

Standard AC Motors

Constant Speed Motors

Reversible Motors

Reversible Motors

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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

Features and Types of Reversible Motors

1 W
(1/750 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)

Features of Reversible Motors

● Ideal for Bi-Directional Operation

Reversible motors have a 30 minute rating to permit instantaneous switching of the rotational direction. A friction brake is equipped at the back of the motor, which makes reversible motors an ideal choice for applications where the rotational direction changes.

● 30 minute rating: The motors may be operated continuously for 30 minutes, but depending on operating conditions (intermittent operation, etc.), they can be operated for more than 30 minutes.

● 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.

● Extensive Lineup




We have models with an output power range of 1 W (1/750 HP) to 90 W (1/8 HP), so you can find a motor that meets your specific application.

● Compatible with Gearheads or Linear Heads

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

Combination with a linear head allows the motor to convert rotation to linear motion with great ease.

Types of Reversible Motors

Series	Features, Lineup							
<p>World K Series</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) ● 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) type.] ● Protective Earth Terminal on the Motor  <p style="text-align: center;">Protective Earth Terminal</p> <ul style="list-style-type: none"> ● Lineup <table border="1" data-bbox="966 1176 1490 1312"> <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)</td> </tr> <tr> <td>Voltage</td> <td>Single-Phase 110/115 VAC Single-Phase 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)	Voltage	Single-Phase 110/115 VAC Single-Phase 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)							
Voltage	Single-Phase 110/115 VAC Single-Phase 220/230 VAC							

High Strength, Long Life, Low Noise

V Series

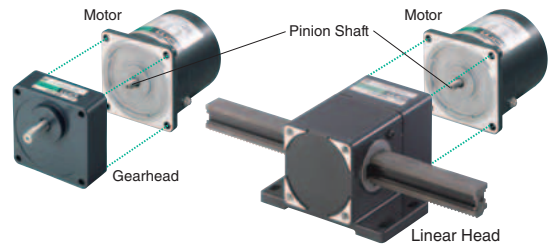
Highest Maximum Permissible torque, 10,000 hours of life and quiet operation. For more details on **V** Series see page C-149 or visit www.orientalmotor.com.



Features of Gearheads and Linear Heads


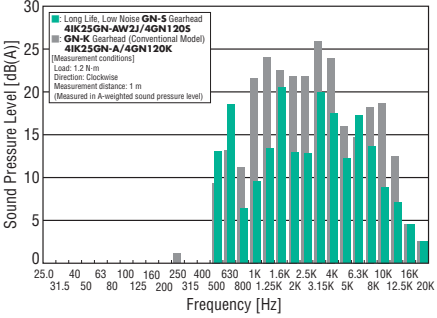

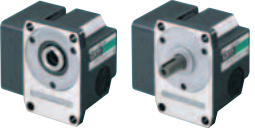

● **Gearheads: Easy Speed Reduction and Torque Increase**
Combination with a gearhead allows the motor speed to be reduced to the required speed or generate higher torque. Gearheads come in various types including the long life, low noise gearhead and right-angle gearhead.

● **Linear Heads: Convert Motor Rotation to Linear Motion**
Combination with a linear head allows the motor to convert rotation to linear motion with great ease. Linear heads are available with a square sectioned rack.



- Combine gearheads and linear heads with a pinion shaft type motor.
- Gearheads and linear heads are sold separately.

Types of Gearheads and Linear Heads

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. ● 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 ● 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.
<p>Rack-and-Pinion Mechanism LS Linear Heads → Page C-247</p> 	<ul style="list-style-type: none"> ● Easy to Achieve Linear Motion A rack-and-pinion mechanism is combined with a reduction mechanism, which allows the motor to convert rotation to linear motion with great ease.

- 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

Product Line of Reversible 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.)		
			1 W (1/750 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)
World K Series	Single-Phase 110/115	Lead Wire	●	●	●	●	●	●	●
		Terminal Box				●	●	●	●
	Single-Phase 220/230	Lead Wire		●	●	●	●	●	●
		Terminal Box				●	●	●	●

Product Line of Gearheads and Linear Heads

● 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	

● Linear Heads

Type of Linear Head		Applicable Motor		
		Series	Output Power	Type of Pinion
Square Sectioned Rack	LS Linear Head	World K Series	6 W, 25 W (1/125 HP, 1/30 HP)	GN Type Pinion Shaft


System Configuration

Gearheads and Linear Heads (Sold separately)

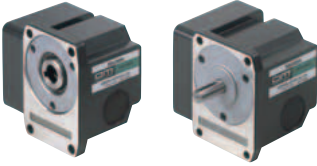
Parallel Shaft Gearheads (→ Page C-77)

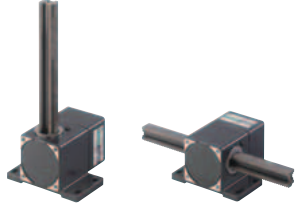
Right-Angle Gearheads (→ Page C-227)

Linear Heads (→ Page C-247)




Hollow Shaft Type Solid Shaft Type






Reversible Motors

Motor
(Pinion Shaft)




—


AC Power Supply
(Main power supply)



Capacitor Cap
(Included)




Capacitor (Included)




Peripheral Equipment
(Sold separately)


Brake Pack
SB50W
(→ Page C-253)




Accessories (Sold separately)



Mounting Brackets
(→ Page C-264)



Flexible Couplings
(→ Page C-269)



CR Circuit for
Surge Suppression
(→ Page C-275)

● Example of System Configuration

Reversible Motor (Pinion shaft)	Sold Separately	+	Sold Separately	
	Long Life, Low Noise Gearhead		Mounting Bracket	Flexible Coupling
4RK25GN-AW2U	4GN25SA		SOL4U10	MCL30F06F06

● Both types of gearheads and linear heads cannot be combined with round shaft type motors.

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

- Introduction
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- Clutch & Brake Motors
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- Linear Heads
- Brake Pack
- Accessories
- Installation

Product Number Code

World K Series

5 R 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	R: Reversible 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	AW: Single-Phase 110/115 VAC CW: Single-Phase 220/230 VAC
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

● 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: **5RK40GN-AW2U** → Motor nameplate and product approved under various safety standards: **5RK40GN-AW2**

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 RH: Right-Angle, Hollow Shaft Gearhead RAA: Right-Angle, Solid Shaft Gearhead
	GE Type Pinion	SA: Long Life GE-S Gearhead RH: Right-Angle, Hollow Shaft Gearhead RAA: Right-Angle, Solid Shaft Gearhead

General Specifications

◇ 1 W (1/750 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

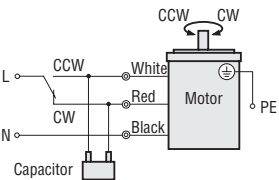
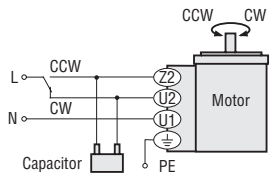
Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the case after rated operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kVAC at 50 Hz or 60 Hz applied between the windings and the case 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*. For the 90 W (1/8 HP) type, a heat radiation plate that is 200×200 mm (7.87×7.87 in.) with a thickness of 5 mm (0.20 in.) is necessary even when the gearhead is connected.
Thermal Class	130 (B)
Overheat Protection	6 W (1/125 HP) type has impedance protection. All others have built-in thermal protector (automatic return type) Open: 130±5°C (266±9°F), Close: 82±15°C (179.6±27°F)
Ambient Temperature	-10~+40°C (+14~+104°F) (non-freezing)
Ambient Humidity	85% or less (non-condensing)
Degree of Protection	Lead Wire Type: IP20 Terminal Box Type: IP40

* Heat radiation plate (Material: Aluminum)

Motor Type	Size: mm (in.)	Thickness: mm (in.)
1 W (1/750 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	135×135 (5.31×5.31)	
40 W (1/19 HP) Type	165×165 (6.50×6.50)	
60 W (1/12 HP) Type	200×200 (7.87×7.87)	10 (0.39)
90 W (1/8 HP) Type	200×200 (7.87×7.87)	

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.

