5IK40A-SW2T	2.6 kg (5.7 lb.)	A330

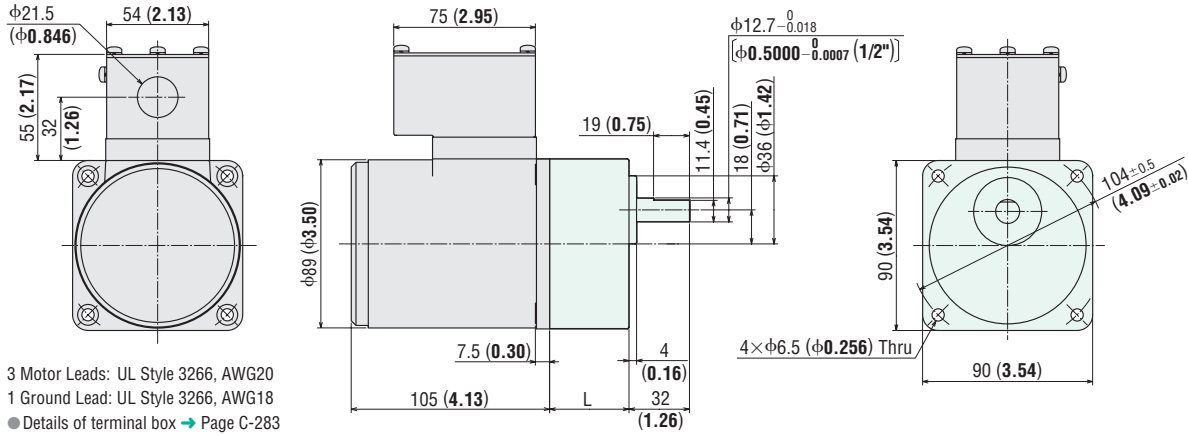


1 W 3 W (1/250 HP) (1/125 HP)
 6 W (1/125 HP)
 15 W (1/50 HP)
 25 W (1/30 HP)
 40 W (1/19 HP)
 60 W (1/12 HP)
 90 W (1/8 HP)
 200 W (1/4 HP)
 2-Pole 40-150 W (1/1.9-1/5 HP)

◇ Conduit Box Type ③

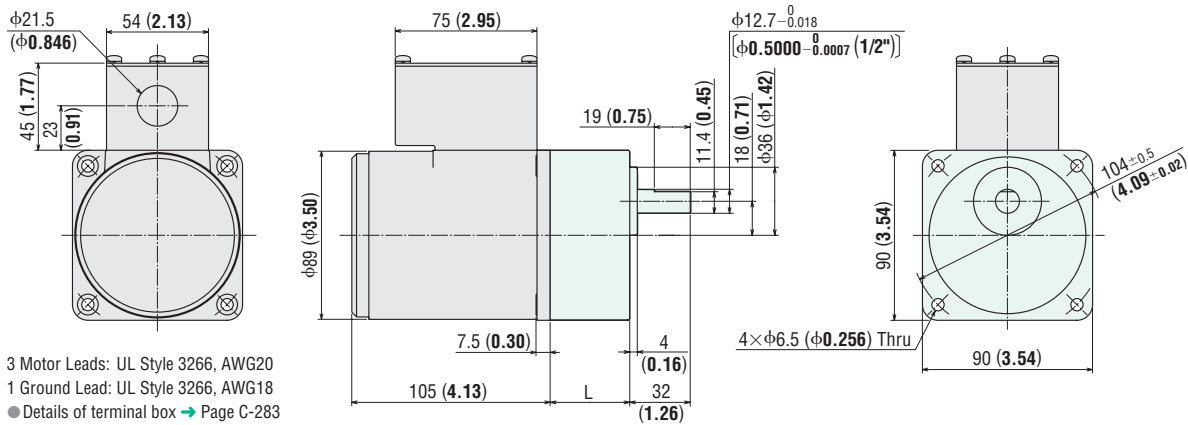
Motor Model	Gearhead Model	Gear Ratio	L	DXF
5IK40GN-FCH	5GN□SA	3~18	42 (1.65)	A902AU
5IK40GN-ECH		25~180	60 (2.36)	A902BU

Mass: Motor 2.7 kg (5.9 lb.)
 Gearhead 1.5 kg (3.3 lb.)



Motor Model	Gearhead Model	Gear Ratio	L	DXF
5IK40GN-SH	5GN□SA	3~18	42 (1.65)	A903AU
		25~180	60 (2.36)	A903BU

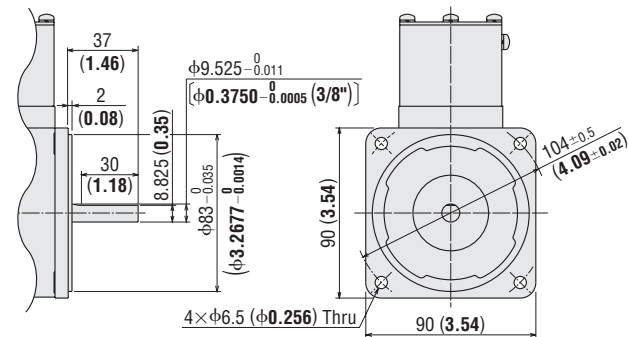
Mass: Motor 2.5 kg (5.5 lb.)
 Gearhead 1.5 kg (3.3 lb.)



◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

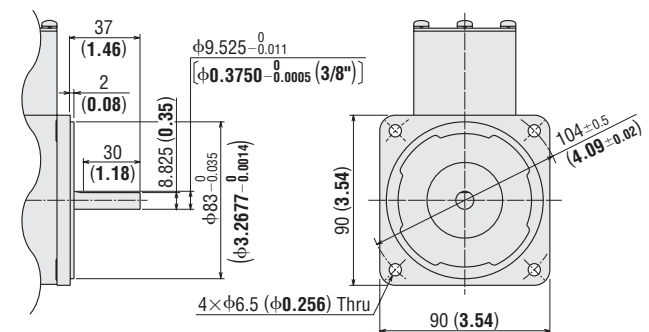
Motor Model	Mass	DXF
5IK40AA-FCH	2.7 kg (5.9 lb.)	A811
5IK40AA-ECH		



◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

Motor Model	Mass	DXF
5IK40AA-SH	2.5 kg (5.5 lb.)	A812



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

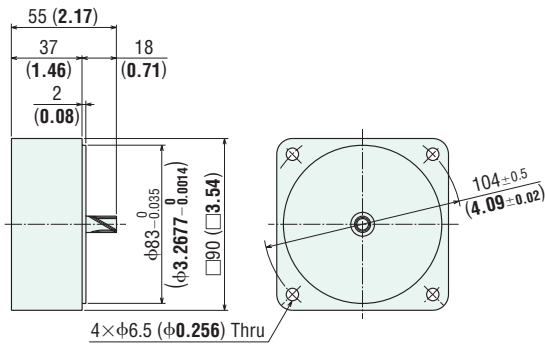
◇ Decimal Gearhead

Can be connected to **GN** pinion shaft type.

5GN10XS

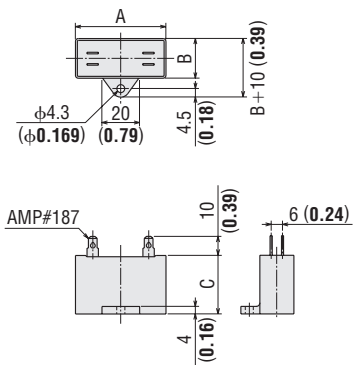
Mass: 0.6 kg (1.32 lb.)

DXF A022



◇ Capacitor

(Included with single-phase motors)



◇ Capacitor Dimensions Unit = mm (in.)


Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Upper Model Name: Pinion Shaft Type	Lower Model Name (): Round Shaft Type						
Lead Wire Type	Terminal Box Type						
5IK40GN-AW2U (5IK40A-AW2U)	5IK40GN-AW2TU (5IK40A-AW2TU)	CH90CFAUL2	48 (1.89)	22.5 (0.89)	31.5 (1.24)	45 (1.59)	Included
5IK40GN-CW2E (5IK40A-CW2E)	5IK40GN-CW2TE (5IK40A-CW2TE)	CH23BFAUL	48 (1.89)	21 (0.83)	31 (1.22)	43 (1.52)	

■ Connection Diagrams


→ Page C-26

Gearhead, Accessories and Peripheral Equipment


Space-Saving
Right-Angle Gearheads
→ Page C-227




Instantaneous Stop
Brake Pack
→ Page C-253



Speed Control
Speed Controller
→ Page D-178



Accessories
→ Page C-263



Induction Motors

60 W (1/12 HP)

Frame Size: □90 mm (□3.54 in.)



Lead Wire Type



Terminal Box Type

(Gearhead sold separately)

Specifications – Continuous Rating (RoHS)



Model			Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Upper Model Name: Pinion Shaft Type Lower Model Name (): Round Shaft Type										
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	Conduit Box Type Dimension ③	W HP	VAC	Hz	A	mN·m oz·in	mN·m oz·in	r/min	μF
TP 5IK60GE-AW2U (5IK60A-AW2U)	5IK60GE-AW2TU (5IK60A-AW2TU)	5IK60GE-FCH (5IK60A-FCH)	60 1/12	Single-Phase 110	60	1.09	320	405	1450	18
				Single-Phase 115		1.10				
TP 5IK60GE-CW2E (5IK60A-CW2E)	5IK60GE-CW2TE (5IK60A-CW2TE)	5IK60GE-ECH*1 (5IK60A-ECH)*1	60 1/12	Single-Phase 220	50	0.55	320	490	1200	4.0
					60	0.54		69		
				Single-Phase 230	50	0.57	45	490	1200	
					60	0.54		69		
TP 5IK60GE-SW2 (5IK60A-SW2)	5IK60GE-SW2T (5IK60A-SW2T)	5IK60GE-SH (5IK60A-SH)	60 1/12	Three-Phase 200	50	0.50	600	450	1300	
					60	0.43	85	63		
				Three-Phase 220	60	0.45	500	380	1600	
71	53	500	380							
Three-Phase 230	60	0.46	500	380	1600					
	71	53	500	380						

● The **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. → Page H-11

● Details of safety standards → Page H-2

*1 Single-Phase 220 VAC 50Hz type is not available for conduit box type.

*2 Conduit box type is not certified under the China Compulsory Certification System (CCC System).

(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. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor power off before inspecting.

Product Line

● Motor (RoHS)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	5IK60GE-AW2U	5IK60A-AW2U
	5IK60GE-CW2E	5IK60A-CW2E
	5IK60GE-SW2	5IK60A-SW2
Terminal Box	5IK60GE-AW2TU	5IK60A-AW2TU
	5IK60GE-CW2TE	5IK60A-CW2TE
	5IK60GE-SW2T	5IK60A-SW2T
Conduit Box	5IK60GE-FCH	5IK60A-FCH
	5IK60GE-ECH	5IK60A-ECH
	5IK60GE-SH	5IK60A-SH

The following items are included in each product.
 Motor, Capacitor*, Capacitor Cap*, Operating Manual
 * Only for single-phase motors (Excluding conduit box type)

● Parallel Shaft Gearhead/Right-Angle Gearhead (Sold separately) (RoHS)

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	Long Life GE-S Gearhead	5GE□SA	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Right-Angle Shaft	Hollow Shaft	
		Solid Shaft	
Parallel Shaft	Long Life GE-S Gearhead	5GE10XS (Decimal Gearhead)	

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

The following items are included in each product.

- Parallel Shaft Gearhead
Gearhead, Mounting Screws, Parallel Key, Operating Manual
- Hollow Shaft Gearhead
Gearhead, Mounting Screws, Parallel Key, Safety Cover (with screws), Gasket, Operating Manual
- Solid Shaft Gearhead
Gearhead, Mounting Screws, Parallel Key, Gasket, Operating Manual

High Strength, Long Life, Low Noise
V Series

Highest Maximum Permissible torque, 10,000 hours of life and quiet operation. For more details on V Series see page C-149 or visit www.orientalmotor.com.



