ORIENTAL MOTOR®

Global Standard

COMPACT AC MOTORS
GLOBAL STANDARD TYPE

- INDUCTION MOTORS
- REVERSIBLE MOTORS
- ELECTROMAGNETIC BRAKE MOTORS
- RIGHT-ANGLE GEAR HEAD

Global Standard

Features

Compatible with voltages in all major regions of the world.

- These products are compatible with the voltages in all of the major countries in North America, Europe and Asia.

  Single-Phase 110V 60Hz, 115V 60Hz, 220 60Hz, 230V 50/60Hz
  Three-Phase 400V 50Hz

Conforms to safety standards.
(some applications are still pending)

- Designed to conform to all of the usual world safety standards.
  These products have met UL, CSA and EN standards, are recognized by UL, and certified by VDE.

  ✳For customers who wish to export equipments using motors to North America, use of an UL/CSA recognized motor greatly simplifies inspection procedures for UL recognition of motor operation. Similarly, EN- and IEC-certified motors offer the advantage of simplified inspections when being exported to EU countries.

CE marking

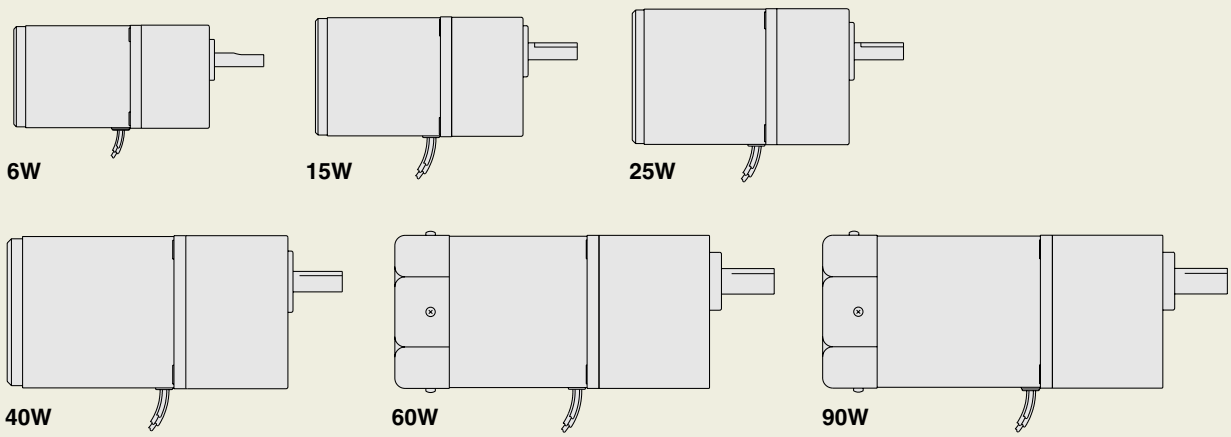
- Voluntary display of the CE mark conforming to the Low Voltage Directives.

List

Motor Type	Output Power	Mounting Size	1-Phase 110/115V 60Hz	1-Phase 220V 60Hz, 230V 50/60Hz	3-Phase 400V 50Hz	
Power Motors — Induction Motors	6W	□60mm	●	●	–	Induction Motors
	15W	□70mm	●	●	–	
	25W	□80mm	●	●	●	
	40W	□90mm	●	●	●	
	60W	□90mm	●	●	●	
	90W	□90mm	●	●	●	
Power Motors — Reversible Motors	6W	□60mm	●	●	–	Reversible Motors
	15W	□70mm	●	●	–	
	25W	□80mm	●	●	–	
	40W	□90mm	●	●	–	
	60W	□90mm	●	●	–	
	90W	□90mm	●	●	–	
Brake Motors — Electromagnetic Brake Motors	6W	□60mm	●	●	–	Electromagnetic Brake Motors
	15W	□70mm	●	–	–	
	25W	□80mm	●	●	–	
	40W	□90mm	●	●	–	
	60W	□90mm	●	●	–	
	90W	□90mm	●	●	–	
Right Angle Gear Head						Right Angle Gear Head

* A complete line of gearheads is also available for use with the motors to reduce speed and/or increase torque.

COMPACT AC MOTORS
GLOBAL STANDARD TYPE



Product line

Oriental Motor's high quality AC compact motor includes an extensive range of products. We would like to introduce you to our line up of the world standard types which are equipped with variable voltage specifications and have been approved by all major safety standards.
You can select the most appropriate product for your requirements from a brand you can trust.

■ INDUCTION MOTORS
for uni-directional operation

Induction motors are the most commonly used AC motor.
Capacitor-run single-phase motors and three-phase motors are available.

■ REVERSIBLE MOTORS
for bi-directional operation

These are capacitor-run single-phase motors. While they are induction motors in basic operating principle, they have a built-in friction brake to improve instantaneous reversing characteristics. These motors are suited for applications where the motor must switch frequently from one direction to another.

■ ELECTROMAGNETIC BRAKE MOTORS

These motors are built with a fail-safe, electromagnetic brake. The brake, which activates when the power is switched off, offers reliable performance and excellent holding power. This brake can be used in case of a power failure or other emergencies.

■ Right Angle Gearhead

These dedicated gearheads can be connected directly to pinion shaft motors. The units shown at the left serve a variety of motor types and output powers. The right angle gearhead is also available for outputs between 25W and 90W.

Induction Motors

The speed of induction motors varies with the load. They are used in applications where speed control is not required. Both capacitor-run single-phase motors and three-phase motors are available.

Induction Motors

■ Product Specitications

Output Power W	Model: Lead Wire Type	Model: Terminal Box Type	Voltage V	Frequency Hz	Starting Torque mN·m	Rated Torque mN·m	Rated Speed r/min.	Degree of protection: Lead Wire Type / Terminal Box Type	Page
6	2IK6GN-CWE	2IK6GN-CWTE	Single-Phase 220	60	40	41	1450	IP20 / IP54*	7
			Single-Phase 230	50	45	49	1200		
			Single-Phase 230	60	40	41	1450		
	2IK6GN-AWU	2IK6GN-AWTU	Single-Phase 110	60	40	41	1450		
			Single-Phase 115	60					
15	3IK15GN-CWE	—	Single-Phase 220	60	65	105	1450	IP20 / —	9
			Single-Phase 230	50	75	125	1200		
			Single-Phase 230	60	65	105	1450		
	3IK15GN-AWU	—	Single-Phase 110	60	65	105	1450		
			Single-Phase 115	60					
25	4IK25GN-CWE	4IK25GN-CWTE	Single-Phase 220	60	120	170	1450	IP20 / IP54	11
			Single-Phase 230	50		205	1200		
			Single-Phase 230	60		170	1450		
	4IK25GN-AWU	4IK25GN-AWTU	Single-Phase 110	60	120	170	1450		
			Single-Phase 115	60					
	—	4IK25GN-UT4	Three-Phase 400	50	240	190	1300	— / IP54	
40	5IK40GN-CWE	5IK40GN-CWTE	Single-Phase 220	60	200	260	1500	IP20 / IP54	14
			Single-Phase 230	50		300	1300		
			Single-Phase 230	60		260	1500		
	5IK40GN-AWU	5IK40GN-AWTU	Single-Phase 110	60	200	260	1500		
			Single-Phase 115	60					
	—	5IK40GN-UT4	Three-Phase 400	50	500	315	1250	— / IP54	
60	5IK60GU-CWE	5IK60GU-CWTE	Single-Phase 220	60	320	405	1450	IP20 / IP44	17
			Single-Phase 230	50		490	1200		
			Single-Phase 230	60		405	1450		
	5IK60GU-AWU	5IK60GU-AWTU	Single-Phase 110	60	320	405	1450		
			Single-Phase 115	60					
	—	5IK60GU-UT4F	Three-Phase 400	50	550	470	1250	—/ IP44	
90	5IK90GU-CWE	5IK90GU-CWTE	Single-Phase 220	60	450	605	1450	IP20 / IP44	20
			Single-Phase 230	50		730	1200		
			Single-Phase 230	60		605	1450		
	5IK90GU-AWU	5IK90GU-AWTU	Single-Phase 110	60	450	585	1500		
			Single-Phase 115	60					
	—	5IK90GU-UT4F	Three-Phase 400	50	850	700	1250	— / IP44	

●Products in this table have pinion shafts. Round shaft types are available for all models. Refer to the product pages for more further detail.
●The "**E**" and "**U**" at the end of the model name indicate that the unit includes a capacitor. These two letters are not inscribed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.
*When using φ8.5 cables, IP grade is 54 ; otherside, IP40 is applied. Except for the mounting surface of the round shaft motor.

■General Specifications

●For 6W~90W (Single-Phase) Type

Item	Specifications
Insulation Resistance	100M Ω or more when 500V DC is applied between the windings and the frame.
Dielectric Strength	Sufficient to withstand 1.5kV at 50Hz and 60Hz applied between the windings and the frame for 1 minute.
Temperature Rise	80˚C or less measured by the resistance change method after rated motor operation with a gearhead or equivalent heat radiation plate connected.
Insulation Class	Class B (130˚C)
Overheat Protection	**2IK** has impedance protection. All others have built-in thermal protectors (Automatic return type) Operating temperature, open : 130˚C±5˚C close: 82˚C±15˚C
Ambient Temperature Range	−10˚C~+40˚C
Ambient Humidity	85% maximum (noncondensing)

●Equivalent heat radiation plate (material : Aluminum)

Type (output)	Size mm	Thickness mm
2IK Type (6W)	115×115	5
3IK Type (15W)	125×125	
4IK Type (25W)	135×135	
5IK40 Type (40W)	165×165	
5IK60 Type (60W)	200×200	
5IK90 Type (90W)	200×200	

●For 25W~90W (Three-Phase) Type

Item	Specifications
Insulation Resistance	100MΩ or more when 500V DC is applied between the windings and the frame under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 2kV at 50Hz applied between the windings and the frame for 1 minute under normal ambient temperature and humidity.
Temperature Rise	75℃ or less measured by the resistance change method after the temperature of the coil has stabilized under normal operation at the rated voltage and frequency.
Insulation Class	Class E (120℃)
Overheat Protection	Built-in thermal protector (Automatic return type). Operating temperature, open : 120℃±5℃ close : 77℃±15℃
Ambient Temperature Range	−10℃~+40℃
Ambient Humidity	85%maximum (noncondensing)

■Safety standard and CE Marking

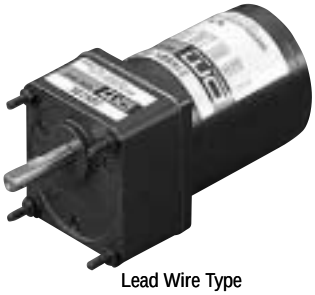
●For 6W~90W (Single-Phase) Type

Standards	Certification Body	Standards File No.	CE Marking
UL1004 UL519 (6W) UL547 (15W~90W) CAN/CSA-C22.2 No.100 CAN/CSA-C22.2 No.77	UL	E64199 (6W) E64197 (15W~90W)	Low Voltage Directives
EN60950	VDE	114919ÜG (6W)* 6751ÜG (15W~90W)	
EN60034-1 EN60034-5 IEC60034-11	Conform to EN/IEC Standards (EN/IEC certifications are scheduled)		

Recognized name and certified name of each safety standards are motor model name.
*Except for terminal box type.

●For 25W~90W (Three-Phase) Type

Standards	Certification Body	Standards File No.	CE Marking
EN60950 IEC60034-1 IEC60034-5 IEC60034-11 DIN VDE 0530	TÜV Rheinland	R9551465	Low Voltage Directives



Lead Wire Type

Terminal Box Type

INDUCTION MOTORS
Single-Phase
6W
Frame Size □60mm

Lead Wire Type:

Terminal Box Type:

■Specifications — Continuous Rating

Model Pinion Shaft Type (Round Shaft Type)		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection	
Lead Wire Type	Terminal Box Type	W	V	Hz	A	mN·m	mN·m	r/min.	μF	Lead Wire Type	Terminal Box Type*
2IK6GN-CWE (2IK6A-CWE)	**2IK6GN-CWTE (2IK6A-CWTE)**	6	Single-Phase 220	60	0.09	40	41	1450	0.6	IP20 (IP20)	IP54 (IP54)
			Single-Phase 230	50	0.11	45	49	1200			
			Single-Phase 230	60	0.1	40	41	1450			
2IK6GN-AWU (2IK6A-AWU)	**2IK6GN-AWTU (2IK6A-AWTU)**	6	Single-Phase 110	60	0.2	40	41	1450	2.5	IP20 (IP20)	IP54 (IP54)
			Single-Phase 115	60							

●These products are impedance protected.
●The "**E**" and "**U**" at the end of the part number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.
*When using φ8.5 cables, IP grade is 54 ; otherside, IP40 is applied. Except for the mounting surface of the round shaft motor.

■Gearmotor — Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 3N·m.

●Single-Phase 230V 50Hz

Unit = N·m

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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-CWE 2IK6GN-CWTE / **2GN□K**		0.12	0.14	0.2	0.24	0.3	0.36	0.5	0.6	0.71	0.89	1.1	1.3	1.6	1.9	2.4	2.9	3	3	3	3

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	25	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-CWE 2IK6GN-CWTE 2IK6GN-AWU 2IK6GN-AWTU / **2GN□K**		0.1	0.12	0.17	0.2	0.25	0.3	0.42	0.5	0.6	0.75	0.9	1.1	1.4	1.6	2	2.4	2.7	3	3	3

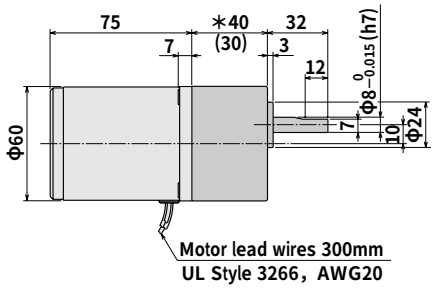
●Gearheads are sold separately.
●Enter the gear ratio in the box(□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
●The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500r/min, 60Hz : 1800 r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the displayed value, depending on the size of the load.