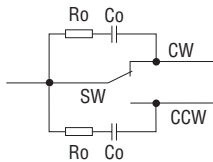
Lead Wire Type	Terminal Box Type
Single-Phase 110/115 VAC Single-Phase 220/230 VAC	Single-Phase 110/115 VAC Single-Phase 220/230 VAC
 <p>Clockwise To rotate the motor in a clockwise (CW) direction, turn the switch to CW.</p> <p>Counterclockwise To rotate the motor in a counterclockwise (CCW) direction, turn the switch to CCW.</p>	 <p>Clockwise To rotate the motor in a clockwise (CW) direction, turn the switch to CW.</p> <p>Counterclockwise To rotate the motor in a counterclockwise (CCW) direction, turn the switch to CCW.</p>

PE: Protective Earth

- How to connect a capacitor → Page C-282

Contact Capacity

Connect a CR circuit for surge suppression shown on the right to protect the contact.



Code	Contact Capacity, Others	Note
SW	125 VAC 5 A min. or 250 VAC 5 A min. (Inductive load)	—
Ro, Co	Ro = 5~200 Ω Co = 0.1~0.2 μF 200 WV (400 WV)	Accessories EPCR1201-2 Page C-275

Reversible Motors

1 W (1/750 HP)

Frame Size: □42 mm (□1.65 in.)



(Gearhead sold separately)

Specifications – 30 Minute 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								
Ⓜ ORK1GN-AW3U	ORK1A-AW3U	1	Single-Phase 110	60	0.090	8	8	1200	1.2
		1/750	Single-Phase 115		0.095				

- Values shown for rated torque and starting torque are measured for operation without the friction brake installed.
- 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	ORK1GN-AW3U	ORK1A-AW3U

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

● Parallel Shaft Gearhead (Sold separately) (RoHS)

Gearhead Type		Gearhead Model	Gear Ratio
Parallel Shaft	GN-K Gearhead	OGN□KA	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180

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

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

Gearmotor – Torque Table

- Decimal gearheads are not available.
- 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 (60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2~33% less than the displayed value, depending on the load.

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
ORK1GN-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

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

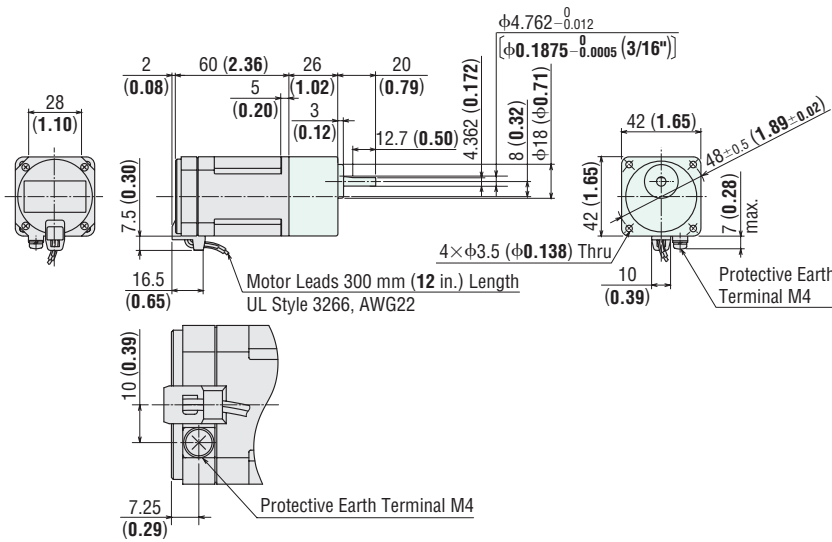
Dimensions Unit = mm (in.)

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

◇ Lead Wire Type

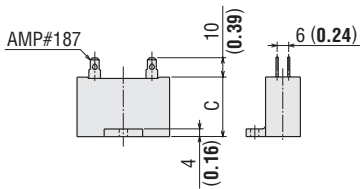
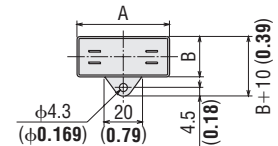
Mass: Motor 0.3 kg (0.66 lb.)
 Gearhead 0.2 kg (0.44 lb.)

DXF A441U



Detail Drawing of Protective Earth Terminal

◇ Capacitor (Included)



Connection Diagram

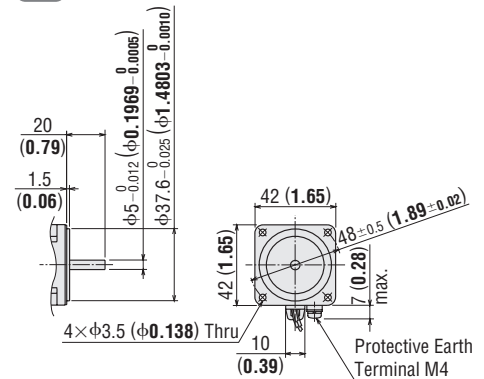
→ Page C-81

◇ Shaft Section of Round Shaft Type

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

Mass: 0.3 kg (0.66 lb.)

DXF A442



◇ Capacitor Dimensions Unit = mm (in.)

Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Pinion Shaft Type	Round Shaft Type						
ORK1GN-AW3U	ORK1A-AW3U	CH12FAUL	31 (1.22)	14.5 (0.57)	23.5 (0.93)	18 (0.64)	Included

Accessories and Peripheral Equipment

Instantaneous Stop Brake Pack
 → Page C-253

Accessories
 → Page C-263



Reversible Motors

6 W (1/125 HP)

Frame Size: □60 mm (□2.36 in.)



(Gearhead sold separately)

Specifications – 30 Minute Rating (RoHS)



Model Lead Wire Type		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Pinion Shaft Type	Round Shaft Type	W HP	VAC	Hz	A	mN-m oz-in	mN-m oz-in	r/min	μF
Ⓢ 2RK6GN-AW2U	2RK6A-AW2U	6 1/125	Single-Phase 110	60	0.251	45	41	1450	3.5
			Single-Phase 115		0.256	6.3	5.8		
Ⓢ 2RK6GN-CW2E	2RK6A-CW2E	6 1/125	Single-Phase 220	50	0.113	45	49	1150	0.8
				60	0.117	6.3	6.9	41	
			Single-Phase 230	50	0.117	50	49	1200	
				60	0.120	45	41	1450	

- Values shown for rated torque and starting torque are measured for operation without the friction brake installed.
- 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
- Ⓢ: Impedance protected.

Product Line

● Motor (RoHS)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	2RK6GN-AW2U	2RK6A-AW2U
	2RK6GN-CW2E	2RK6A-CW2E

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



● 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)	

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	Speed r/min	Gear Ratio																			
		500	417	300	250	200	167	120	100	83	60	50	42	30	25	20	17	15	12.5	10	8.3
2RK6GN-CW2E	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

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

◇ 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
2RK6GN-AW2U 2RK6GN-CW2E	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

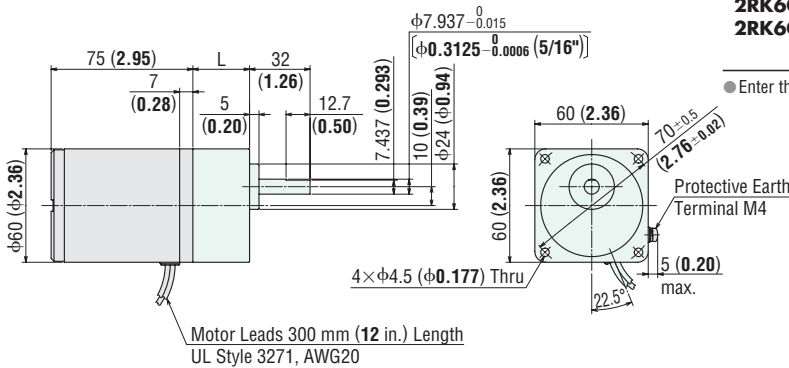
Dimensions Unit = mm (in.)