Gearmotor – Torque Table

- Enter the code that represents the terminal box type "T" in the box (□) within the motor model name.
- Enter the gear ratio in the box (□) within the gearhead 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 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.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio 10:1) between the gearhead and the motor. In that case, the permissible torque is 20 N·m (177 lb-in).

◇ 50 Hz

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

Model Motor/ Gearhead	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
5IK60GE-CW2□E 5IK60GE-ECH	5GE□SA	1.2	1.4	2.0	2.4	3.0	3.6	4.5	5.4	6.4	8.1	9.7	11.6	16.2	19.4	20	20	20	20	20	20
		10.6	12.3	17.7	21	26	31	39	47	56	71	85	102	143	171	177	177	177	177	177	177
5IK60GE-SW2□ 5IK60GE-SH	5GE□SA	1.1	1.3	1.8	2.2	2.7	3.3	4.1	4.9	5.9	7.4	8.9	10.7	14.9	17.8	19.9	20	20	20	20	20
		9.7	11.5	15.9	19.4	23	29	36	43	52	65	78	94	131	157	176	177	177	177	177	177

◇ 60 Hz

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

Model Motor/ Gearhead	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
5IK60GE-AW2□U 5IK60GE-CW2□E 5IK60GE-FCH 5IK60GE-ECH	5GE□SA	0.98	1.2	1.6	2.0	2.5	3.0	3.7	4.4	5.3	6.7	8.0	9.6	13.4	16.0	17.9	20	20	20	20	20
		8.6	10.6	14.1	17.7	22	26	32	38	46	59	70	84	118	141	158	177	177	177	177	177
5IK60GE-SW2□ 5IK60GE-SH	5GE□SA	0.92	1.1	1.5	1.8	2.3	2.8	3.5	4.2	5.0	6.3	7.5	9.0	12.5	15.0	16.8	20	20	20	20	20
		8.1	9.7	13.2	15.9	20	24	30	37	44	55	66	79	110	132	148	177	177	177	177	177

Gearmotor – Torque Table When Right-Angle Gearhead is Attached

→ Page C-238

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) → Page C-17

Gearhead → Page C-17

Permissible Load Inertia J of Gearhead

→ Page C-18

Dimensions Unit = mm (in.)

- Mounting screws are included with gearheads. Dimensions for mounting screws → Page C-280

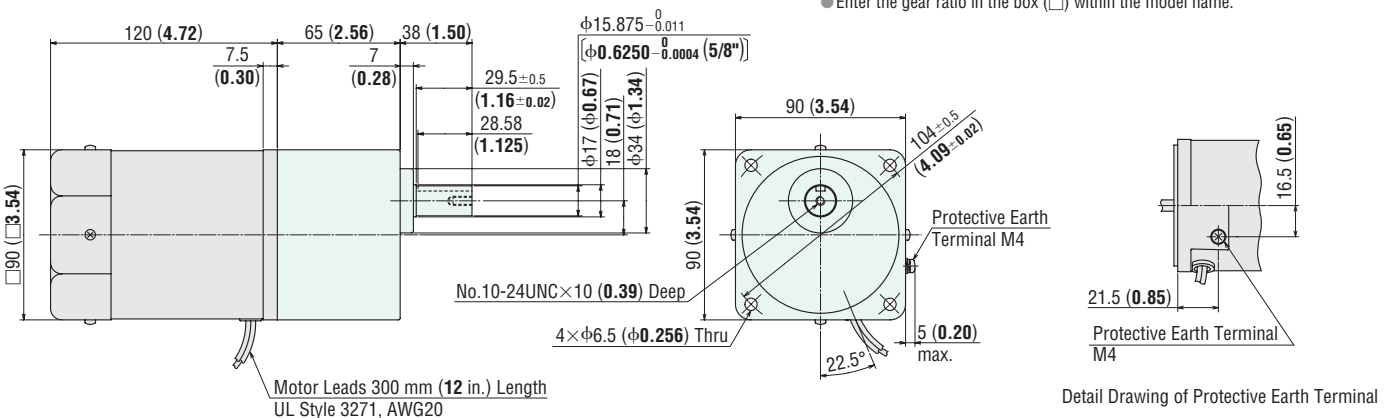
◇ Lead Wire Type ①

Mass: Motor 2.7 kg (5.9 lb.)

Gearhead 1.5 kg (3.3 lb.)

Motor Model	Gearhead Model	DXF
5IK60GE-AW2U 5IK60GE-CW2E 5IK60GE-SW2	5GE□SA	A455U

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

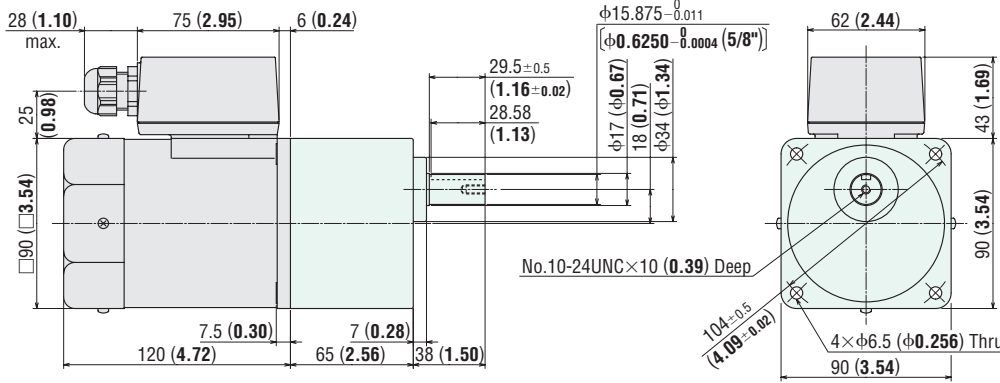


◇ Terminal Box Type ②

Mass: Motor 2.8 kg (6.2 lb.)
Gearhead 1.5 kg (3.3 lb.)

Motor Model	Gearhead Model	DXF
5IK60GE-AW2TU 5IK60GE-CW2TE 5IK60GE-SW2T	5GE□SA	A457U

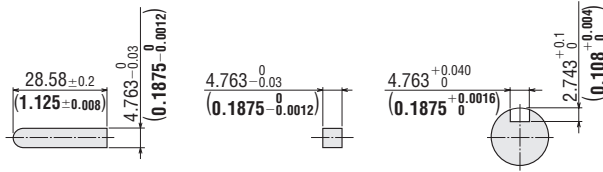
● Enter the gear ratio in the box (□) within the model name.



- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

◇ Key and Key Slot

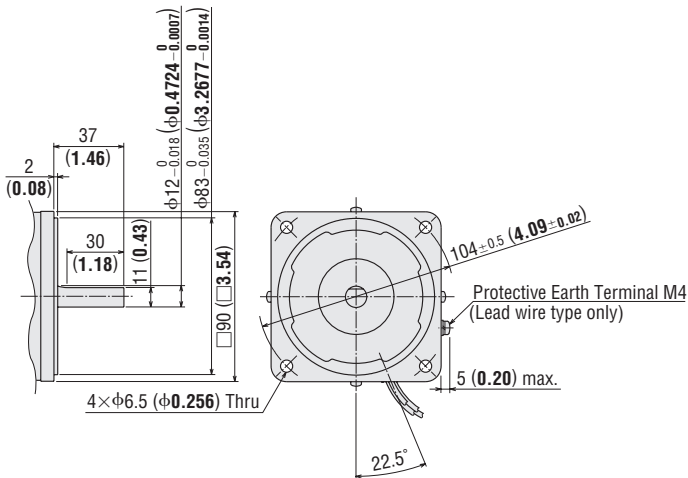
(The key is included with the gearhead)



◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

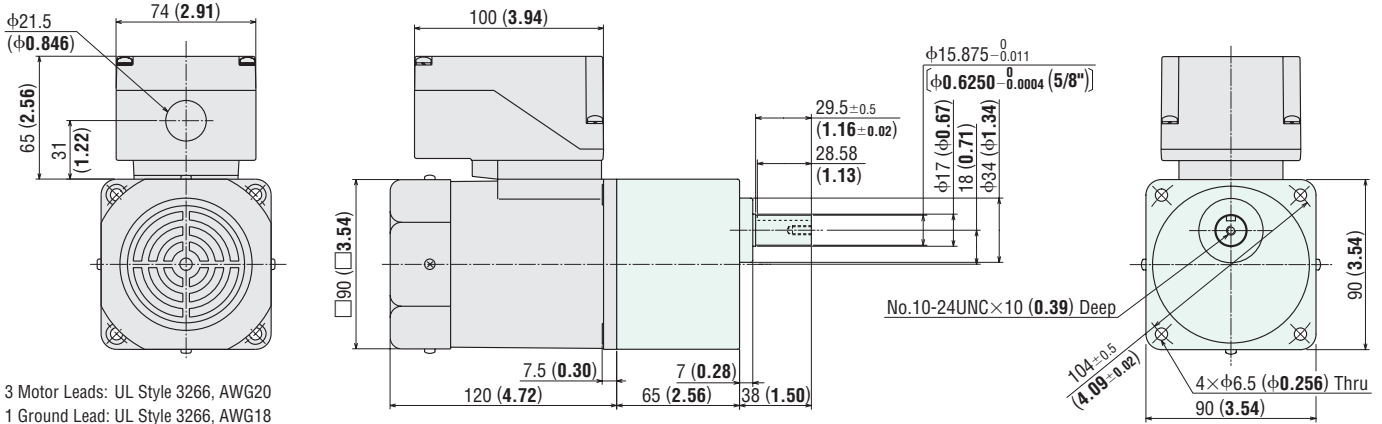
Motor Model	Mass	DXF
5IK60A-AW2U 5IK60A-CW2E 5IK60A-SW2T	2.7 kg (5.9 lb.)	A456
5IK60A-AW2TU 5IK60A-CW2TE 5IK60A-SW2T	2.8 kg (6.2 lb.)	A332



◇ Conduit Box Type ③

Motor Model	Gearhead Model	DXF
5IK60GE-FCH 5IK60GE-ECH	5GE□SA	A904U

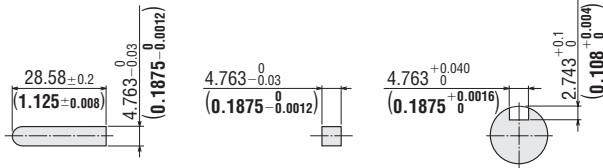
Mass: Motor 3.2 kg (7.0 lb.)
Gearhead 1.5 kg (3.3 lb.)



3 Motor Leads: UL Style 3266, AWG20
1 Ground Lead: UL Style 3266, AWG18
● Details of terminal box → Page C-283

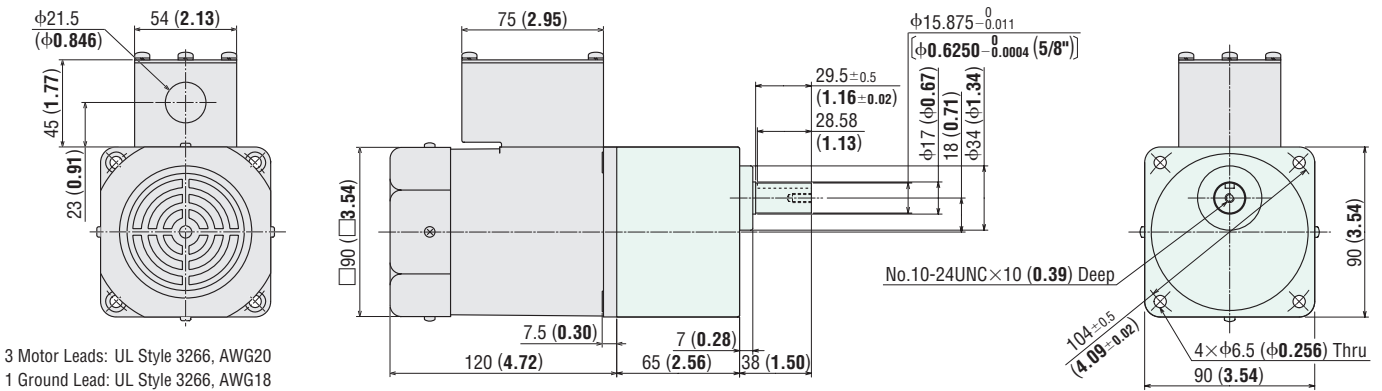
◇ Key and Key Slot

(The key is included with the gearhead)



Motor Model	Gearhead Model	DXF
5IK60GE-SH	5GE□SA	A905U

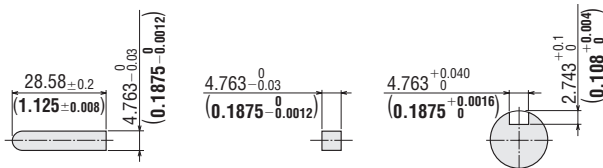
Mass: Motor 2.8 kg (6.2 lb.)
Gearhead 1.5kg (3.3 lb.)