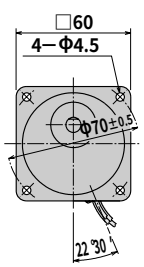
■Dimensions (Scale1/4, Unit = mm)

●Motor / Gearhead

2IK6GN-AWU
2IK6GN-CWE / **2GN□K** (Sold separately)

Mass : Motor 0.7kg
Gearhead 0.4kg

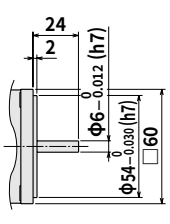


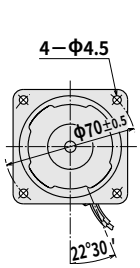


●Round Shaft Type

2IK6A-AWU
2IK6A-CWE

Mass : 0.7kg



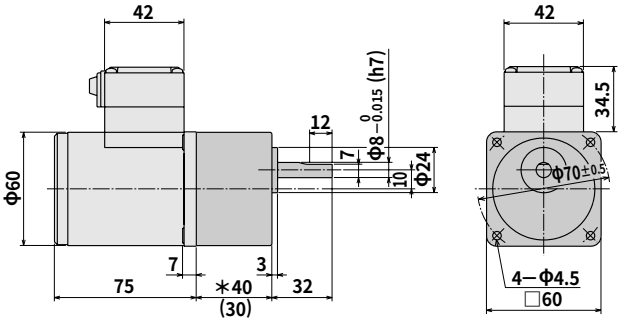


Asterisk(∗) indicates dimensions of **2GN25K～180K**,
the figure in parenthesis indicates dimensions of **2GN3K～18K.**

●Motor / Gearhead

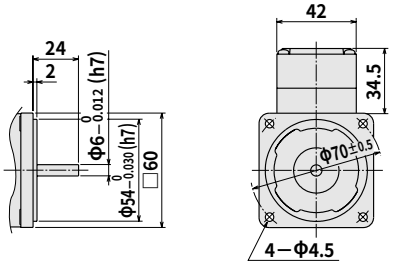
2IK6GN-AWTU
2IK6GN-CWTE / **2GN□K** (Sold separately)

Mass : Motor 0.75kg
Gearhead 0.4kg



●Round Shaft Type

2IK6A-AWTU
2IK6A-CWTE
Mass : 0.75kg

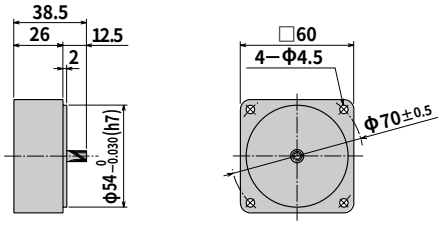


Asterisk (∗) indicates dimensions of **2GN25K～180K**,
the figure in parenthesis indicates dimensions of **2GN3K～18K.**

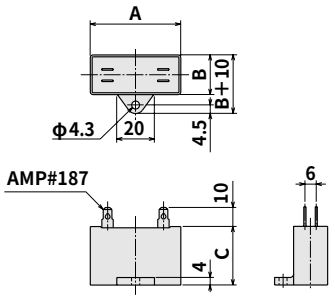
Use cabtyre cable with the diameter of Φ 6.8 ～ Φ 8.6.

●Decimal Gearhead

2GN10XK (Sold separately)
Mass **:** 0.2kg
Can be connected to all models of pinion shaft type.



●Capacitor (included with the motor)



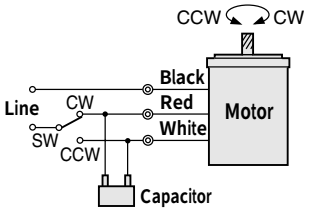
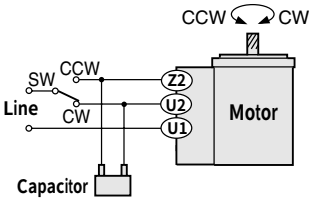
Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
2IK6GN-AW□U **2IK6A-AW□U**	CH25FAUL	31	17	27	20
2IK6GN-CW□E **2IK6A-CW□E**	CH06BFAUL	31	14.5	23.5	15

●If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
●For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

■ Wiring Diagrams

The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type
2IK6GN-AWU, 2IK6A-AWU **2IK6GN-CWE, 2IK6A-CWE**	**2IK6GN-AWTU, 2IK6A-AWTU** **2IK6GN-CWTE, 2IK6A-CWTE**
	

To rotate the motor in a clockwise(CW)direction, flip switch SW to CW. To rotate it in a counterclockwise(CCW)direction, flip switch SW to CCW.

Note : Change the direction of 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, the motor may ignore the reversing command or change its direction of rotation after some delay.

■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 57 for further detail.
Model: **PAL2N**

INDUCTION MOTORS
Single-Phase
15w
Frame Size □70mm

Lead Wire Type

■Specifications — Continuous Rating

Model		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection
Pinion Shaft Type	Round Shaft Type	W	V	Hz	A	mN·m	mN·m	r/min.	μF	
3IK15GN-CWE	**3IK15A-CWE**	15	Single-Phase 220	60	0.16	65	105	1450	1.0	IP20
			Single-Phase 230	50	0.19	75	125	1200		
			Single-Phase 230	60	0.16	65	105	1450		
3IK15GN-AWU	**3IK15A-AWU**	15	Single-Phase 110	60	0.33	65	105	1450	4.5	IP20
			Single-Phase 115	60	0.34	65	105	1450		

- The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.
- The "**E**" and "**U**" at the end of the part number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

■Gearmotor — Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 5N·m.

●Single-Phase 230V 50Hz

Unit = N·m

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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**
3IK15GN-CWE / 3GN□K		0.3	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

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	25	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**
3IK15GN-CWE 3IK15GN-AWU / 3GN□K		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

- Gearheads are sold separately.
- Enter the gear ratio in the box(□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500r/min, 60Hz : 1800 r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the displayed value, depending on the size of the load.

■Dimensions (Scale1/4, Unit = mm)

●Motor / Gearhead

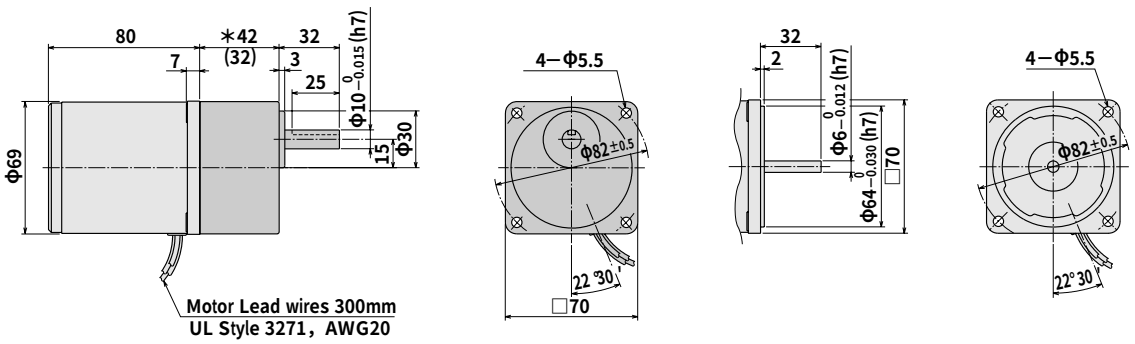
3IK15GN-AWU
3IK15GN-CWE / **3GN□K** (Sold separately)

Mass : Motor 1.1kg
Gearhead 0.55kg

●Round Shaft Type

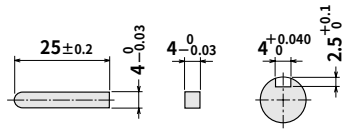
3IK15A-AWU
3IK15A-CWE

Mass : 1.1kg



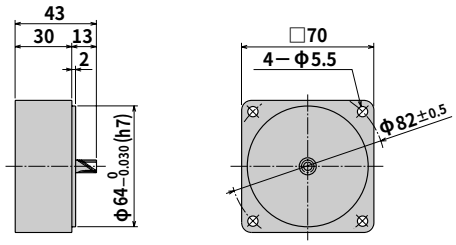
Asterisk(∗)indicates dimensions of **3GN25K～180K**,
the figure in parenthesis indicates dimensions of **3GN3K～18K**.

●**Key and Key Slot** (Scale 1/2)
(The key is provided with the gearhead.)

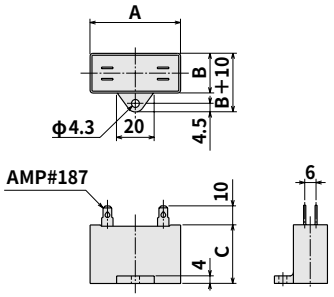


●**Decimal Gearhead**

3GN10XK (Sold separately) Mass : 0.3kg



●**Capacitor** (included with the motor)



Capacitor Dimensions (mm)

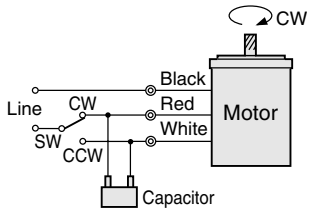
Motor Model	Capacitor Model	A	B	C	Mass (g)
3IK15GN-AWU **3IK15A-AWU**	CH45FAUL	37	18	27	25
3IK15GN-CWE **3IK15A-CWE**	CH10BFAUL	37	18	27	25

●If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.

■Wiring Diagram

The direction of motor rotation is as viewed from the shaft end of the motor.

3IK15GN-AWU
3IK15A-AWU
3IK15GN-CWE
3IK15A-CWE



To rotate the motor in a clockwise (CW) direction, flip switch SW to CW.
To rotate it in a counterclockwise (CCW) direction,flip switch SW to CCW.

Note : Change the direction of 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, the motor may ignore the reversing command or change its direction of rotation after some delay.

■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 57 for further detail.
Model: **PAL3N**

Lead Wire Type

Terminal Box Type

INDUCTION MOTORS

Single-Phase, Three-Phase

25w

Frame Size □80mm

Single-Phase: CE VDE cULus

Three-Phase: CE TÜV

■Specifications — Continuous Rating

Model Pinion Shaft Type (Round Shaft Type)		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection
Lead Wire Type	Terminal Box Type	W	V	Hz	A	mN·m	mN·m	r/min.	μF	Lead Wire Type / Terminal Box Type
4IK25GN-CWE (4IK25A-CWE)	**4IK25GN-CWTE (4IK25A-CWTE)**	25	Single-Phase 220	60	0.22	120	170	1450	1.5	IP20 (IP20) / IP54 (IP40)
			Single-Phase 230	50	0.24		205	1200		
			Single-Phase 230	60	0.22		170	1450		
4IK25GN-AWU (4IK25A-AWU)	**4IK25GN-AWTU (4IK25A-AWTU)**		Single-Phase 110	60	0.46	120	170	1450	6.5	IP20 (IP20) / IP54 (IP40)
			Single-Phase 115	60						
—	**4IK25GN-UT4 (4IK25A-UT4)**		Three-Phase 400	50	0.12	240	190	1300	—	— / IP54 (IP40)

- The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.
- The "**U**" and "**E**" at the end of the part number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

Note : Do not operate any AC400V motors with an Invertor. It will result in damage to the insulation of the motor wires.

■Gearmotor — Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 8N·m.
The value is 6N·m when 1/25～1/36 gearheads are connected.

- Right-Angle gearhead may be connected. Refer to page 50 for further detail on the right-angle gearheads.

●Single-Phase 230V 50Hz, Three-Phase 400V 50Hz

Unit = N·m

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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-CWE 4IK25GN-CWTE / 4GN□K		0.5	0.6	0.83	1	1.2	1.5	2.1	2.5	3	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8
4IK25GN-UT4 / 4GN□K		0.46	0.55	0.77	0.92	1.2	1.4	1.9	2.3	2.8	3.5	4.2	5	6.3	7.5	8	8	8	8	8	8

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	25	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-CWE 4IK25GN-CWTE 4IK25GN-AWU 4IK25GN-AWTU / 4GN□K		0.41	0.5	0.69	0.83	1	1.2	1.7	2.1	2.5	3.1	3.7	4.5	5.6	6.7	8	8	8	8	8	8

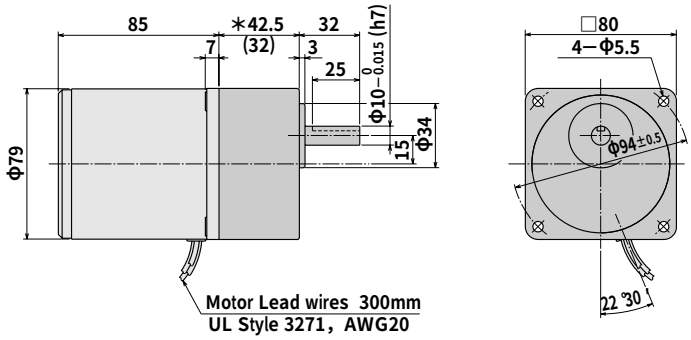
- Gearheads are sold separately.
- Enter the gear ratio in the box(□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500r/min, 60Hz : 1800 r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the displayed value, depending on the size of the load.

■Dimensions (Scale1/4, Unit = mm)

●Motor / Gearhead

4IK25GN-AWU
4IK25GN-CWE / **4GN□K** (Sold separately)

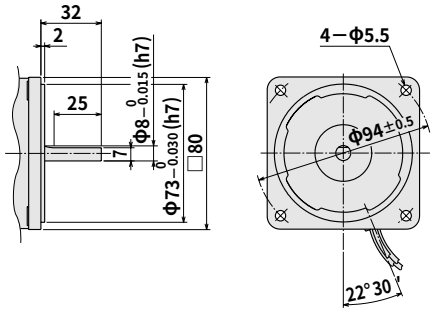
Mass : Motor 1.5kg
Gearhead 0.65kg



●Round Shaft Type

4IK25A-AWU
4IK25A-CWE

Mass : 1.5kg

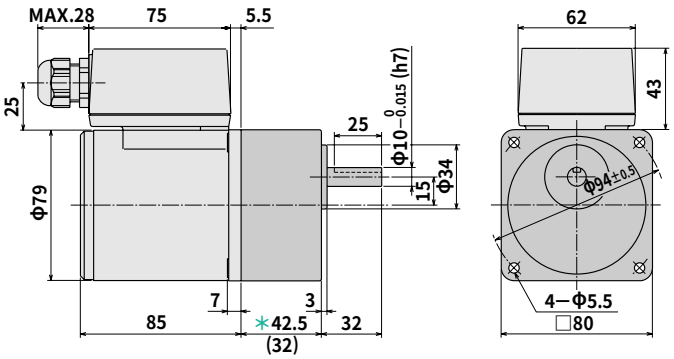


Asterisk (∗) indicates dimensions of **4GN25K～180K**,
the figure in parenthesis indicates dimensions of **4GN3K～18K**.