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

◇ Lead Wire Type

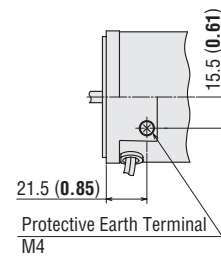
Mass: Motor 0.7 kg (1.54 lb.)

Gearhead 0.4 kg (0.88 lb.)



Motor Model	Gearhead Model	Gear Ratio	L	DXF
2RK6GN-AW2U 2RK6GN-CW2E	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.



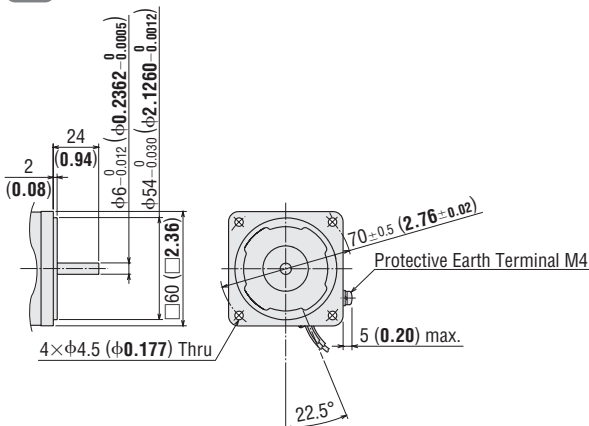
Detail Drawing of Protective Earth Terminal

◇ Shaft Section of Round Shaft Type

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

Mass: 0.7 kg (1.54 lb.)

DXF A444



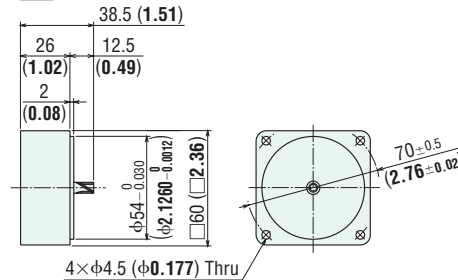
◇ Decimal Gearhead

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

2GN10XS

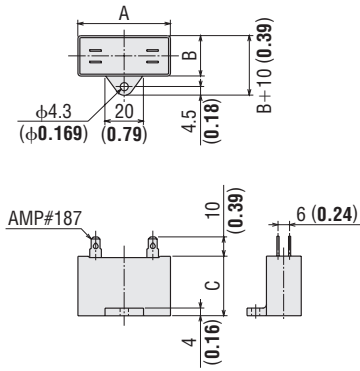
Mass: 0.2 kg (0.44 lb.)

DXF A003



1 W (1/750 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)

◇ Capacitor (Included)



◇ Capacitor Dimensions Unit = mm (in.)

Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Pinion Shaft Type	Round Shaft Type						
2RK6GN-AW2U	2RK6A-AW2U	CH35FAUL2	31 (1.22)	17 (0.67)	27 (1.06)	22 (0.78)	Included
2RK6GN-CW2E	2RK6A-CW2E	CH08BFAUL	31 (1.22)	17 (0.67)	27 (1.06)	23 (0.81)	

■ Connection Diagram

→ Page C-81

Linear Head, Accessories and Peripheral Equipment

Linear Motion
Linear Heads

→ Page C-247



Instantaneous Stop
Brake Pack

→ Page C-253



Accessories

→ Page C-263



Reversible Motors

15 W (1/50 HP)

Frame Size: □70 mm (□2.76 in.)



(Gearhead sold separately)

Specifications – 30 Minute 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								
(TP) 3RK15GN-AW2U	3RK15A-AW2U	15 1/50	Single-Phase 110	60	0.41	100 14.2	105 14.9	1450	6.0
			Single-Phase 115		0.41				
(TP) 3RK15GN-CW2E	3RK15A-CW2E	15 1/50	Single-Phase 220	50	0.20	100 14.2	125 17.7	1200	1.5
				60	0.21		105 14.9		
			Single-Phase 230	50	0.20		125 17.7	1200	
				60	0.21		105 14.9	1450	

- Values shown for rated torque and starting torque are measured for operation without the friction brake installed.
- 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)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	3RK15GN-AW2U	3RK15A-AW2U
	3RK15GN-CW2E	3RK15A-CW2E

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



● 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)	

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	Gear Ratio																			
		500	417	300	250	200	167	120	100	83	60	50	42	30	25	20	17	15	12.5	10	8.3
3RK15GN-CW2E	3GN□SA	0.30 2.6	0.36 3.1	0.51 4.5	0.61 5.3	0.76 6.7	0.91 8.0	1.3 11.5	1.5 13.2	1.8 15.9	2.3 20	2.7 23	3.3 29	4.1 36	5 44	5 44	5 44	5 44	5 44	5 44	5 44

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

◇ 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
		Motor/ Gearhead	Gear Ratio																		
3RK15GN-AW2U 3RK15GN-CW2E	3GN□SA	0.26 2.3	0.31 2.7	0.43 3.8	0.51 4.5	0.64 5.6	0.77 6.8	1.1 9.7	1.3 11.5	1.5 13.2	1.9 16.8	2.3 20	2.8 24	3.5 30	4.2 37	5 44	5 44	5 44	5 44	5 44	5 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

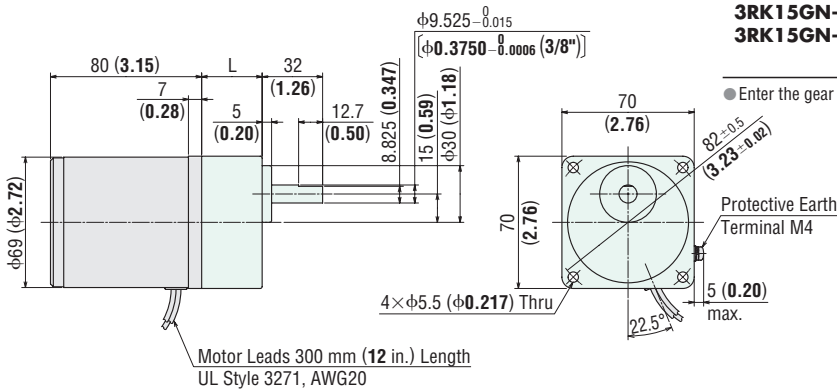
→ Page C-18

■ Dimensions Unit = mm (in.)

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

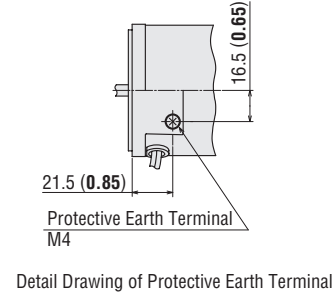
◇ Lead Wire Type

Mass: Motor 1.1 kg (2.4 lb.)
Gearhead 0.55 kg (1.21 lb.)



Motor Model	Gearhead Model	Gear Ratio	L	DXF
3RK15GN-AW2U 3RK15GN-CW2E	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.

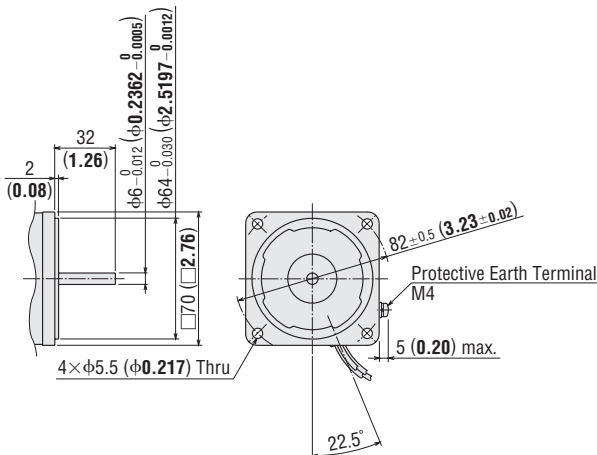


◇ Shaft Section of Round Shaft Type

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

Mass: 1.1 kg (2.4 lb.)