3 Motor Leads: UL Style 3266, AWG20
1 Ground Lead: UL Style 3266, AWG18
● Details of terminal box → Page C-283

◇ Key and Key Slot

(The key is included with the gearhead)



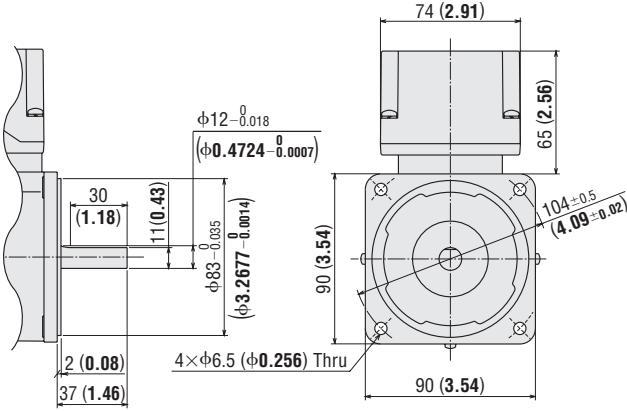
● Enter the gear ratio in the box (□) within the model name.

1 W, 3 W (1/250 HP)
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)

◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

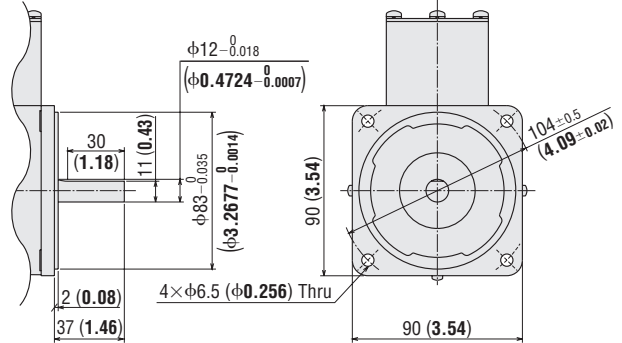
Motor Model	Mass	DXF
5IK60A-FCH 5IK60A-ECH	3.2 kg (7.0 lb.)	A813



◇ Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

Motor Model	Mass	DXF
5IK60A-SH	2.8 kg (6.2 lb.)	A814



90 W (1/8 HP)
200 W (1/4 HP)
2-Pole 40-150 W (1/1.9-1/5 HP)

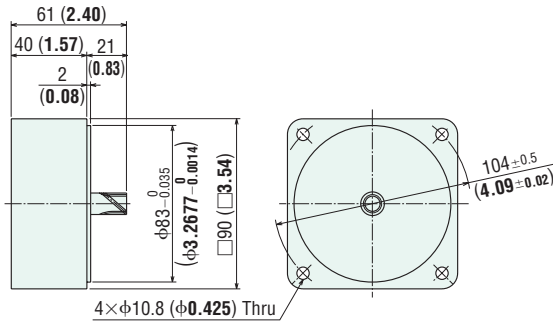
◇ Decimal Gearhead

Can be connected to **GE** pinion shaft type.

5GE10XS

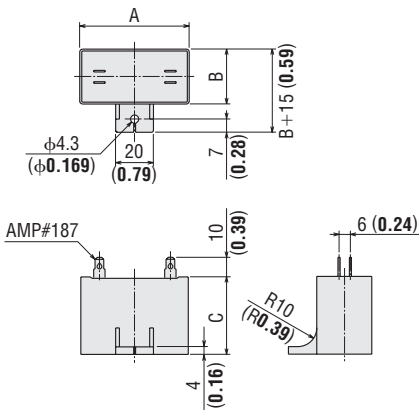
Mass: 0.6 kg (1.32 lb.)

DXF A029



◇ Capacitor

(Included with single-phase motors)





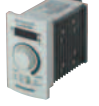

◇ Capacitor Dimensions Unit = mm (in.)

Model Upper Model Name: Pinion Shaft Type Lower Model Name (): Round Shaft Type		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Lead Wire Type	Terminal Box Type						
5IK60GE-AW2U (5IK60A-AW2U)	5IK60GE-AW2TU (5IK60A-AW2TU)	CH180CFAUL2	58 (2.28)	29 (1.14)	41 (1.61)	92 (3.2)	Included
5IK60GE-CW2E (5IK60A-CW2E)	5IK60GE-CW2TE (5IK60A-CW2TE)						
		CH40BFAUL	58 (2.28)	23.5 (0.93)	37 (1.46)	73 (2.6)	

■ Connection Diagrams

→ Page C-26

Gearhead, Accessories and Peripheral Equipment

<p>Space-Saving Right-Angle Gearheads → Page C-227</p> 	<p>Instantaneous Stop Brake Pack → Page C-253</p> 	<p>Speed Control Speed Controller → Page D-178</p> 	<p>Accessories → Page C-263</p> 
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Introduction

Induction
Motors

Reversible
Motors

Electromagnetic
Brake Motors

V Series

Clutch &
Brake Motors

Synchronous
Motors

Low-Speed
Synchronous
Motors

Waterright,
Dust-Resistant
Motors

Torque
Motors

Right-Angle
Gearheads

Linear Heads

Brake Pack

Accessories

Installation

Induction Motors

90 W (1/8 HP)

Frame Size: □90 mm (□3.54 in.)



Lead Wire Type



Terminal Box Type

(Gearhead sold separately)

Specifications – Continuous Rating (RoHS)



Model Upper Model Name: Pinion Shaft Type Lower Model Name (): Round Shaft Type			Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	Conduit Box Type Dimension ③	W HP	VAC	Hz	A	mN·m oz·in	mN·m oz·in	r/min	μF
TP 51K90GE-AW2U (51K90A-AW2U)	51K90GE-AW2TU (51K90A-AW2TU)	51K90GE-FCH (51K90A-FCH)	90 1/8	Single-Phase 110	60	1.45	450	585	1500	20
				Single-Phase 115		1.44		83		
TP 51K90GE-CW2E (51K90A-CW2E)	51K90GE-CW2TE (51K90A-CW2TE)	51K90GE-ECH*1 (51K90A-ECH)*1	90 1/8	Single-Phase 220	50	0.74	450 63	730	1200	6.0
					60	0.82		103		
				Single-Phase 230	50	0.76	730	1200		
					60	0.81	103			
				Three-Phase 200	50	0.64	850	1300		
					60	0.59	120			
Three-Phase 220	60	0.60	700	1600						
	60	0.61	99							
Three-Phase 230	60	0.60	700	1600						
	60	0.61	99							

● The **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate.
When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. → Page H-11

● Details of safety standards → Page H-2

*1 Single-Phase 220 VAC 50Hz type is not available for conduit box type.

*2 Conduit box type is not certified under the China Compulsory Certification System (CCC System).

(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.
When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor power off before inspecting.

Product Line

● Motor (RoHS)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	51K90GE-AW2U	51K90A-AW2U
	51K90GE-CW2E	51K90A-CW2E
	51K90GE-SW2	51K90A-SW2
Terminal Box	51K90GE-AW2TU	51K90A-AW2TU
	51K90GE-CW2TE	51K90A-CW2TE
	51K90GE-SW2T	51K90A-SW2T
Conduit Box	51K90GE-FCH	51K90A-FCH
	51K90GE-ECH	51K90A-ECH
	51K90GE-SH	51K90A-SH

The following items are included in each product.
Motor, Capacitor*, Capacitor Cap*, Operating Manual
*Only for single-phase motors (Excluding conduit box type)

● Parallel Shaft Gearhead/Right-Angle Gearhead (Sold separately) (RoHS)

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	Long Life GE-S Gearhead	5GE□SA	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180
	Right-Angle Shaft	Hollow Shaft	
		Solid Shaft	
Parallel Shaft	Long Life GE-S Gearhead	5GE10XS (Decimal Gearhead)	

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

The following items are included in each product.

- Parallel Shaft Gearhead
Gearhead, Mounting Screws, Parallel Key, Operating Manual
- Hollow Shaft Gearhead
Gearhead, Mounting Screws, Parallel Key, Safety Cover (with screws), Gasket, Operating Manual
- Solid Shaft Gearhead
Gearhead, Mounting Screws, Parallel Key, Gasket, Operating Manual

High Strength, Long Life, Low Noise
V Series

Highest Maximum Permissible torque, 10,000 hours of life and quiet operation.
For more details on V Series see page C-149 or visit www.orientalmotor.com.

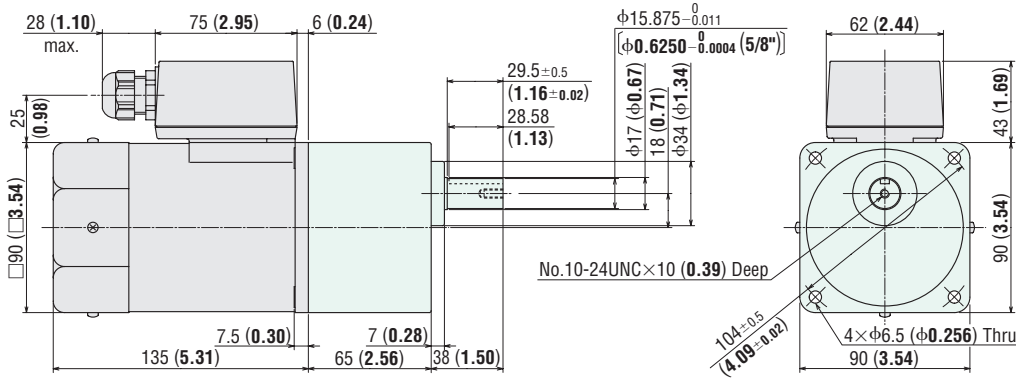


Terminal Box Type ②

Mass: Motor 3.3 kg (7.3 lb.)
Gearhead 1.5 kg (3.3 lb.)

Motor Model	Gearhead Model	DXF
5IK90GE-AW2TU 5IK90GE-CW2TE 5IK90GE-SW2T	5GE□SA	A460U

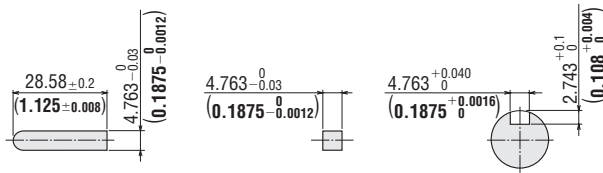
● Enter the gear ratio in the box (□) within the model name.



- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

Key and Key Slot

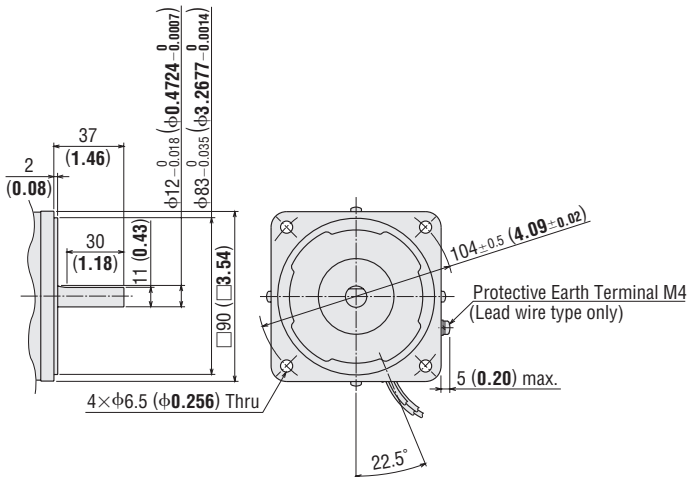
(The key is included with the gearhead)



Shaft Section of Round Shaft Type

The motor's dimensions (excluding the shaft section) are the same as those of the pinion shaft types.

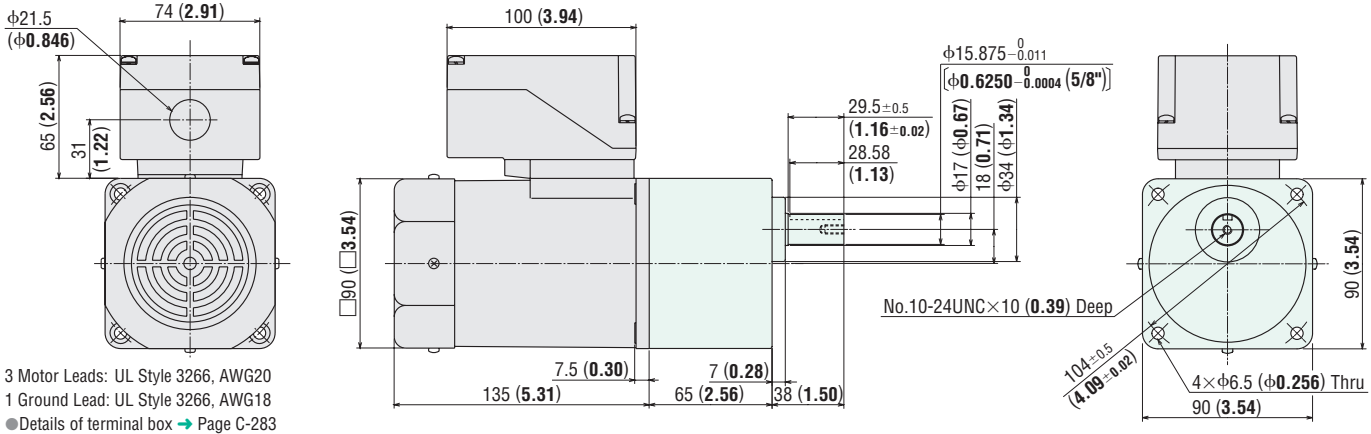
Motor Model	Mass	DXF
5IK90A-AW2U 5IK90A-CW2E 5IK90A-SW2	3.2 kg (7.0 lb.)	A459
5IK90A-AW2TU 5IK90A-CW2TE 5IK90A-SW2T	3.3 kg (7.3 lb.)	A334



◇ Conduit Box Type ③

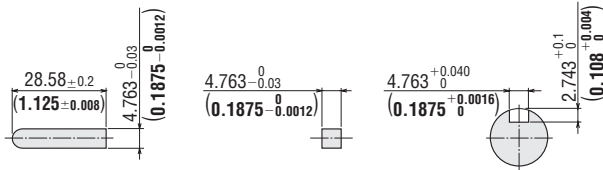
Motor Model	Gearhead Model	DXF
5IK90GE-FCH 5IK90GE-ECH	5GE□SA	A906U

Mass: Motor 3.7 kg (8.1 lb.)
Gearhead 1.5 kg (3.3 lb.)



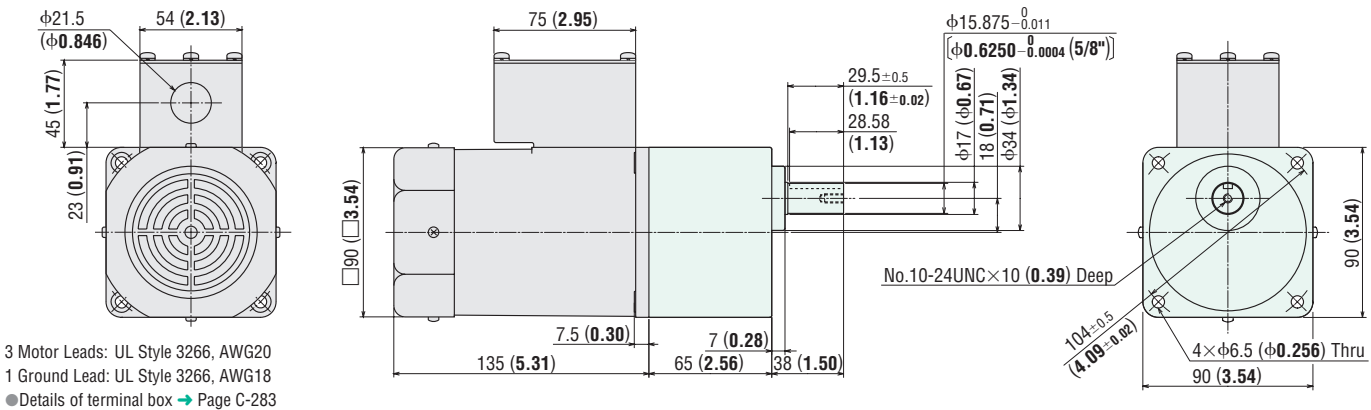
◇ Key and Key Slot

(The key is included with the gearhead)



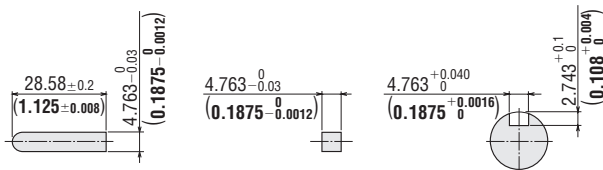
Motor Model	Gearhead Model	DXF
5IK90GE-SH	5GE□SA	A907U

Mass: Motor 3.3 kg (7.3 lb.)
Gearhead 1.5 kg (3.3 lb.)



◇ Key and Key Slot

(The key is included with the gearhead)







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

■ Connection Diagrams

→ Page C-26

Gearhead, Accessories and Peripheral Equipment

<p>Space-Saving Right-Angle Gearheads → Page C-227</p> 	<p>Instantaneous Stop Brake Pack → Page C-253</p> 	<p>Speed Control Speed Controller → Page D-178</p> 	<p>Accessories → Page C-263</p> 
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Introduction

Induction
Motors

Reversible
Motors

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Torque
Motors

Right-Angle
Gearheads

Linear Heads

Brake Pack

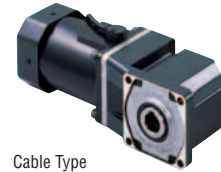
Accessories

Installation

High Power Induction Motors BH Series

200 W (1/4 HP)

Frame Size: □104 mm (□4.09 in.)



Cable Type
Right-Angle Hollow Shaft



Terminal Box Type
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 loads.

- **"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 Combination Type () : Round Shaft Type		Output Power W HP	Voltage VAC	Frequency Hz	Current A	Starting Torque N·m oz·in	Rated Torque N·m oz·in	Rated Speed r/min	Capacitor μF
Cable Type	Terminal Box Type								
ⓉP	BHI62F-□RH BHI62F-□RA BHI62F-□ (BHI62F-A)	200 1/4	Single-Phase 110	60	3	0.88	1.27	1500	40
						124			
ⓉP	BHI62E-□RH BHI62E-□RA BHI62E-□ (BHI62E-A)	200 1/4	Single-Phase 220	50	1.5	0.98	1.52	1250	10
				60			1.27	1500	
			Single-Phase 230	50		1.52	1250		
				60		1.27	1500		
ⓉP	BHI62S-□RH BHI62S-□RA BHI62S-□ (BHI62S-A)	200 1/4	Three-Phase 200	50	1.1	1.49	1.49	1250	-
				60		1.25	1.25	1500	
			Three-Phase 220	60	0.95	1.23	1.23	1550	
				60	1.18	1.18	1600		

- Enter the gear ratio in the box (□) within the model name. 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.
- ⓉP: 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. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor power off before inspecting.

Product Line

- **Combination Type (RoHS)**

◇ Right-Angle Shaft

Type	Voltage	Model	Gear Ratio
Hollow Shaft Cable	Single-Phase 110/115 VAC	BHI62F-□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	BHI62E-□RH	
	Three-Phase 200/220/230 VAC	BHI62S-□RH	
Hollow Shaft Terminal Box	Single-Phase 110/115 VAC	BHI62FT-□RH	
	Single-Phase 220/230 VAC	BHI62ET-□RH	
	Three-Phase 200/220/230 VAC	BHI62ST-□RH	
Solid Shaft Cable	Single-Phase 110/115 VAC	BHI62F-□RA	
	Single-Phase 220/230 VAC	BHI62E-□RA	
	Three-Phase 200/220/230 VAC	BHI62S-□RA	
Solid Shaft Terminal Box	Single-Phase 110/115 VAC	BHI62FT-□RA	
	Single-Phase 220/230 VAC	BHI62ET-□RA	
	Three-Phase 200/220/230 VAC	BHI62ST-□RA	

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

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

◇ Parallel Shaft

Type	Voltage	Model	Gear Ratio
Parallel Shaft Cable	Single-Phase 110/115 VAC	BHI62F -□	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	BHI62E -□	
	Three-Phase 200/220/230 VAC	BHI62S -□	
Parallel Shaft Terminal Box	Single-Phase 110/115 VAC	BHI62FT -□	
	Single-Phase 220/230 VAC	BHI62ET -□	
	Three-Phase 200/220/230 VAC	BHI62ST -□	

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

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

● Round Shaft Type (RoHS)

Type	Voltage	Model
Cable	Single-Phase 110/115 VAC	BHI62F-A
	Single-Phase 220/230 VAC	BHI62E-A
	Three-Phase 200/220/230 VAC	BHI62S-A
Terminal Box	Single-Phase 110/115 VAC	BHI62FT-A
	Single-Phase 220/230 VAC	BHI62ET-A
	Three-Phase 200/220/230 VAC	BHI62ST-A

The following items are included in each product.