●Motor / Gearhead

4IK25GN-AWTU
4IK25GN-CWTE
4IK25GN-UT4 / **4GN□K** (Sold separately)

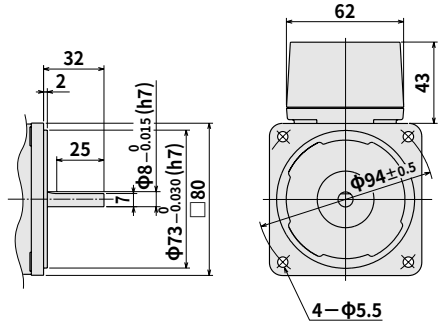
Mass : Motor 1.7kg
Gearhead 0.65kg



●Round Shaft Type

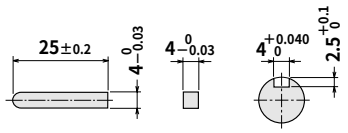
4IK25A-AWTU
4IK25A-CWTE
4IK25A-UT4

Mass : 1.7kg



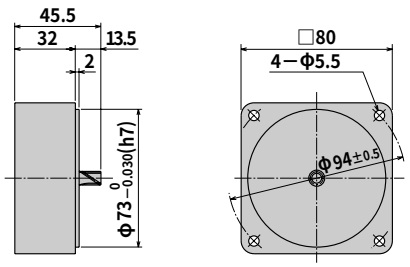
Asterisk (∗) indicates dimensions of **4GN25K～180K**,
the figure in parenthesis indicates dimensions of **4GN3K～18K**.
Use cabtyre cable with the diameter of **Φ**6～**Φ**12.

●**Key and Key Slot** (Scale 1/2)
(The key is provided with the gearhead.)

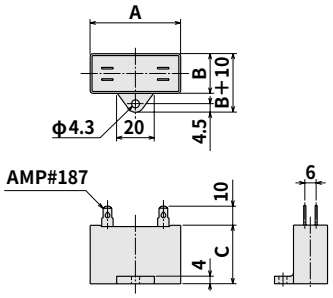


●**Decimal Gearhead**

4GN10XK (Sold separately) Mass : 0.4kg
Can be connected to all models except the right-angle gearhead.



●Capacitor (included with the motor)

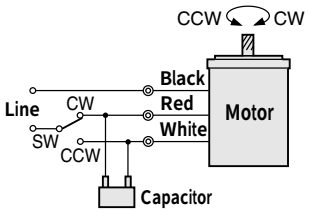
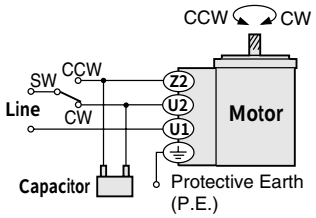
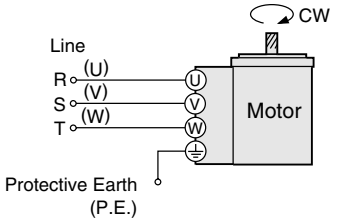


Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
4IK25GN-AW□U **4IK25A-AW□U**	CH65CFAUL	38	21	31	35
4IK25GN-CW□E **4IK25A-CW□E**	CH15BFAUL	38	21	31	35

- If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
- For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

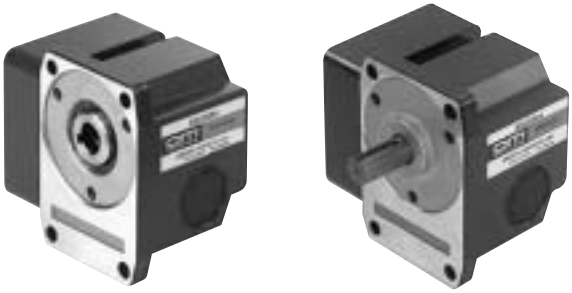
■ Wiring Diagrams The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type	
4IK25GN-AWU, 4IK25A-AWU **4IK25GN-CWE, 4IK25A-CWE**	**4IK25GN-AWTU, 4IK25A-AWTU** **4IK25GN-CWTE, 4IK25A-CWTE**	**4IK25GN-UT4** **4IK25A-UT4**
		
To rotate the motor in a clockwise(CW)direction,flip switch SW to CW. To rotate it in a counterclockwise(CCW)direction,flip switch SW to CCW.		To change the rotation, change any two connections between U, V and W.

Note : Change the direction of 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, the motor may ignore the reversing command or change its direction of rotation after some delay.

■Right-Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft that is at a right-angle to the motor's output shaft. Refer to page 50 for further detail.



■ Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 58 for further detail.
Model: **PAL4N**

INDUCTION MOTORS

Single-Phase, Three-Phase

40w

Frame Size □90mm

Single-Phase:

Three-Phase:

Lead Wire Type

Terminal Box Type

■Specifications — Continuous Rating

Model Pinion Shaft Type (Round Shaft Type)		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection
Lead Wire Type	Terminal Box Type	W	V	Hz	A	mN·m	mN·m	r/min.	μF	Lead Wire Type / Terminal Box Type
5IK40GN-CWE (5IK40A-CWE)	**5IK40GN-CWTE (5IK40A-CWTE)**	40	Single-Phase 220	60	0.35	200	260	1500	2.3	IP20 (IP20) / IP54 (IP40)
			Single-Phase 230	50	0.39		300	1300		
			Single-Phase 230	60	0.34		260	1500		
5IK40GN-AWU (5IK40A-AWU)	**5IK40GN-AWTU (5IK40A-AWTU)**		Single-Phase 110	60	0.68	200	260	1500	9	IP20 (IP20) / IP54 (IP40)
			Single-Phase 115	60	0.67					
—	**5IK40GN-UT4 (5IK40A-UT4)**		Three-Phase 400	50	0.16	500	315	1250	—	— / IP54 (IP40)

●The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.

●The "**E**" and "**U**" at the end of the part number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

Note : Do not operate any AC400V motors with an Invertor. It will result in damage to the insulation of the motor wires.

■Gearmotor — Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 10N·m.

●Right-Angle gearhead may be connected.
Refer to page 50 for further detail on the right-angle gearheads.

●Single-Phase 230V 50Hz, Three-Phase 400V 50Hz

Unit = N·m

Model \ Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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**
5IK40GN-CWE 5IK40GN-CWTE / 5GN□K	0.73	0.87	1.2	1.5	1.8	2.2	3	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10
5IK40GN-UT4 / 5GN□K	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

●Single-Phase 220V/230V 60Hz, 110V/115V, 60Hz

Unit = N·m

Model \ Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	25	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**
5IK40GN-CWE 5IK40GN-CWTE 5IK40GN-AWU 5IK40GN-AWTU / 5GN□K	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

●Gearheads are sold separately.

●Enter the gear ratio in the box(□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.

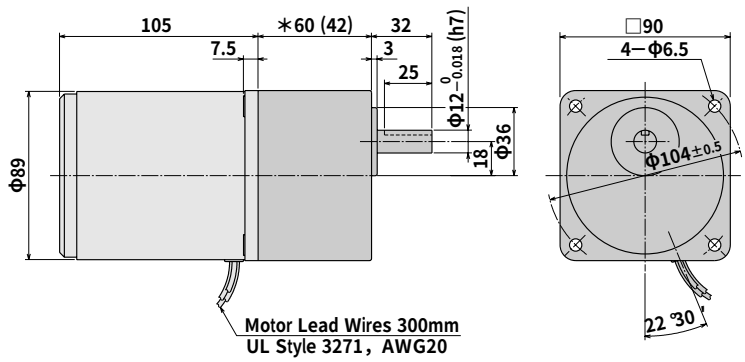
●The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500r/min, 60Hz : 1800 r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the displayed value, depending on the size of the load.

■Dimensions (Scale1/4, Unit = mm)

●Motor / Gearhead

5IK40GN-AWU
5IK40GN-CWE / **5GN□K** (Sold separately)

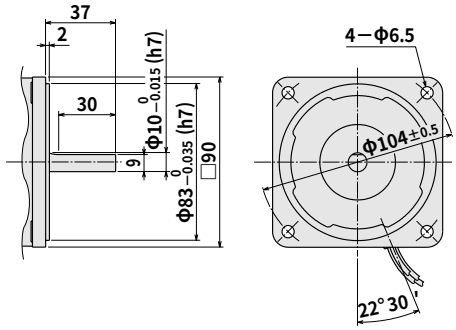
Mass : Motor 2.5kg
Gearhead 1.5kg



●Round Shaft Type

5IK40A-AWU
5IK40A-CWE

Mass : 2.5kg

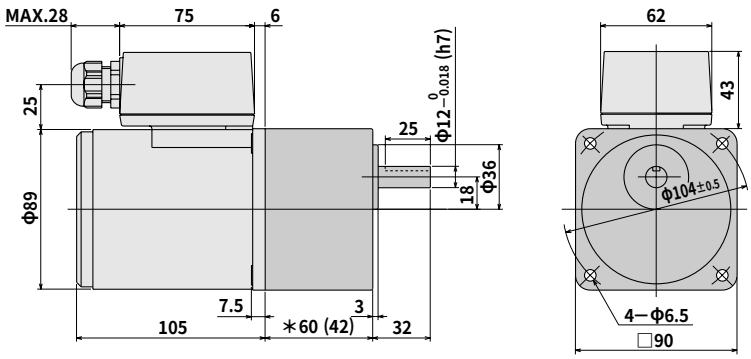


Asterisk(∗) indicates dimensions of **5GN25K～180K**,
the figure in parenthesis indicates dimensions of **5GN3K～18K**.

●Motor / Gearhead

5IK40GN-AWTU
5IK40GN-CWTE
5IK40GN-UT4 / **5GN□K**(Sold separately)

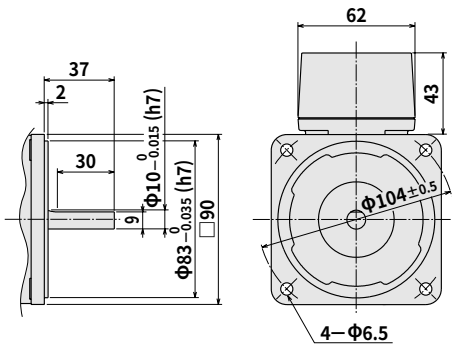
Mass : Motor 2.6kg
Gearhead 1.5kg



●Round Shaft Type

5IK40A-AWTU
5IK40A-CWTE
5IK40A-UT4

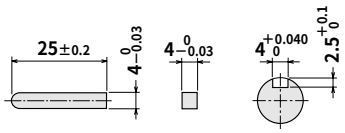
Mass : 2.6kg



Asterisk(∗) indicates dimensions of **5GN25K～180K**,
the figure in parenthesis indicates dimensions of **5GN3K～18K**.

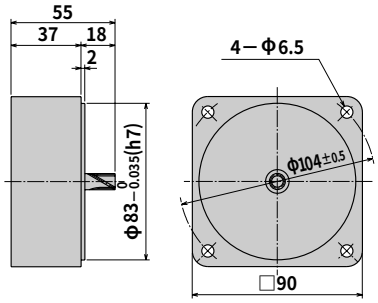
Use cabtyre cable with the diameter of Φ6～Φ12.

●**Key and Key Slot** (Scale 1/2)
(The key is provided with the gearhead.)

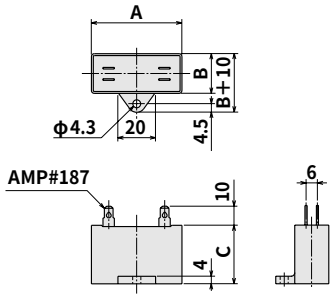


●**Decimal Gearhead**

5GN10XK (Sold separately) Mass : 0.6kg
Can be connected to all models except the right-angle gearhead.



●Capacitor (included with the motor)



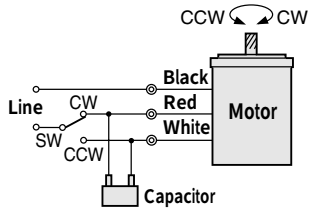
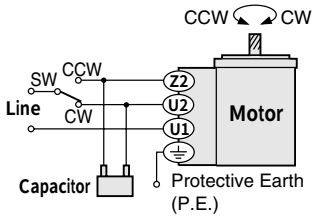
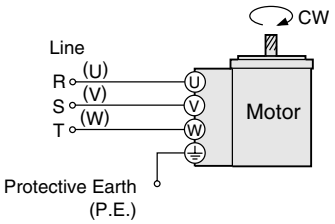
Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
5IK40GN-AW□U **5IK40A-AW□U**	CH90CFAUL	48	21	31	40
5IK40GN-CW□E **5IK40A-CW□E**	CH23BFAUL	48	21	31	40

- If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
- For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

■ Wiring Diagrams

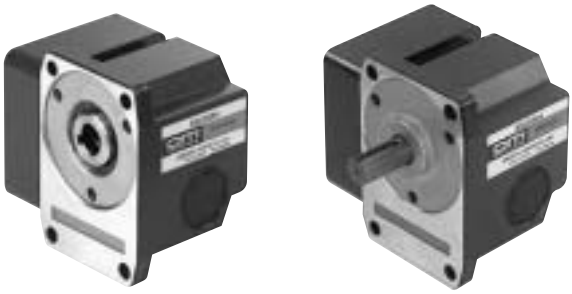
The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type	
5IK40GN-AWU, 5IK40A-AWU **5IK40GN-CWE, 5IK40A-CWE**	**5IK40GN-AWTU, 5IK40A-AWTU** **5IK40GN-CWTE, 5IK40A-CWTE**	**5IK40GN-UT4** **5IK40A-UT4**
		
To rotate the motor in a clockwise(CW)direction,flip switch SW to CW. To rotate it in a counterclockwise(CCW)direction,flip switch SW to CCW.		To change the rotation, change any two connections between U, V and W.

Note : Change the direction of 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, the motor may ignore the reversing command or change its direction of rotation after some delay.

■Right-Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft that is at a right-angle to the motor's output shaft. Refer to page 50 for further detail.



■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 58 for further detail.
Model: **PAL5N**

Lead Wire Type

Terminal Box Type

INDUCTION MOTORS

Single-Phase, Three-Phase

60w

Frame Size □90mm

Single-Phase: CE VDE UL cUL

Three-Phase: CE TÜV

■Specifications — Continuous Rating

Model Pinion Shaft Type (Round Shaft Type)		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection	
Lead Wire Type	Terminal Box Type	W	V	Hz	A	mN·m	mN·m	r/min.	μF	Lead Wire Type	Terminal Box Type
5IK60GU-CWE (5IK60A-CWE)	**5IK60GU-CWTE (5IK60A-CWTE)**	60	Single-Phase 220	60	0.54	320	405	1450	4	IP20 (IP20)	IP44 (IP40)
			Single-Phase 230	50	0.57		490	1200			
			Single-Phase 230	60	0.54		405	1450			
5IK60GU-AWU (5IK60A-AWU)	**5IK60GU-AWTU (5IK60A-AWTU)**		Single-Phase 110	60	1.09	320	405	1450	18	IP20 (IP20)	IP44 (IP40)
			Single-Phase 115	60	1.1						
—	**5IK60GU-UT4F (5IK60A-UT4F)**		Three-Phase 400	50	0.25	550	470	1250	—	—	IP44 (IP40)

●The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.

●The "**U**" and "**E**" at the end of the part number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

Note : Do not operate any AC400V motors with an Invertor. It will result in damage to the insulation of the motor wires.

■Gearmotor — Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 20N・m.

●Right-Angle gearhead may be connected.
Refer to page 50 for further detail on the right-angle gearheads.