DXF A448



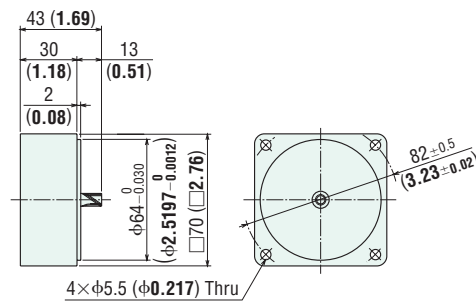
◇ Decimal Gearhead

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

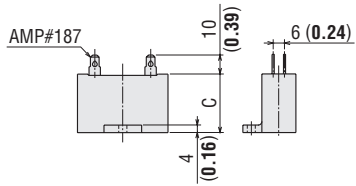
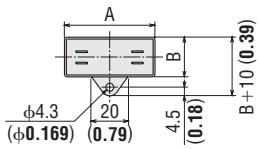
3GN10XS

Mass: 0.3 kg (0.66 lb.)

DXF A009



◇ Capacitor (Included)



◇ Capacitor Dimensions Unit = mm (in.)

Model		Capacitor Model	A	B	C	Mass g (oz.)	Capacitor Cap
Pinion Shaft Type	Round Shaft Type						
3RK15GN-AW2U	3RK15A-AW2U	CH60CFAUL2	38 (1.50)	21 (0.83)	31 (1.22)	35 (1.24)	Included
3RK15GN-CW2E	3RK15A-CW2E	CH15BFAUL	38 (1.50)	21 (0.83)	31 (1.22)	37 (1.31)	

■ Connection Diagram

→ Page C-81

Accessories and Peripheral Equipment

Instantaneous Stop
Brake Pack

→Page C-253



Accessories

→Page C-263



Introduction

Induction Motors

Reversible Motors

Electromagnetic Brake Motors

V Series

Clutch & Brake Motors

Synchronous Motors

Low-Speed Synchronous Motors

Waterlight Dust-Resistant Motors

Torque Motors

Right-Angle Gearheads

Linear Heads

Brake Pack

Accessories

Installation

Reversible Motors

25 W (1/30 HP)

Frame Size: □80 mm (□3.15 in.)



Lead Wire Type



Terminal Box Type

(Gearhead sold separately)

Specifications – 30 Minute 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	W HP	VAC	Hz	A	mN·m oz·in	mN·m oz·in	r/min	μF
TP 4RK25GN-AW2U (4RK25A-AW2U)	4RK25GN-AW2TU (4RK25A-AW2TU)	25 1/30	Single-Phase 110	60	0.56	140 19.8	170 24	1450	8.0
			Single-Phase 115						
TP 4RK25GN-CW2E (4RK25A-CW2E)	4RK25GN-CW2TE (4RK25A-CW2TE)	25 1/30	Single-Phase 220	50	0.29	140 19.8	205 29	1200	2.5
				60			170 24		
			Single-Phase 230	50	0.30	160 22	1200		
				60		140 19.8		170 24	

- Values shown for rated torque and starting torque are measured for operation without the friction brake installed.
- 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)

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	4RK25GN-AW2U	4RK25A-AW2U
	4RK25GN-CW2E	4RK25A-CW2E
Terminal Box	4RK25GN-AW2TU	4RK25A-AW2TU
	4RK25GN-CW2TE	4RK25A-CW2TE

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

● 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
	Right-Angle Shaft	Hollow Shaft	
Solid Shaft		4GN□RAA	
Parallel Shaft	Long Life, Low Noise GN-S Gearhead	4GN10XS (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) GN-K Gearhead	4GN□KA	3~180
		4GN10XK (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 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	
4RK25GN-CW2□E	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	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	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	
4RK25GN-AW2□U 4RK25GN-CW2□E	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	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	70

Gearmotor – Torque Table When Right-Angle Gearhead is Attached

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Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) → Page C-17

Gearhead → Page C-17

Permissible Load Inertia J of Gearhead

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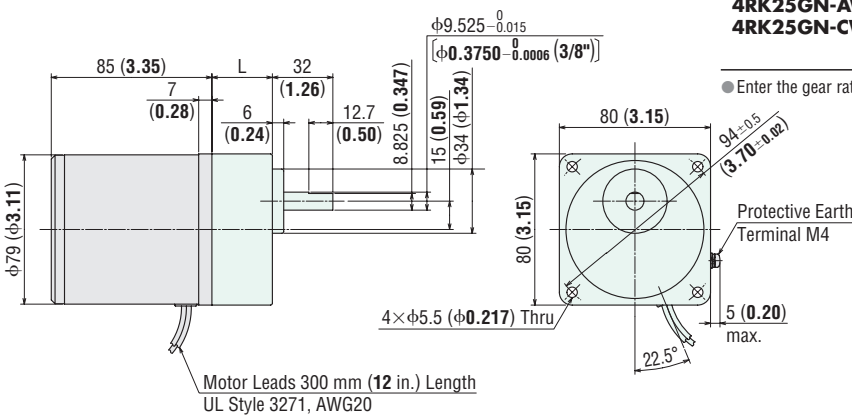
Dimensions Unit = mm (in.)

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

◇ Lead Wire Type ①

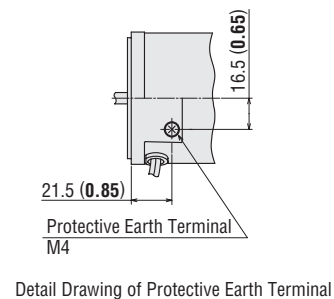
Mass: Motor 1.5 kg (3.3 lb.)

Gearhead 0.65 kg (1.43 lb.)



Motor Model	Gearhead Model	Gear Ratio	L	DXF
4RK25GN-AW2U 4RK25GN-CW2E	4GN□SA	3~18	32 (1.26)	A449AU
		25~180	42.5 (1.67)	A449BU

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

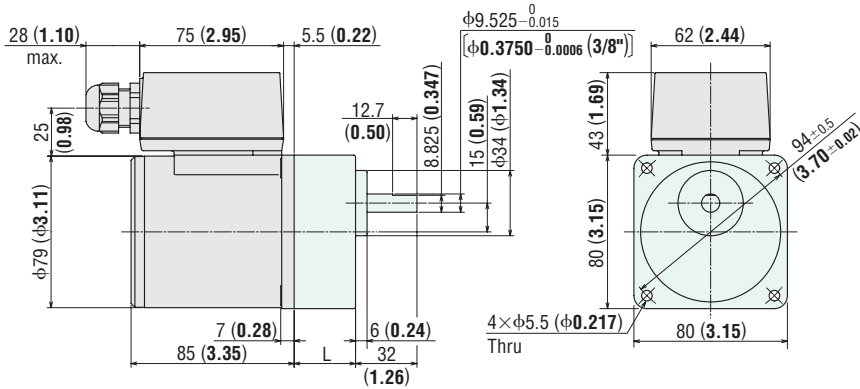


◇ Terminal Box Type ②

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

Motor Model	Gearhead Model	Gear Ratio	L	DXF
4RK25GN-AW2TU 4RK25GN-CW2TE	4GN□SA	3~18	32 (1.26)	A451AU
		25~180	42.5 (1.67)	A451BU