Motor, Capacitor*, Capacitor Cap*, Operating Manual
 * Only for single-phase motors

■ Gearmotor – Torque Table for Combination Type

- Enter the code that represents the terminal box type “T” in the box (□) within the model name.
- 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 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
BHI62E -□-□RH, BHI62E -□-□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	60 530
BHI62S -□-□RH, BHI62S -□-□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	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
BHI62F -□-□RH, BHI62F -□-□RA BHI62E -□-□RH, BHI62E -□-□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	60 530
BHI62S -□-□RH, BHI62S -□-□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	60 530
BHI62S -□-□RH, BHI62S -□-□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	60 530
BHI62S -□-□RH, BHI62S -□-□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	60 530

● 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	
BHI62E -□-□	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	40 350	40 350
BHI62S -□-□	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	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	
BHI62F -□-□, BHI62E -□-□	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	38.3 340	40 350	40 350	40 350	40 350	40 350	40 350	40 350	40 350	40 350	40 350
BHI62S -□-□ (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	40 350	40 350
BHI62S -□-□ (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	40 350	40 350
BHI62S -□-□ (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	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

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 (Cable Type)

BHI62F-□RH, BHI62E-□RH, BHI62S-□RH

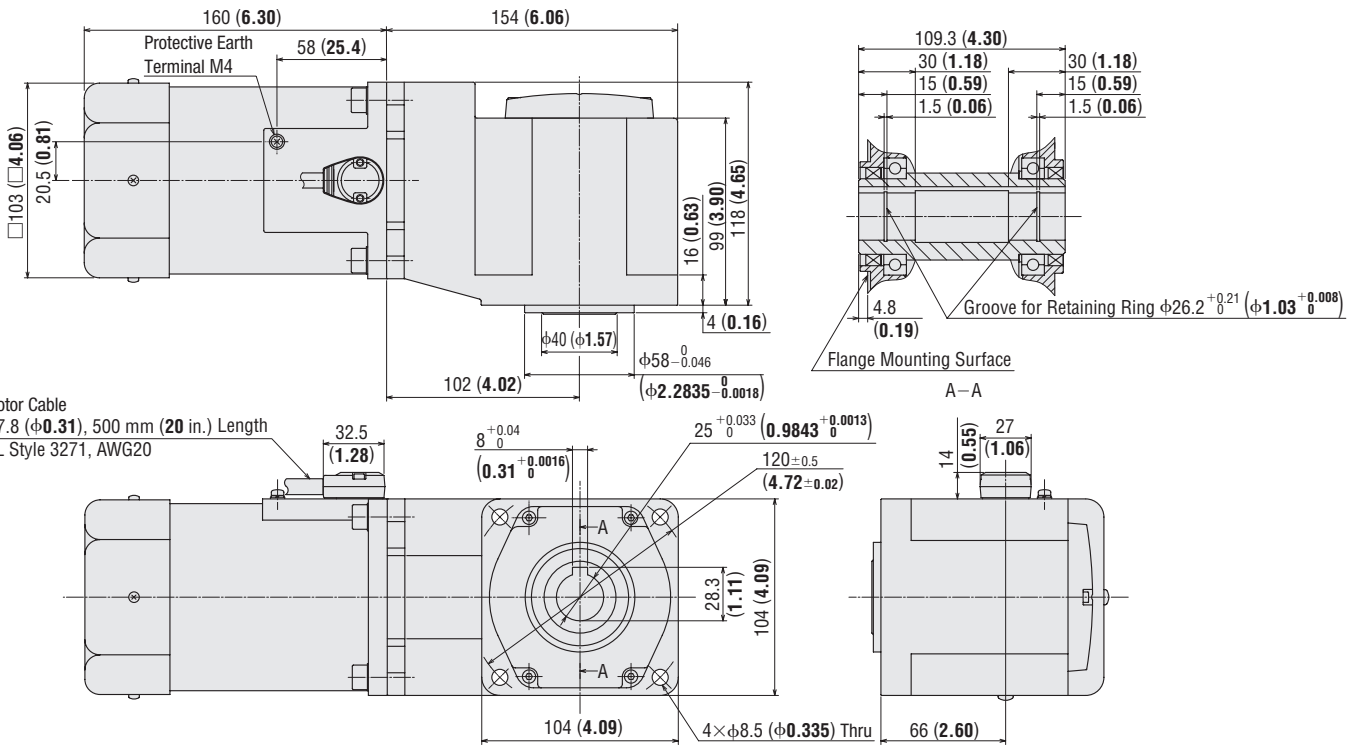
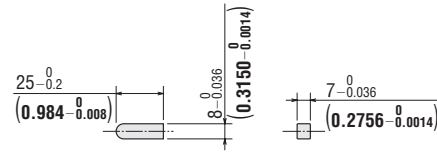
Mass: 10.0 kg (22 lb.)

Motor: BHI62F-G2, BHI62E-G2, BHI62S-G2

Gearhead: BH6G2-□RH

DXF A299

◇ Key (Included)



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

◇ Combination Type: Right-Angle, Solid Shaft (Cable Type)

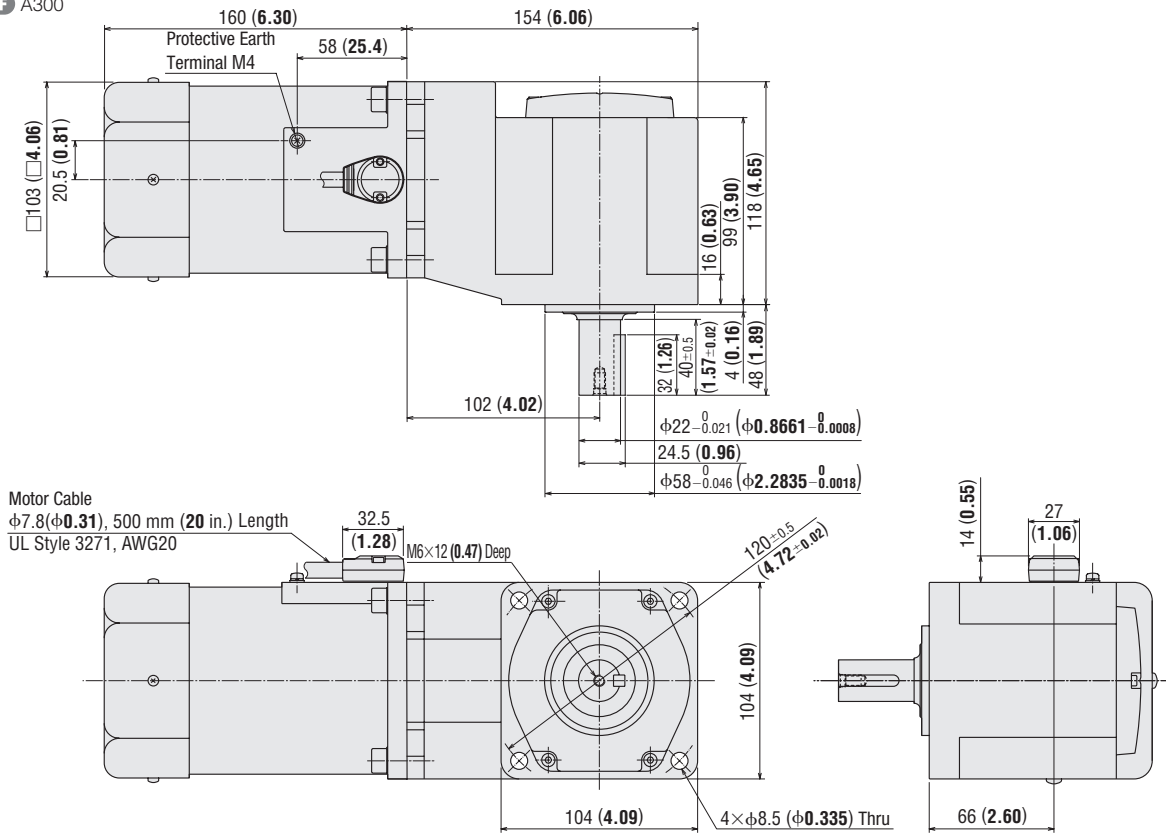
BHI62F-□RA, BHI62E-□RA, BHI62S-□RA

Mass: 10.0 kg (22 lb.)

Motor: BHI62F-G2, BHI62E-G2, BHI62S-G2

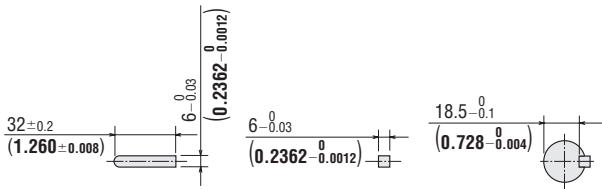
Gearhead: BH6G2-□RA

DXF A300



Motor Cable
 $\phi 7.8 (\phi 0.31)$, 500 mm (20 in.) Length
 UL Style 3271, AWG20

◇ Key and Key Slot (Included)



● At the time of shipment, a key is inserted on the gearhead's shaft.

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

◇ Combination Type: Right-Angle, Hollow Shaft (Terminal Box Type)

BHI62FT-□RH, BHI62ET-□RH, BHI62ST-□RH

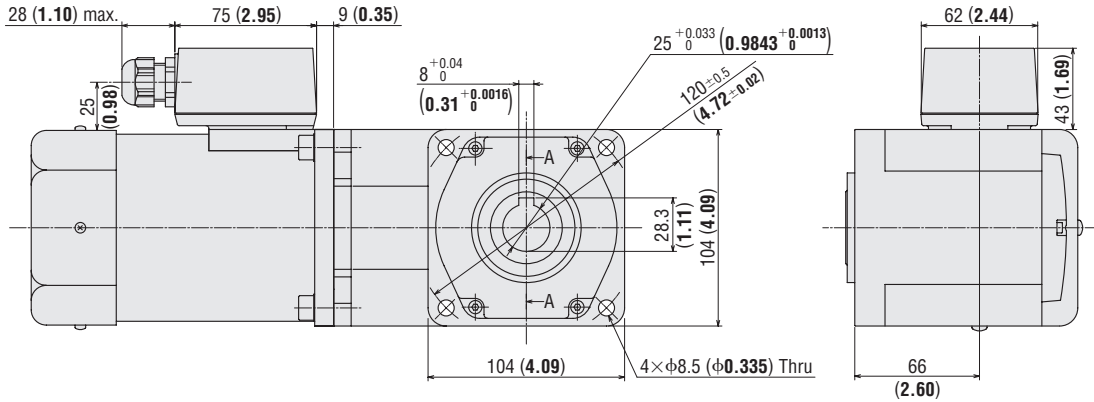
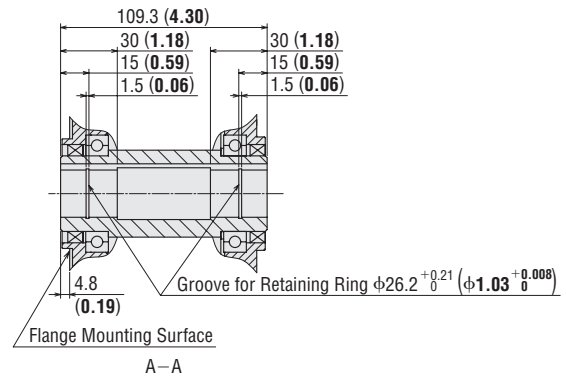
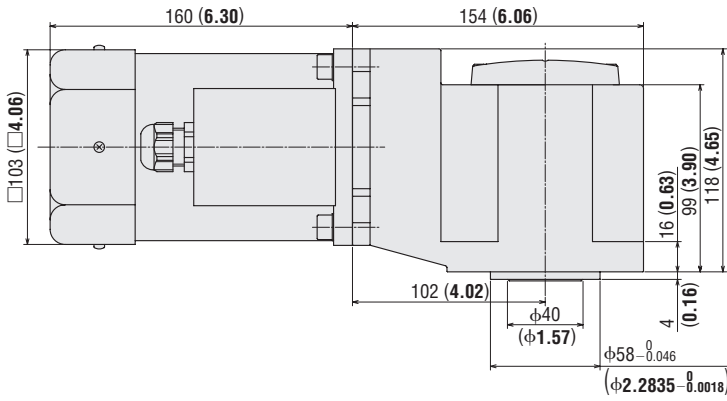
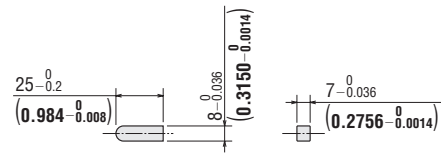
Mass: 10.0 kg (22 lb.)