●Single-Phase 230V 50Hz, Three-Phase 400V 50Hz

Unit = N·m

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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**
5IK60GU-CWE 5IK60GU-CWTE / 5GU□KB		1.2	1.4	2	2.4	3	3.6	4.5	5.4	6.4	8.1	9.7	12	16	19	20	20	20	20	20	20
5IK60GU-UT4F / 5GU□KB		1.1	1.4	1.9	2.3	2.9	3.4	4.3	5.1	6.2	7.8	9.3	11	16	19	20	20	20	20	20	20

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	25	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**
5IK60GU-CWE 5IK60GU-CWTE 5IK60GU-AWU 5IK60GU-AWTU / 5GU□KB		0.98	1.2	1.6	2	2.5	3	3.7	4.4	5.3	6.7	8	9.6	13	16	18	20	20	20	20	20

●Gearheads are sold separately.

●Enter the gear ratio in the box(□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.

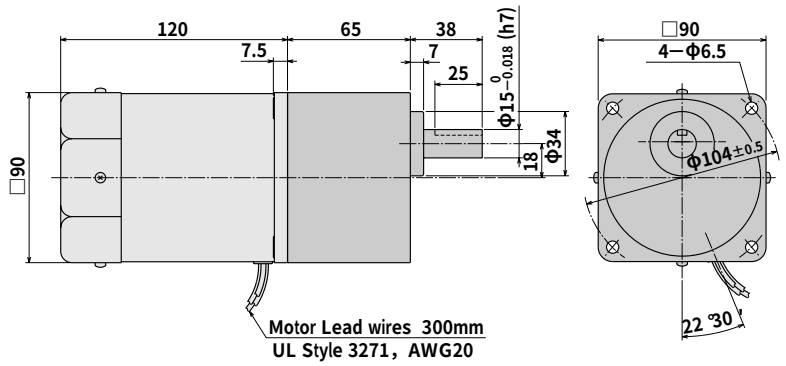
●The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500r/min, 60Hz : 1800r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the displayed value, depending on the size of the load.

■Dimensions (Scale1/4, Unit = mm)

●Motor / Gearhead

5IK60GU-AWU
5IK60GU-CWE / **5GU□KB** (Sold separately)

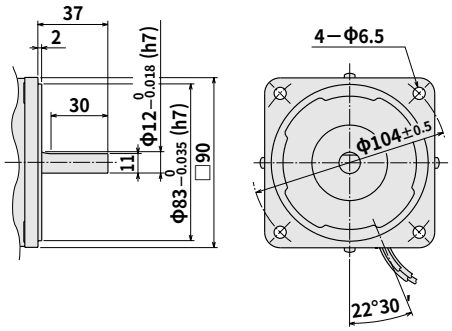
Mass : Motor 2.7kg
Gearhead 1.5kg



●Round Shaft Type

5IK60A-AWU
5IK60A-CWE

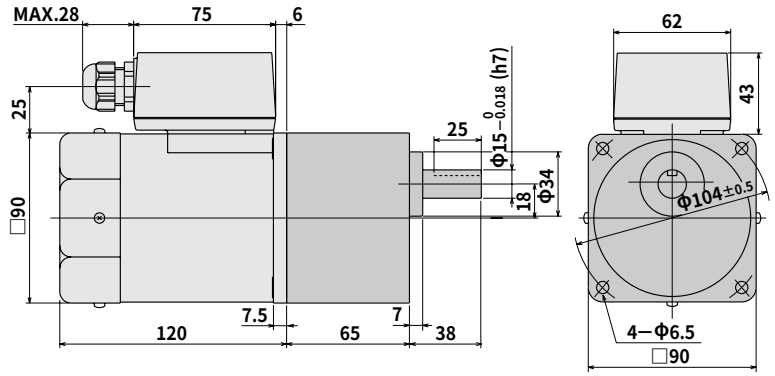
Mass : 2.7kg



●Motor / Gearhead

5IK60GU-AWTU
5IK60GU-CWTE
5IK60GU-UT4F / **5GU□KB** (Sold separately)

Mass : Motor 2.8kg
Gearhead 1.5kg

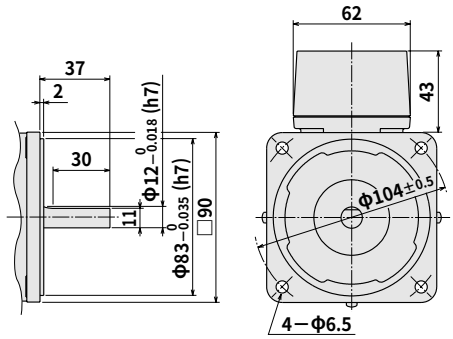


Use cabtyre cable with the diameter of Φ6～Φ12.

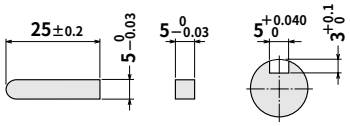
●Round Shaft Type

5IK60A-AWTU
5IK60A-CWTE
5IK60A-UT4F

Mass : 2.8kg

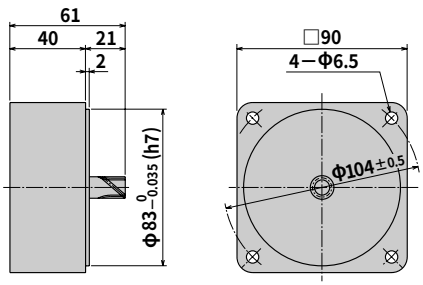


●Key and Key Slot (Scale 1/2)
(The key is provided with the gearhead.)

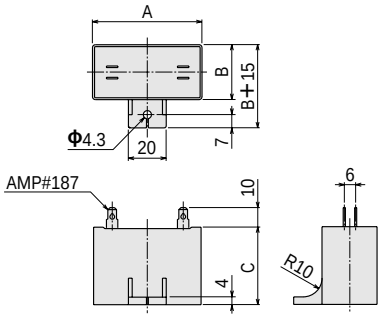


●Decimal Gearhead

5GU10XKB (Sold separately) Mass : 0.6kg
Can be connected to all models except the right-angle gearhead.



●Capacitor (included with the motor)

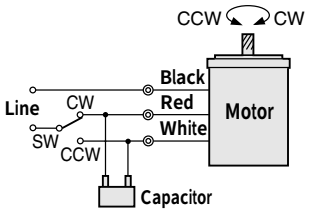
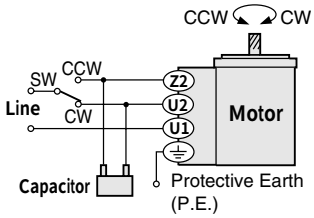
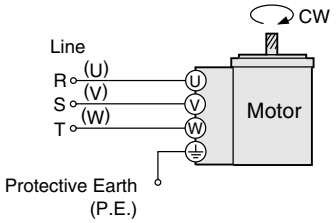


Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
5IK60GU-AW□U **5IK60A-AW□U**	CH180CFAUL	58	23.5	37	70
5IK60GU-CW□E **5IK60A-CW□E**	CH40BFAUL	58	23.5	37	70

- If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
- For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

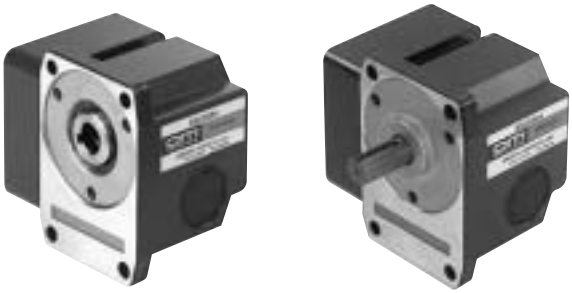
■ Wiring Diagrams The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type	
5IK60GU-AWU, 5IK60A-AWU **5IK60GU-CWE, 5IK60A-CWE**	**5IK60GU-AWTU, 5IK60A-AWTU** **5IK60GU-CWTE, 5IK60A-CWTE**	**5IK60GU-UT4F** **5IK60A-UT4F**
		
To rotate the motor in a clockwise(CW)direction,flip switch SW to CW. To rotate it in a counterclockwise(CCW)direction,flip switch SW to CCW.		To change the rotation, change any two connections between U, V and W.

Note : Change the direction of 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, the motor may ignore the reversing command or change its direction of rotation after some delay.

■Right-Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft that is at a right-angle to the motor's output shaft. Refer to page 50 for further detail.



■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 58 for further detail.
Model: **SOL5M6**

INDUCTION MOTORS
Single-Phase, Three-Phase
90W
Frame Size □90mm
Single-Phase: CE VDE UL c UL
Three-Phase: CE TÜV


Lead Wire Type


Terminal Box Type

Model Pinion Shaft Type (Round Shaft Type)		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection	
Read Wire Type	Terminal Box Type	W	V	Hz	A	mN·m	mN·m	r/min.	μF	Lead Wire Type	Terminal Box Type
5IK90GU-CWE (5IK90A-CWE)	**5IK90GU-CWTE (5IK90A-CWTE)**	90	Single-Phase 220	60	0.82	450	605	1450	6	IP20 (IP20)	IP44 (IP40)
			Single-Phase 230	50	0.76		730	1300			
			Single-Phase 230	60	0.81		605	1450			
5IK90GU-AWU (5IK90A-AWU)	**5IK90GU-AWTU (5IK90A-AWTU)**		Single-Phase 110	60	1.45	450	585	1500	20	IP20 (IP20)	IP44 (IP40)
			Single-Phase 115	60	1.44						
—	**5IK90GU-UT4F (5IK90A-UT4F)**		Three-Phase 400	50	0.35	850	700	1250	—	—	IP44 (IP40)

●The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.
●The "**E**" and "**U**" at the end of the part number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.
Note : Do not operate any AC400V motors with an Invertor. It will result in damage to the insulation of the motor wires.

■Gearmotor — Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 20N·m.

●Right-Angle gearhead may be connected.
Refer to page 50 for further detail on the right-angle gearheads.

●Single-Phase 230V 50Hz, Three-Phase 400V 50Hz

Unit = N·m

Model \ Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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**
5IK90GU-CWE 5IK90GU-CWTE / 5GU□KB	1.8	2.1	3	3.5	4.4	5.3	6.7	8	9.6	12	14	17	20	20	20	20	20	20	20	20
5IK90GU-CWE 5IK90GU-CWTE / 5GU□KBH													24	29	30	30	30	30	30	30
5IK90GU-UT4F / 5GU□KB	1.7	2	2.8	3.4	4.3	5.1	6.4	7.7	9.2	12	14	17	20	20	20	20	20	20	20	20
5IK90GU-UT4F / 5GU□KBH													23	28	30	30	30	30	30	30

●Single-Phase 220V/230V 60Hz, 110V/115V, 60Hz

Unit = N·m

Model \ Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	25	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**
5IK90GU-CWE 5IK90GU-CWTE / 5GU□KB	1.5	1.8	2.5	2.9	3.7	4.4	5.5	6.6	7.9	10	12	14	20	20	20	20	20	20	20	20
5IK90GU-CWE 5IK90GU-CWTE / 5GU□KBH													20	24	27	30	30	30	30	30
5IK90GU-AWU 5IK90GU-AWTU / 5GU□KB	1.4	1.7	2.4	2.8	3.6	4.3	5.3	6.4	7.7	9.7	12	14	19	20	20	20	20	20	20	20
5IK90GU-AWU 5IK90GU-AWTU / 5GU□KBH													19	23	26	30	30	30	30	30

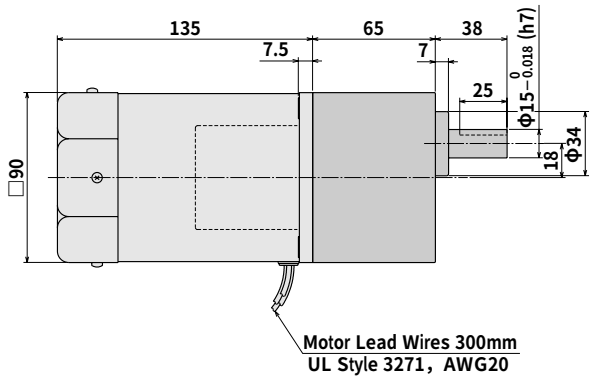
●Gearheads are sold separately.
●Enter the gear ratio in the box(□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
●The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500r/min, 60Hz : 1800r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the displayed value, depending on the size of the load.

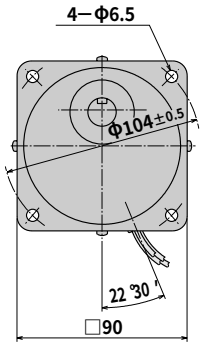
■Dimensions (Scale1/4, Unit = mm)

●Motor / Gearhead

5IK90GU-AWU
5IK90GU-CWE / **5GU□KB** (Sold separately)

Mass : Motor 3.2kg
Gearhead 1.5kg

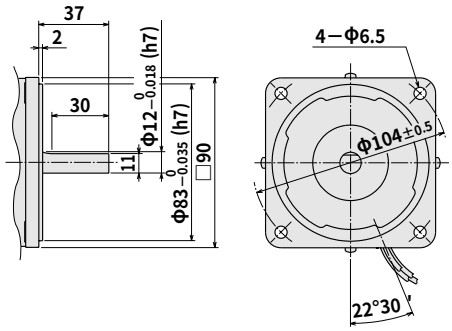




●Round Shaft Type

5IK90A-AWU
5IK90A-CWE

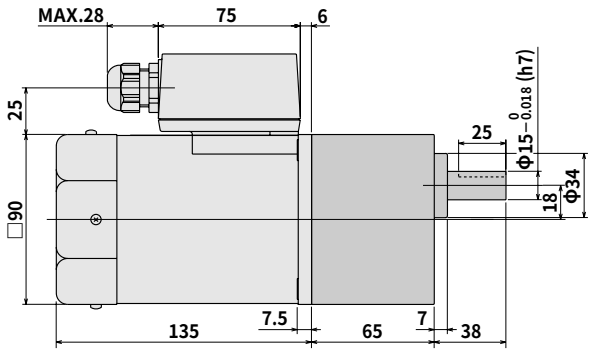
Mass : 3.2kg



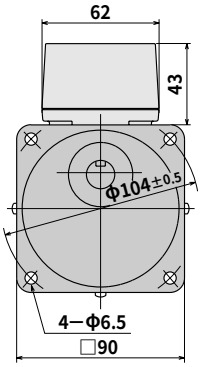
●Motor / Gearhead

5IK90GU-AWTU
5IK90GU-CWTE
5IK90GU-UT4F / **5GU□KB** (Sold separately)

Mass : Motor 3.3kg
Gearhead 1.5kg



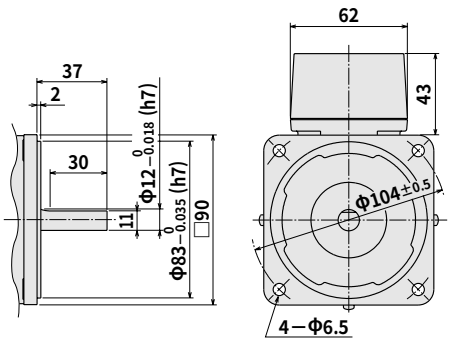
Use cabtyre cable with the diameter of Φ6～Φ12.