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



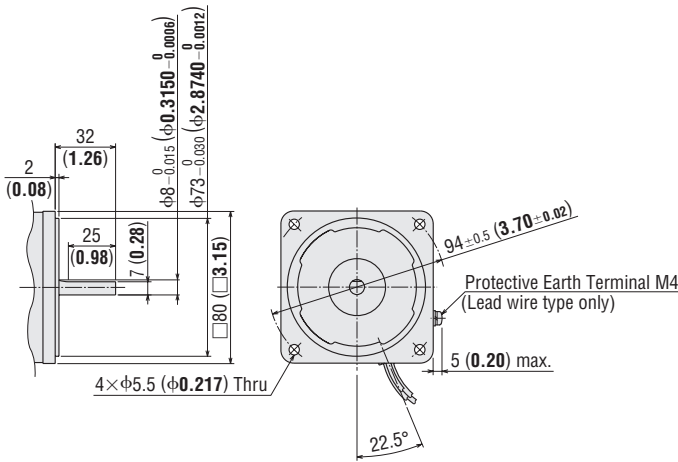
- Use cable with a diameter of φ6 ~ φ12 mm (φ0.24 ~ φ0.47 in.).
- Details of terminal box → Page C-283

◇ Shaft Section of Round Shaft Type

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

Mass: 1.5 kg (3.3 lb.) (Lead Wire Type)
1.7 kg (3.7 lb.) (Terminal Box Type)

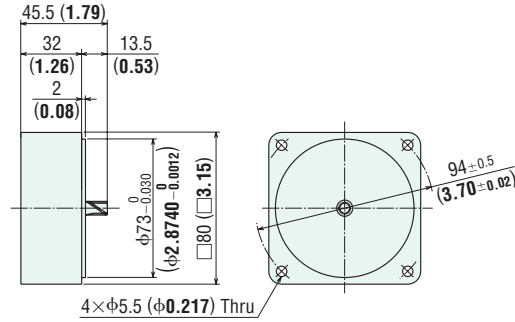
DXF A450 (Lead Wire Type)
A328 (Terminal Box Type)



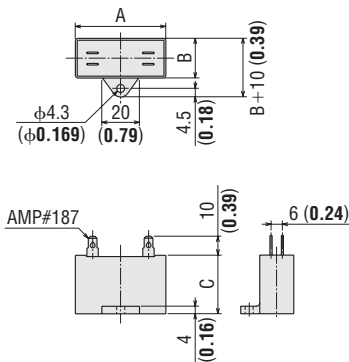
◇ Decimal Gearhead

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

4GN10XS
Mass: 0.4 kg (0.88 lb.)
DXF A013



◇ Capacitor (Included)







◇ 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						
4RK25GN-AW2TU (4RK25A-AW2U)	4RK25GN-AW2TU (4RK25A-AW2TU)	CH80CFAUL2	48 (1.89)	21 (0.83)	31 (1.22)	41 (1.45)	Included
4RK25GN-CW2E (4RK25A-CW2E)	4RK25GN-CW2TE (4RK25A-CW2TE)	CH25BFAUL	48 (1.89)	21 (0.83)	31 (1.22)	42 (1.48)	

■ Connection Diagrams

→ Page C-81

Gearhead, Linear Head, Accessories and Peripheral Equipment

<p>(Space-Saving) Right-Angle Gearheads → Page C-227</p> 	<p>(Linear Motion) Linear Heads → Page C-247</p> 	<p>(Instantaneous Stop) Brake Pack → Page C-253</p> 	<p>(Accessories) → Page C-263</p> 
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Synchronous Motors

Low-Speed Synchronous Motors

Waterright Dust-Resistant Motors

Torque Motors

Right-Angle Gearheads

Linear Heads

Brake Pack

Accessories

Installation

1 W (1/750 HP)
6 W (1/125 HP)
15 W (1/30 HP)
25 W (1/30 HP)
40 W (1/19 HP)
60 W (1/12 HP)
90 W (1/8 HP)

Reversible Motors

40 W (1/19 HP)

Frame Size: □90 mm (□3.54 in.)



Specifications – 30 Minute 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	W HP	VAC	Hz	A	mN-m oz-in	mN-m oz-in	r/min	μF
ⓉP 5RK40GN-AW2U (5RK40A-AW2U)	5RK40GN-AW2TU (5RK40A-AW2TU)	40 1/19	Single-Phase 110	60	0.88	260	270	1450	12
			Single-Phase 115		0.87	36	38		
ⓉP 5RK40GN-CW2E (5RK40A-CW2E)	5RK40GN-CW2TE (5RK40A-CW2TE)	40 1/19	Single-Phase 220	50	0.43	270 38	315 44	1250	3.5
				60	0.48	260 36	260 36	1500	
			Single-Phase 230	50	0.43	270 38	315 44	1250	
				60	0.48	260 36	260 36	1500	

- Values shown for rated torque and starting torque are measured for operation without the friction brake installed.
- 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	5RK40GN-AW2U	5RK40A-AW2U
	5RK40GN-CW2E	5RK40A-CW2E
Terminal Box	5RK40GN-AW2TU	5RK40A-AW2TU
	5RK40GN-CW2TE	5RK40A-CW2TE

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

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	
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) GN-K Gearhead	5GN□KA	3~180
		5GN10XK (Decimal Gearhead)	

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.



● 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 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
5RK40GN-CW2□E	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

◇ 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
5RK40GN-AW2□U	5GN□SA	0.66	0.79	1.1	1.3	1.6	2.0	2.7	3.3	3.9	4.9	5.9	7.1	8.9	10	10	10	10	10	10	10
		5.8	6.9	9.7	11.5	14.1	17.7	23	29	34	43	52	62	78	88	88	88	88	88	88	88
5RK40GN-CW2□E	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

Gearmotor – Torque Table When Right-Angle Gearhead is Attached

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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

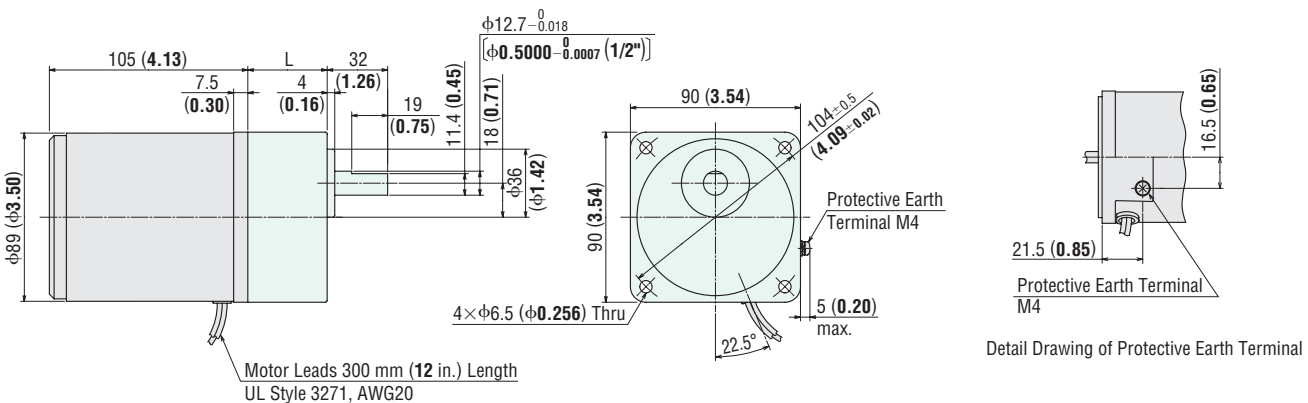
◇ Lead Wire Type ①

Mass: Motor 2.5 kg (5.5 lb.)

Gearhead 1.5 kg (3.3 lb.)

Motor Model	Gearhead Model	Gear Ratio	L	DXF
5RK40GN-AW2U 5RK40GN-CW2E	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.