Motor: BHI62FT-G2, BHI62ET-G2, BHI62ST-G2

Gearhead: BH6G2-□RH

DXF A301

◇ Key (Included)



- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

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

◇ Combination Type: Right-Angle, Solid Shaft (Terminal Box Type)

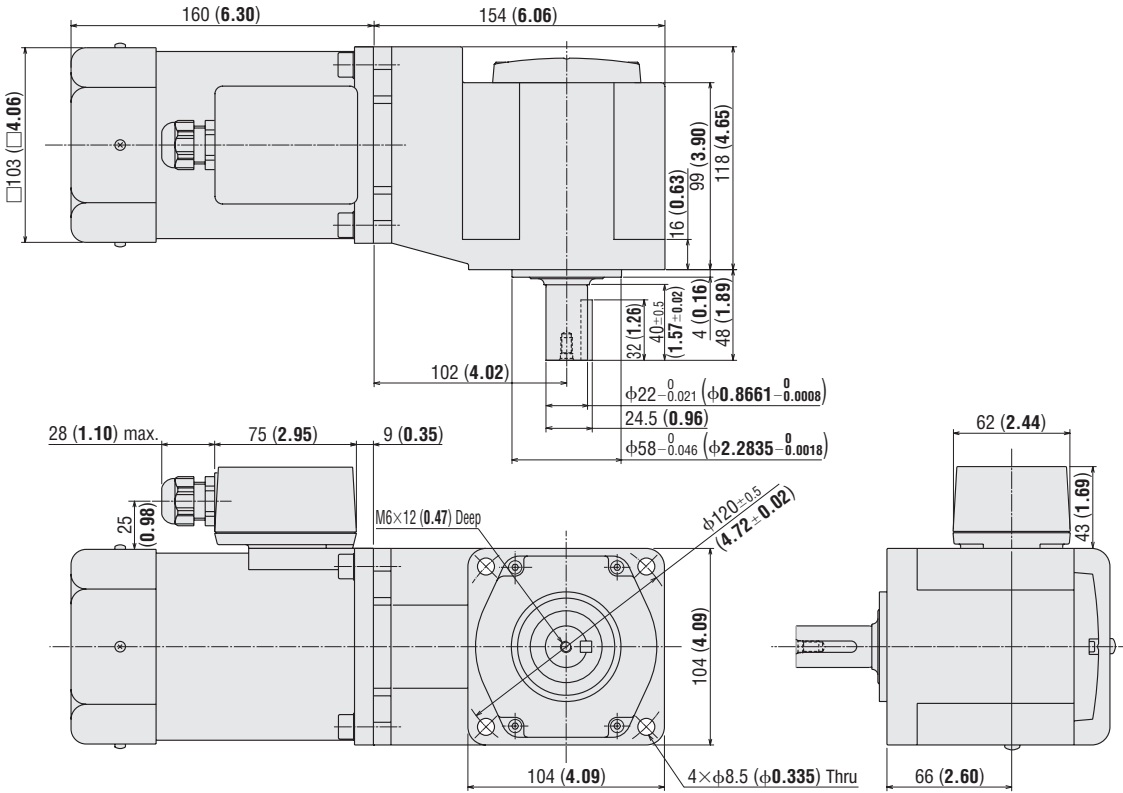
BHI62FT-□RA, BHI62ET-□RA, BHI62ST-□RA

Mass: 10.0 kg (22 lb.)

Motor: BHI62FT-G2, BHI62ET-G2, BHI62ST-G2

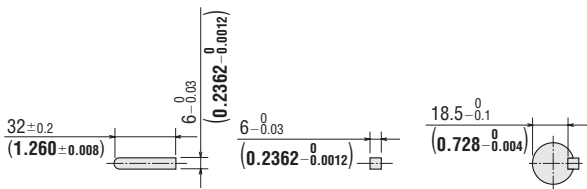
Gearhead: BH6G2-□RA

DXF A302



- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

◇ Key and Key Slot (Included)



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

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

- 1 W (1/50 HP)
- 3 W (1/25 HP)
- 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)
- 2-Pole
40-150 W (1/19-1/5 HP)

◇ Combination Type: Parallel Shaft (Cable Type)

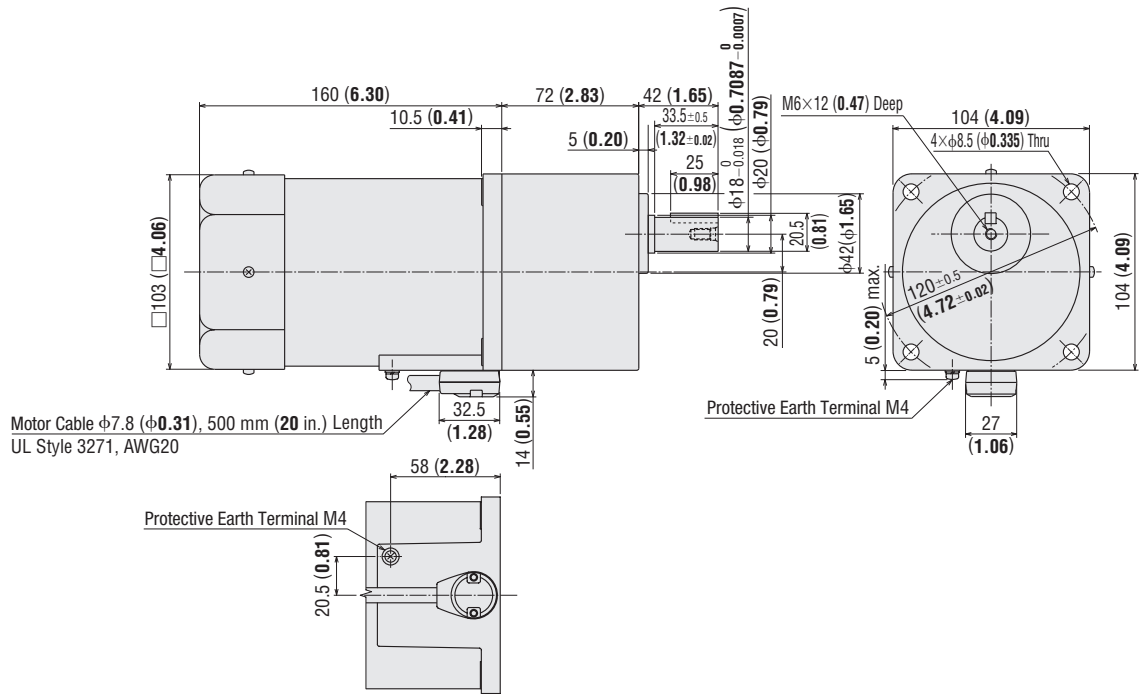
BHI62F-□, BHI62E-□, BHI62S-□

Mass: 8.0 kg (18 lb.)

Motor: BHI62F-G2, BHI62E-G2, BHI62S-G2

Gearhead: BH6G2-□

DXF A303



◇ Combination Type: Parallel Shaft (Terminal Box Type)

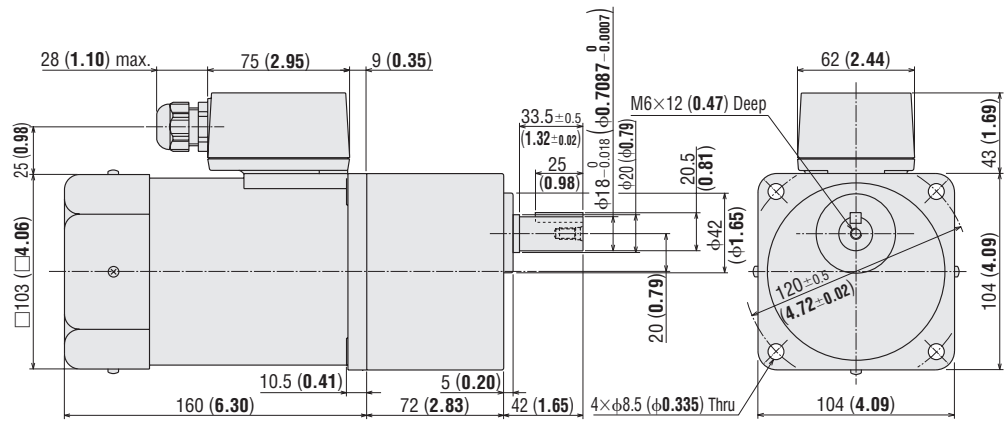
BHI62FT-□, BHI62ET-□, BHI62ST-□

Mass: 8.0 kg (18 lb.)

Motor: BHI62FT-G2, BHI62ET-G2, BHI62ST-G2

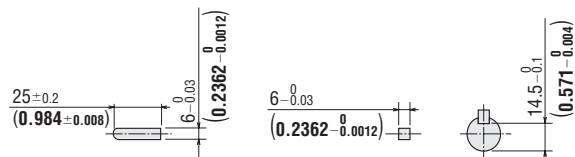
Gearhead: BH6G2-□

DXF A304



- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

◇ Key and Key Slot (Included)



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

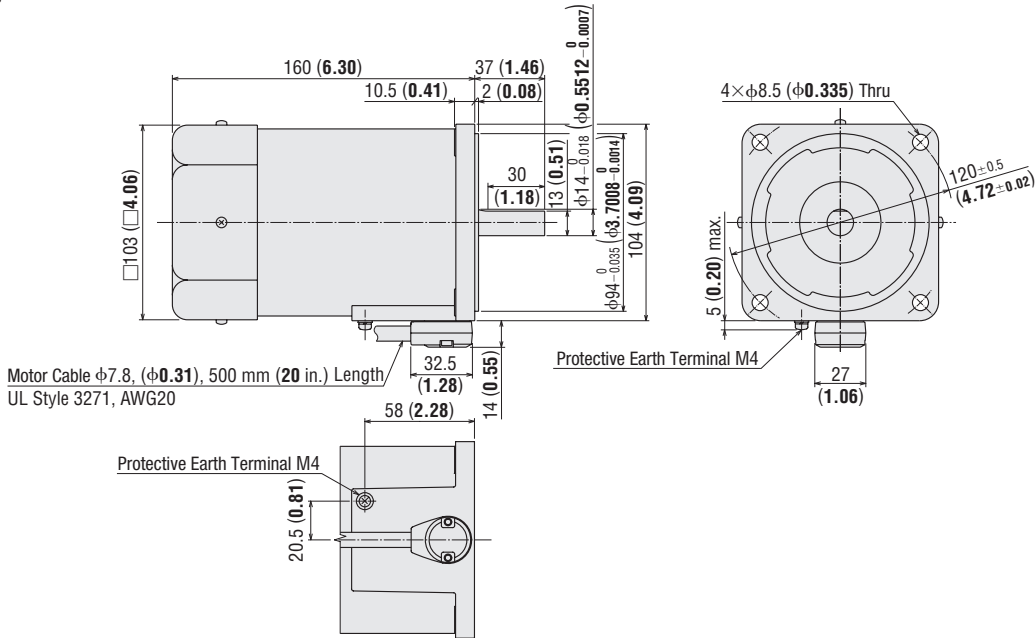
- Enter the gear ratio in the box (□) within the model name.

◇ Round Shaft Type (Cable Type)

BHI62F-A, BHI62E-A, BHI62S-A

Mass: 5.0 kg (11 lb.)

DXF A307

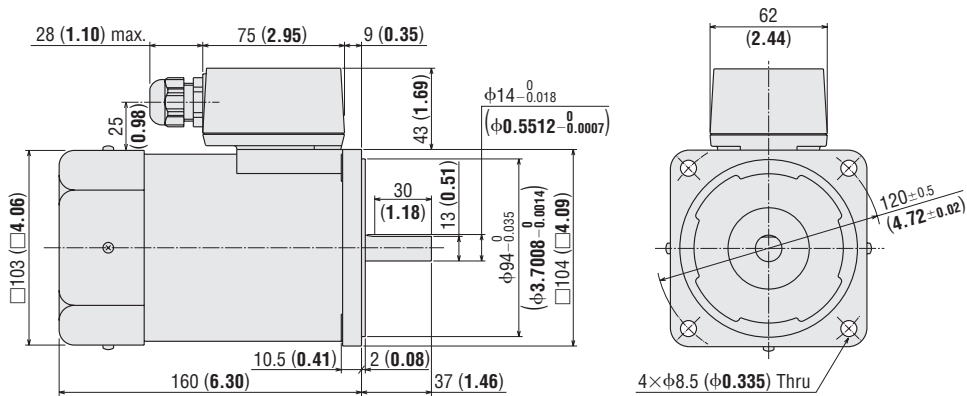


◇ Round Shaft Type (Terminal Box Type)

BHI62FT-A, BHI62ET-A, BHI62ST-A

Mass: 5.0 kg (11 lb.)