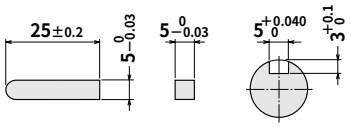
●Round Shaft Type

5IK90A-AWTU
5IK90A-CWTE
5IK90A-UT4F

Mass : 3.3kg

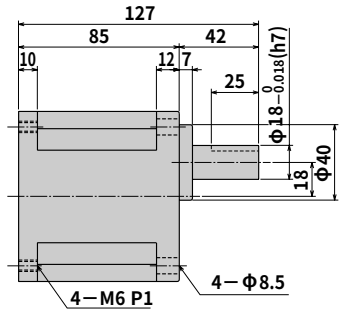


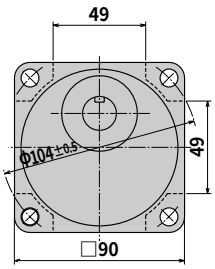
●**Key and Key Slot** (Scale 1/2)
(The key is provided with the gearhead.)



●**High Power Gearhead**

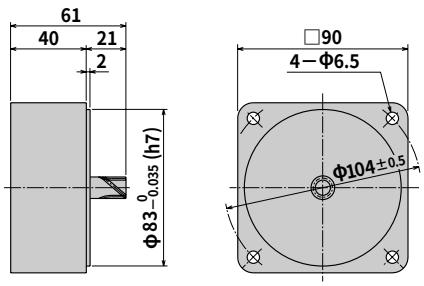
5GU□KBH (Sold separately) Mass : 1.9kg





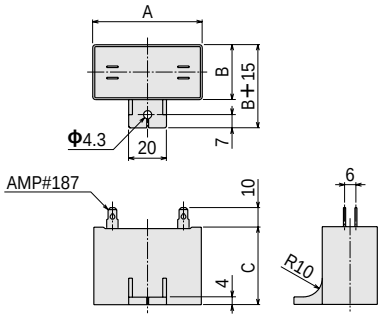
●**Decimal Gearhead**

5GU10XKB* (Sold separately) Mass : 0.6kg
Can be connected to all models except the right-angle gearhead.



*For **5GU□KB**

●Capacitor (included with the motor)

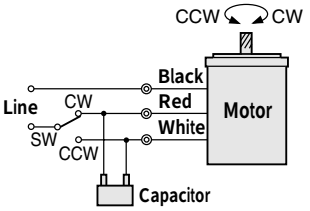
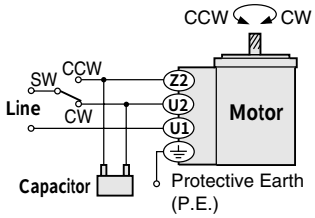
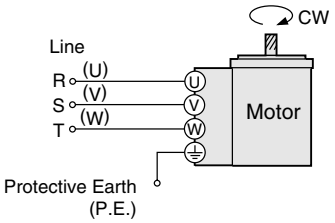


Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
5IK90GU-AW□U **5IK90A-AW□U**	CH200CFAUL	58	29	41	95
5IK90GU-CW□E **5IK90A-CW□E**	CH60BFAUL	58	29	41	85

- If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
- For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

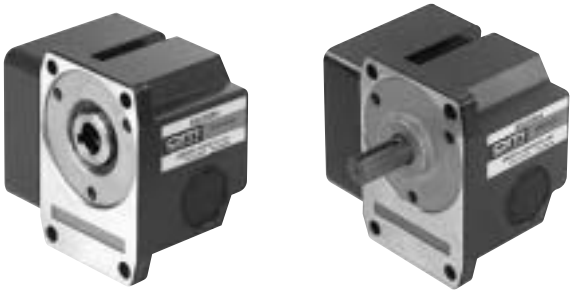
■ Wiring Diagrams The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type	
5IK90GU-AWU, 5IK90A-AWU **5IK90GU-CWE, 5IK90A-CWE**	**5IK90GU-AWTU, 5IK90A-AWTU** **5IK90GU-CWTE, 5IK90A-CWTE**	**5IK90GU-UT4F** **5IK90A-UT4F**
		
To rotate the motor in a clockwise(CW)direction,flip switch SW to CW. To rotate it in a counterclockwise(CCW)direction,flip switch SW to CCW.		To change the rotation, change any two connections between U, V and W.

Note : Change the direction of 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, the motor may ignore the reversing command or change its direction of rotation after some delay.

■Right Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft that is at a right-angle to the motor's output shaft. Refer to page 50 for further detail.



■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 58 for further detail.
Model : **5OL5M6** (for motor or **5GU□KB**)
5OL5M8 (for **5GU□KBH**)

Reversible Motors

Reversible motors are capacitor-run induction motors. By simple switching, the direction of motor rotation can be reversed instantly. These motors are very suitable for applications that require frequent switching between clockwise and counterclockwise rotation thus, the name "Reversible Motor".
While basically the same as the induction motors described before, they feature a large starting torque to improve their instantaneous reversing characteristics and employ a simple built-in friction brake to prevent motor overrun and shorten the time required for reversing. These motors are designed for applications where excellent performance and instantaneous reversal is required. However, due to their inherently higher temperature rise compared to induction motors, they have a limited 30-minute duty cycle rating for worst case operating conditions.

Reversible Motors

■ Product Specifications

Output Power	Model		Voltage	Frequency	Starting Torque	Rated Torque	Rated Speed	Degree of Protection		Page
W	Lead Wire Type	Terminal Box Type	V	Hz	mN·m	mN·m	r/min	Lead Wire Type	Terminal Box Type	
6	**2RK6GN-CWE**	**2RK6GN-CWTE**	Single-Phase 220	60	45	41	1450	IP20	IP40	25
			Single-Phase 230	50	50	49	1200			
			Single-Phase 230	60	45	41	1450			
	2RK6GN-AWU	**2RK6GN-AWTU**	Single-Phase110	60	45	41	1450	IP20	IP40	25
			Single-Phase 115	60						
15	**3RK15GN-CWE**	—	Single-Phase 220	60	100	105	1450	IP20	—	27
			Single-Phase 230	50	100	125	1200			
			Single-Phase 230	60	100	105	1450			
	3RK15GN-AWU	—	Single-Phase 110	60	100	105	1450	IP20	—	27
			Single-Phase 115	60						
25	**4RK25GN-CWE**	**4RK25GN-CWTE**	Single-Phase 220	60	140	170	1450	IP20	IP40	29
			Single-Phase 230	50	160	205	1200			
			Single-Phase 230	60	140	170	1450			
	4RK25GN-AWU	**4RK25GN-AWTU**	Single-Phase 110	60	140	170	1450	IP20	IP40	29
			Single-Phase 115	60						
40	**5RK40GN-CWE**	**5RK40GN-CWTE**	Single-Phase 220	60	260	260	1500	IP20	IP40	32
			Single-Phase 230	50	270	315	1250			
			Single-Phase 230	60	260	260	1500	IP20	IP40	32
	5RK40GN-AWU	**5RK40GN-AWTU**	Single-Phase 110	60	260	270	1450			
			Single-Phase 115	60						
60	**5RK60GU-CWE**	**5RK60GU-CWTE**	Single-Phase 220	60	380	405	1450	IP20	IP40	35
			Single-Phase 230	50	470	490	1200			
			Single-Phase 230	60	380	405	1450			
	5RK60GU-AWU	**5RK60GU-AWTU**	Single-Phase 110	60	380	405	1450	IP20	IP40	35
			Single-Phase 115	60						
90	**5RK90GU-CWE**	**5RK90GU-CWTE**	Single-Phase 220	60	590	605	1450	IP20	IP40	38
			Single-Phase 230	50	600	730	1200			
			Single-Phase 230	60	590	605	1450			
	5RK90GU-AWU	**5RK90GU-AWTU**	Single-Phase 110	60	590	585	1500	IP20	IP40	38
			Single-Phase 115	60						

●Products in this table have pinion shafts. Round shaft types are available for all models. Refer to the product pages for further detail.
●The "**E**" and "**U**" at the end of the model name indicate that the unit includes a capacitor. These two letters are not inscribed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

■ General Specifications

These specifications apply to all reversible motors.

Item	Specifications
Insulation Resistance	100MΩ or more when 500V DC is applied between the windings and the frame.
Dielectric Strength	Sufficient to withstand 1.5kV at 50Hz and 60Hz applied between the windings and the frame for 1 minute.
Temperature Rise	80˚C or less measured by the resistance change method after rated motor operation with a gearhead or equivalent heat radiation plate.
Insulation Class	Class B (130˚C)
Overheat Protection	**2RK** has impedance protection. All others have built-in thermal protector. Operating temperature (Automatic return type), open : 130˚C±5˚C close: 82˚C±15˚C
Ambient Temperature Range	−10˚C～+40˚C
Ambient Humidity	85% maximum (noncondensing)

Equivalent heat radiation plate (material : Aluminum)

Unit = mm

Type (output)	Size	Thickness
2RK Type (6W)	115×115	5
3RK Type (15W)	125×125	
4RK Type (25W)	135×135	
5RK40 Type(40W)	165×165	
5RK60 Type(60W)	200×200	
5RK90 Type(90W)	200×200	

■ Safety standard and CE Marking

Standards	Certification Body	Standards File No.	CE Marking
UL1004 UL519(6W) UL547(15W～90W) CAN/CSA-C22.2 No.100 CAN/CSA-C22.2 No.77	UL	E64199 (6W) E64197 (15W～90W)	Low Voltage Directives
EN60950	VDE	114919ÜG (6W)* 6751ÜG (15W～90W)	
EN60034-1 EN60034-5 IEC60034-11	Conform to EN/IEC Standards (EN/IEC certifications are scheduled.)		

Recognized name and certified name of each safety standards are motor model name.
*Except for terminal box type.

REVERSIBLE MOTORS
Single-Phase
6w
Frame Size □60mm

Lead Wire Type:

Terminal Box Type:

Lead Wire Type

Terminal Box Type

■ Specifications – 30 Minute Rating

Model Pinion Shaft Type (Round Shaft Type) Lead Wire Type	Terminal Box Type	Output Power	Voltage Single-Phase	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection	
		W	V	Hz	A	mN·m	mN·m	r/min	μF	Lead Wire Type	Terminal Box Type
2RK6GN-CWE (2RK6A-CWE)	**2RK6GN-CWTE (2RK6A-CWTE)**	6	220	60	0.11	45	41	1450	0.8	IP20	IP40
			230	50	0.12	50	49	1200			
			230	60	0.12	45	41	1450			
2RK6GN-AWU (2RK6A-AWU)	**2RK6GN-AWTU (2RK6A-AWTU)**	6	110	60	0.25	45	41	1450	3.5	IP20	IP40
			115	60	0.26						

- Values shown for starting torque and rated torque are measured for operation without the brake applied.
- These products are impedance protected.
- The "**E**" and "**U**" at the end of the part number indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

■ Gearmotor – Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 3N·m.

●Single-Phase 230V 50Hz

Unit = N·m

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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**
2RK6GN-CWE 2RK6GN-CWTE / **2GN□K**		0.12	0.14	0.2	0.24	0.3	0.36	0.5	0.6	0.71	0.89	1.1	1.3	1.6	1.9	2.4	2.9	3	3	3	3

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

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**
2RK6GN-CWE 2RK6GN-CWTE 2RK6GN-AWU 2RK6GN-AWTU / **2GN□K**		0.1	0.12	0.17	0.2	0.25	0.3	0.42	0.5	0.6	0.75	0.9	1.1	1.4	1.6	2	2.4	2.7	3	3	3

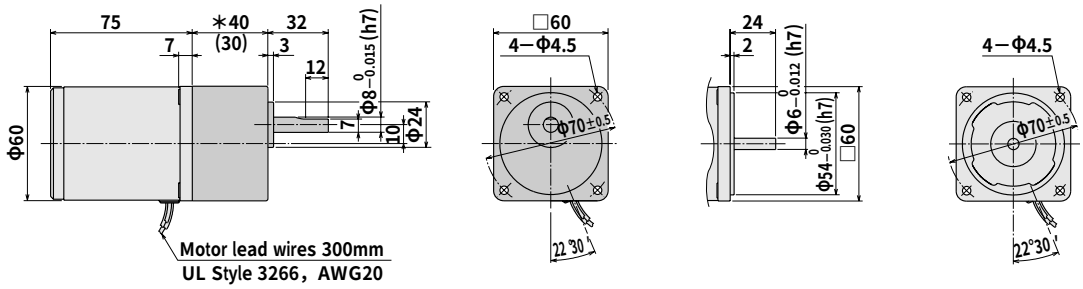
- Gearheads are sold separately.
- Enter the gear ratio in the box (□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50Hz:1500r/min, 60Hz:1800r/min) by the gear ratio. The actual speed is 2 ~ 20% less than the displayed value, depending on the size of the load.

■Dimensions (Scale1/4, Unit = mm)

●Motor
2RK6GN-AWU
2RK6GN-CWE
Mass : 0.7kg

Gearhead
2GN□K (Sold separately)
Mass : 0.4kg

●Round Shaft Type
2RK6A-AWU
2RK6A-CWU
Mass : 0.7kg

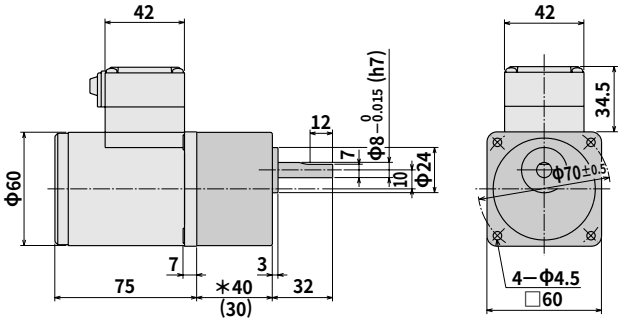


Asterisk(∗) indicates dimensions of **2GN25K～180K**,
the figure in parenthesis indicates dimensions of **2GN3K～18K**.