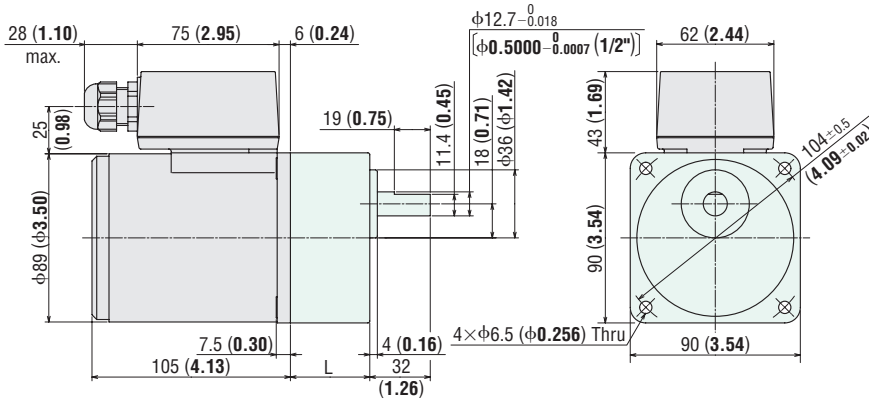


Terminal Box Type ②

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

Motor Model	Gearhead Model	Gear Ratio	L	DXF
5RK40GN-AW2TU 5RK40GN-CW2TE	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.



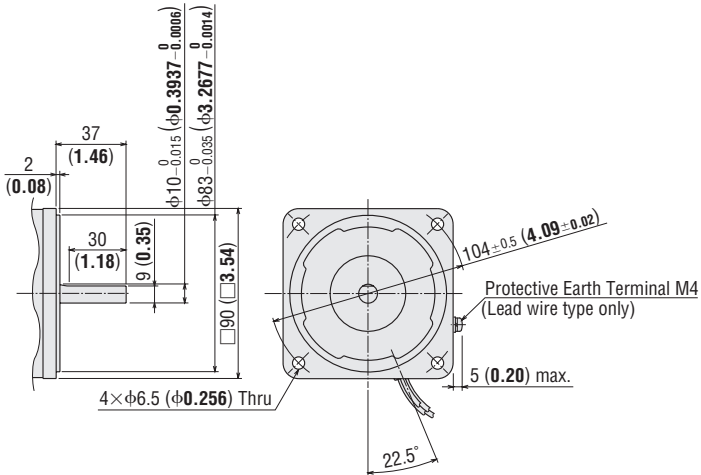
- Use cable with a diameter of $\phi 6 \sim \phi 12$ mm ($\phi 0.24 \sim \phi 0.47$ in.).
- Details of terminal box → Page C-283

Shaft Section of Round Shaft Type

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

Mass: 2.5 kg (5.5 lb.) (Lead Wire Type)
2.6 kg (5.7 lb.) (Terminal Box Type)

DXF A453 (Lead Wire Type)
A330 (Terminal Box Type)



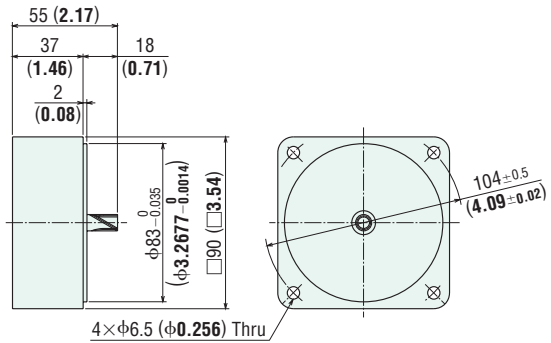
Decimal Gearhead

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

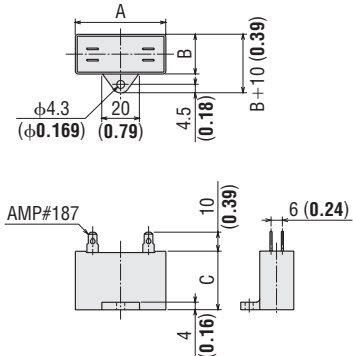
5GN10XS

Mass: 0.6 kg (1.32 lb.)

DXF A022



Capacitor (Included)




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						
5RK40GN-AW2TU (5RK40A-AW2U)	5RK40GN-AW2TU (5RK40A-AW2TU)	CH120CFAUL2	58 (2.28)	22 (0.87)	35 (1.38)	60 (2.1)	Included
5RK40GN-CW2E (5RK40A-CW2E)	5RK40GN-CW2TE (5RK40A-CW2TE)	CH35BFAUL	58 (2.28)	22 (0.87)	35 (1.38)	59 (2.1)	

■ Connection Diagrams

→ Page C-81

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>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

Reversible Motors

60 W (1/12 HP)

Frame Size: □90 mm (□3.54 in.)



Specifications – 30 Minute 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	W HP	VAC	Hz	A	mN-m oz-in	mN-m oz-in	r/min	μF
ⓉP 5RK60GE-AW2U (5RK60A-AW2U)	5RK60GE-AW2TU (5RK60A-AW2TU)	60 1/12	Single-Phase 110	60	1.27	380	405	1450	20
			Single-Phase 115			53	57		
ⓉP 5RK60GE-CW2E (5RK60A-CW2E)	5RK60GE-CW2TE (5RK60A-CW2TE)	60 1/12	Single-Phase 220	50	0.61	420 59	490 69	1200	5.0
				60	0.67	380 53	405 57	1450	
			Single-Phase 230	50	0.63	470 66	490 69	1200	
				60	0.66	380 53	405 57	1450	

- Values shown for rated torque and starting torque are measured for operation without the friction brake installed.
- 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	5RK60GE-AW2U	5RK60A-AW2U
	5RK60GE-CW2E	5RK60A-CW2E
Terminal Box	5RK60GE-AW2TU	5RK60A-AW2TU
	5RK60GE-CW2TE	5RK60A-CW2TE

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

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 5GE□RH	
Solid Shaft 5GE□RAA			
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

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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.



1 W
(1/750 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)

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
5RK60GE-CW2 □E	5GE □SA	1.2 10.6	1.4 12.3	2.0 17.7	2.4 21	3.0 26	3.6 31	4.5 39	5.4 47	6.4 56	8.1 71	9.7 85	11.6 102	16.2 143	19.4 171	20 177	20 177	20 177	20 177	20 177	20 177

◇ 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
5RK60GE-AW2 □U 5RK60GE-CW2 □E	5GE □SA	0.98 8.6	1.2 10.6	1.6 14.1	2.0 17.7	2.5 22	3.0 26	3.7 32	4.4 38	5.3 46	6.7 59	8.0 70	9.6 84	13.4 118	16.0 141	17.9 158	20 177	20 177	20 177	20 177	20 177

Gearmotor – Torque Table When Right-Angle Gearhead is Attached

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Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) → Page C-17

Gearhead → Page C-17

Permissible Load Inertia J of Gearhead

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Dimensions Unit = mm (in.)

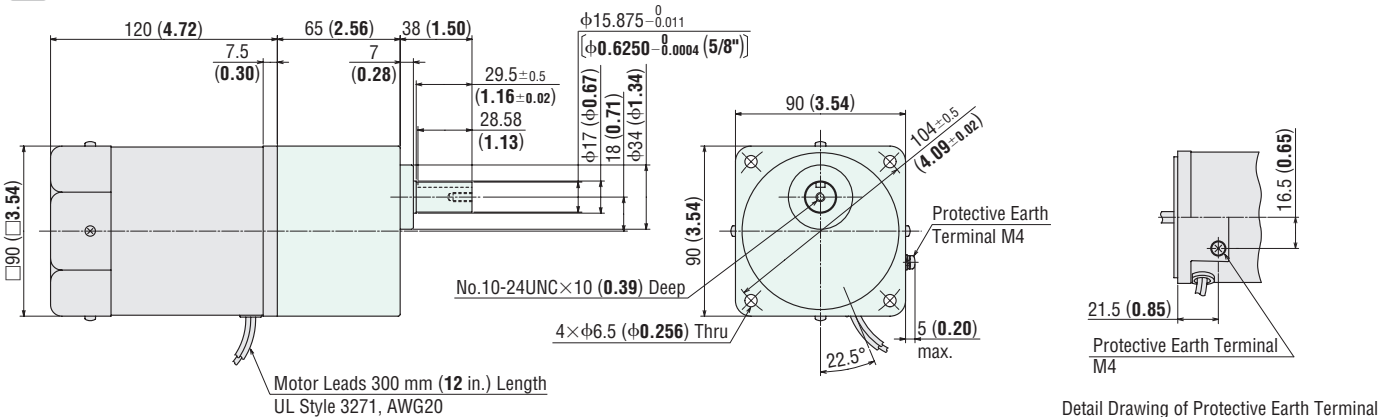
- Mounting screws are included with gearheads. Dimensions for mounting screws → Page C-280

◇ Lead Wire Type ①

Mass: Motor 2.7 kg (5.9 lb.)