DXF A308



- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

Introduction

Induction Motors

Reversible Motors

Electromagnetic Brake Motors

V Series

Clutch & Brake Motors

Synchronous Motors

Low-Speed Synchronous Motors

Waterright Dust-Resistant Motors

Torque Motors

Right-Angle Gearheads

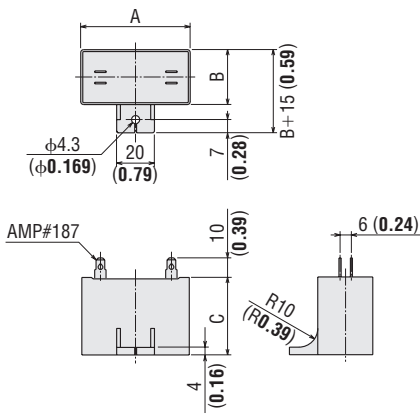
Linear Heads

Brake Pack

Accessories

Installation

◇ Capacitor (Included with single-phase motors)



◇ Capacitor Dimensions Unit = mm (in.)

Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Cable Type	Terminal Box Type						
BHI62F-□RH BHI62F-□RA BHI62F-□ BHI62F-A	BHI62FT-□RH BHI62FT-□RA BHI62FT-□ BHI62FT-A	CH400CFAUL2	58 (2.28)	41 (1.61)	58 (2.28)	175 (6.2)	Included
BHI62E-□RH BHI62E-□RA BHI62E-□ BHI62E-A	BHI62ET-□RH BHI62ET-□RA BHI62ET-□ BHI62ET-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

1 W, 3 W
(1/750 HP)
(1/250 HP)

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)

2-Pole
40-150 W
(1/19-1/5 HP)

Connection Diagrams

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

Motor Type	Single-Phase Induction Motor		Three-Phase Induction Motor	
	Cable Type BHI62□-3~9 BHI62□-50~180	Terminal Box Type* BHI62□T-3~9 BHI62□T-50~180	Cable Type BHI62S-3~9 BHI62S-50~180	Terminal Box Type* BHI62ST-3~9 BHI62ST-50~180
Combination Type: Parallel Shaft	Clockwise 	Clockwise 	Clockwise 	Clockwise
	Counterclockwise CCW 	Counterclockwise CCW 	Counterclockwise To change the rotation direction, change any two connections between L1 (R), L2 (S) and L3 (T).	Counterclockwise To change the rotation direction, change any two connections between L1 (R), L2 (S) and L3 (T).
	BHI62□-12.5~36	BHI62□T-12.5~36	BHI62S-12.5~36	BHI62ST-12.5~36
	Clockwise 	Clockwise 	Clockwise 	Clockwise
	Counterclockwise CCW 	Counterclockwise CCW 	Counterclockwise To change the rotation direction, change any two connections between L1 (S), L2 (R) and L3 (T).	Counterclockwise To change the rotation direction, change any two connections between L1 (S), L2 (R) and L3 (T).
	BHI62□-12.5~36	BHI62□T-12.5~36	BHI62S-12.5~36	BHI62ST-12.5~36

PE: Protective Earth

*Connecting to the terminal

Applicable lead wires: AWG24~12

Strip length: 8 mm (0.315 in.)

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

1 W, 3 W
(1/250 HP)
(1/125 HP)
6 W
(1/50 HP)
15 W
(1/30 HP)
25 W
(1/12 HP)
40 W
(1/19 HP)
60 W
(1/12 HP)
90 W
(1/8 HP)
200 W
(1/4 HP)
2-Pole
40-150 W
(1/9-1/5 HP)

Motor Type	Single-Phase Induction Motor		Three-Phase Induction Motor	
	Cable Type	Terminal Box Type*	Cable Type	Terminal Box Type*
Combination Type: Right Angle Shaft	BHI62□-5RH~180RH BHI62□-5RA~180RA	BHI62□T-5RH~180RH BHI62□T-5RA~180RA	BHI62S-5RH~180RH BHI62S-5RA~180RA	BHI62ST-5RH~180RH BHI62ST-5RA~180RA
	Clockwise 	Clockwise 	Clockwise 	Clockwise
	Counterclockwise 	Counterclockwise 	Counterclockwise To change the rotation direction, change any two connections between L1(S), L2(R) and L3(T).	Counterclockwise To change the rotation direction, change any two connections between L1(S), L2(R) and L3(T).
	BHI62□-A	BHI62□T-A	BHI62S-A	BHI62ST-A
Round Shaft Type	Clockwise 	Clockwise 	Clockwise 	Clockwise
	Counterclockwise 	Counterclockwise 	Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).	Counterclockwise To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).

PE: Protective Earth

*Connecting to the terminal
 Applicable lead wires: AWG24~12
 Strip length: 8 mm (0.315 in.)

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
BHI62F-□RH	BHI62F-G2	BH6G2-□RH
BHI62F-□RA		BH6G2-□RA
BHI62FT-□RH	BHI62FT-G2	BH6G2-□RH
BHI62FT-□RA		BH6G2-□RA
BHI62E-□RH	BHI62E-G2	BH6G2-□RH
BHI62E-□RA		BH6G2-□RA
BHI62ET-□RH	BHI62ET-G2	BH6G2-□RH
BHI62ET-□RA		BH6G2-□RA
BHI62S-□RH	BHI62S-G2	BH6G2-□RH
BHI62S-□RA		BH6G2-□RA
BHI62ST-□RH	BHI62ST-G2	BH6G2-□RH
BHI62ST-□RA		BH6G2-□RA

● Combination Type: Parallel Shaft

Model	Motor Model	Gearhead Model
BHI62F-□	BHI62F-G2	BH6G2-□
BHI62FT-□	BHI62FT-G2	
BHI62E-□	BHI62E-G2	
BHI62ET-□	BHI62ET-G2	
BHI62S-□	BHI62S-G2	
BHI62ST-□	BHI62ST-G2	

Accessories and Peripheral Equipment

Speed Control
Speed Controller
→ Page D-178



Accessories
→ Page C-263

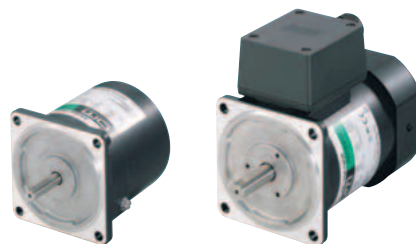


● Enter the gear ratio in the box (□) within the model name.

Induction Motors 2-Pole, High-Speed Type

40 W (1/19 HP), 60 W (1/12 HP), 90 W (1/8 HP), 150 W (1/5 HP)

Frame Size: □80 mm (□3.15 in.), □90 mm (□3.54 in.)



Specifications – Continuous Rating (RoHS)

Model	Output Power		Voltage	Frequency	Current	Starting Torque		Rated Torque		Rated Speed	Capacitor		
	W	HP				mN·m	oz·in	mN·m	oz·in			r/min	μF
Round Shaft Type			VAC	Hz	A					r/min	μF		
TP 4IK40A-BW2U	40	1/19	Single-Phase 110 Single-Phase 115	60	0.68 0.66	90	12.7	135	19.1	2900	7.5		
TP 4IK40A-DW3E	36	1/20	Single-Phase 220	50	0.30	90	12.7	145	20	2400	1.8		
				60	0.31			120	17.0	2900			
	40	1/19	Single-Phase 230	50	0.33			160	22	2400			
				60	0.32			135	19.1	2900			
TP 4IK60A-BW2U	60	1/12	Single-Phase 110 Single-Phase 115	60	0.98 0.97	160	22	190	26	3000	10		
TP 4IK60A-DW3E	55	1/14	Single-Phase 220	50	0.44	160	22	210	29	2500	2.5		
				60	0.51			180	25	3000			
	60	1/12	Single-Phase 230	50	0.47			230	32	2500			
				60	0.52			190	26	3000			
TP 5IK60A-BW2U	60	1/12	Single-Phase 110 Single-Phase 115	60	0.94 0.93	140	19.8	185	26	3200	14		
TP 5IK60A-DW3E	60	1/12	Single-Phase 220	50	0.46	120	17.0	220	31	2650	3.0		
				60				185	26	3200			
				50	0.45			140	19.8	220		31	2650
										60		185	26
TP 5IK60A-TW2	60	1/12	Three-Phase 200	50	0.47	270	38	220	31	2650	-		
			Three-Phase 220	60	0.40	230	32	185	26	3200			
			Three-Phase 230	60	0.44	230	32	185	26	3200			
TP 5IK90A-BW2U	90	1/8	Single-Phase 110 Single-Phase 115	60	1.61 1.57	240	34	280	39	3200	25		
TP 5IK90A-DW3E	90	1/8	Single-Phase 220	50	0.70	240	34	330	46	2650	6.0		
				60	0.84			280	39	3200			
				50	0.69			330	46	2650			
												60	0.84
TP 5IK90A-TW2	90	1/8	Three-Phase 200	50	0.63	500	71	340	48	2600	-		
			Three-Phase 220	60	0.55	400	56	285	40	3100			
			Three-Phase 220	60	0.57	400	56	285	40	3200			
			Three-Phase 230	60	0.59	400	56	285	40	3200			
TP 5IK150A-BW2U	150	1/5	Single-Phase 110 Single-Phase 115	60	2.12 2.09	380	53	460	65	3200	30		
TP 5IK150A-DW3E	140	1/5	Single-Phase 220	50	0.98	380	53	510	72	2650	8.0		
				60	1.07			420	59	3200			
	150	1/5	Single-Phase 230	50	1.04			560	79	2650			
				60	1.13			460	65	3200			
TP 5IK150A-TW2 5IK150A-TW2T	150	1/5	Three-Phase 200	50	1.11	680	96	550	78	2650	-		
			Three-Phase 220	60	0.93	570	80	460	65	3100			
			Three-Phase 220	60	0.97	570	80	460	65	3150			
			Three-Phase 230	60	1.01	570	80	460	65	3200			

● The **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name. → Page H-11

● Details of safety standards → Page H-2

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. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor power off before inspecting.

Product Line

Motor **RoHS**

Output Power	Voltage	Model
40 W (1/19 HP)	Single-Phase 110/115 VAC	4IK40A-BW2U
	Single-Phase 220/230 VAC	4IK40A-DW3E
60 W (1/12 HP)	Single-Phase 110/115 VAC	4IK60A-BW2U
	Single-Phase 220/230 VAC	4IK60A-DW3E
	Single-Phase 110/115 VAC	5IK60A-BW2U
	Single-Phase 220/230 VAC	5IK60A-DW3E
90 W (1/8 HP)	Three-Phase 200/220/230 VAC	5IK60A-TW2
	Single-Phase 110/115 VAC	5IK90A-BW2U
	Single-Phase 220/230 VAC	5IK90A-DW3E
150 W (1/5 HP)	Three-Phase 200/220/230 VAC	5IK90A-TW2
	Single-Phase 110/115 VAC	5IK150A-BW2U
	Single-Phase 220/230 VAC	5IK150A-DW3E
	Three-Phase 200/220/230 VAC	5IK150A-TW2T

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

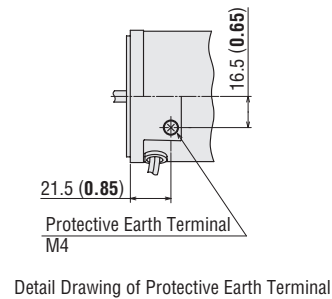
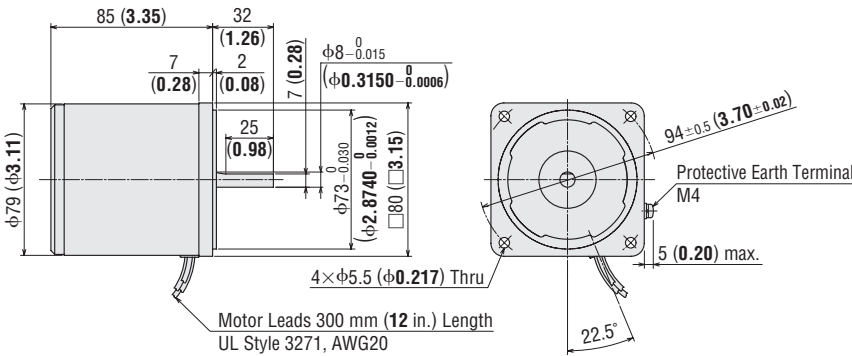
Dimensions Unit = mm (in.)