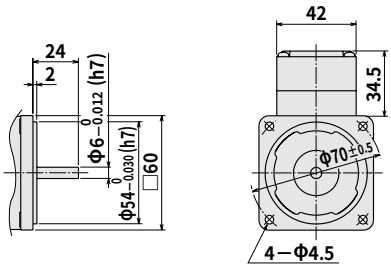
■Dimensions (Scale1/4, Unit = mm)

●Motor
2RK6GN-AWTU
2RK6GN-CWTE
Mass : 0.75kg

Gearhead
2GN□K (Sold separately)
Mass : 0.4kg

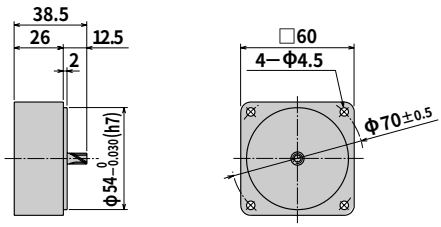


●Round Shaft Type
2RK6A-AWTU
2RK6A-CWTE
Mass : 0.75kg

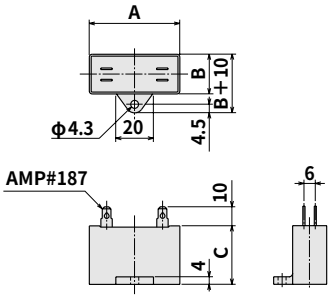


Asterisk(∗) indicates dimensions of **2GN25K～180K**,
the figure in parenthesis indicates dimensions of **2GN3K～18K**.
Use cabtyre cable with the diameter of **Φ**6.8**～Φ**8.6

● **Decimal Gearhead**
2GN10XK (Sold separately) Mass : 0.2kg



● Capacitor (included with the motor)

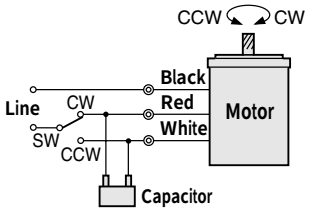
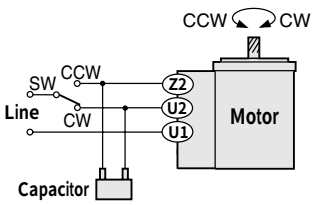


Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
2RK6GN-AW□U **2RK6A-AW□U**	CH35FAUL	31	17	27	25
2RK6GN-CW□E **2RK6A-CW□E**	CH08BFAUL	31	17	27	25

●If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
●For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

■ Wiring Diagrams The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type
2RK6GN-AWU **2RK6GN-CWE**	**2RK6GN-AWTU** **2RK6GN-CWTE**
	

To rotate the motor in a clockwise(CW)direction, flip switch SW to CW.
To rotate it in a counterclockwise(CCW)direction, flip switch SW to CCW.

■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 57 for further detail.
Model: **PAL2N**

REVERSIBLE MOTORS

Single-Phase

15w

Frame Size □70mm

Lead Wire Type

■ Specifications – 30 Minute Rating

Model		Output Power	Voltage Single-Phase	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection
Pinion Shaft Type	Round Shaft Type	W	V	Hz	A	mN·m	mN·m	r/min	μF	
3RK15GN-CWE	**3RK15A-CWE**	15	220	60	0.21	100	105	1450	1.5	IP20
			230	50	0.20		125	1200		
			230	60	0.21		105	1450		
3RK15GN-AWU	**3RK15A-AWU**	15	110	60	0.42	100	105	1450	6.0	IP20
			115	60	0.41					

- Values shown for starting torque and rated torque are measured for operation without the brake applied.
- These products are impedance protected.
- The "**E**" and "**U**" at the end of the part number name indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

■Gearmotor – Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 5N•m

●Single-Phase 230V 50Hz

Unit＝N•m

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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**
3RK15GN-CWE / 3GN□K		0.3	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

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit＝N•m

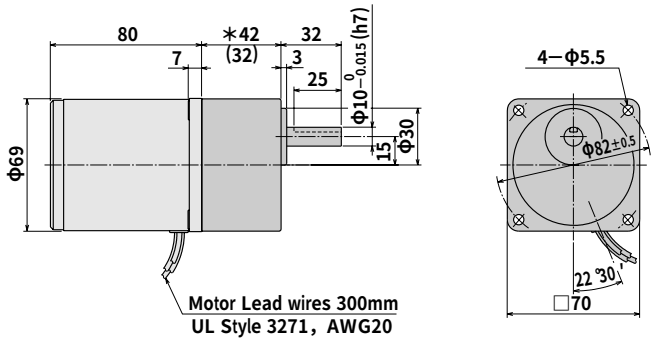
Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
	Gear Ratio	**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
3RK15GN-CWE 3RK15GN-AWU / 3GN□K		0.26	0.31	0.43	0.51	0.64	0.77	1.1	1.3	1.5	1.9	2.3	2.8	3.5	4.2	5	5	5	5	5	5

- Gearheads are sold separately.
- Enter the gear ratio in the box (□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50Hz: 1500r/min, 60Hz:1800r/min) by the gear ratio. The actual speed is 2～20% less than the displayed value, depending on the size of the load.

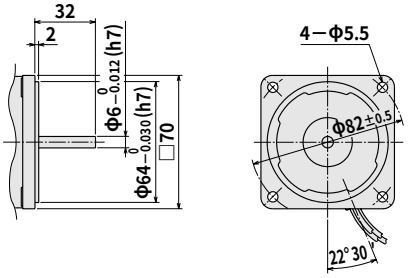
■Dimensions (Scale1/4, Unit = mm)

●Motor
3RK15GN-AWU
3RK15GN-CWE
Mass : 1.1kg

Gearhead
3GN□K (Sold separately)
Mass : 0.55kg

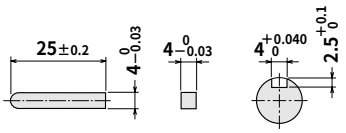


●Round Shaft Type
3RK15A-AWU
3RK15A-CWE
Mass : 1.1kg

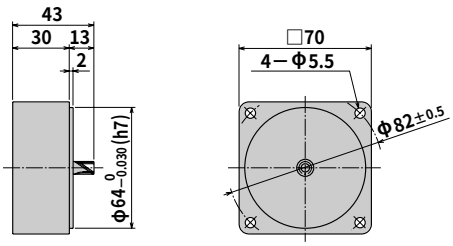


Asterisk(∗)indicates dimensions of **3GN25K～180K**,
the figure in parentheses indicates dimensions of **3GN3K～18K**.

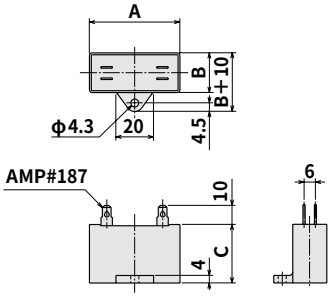
●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.



●**Decimal Gearhead**
3GN10XK (Sold separately) Mass : 0.3kg
Can be connected to all models of pinion shaft type.



● Capacitor (included with the motor)



Capacitor Dimensions (mm)

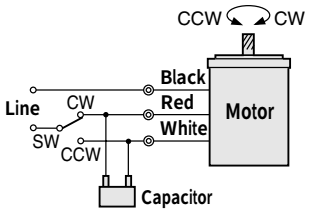
Motor Model	Capacitor Model	A	B	C	Mass (g)
3RK15GN-AWU **3RK15A-AWU**	CH60CFAUL	38	21	31	40
3RK15GN-CWE **3RK15A-CWE**	CH15BFAUL	38	21	31	35

●If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.

■ Wiring Diagram

The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type
3RK15GN-AWU, 3RK15A-AWU **3RK15GN-CWE, 3RK15A-CWE**



To rotate the motor in a clockwise(CW)direction, flip switch SW to CW.
To rotate it in a counterclockwise(CCW)direction, flip switch SW to CCW.

■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 57 for further detail.
Model: **PAL3N**

REVERSIBLE MOTORS
Single-Phase
25w

Frame Size □80mm

Lead Wire Type

Terminal Box Type

■ Specifications – 30 Minute Rating

Model Pinion Shaft Type (Round Shaft Type) Lead Wire Type	Terminal Box Type	Output Power	Voltage Single-Phase	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection Lead Wire Type	Terminal Box Type
		W	V	Hz	A	mN·m	mN·m	r/min	μF		
4RK25GN-CWE (4RK25A-CWE)	4RK25GN-CWTE (4RK25A-CWTE)	25	220	60	0.28	140	170	1450	2	IP20	IP40
			230	50	0.26	160	205	1200			
			230	60	0.28	140	170	1450			
4RK25GN-AWU (4RK25A-AWU)	4RK25GN-AWTU (4RK25A-AWTU)	25	110	60	0.54	140	170	1450	8	IP20	IP40
			115	60							

- Values shown for starting torque and rated torque are measured for operation without the brake applied.
- The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.
- The "**E**" and "**U**" at the end of the part number name indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

■ Gearmotor – Torque Table

- Right-Angle gearhead may be connected. Refer to page 50 for further detail.

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 8N·m. The value is 6N·m when 1/25～1/36 gearheads are connected.

●Single-Phase 230V 50Hz

Unit = N·m

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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-CWE 4RK25GN-CWTE / 4GN□K		0.5	0.6	0.83	1	1.2	1.5	2.1	2.5	3	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

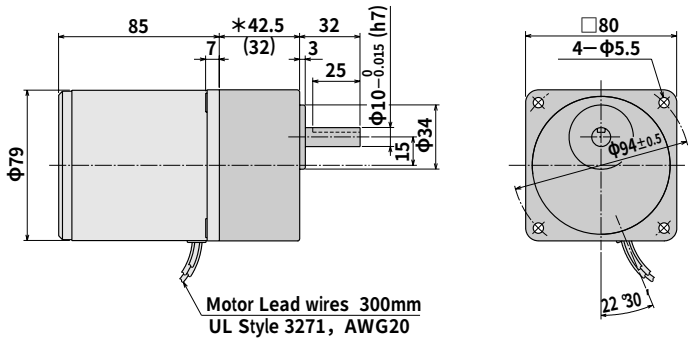
Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
	Gear Ratio	**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
4RK25GN-CWE 4RK25GN-CWTE 4RK25GN-AWU 4RK25GN-AWTU / 4GN□K		0.41	0.5	0.69	0.83	1	1.2	1.7	2.1	2.5	3.1	3.7	4.5	5.6	6.7	8	8	8	8	8	8

- Gearheads are sold separately.
- Enter the gear ratio in the box (□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50Hz: 1500r/min, 60Hz: 1800r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the displayed value, depending on the size of the load.

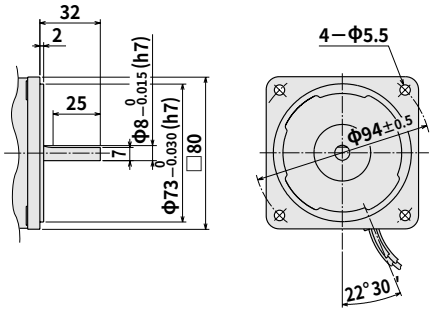
■Dimensions (Scale1/4, Unit = mm)

●Motor
4RK25GN-AWU
4RK25GN-CWE
Mass : 1.5kg

Gearhead
4GN□K (Sold separately)
Mass : 0.65kg



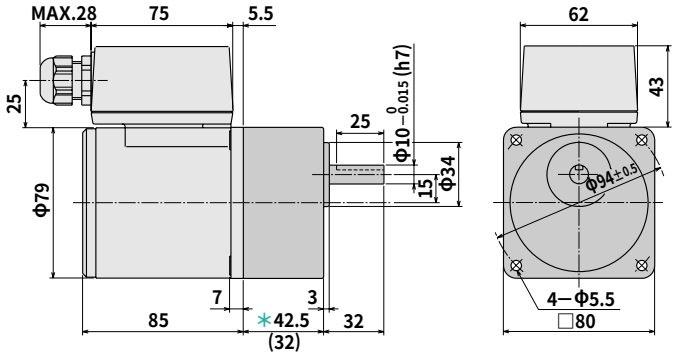
●Round Shaft Type
4RK25A-AWU
4RK25A-CWE
Mass : 1.5kg



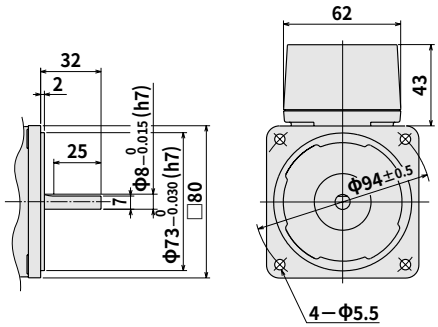
Asterisk(∗) indicates dimensions of **4GN25K～180K**,
the figure in parenthesis indicates dimensions of **4GN3K～18K**.

●Motor
4RK25GN-AWTU
4RK25GN-CWTE
Mass : 1.7kg

Gearhead
4GN□K (Sold separately)
Mass : 0.65kg

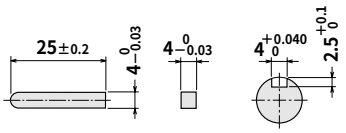


●Round Shaft Type
4RK25A-AWTU
4RK25A-CWTE
Mass : 1.7kg

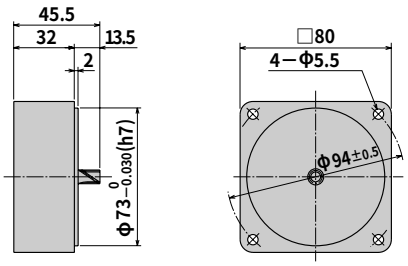


Asterisk(∗) indicates dimensions of **4GN25K～180K**,
the figure in parenthesis indicates dimensions of **4GN3K～18K**.
Use cabtyre cable with the diameter of **Φ**6～**Φ**12

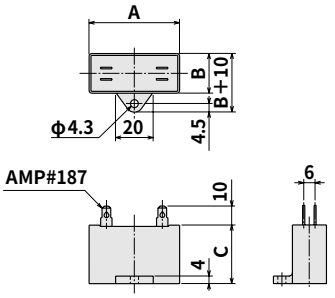
●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.



●**Decimal Gearhead**
4GN10XK (Sold separately) Mass : 0.4kg



● Capacitor (included with the motor)

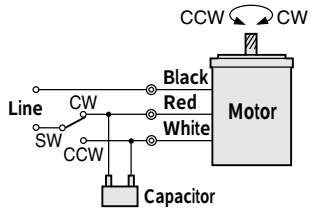
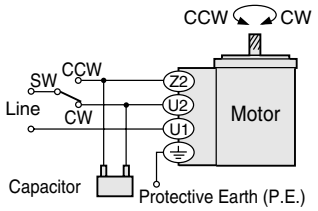


Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
4RK25GN-AW□U **4RK25A-AW□U**	CH80CFAUL	48	19	29	40
4RK25GN-CW□E **4RK25A-CW□E**	CH20BFAUL	48	19	29	35

●If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
●For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

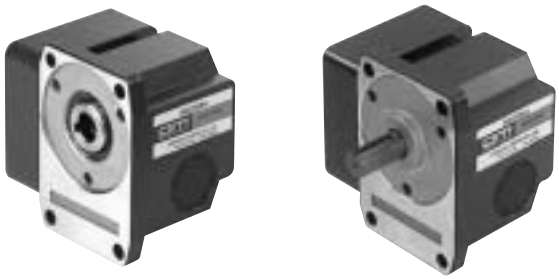
■ Wiring Diagrams The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type
4RK25GN-AWU, 4RK25A-AWU **4RK25GN-CWE, 4RK25A-CWE**	**4RK25GN-AWTU, 4RK25A-AWTU** **4RK25GN-CWTE, 4RK25A-CWTE**
	

To rotate the motor in a clockwise(CW)direction, flip switch SW to CW.
To rotate it in a counterclockwise(CCW)direction, flip switch SW to CCW.