Gearhead 1.5 kg (3.3 lb.)

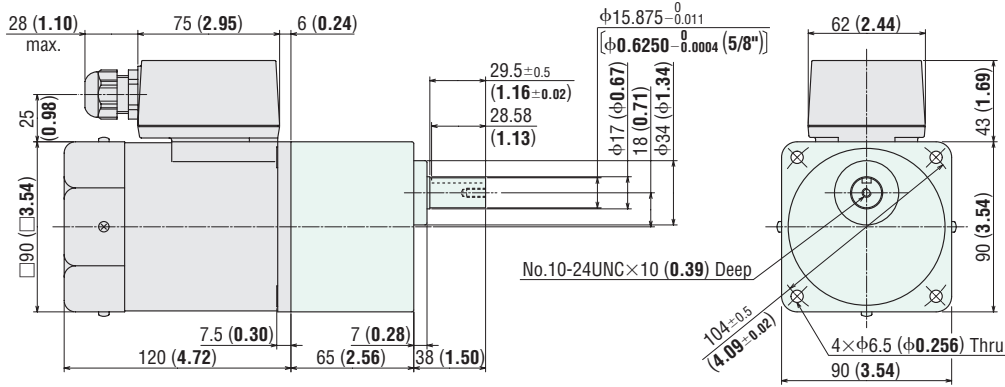
DXF A455U



◇ Terminal Box Type ②

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

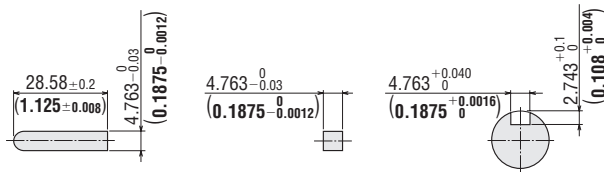
DXF A457U



- Use cable with a diameter of φ6 ~ φ12 mm (φ0.24 ~ φ0.47 in.).
- Details of terminal box → Page C-283

◇ Key and Key Slot

(The key is included with the gearhead)

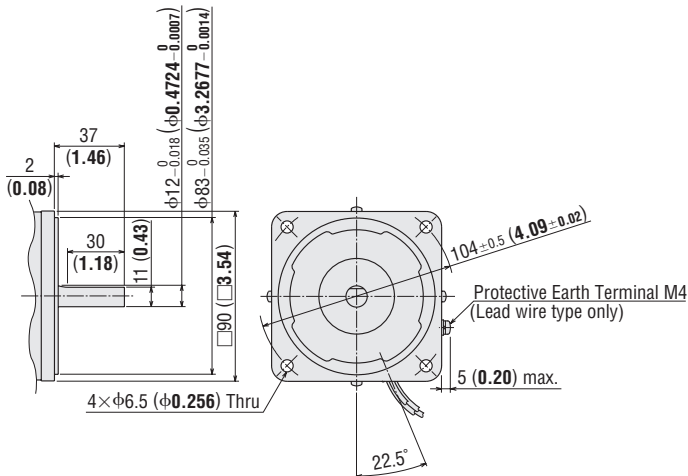


◇ Shaft Section of Round Shaft Type

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

Mass: 2.7 kg (5.9 lb.) (Lead Wire Type)
2.8 kg (6.2 lb.) (Terminal Box Type)

DXF A456 (Lead Wire Type)
A332 (Terminal Box Type)



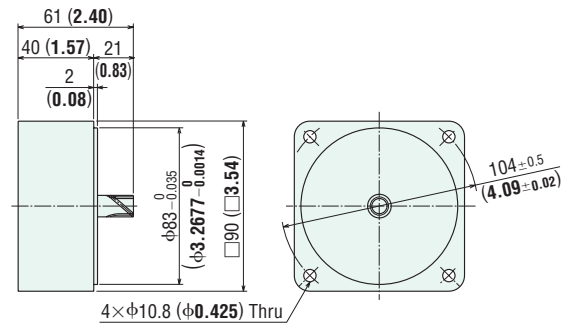
◇ Decimal Gearhead

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

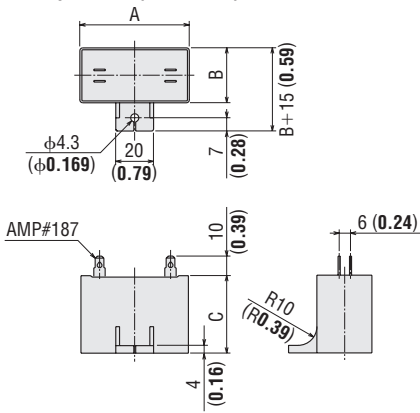
5GE10XS

Mass: 0.6 kg (1.32 lb.)

DXF A029



◇ Capacitor (Included)



◇ 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						
5RK60GE-AW2U (5RK60A-AW2U)	5RK60GE-AW2TU (5RK60A-AW2TU)	CH200CFAUL2	58 (2.28)	29 (1.14)	41 (1.61)	91 (3.2)	Included
5RK60GE-CW2E (5RK60A-CW2E)	5RK60GE-CW2TE (5RK60A-CW2TE)	CH50BFAUL	58 (2.28)	29 (1.14)	41 (1.61)	93 (3.3)	

■ Connection Diagrams

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Gearhead, Accessories and Peripheral Equipment

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



(Instantaneous Stop)
Brake Pack
→ Page C-253



(Accessories)
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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

1 W (1/750 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)

Reversible Motors

90 W (1/8 HP)

Frame Size: □90 mm (□3.54 in.)



Specifications – 30 Minute 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	W HP	VAC	Hz	A	mN-m oz-in	mN-m oz-in	r/min	μF
ⓉP 5RK90GE-AW2U (5RK90A-AW2U)	5RK90GE-AW2TU (5RK90A-AW2TU)	90	Single-Phase 110	60	1.87	590	585	1500	30
		1/8	Single-Phase 115		1.86	83	83		
ⓉP 5RK90GE-CW3E (5RK90A-CW3E)	5RK90GE-CW3TE (5RK90A-CW3TE)	90 1/8	Single-Phase 220	50	0.83	600 85	730 103	1200	7.0
				60	0.96	590 83	605 85		
			Single-Phase 230	50	0.83	600 85	730 103	1200	
				60	0.95	590 83	605 85		

- Values shown for rated torque and starting torque are measured for operation without the friction brake installed.
- 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	5RK90GE-AW2U	5RK90A-AW2U
	5RK90GE-CW3E	5RK90A-CW3E
Terminal Box	5RK90GE-AW2TU	5RK90A-AW2TU
	5RK90GE-CW3TE	5RK90A-CW3TE

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

● 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		5GE□RAA	
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																			
5RK90GE-CW3 □E	5GE □SA	1.8 15.9	2.1 18.5	3.0 26	3.5 30	4.4 38	5.3 46	6.7 59	8.0 70	9.6 84	12.0 106	14.5 128	17.3 153	20 177	20 177	20 177	20 177	20 177	20 177	20 177	20 177

◇ 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																			
5RK90GE-AW2 □U	5GE □SA	1.4 12.3	1.7 15.0	2.4 21	2.8 24	3.6 31	4.3 38	5.3 46	6.4 56	7.7 68	9.7 85	11.6 102	13.9 123	19.3 170	20 177	20 177	20 177	20 177	20 177	20 177	20 177
5RK90GE-CW3 □E	5GE □SA	1.5 13.2	1.8 15.9	2.5 22	2.9 25	3.7 32	4.4 38	5.5 48	6.6 58	7.9 69	10.0 88	12.0 106	14.4 127	20 177	20 177	20 177	20 177	20 177	20 177	20 177	20 177

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.)