40 W (1/19 HP)

4IK40A-BW2U, 4IK40A-DW3E

Mass: 1.5 kg (3.3 lb.)

DXF A450

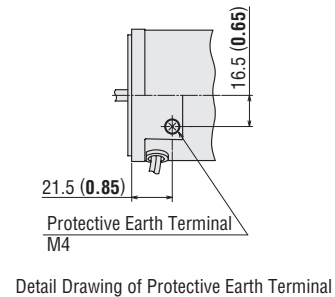
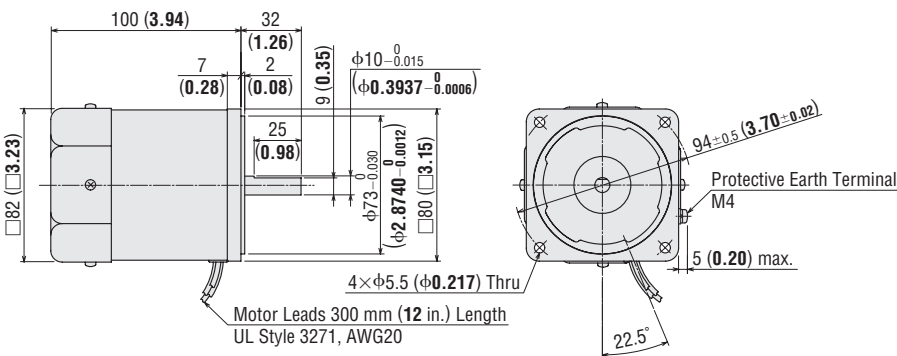


60 W (1/12 HP)

4IK60A-BW2U, 4IK60A-DW3E

Mass: 1.8 kg (4.0 lb.)

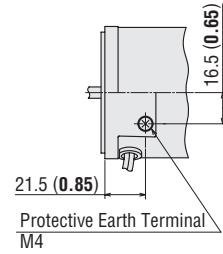
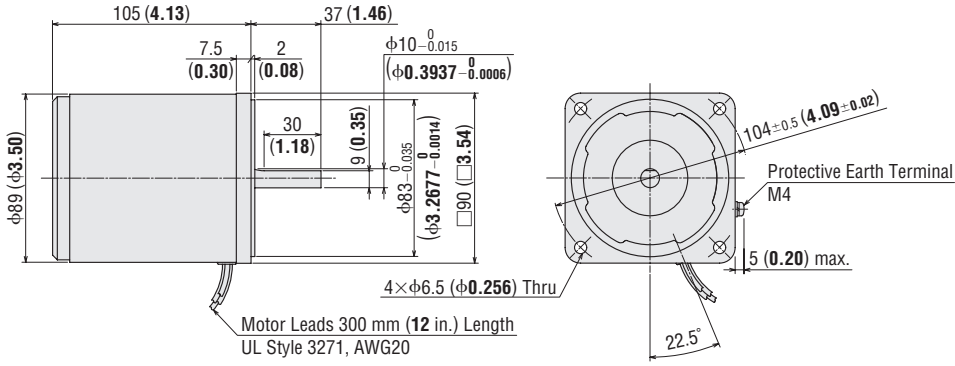
DXF A513



5IK60A-BW2U, 5IK60A-DW3E, 5IK60A-TW2

Mass: 2.5 kg (5.5 lb.)

DXF A453



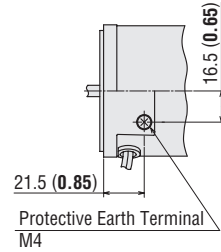
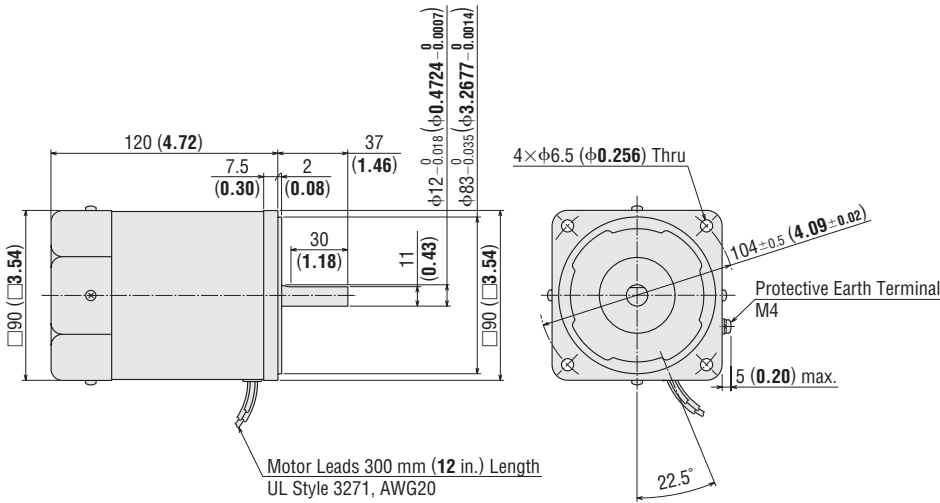
Detail Drawing of Protective Earth Terminal

90 W (1/8 HP)

5IK90A-BW2U, 5IK90A-DW3E, 5IK90A-TW2

Mass: 2.7 kg (5.9 lb.)

DXF A456



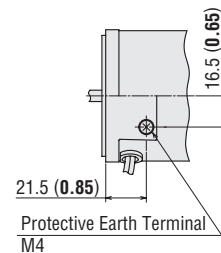
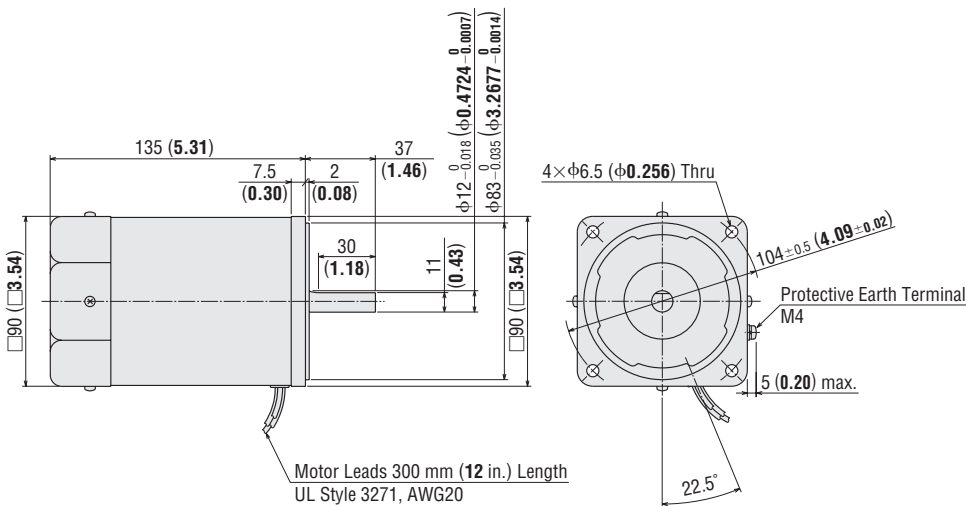
Detail Drawing of Protective Earth Terminal

150 W (1/5 HP)

5IK150A-BW2U, 5IK150A-DW3E, 5IK150A-TW2

Mass: 3.2 kg (7.0 lb.)

DXF A459

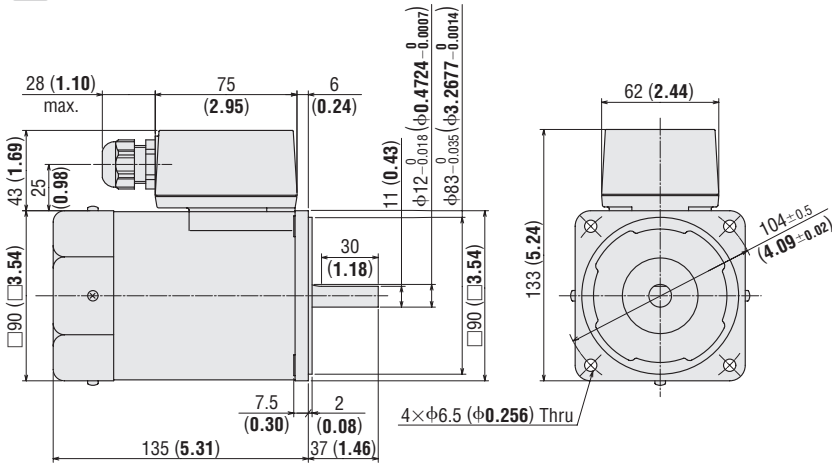


Detail Drawing of Protective Earth Terminal

5IK150A-TW2T

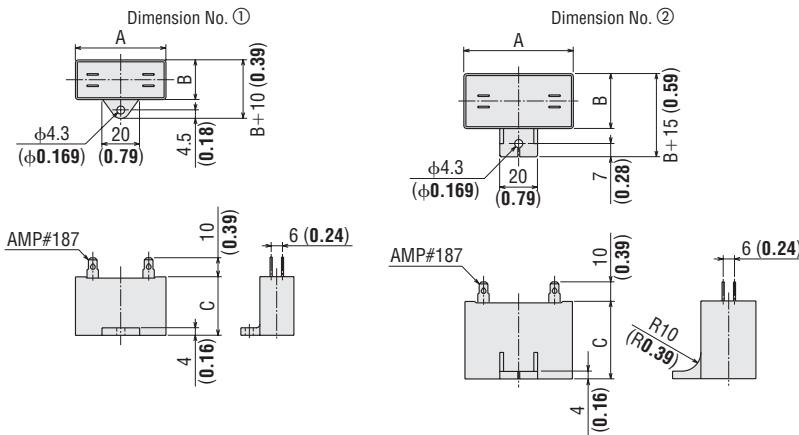
Mass: 3.3 kg (7.3 lb.)

DXF A334



- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

● Capacitor (Included with single-phase motors)



◇ Capacitor Dimensions Unit = mm (in.)

Model	Capacitor Model	A	B	C	Mass g (oz.)	Dimension No.	Capacitor Cap
4IK40A-BW2U	CH75CFAUL2	48 (1.89)	21 (0.83)	31 (1.22)	41 (1.45)	①	Included
4IK40A-DW3E	CH18BFAUL	38 (1.50)	21 (0.83)	31 (1.22)	37 (1.31)	①	
4IK60A-BW2U	CH100CFAUL2	58 (2.28)	21 (0.83)	31 (1.22)	49 (1.73)	①	
4IK60A-DW3E	CH25BFAUL	48 (1.89)	21 (0.83)	31 (1.22)	42 (1.48)	①	
5IK60A-BW2U	CH140CFAUL2	58 (2.28)	22 (0.87)	35 (1.38)	61 (2.2)	①	
5IK60A-DW3E	CH30BFAUL	58 (2.28)	21 (0.83)	31 (1.22)	50 (1.77)	①	
5IK90A-BW2U	CH250CFAUL2	58 (2.28)	35 (1.38)	50 (1.97)	140 (4.9)	②	
5IK90A-DW3E	CH60BFAUL	58 (2.28)	29 (1.14)	41 (1.61)	92 (3.2)	②	
5IK150A-BW2U	CH300CFAUL2	58 (2.28)	35 (1.38)	50 (1.97)	140 (4.9)	②	
5IK150A-DW3E	CH80BFAUL	58 (2.28)	35 (1.38)	50 (1.97)	136 (4.6)	②	

Connection Diagrams

● The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.

Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Three-Phase 200/220/230 VAC	
	Lead Wire Type	Terminal Box Type
	5IK60A-TW2 5IK90A-TW2 5IK150A-TW2	5IK150A-TW2T
<p>Clockwise</p> <p>Counterclockwise</p>	<p>Clockwise</p> <p>Counterclockwise</p> <p>To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>	<p>Clockwise</p> <p>Counterclockwise</p> <p>To change the rotation direction, change any two connections between L1(R), L2(S) and L3(T).</p>

PE: Protective Earth

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

Accessories

Accessories

→Page C-263