■ Right – Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft that is at a right angle to the motor's output shaft.
Refer to page 50 for further detail.



■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 58 for further detail.
Model: **PAL4N**

Lead Wire Type

Terminal Box Type

REVERSIBLE MOTORS
Single-Phase
40w

Frame Size □90mm

■ Specifications – 30 Minute Rating

Model Pinion Shaft Type (Round Shaft Type) Lead Wire Type	Terminal Box Type	Output Power	Voltage Single-Phase	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection Lead Wire Type	Terminal Box Type
		W	V	Hz	A	mN·m	mN·m	r/min	μF		
5RK40GN-CWE (5RK40A-CWE)	**5RK40GN-CWTE (5RK40A-CWTE)**	40	220	60	0.46	260	260	1500	3.5	IP20	IP40
			230	50	0.40	270	315	1250			
			230	60	0.46	260	260	1500			
5RK40GN-AWU (5RK40A-AWU)	**5RK40GN-AWTU (5RK40A-AWTU)**	40	110 115	60	0.81	260	270	1450	12	IP20	IP40

- Values shown for starting torque and rated torque are measured for operation without the brake applied.
- The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.
- The "**E**" and "**U**" at the end of the part number name indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

■ Gearmotor – Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 10N·m.

- Right-Angle gearhead may be connected. Refer to page 50 for further detail.

●Single-Phase 230V 50Hz

Unit = N·m

Model \ Speed r/min		500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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-CWE 5RK40GN-CWTE	**5GN□K**	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

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

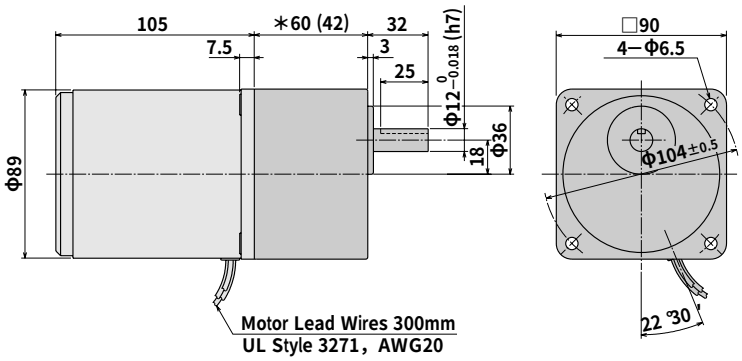
Model \ Speed r/min		600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
Gear Ratio		**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
5RK40GN-CWE 5RK40GN-CWTE	**5GN□K**	0.63	0.76	1.1	1.3	1.6	1.9	2.6	3.2	3.8	4.7	5.7	6.8	8.6	10	10	10	10	10	10	10
5RK40GN-AWU 5RK40GN-AWTU	**5GN□K**	0.66	0.79	1.1	1.3	1.6	2	2.7	3.3	3.9	4.9	5.9	7.1	8.9	10	10	10	10	10	10	10

- Gearheads are sold separately.
- Enter the gear ratio in the box (□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50Hz: 1500r/min, 60Hz: 1800r/min) by the gear ratio. The actual speed is 2 ~ 20% less than the displayed value, depending on the size of the load.

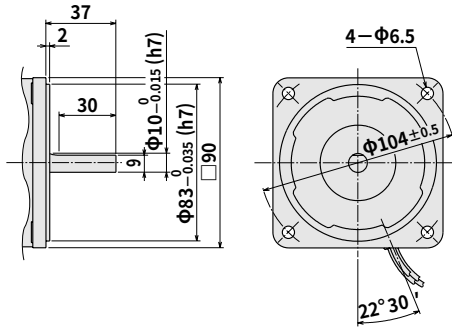
■Dimensions (Scale1/4, Unit = mm)

●Motor
5RK40GN-AWU
5RK40GN-CWE
Mass : 2.5kg

Gearhead
5GN□K (Sold separately)
Mass : 1.5kg



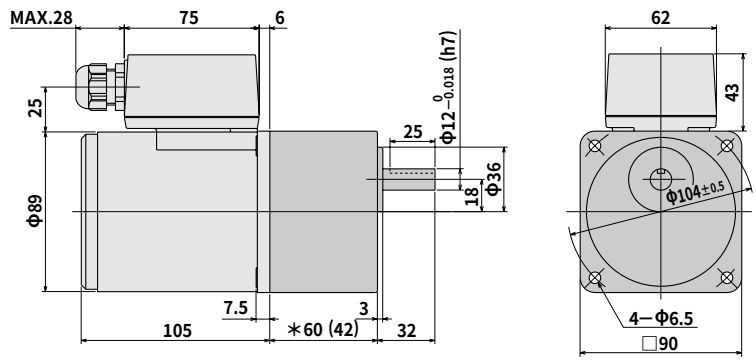
●Round Shaft Type
5RK40A-AWU
5RK40A-CWE
Mass : 2.5kg



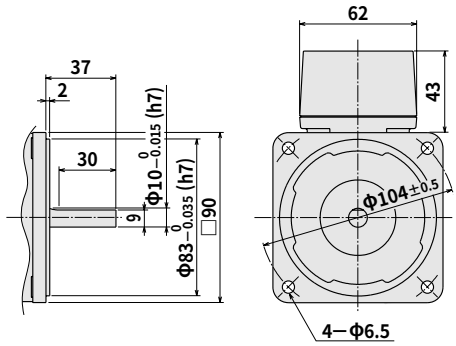
Asterisk(∗) indicates dimensions of **5GN25K～180K**,
the figure in parenthesis indicates dimensions of **5GN3K～18K**.

●Motor
5RK40GN-AWTU
5RK40GN-CWTE
Mass : 2.6kg

Gearhead
5GN□K (Sold separately)
Mass : 1.5kg

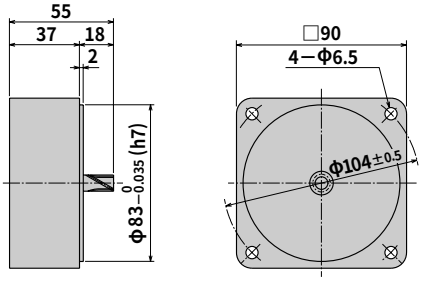


●Round Shaft Type
5RK40A-AWTU
5RK40A-CWTE
Mass : 2.6kg

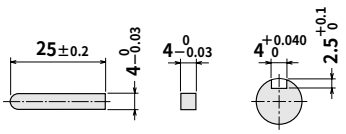


Asterisk(∗) indicates dimensions of **5GN25K～180K**,
the figure in parenthesis indicates dimensions of **5GN3K～18K**.
Use cabtyre cable with the diameter of **Φ**6～**Φ**12

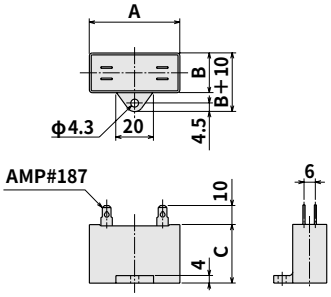
●**Decimal Gearhead**
5GN10XK (Sold separately) Mass : 0.6kg
Can be connected to all models except the right-angle gearhead.



●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.



● Capacitor (included with the motor)

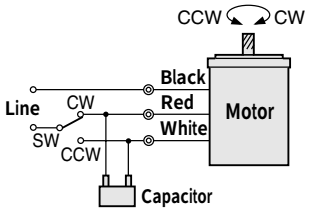
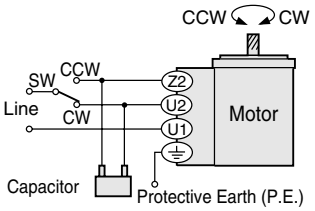


Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
5RK40GN-AW□U **5RK40A-AW□U**	CH120CFAUL	58	21	31	50
5RK40GN-CW□E **5RK40A-CW□E**	CH35BFAUL	58	22	35	55

●If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
●For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

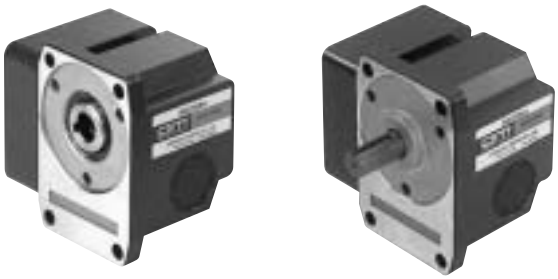
■ Wiring Diagrams The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type
5RK40GN-AWU, 5RK40A-AWU **5RK40GN-CWE, 5RK40A-CWE**	**5RK40GN-AWTU, 5RK40A-AWTU** **5RK40GN-CWTE, 5RK40A-CWTE**
	

To rotate the motor in a clockwise(CW)direction, flip switch SW to CW.
To rotate it in a counterclockwise(CCW)direction, flip switch SW to CCW.

■ Right – Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft that is at a right angle to the motor's output shaft.
Refer to page 50 for further detail.



■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 58 for further detail.
Model: **PAL5N**

REVERSIBLE MOTORS
Single-Phase
60w

Frame Size □90mm

Lead Wire Type

Terminal Box Type

■ Specifications – 30 Minute Rating

Model Pinion Shaft Type (Round Shaft Type) Lead Wire Type	Terminal Box Type	Output Power	Voltage Single-Phase	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection	
		W	V	Hz	A	mN·m	mN·m	r/min	μF	Lead Wire Type	Terminal Box Type
5RK60GU-CWE (5RK60A-CWE)	**5RK60GU-CWTE (5RK60A-CWTE)**	60	220	60	0.67	380	405	1450	5	IP20	IP40
			230	50	0.61	470	490	1200			
			230	60	0.67	380	405	1450			
5RK60GU-AWU (5RK60A-AWU)	**5RK60GU-AWTU (5RK60A-AWTU)**	60	110	60	1.24	380	405	1450	20	IP20	IP40
			115								

- Values shown for starting torque and rated torque are measured for operation without the brake applied.
- The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.
- The "**E**" and "**U**" at the end of the part number name indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

■Gearmotor—Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 20N·m.

●Right-Angle gearhead may be connected. Refer to page 50 for further detail.

●Single-Phase 230V 50Hz

Unit = N·m

Model \ Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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**
5RK60GU-CWE 5RK60GU-CWTE / 5GU□KB	1.2	1.4	2	2.4	3	3.6	4.5	5.4	6.4	8.1	9.7	12	16	19	20	20	20	20	20	20

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

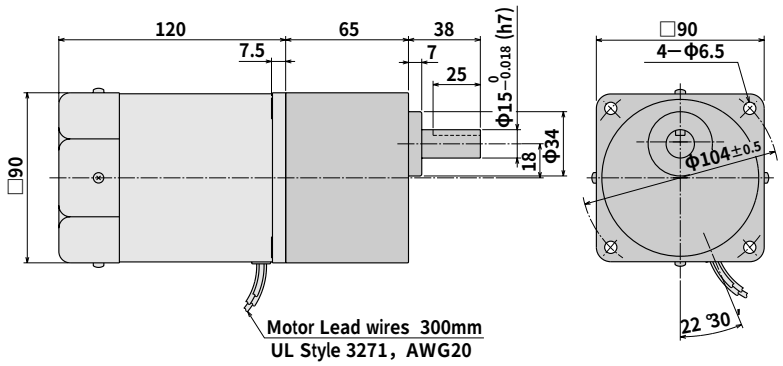
Model \ Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
Gear Ratio	**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
5RK60GU-CWE 5RK60GU-CWTE 5RK60GU-AWU 5RK60GU-AWTU / 5GU□KB	0.98	1.2	1.6	2	2.5	3	3.7	4.4	5.3	6.7	8	9.6	13	16	18	20	20	20	20	20

- Gearheads are sold separately.
- Enter the gear ratio in the box (□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50Hz: 1500r/min, 60Hz: 1800r/min) by the gear ratio. The actual speed is 2 ~ 20% less than the displayed value, depending on the size of the load.

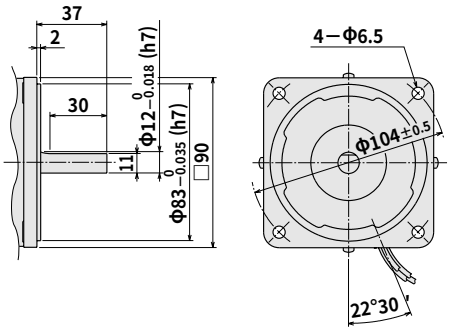
■Dimensions (Scale1/4, Unit = mm)

●Motor
5RK60GU-AWU
5RK60GU-CWE
Mass : 2.7kg

Gearhead
5GU□KB (Sold separately)
Mass : 1.5kg

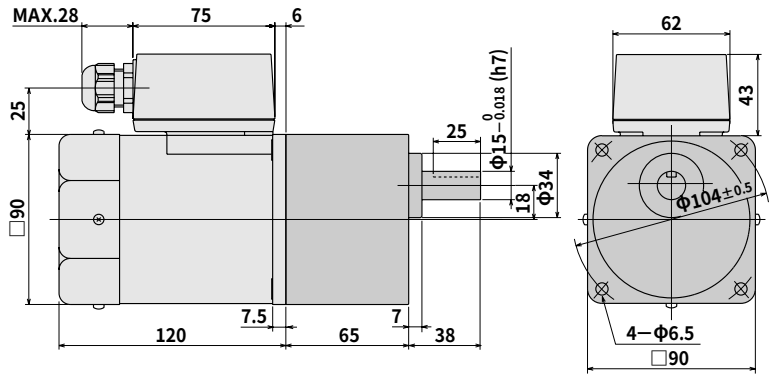


●Round Shaft Type
5RK60A-AWU
5RK60A-CWE
Mass : 2.7kg



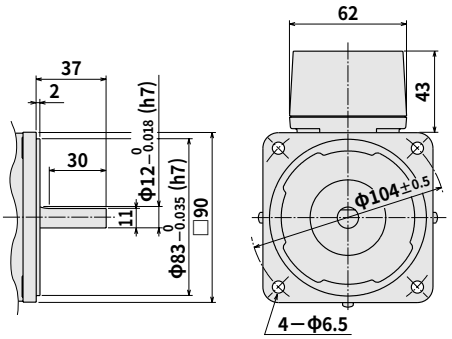
●Motor
5RK60GU-AWTU
5RK60GU-CWTE
Mass : 2.8kg

Gearhead
5GU□KB (Sold separately)
Mass : 1.5kg

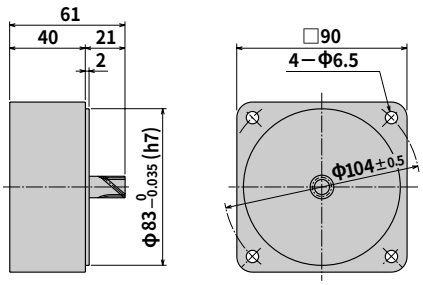


Use cabtyre cable with the diameter of Φ6～Φ12

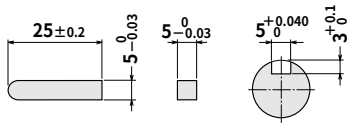
●Round Shaft Type
5RK60A-AWTU
5RK60A-CWTE
Mass : 2.8kg



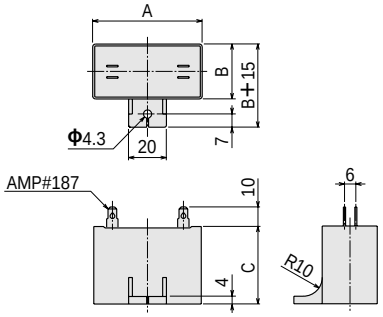
●**Decimal Gearhead**
5GU10XKB (Sold separately) Mass : 0.6kg
Can be connected to all models except the right-angle gearhead.