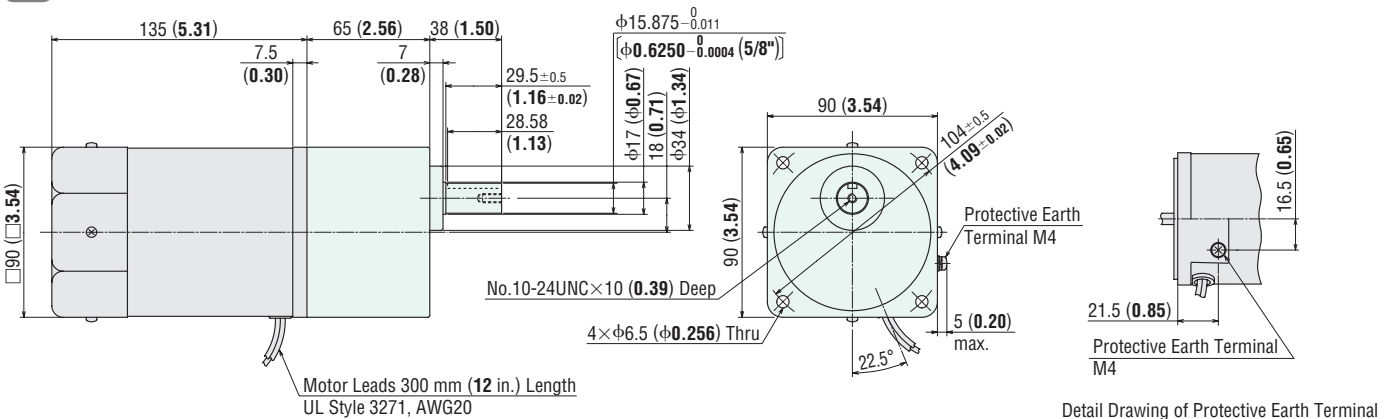
- Mounting screws are included with gearheads. Dimensions for mounting screws → Page C-280

◇ Lead Wire Type ①

Mass: Motor 3.2 kg (7.0 lb.)

Gearhead 1.5 kg (3.3 lb.)

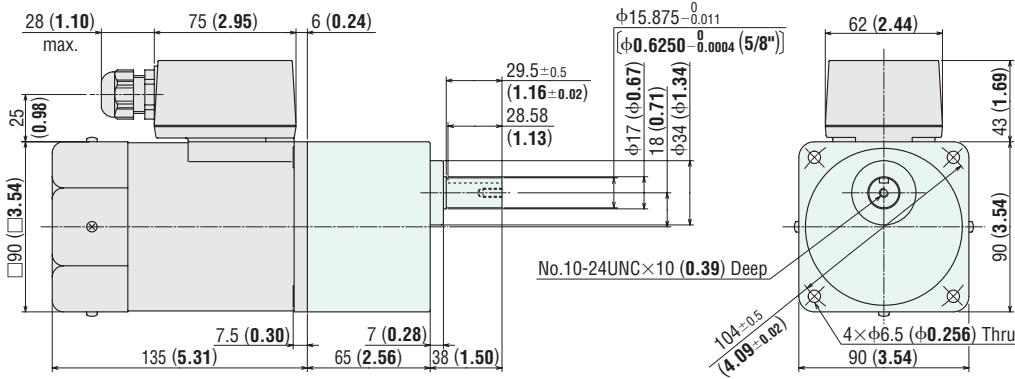
DXF A458U



◇ Terminal Box Type ②

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

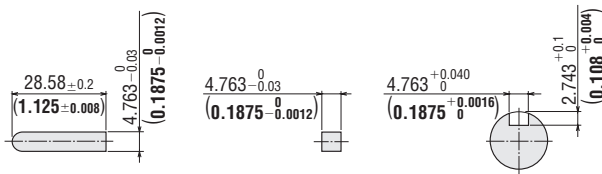
DXF A460U



- 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)

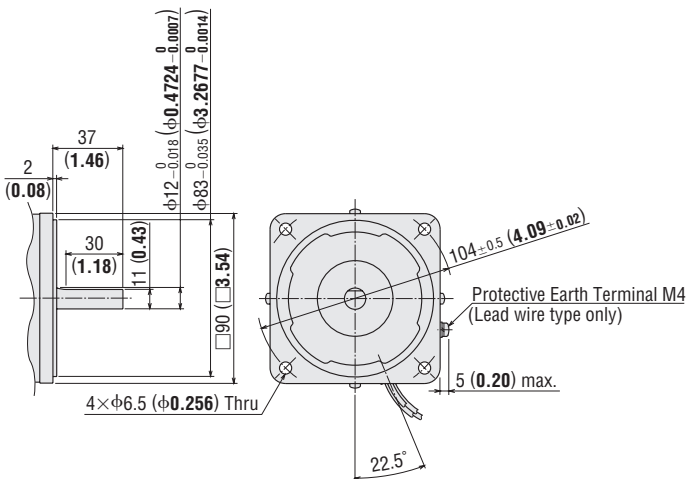


◇ Shaft Section of Round Shaft Type

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

Mass: 3.2 kg (7.0 lb.) (Lead Wire Type)
3.3 kg (7.3 lb.) (Terminal Box Type)

DXF A459 (Lead Wire Type)
A334 (Terminal Box Type)



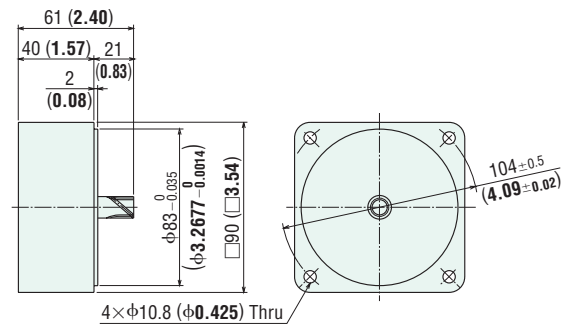
◇ Decimal Gearhead

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

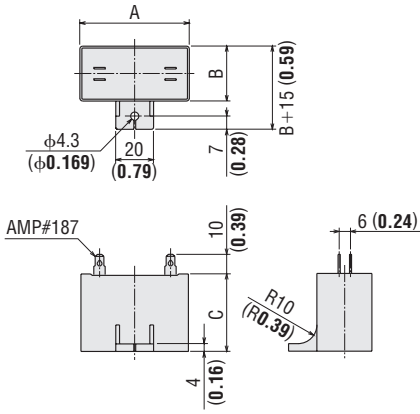
5GE10XS

Mass: 0.6 kg (1.32 lb.)

DXF A029



◇ Capacitor (Included)



◇ 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						
5RK90GE-AW2U (5RK90A-AW2U)	5RK90GE-AW2TU (5RK90A-AW2TU)	CH300CFAUL2	58 (2.28)	35 (1.38)	50 (1.97)	140 (4.9)	Included
5RK90GE-CW3E (5RK90A-CW3E)	5RK90GE-CW3TE (5RK90A-CW3TE)	CH70BFAUL	58 (2.28)	35 (1.38)	50 (1.97)	138 (4.9)	

■ Connection Diagrams

→ Page C-81

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>Accessories → Page C-263</p>
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