●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.



● Capacitor (included with the motor)

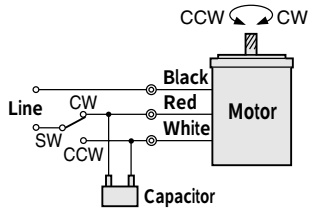
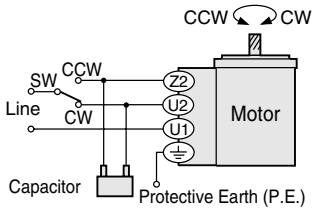


Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
5RK60GU-AW□U **5RK60A-AW□U**	CH200CFAUL	58	29	41	95
5RK60GU-CW□E **5RK60A-CW□E**	CH50BFAUL	58	29	41	85

●If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
●For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

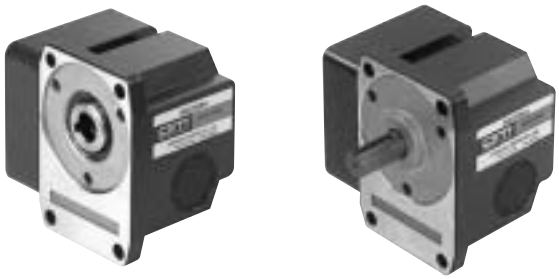
■ Wiring Diagrams The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type
5RK60GU-AWU, 5RK60A-AWU **5RK60GU-CWE, 5RK60A-CWE**	**5RK60GU-AWTU, 5RK60A-AWTU** **5RK60GU-CWTE, 5RK60A-CWTE**
	

To rotate the motor in a clockwise(CW)direction, flip switch SW to CW.
To rotate it in a counterclockwise(CCW)direction, flip switch SW to CCW.

■ Right – Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft that is at a right angle to the motor's output shaft.
Refer to page 50 for further detail.



■Accessories (Sold separately)

●Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 58 for further detail.
Model: **SOL5M6**

REVERSIBLE MOTORS
Single-Phase
90w

Frame Size □90mm

Lead Wire Type

Terminal Box Type

■ Specifications – 30 Minute Rating

Model Pinion Shaft Type (Round Shaft Type)		Output Power	Voltage Single-Phase	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor	Degree of Protection	
Lead Wire Type	Terminal Box Type	W	V	Hz	A	mN·m	mN·m	r/min	μF	Lead Wire Type	Terminal Box Type
5RK90GU-CWE (5RK90A-CWE)	**5RK90GU-CWTE (5RK90A-CWTE)**	90	220	60	0.96	590	605	1450	7	IP20	IP40
			230	50	0.82	600	730	1200			
			230	60	0.96	590	605	1450			
5RK90GU-AWU (5RK90A-AWU)	**5RK90GU-AWTU (5RK90A-AWTU)**	90	110 115	60	1.81	590	585	1500	30	IP20	IP40

- Values shown for starting torque and rated torque are measured for operation without the brake applied.
- The product contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.
- The "**E**" and "**U**" at the end of the part number name indicate that the unit includes a capacitor. These two letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the nameplate is adopted.

■ Gearmotor – Torque Table

The maximum permissible torque with a decimal gearhead with a gear ratio of 10 is 10N·m.

- Right-Angle gearhead may be connected. Refer to page 50 for further detail.

●Single-Phase 230V 50Hz

Unit = N·m

Model	Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	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**
5RK90GU-CWE 5RK90GU-CWTE / **5GU□KB**		1.8	2.1	3	3.5	4.4	5.3	6.7	8	9.6	12	14	17	20	20	20	20	20	20	20	20
5RK90GU-CWE 5RK90GU-CWTE / **5GU□KBH**														24	29	30	30	30	30	30	30

●Single-Phase 220V/230V 60Hz, 110V/115V 60Hz

Unit = N·m

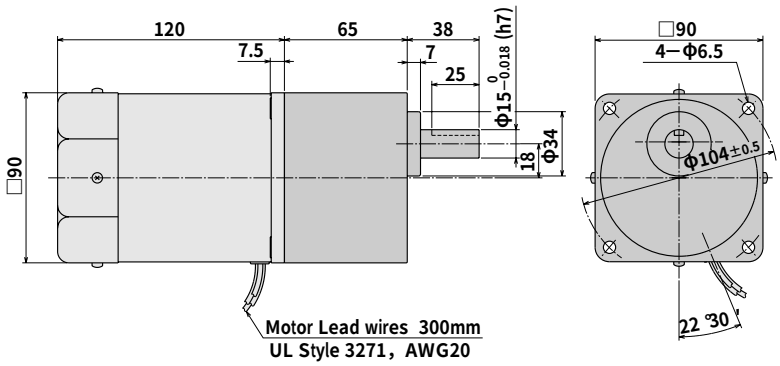
Model	Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
	Gear Ratio	**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
5RK90GU-CWE 5RK90GU-CWTE / **5GU□KB**		1.5	1.8	2.5	2.9	3.7	4.4	5.5	6.6	7.9	10	12	14	20	20	20	20	20	20	20	20
5RK90GU-CWE 5RK90GU-CWTE / **5GU□KBH**														20	24	27	30	30	30	30	30
5RK90GU-AWU 5RK90GU-AWTU / **5GU□KB**		1.4	1.7	2.4	2.8	3.6	4.3	5.3	6.4	7.7	9.7	12	14	19	20	20	20	20	20	20	20
5RK90GU-AWU 5RK90GU-AWTU / **5GU□KBH**														19	23	26	30	30	30	30	30

- Gearheads are sold separately.
- Enter the gear ratio in the box (□) within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50Hz: 1500r/min, 60Hz: 1800r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the displayed value, depending on the size of the load.

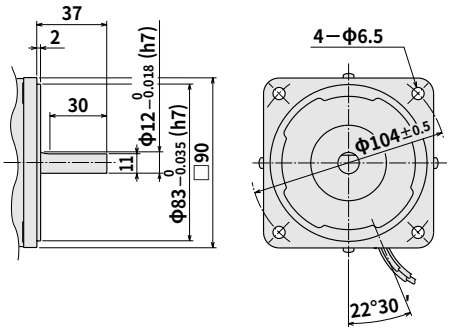
■Dimensions (Scale1/4, Unit = mm)

●Motor
5RK90GU-AWU
5RK90GU-CWE
Mass : 3.2kg

Gearhead
5GU□KB (Sold separately)
Mass : 1.5kg

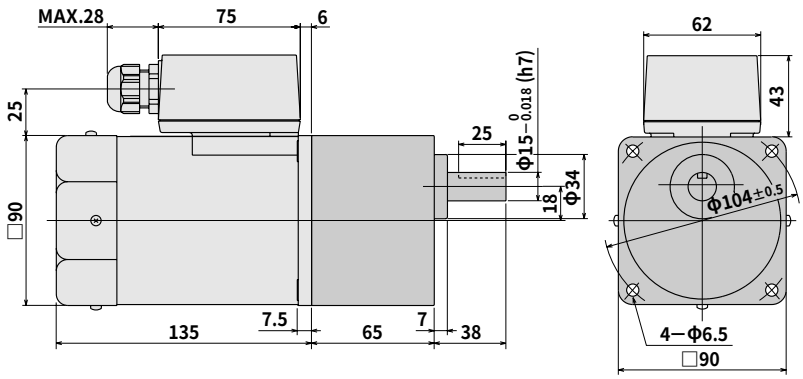


●Round Shaft Type
5RK90A-AWU
5RK90A-CWE
Mass : 3.2kg



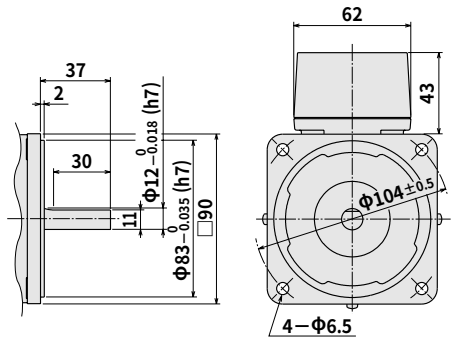
●Motor
5RK90GU-AWTU
5RK90GU-CWTE
Mass : 3.3kg

Gearhead
5GU□KB (Sold separately)
Mass : 1.5kg

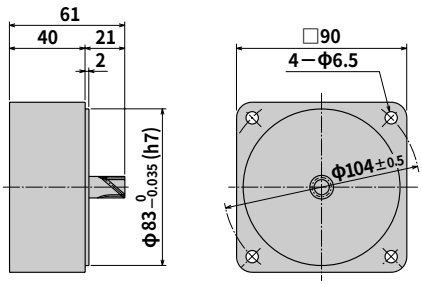


Use cabtyre cable with the diameter of Φ6～Φ12

●Round Shaft Type
5RK90A-AWTU
5RK90A-CWTE
Mass : 3.3kg

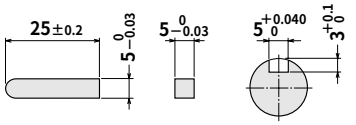


●**Decimal Gearhead**
5GU10XKB＊ (Sold separately) Mass : 0.6kg

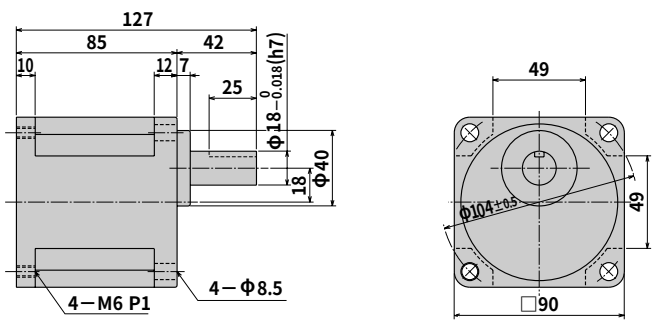


＊ For **5GU□KB**.

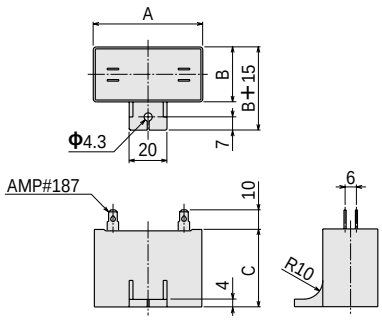
●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.



●**High Power Gearhead** **5GU□KBH** (Sold separately) Mass : 1.9kg



● Capacitor (included with the motor)



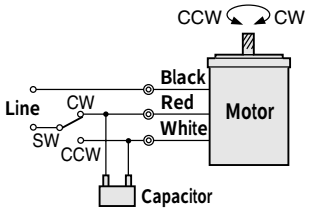
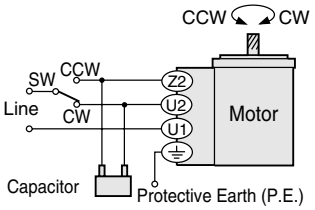
Capacitor Dimensions (mm)

Motor Model	Capacitor Model	A	B	C	Mass (g)
5RK90GU-AW□U **5RK90A-AW□U**	CH300CFAUL	58	35	50	140
5RK90GU-CW□E **5RK90A-CW□E**	CH70BFAUL	58	35	50	130

- If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.
- For the motor with the terminal box, the character of **T** is inserted in the □ of the model name.

■ Wiring Diagrams

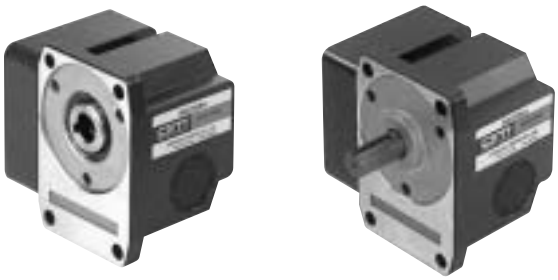
The direction of motor rotation is as viewed from the shaft end of the motor.

Lead Wire Type	Terminal Box Type
5RK90GU-AWU, 5RK90A-AWU **5RK90GU-CWE, 5RK90A-CWE**	**5RK90GU-AWTU, 5RK90A-AWTU** **5RK90GU-CWTE, 5RK90A-CWTE**
	

To rotate the motor in a clockwise(CW)direction, flip switch SW to CW.
To rotate it in a counterclockwise(CCW)direction, flip switch SW to CCW.

■ Right – Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft that is at a right angle to the motor's output shaft.
Refer to page 50 for further detail.



■ Accessories (Sold separately)

● Motor Mounting Brackets

Optional die-cast aluminum mounting brackets are available. They can be used to install motors with or without gearheads. Refer to page 58 for further detail.

Model: **SOL5M6** (for motor or **5GU□KB**)
SOL5M8 (for **5GU□KBH**)

Power off activated Type

Electromagnetic Brake Motors

Electromagnetic brake coupled to reversible motors provides output of 6W～90W.
These motors are best suited for applications in which loads must be held.

The gearhead shown in the photograph is sold separately.

■Features

- These motors incorporate AC electromagnetic brakes which are activated when the power is shut off.Holding brake force is 30 mN·m～500 mN·m.
- When the power supply is turned off the motor stops and holds the load.
  These units are excellent as emergency safety brakes.

Note: Products approved under UL and CSA standards and which conform to EN/IEC standards(CE marking).

■Product Number Code

4RK25GN - CW M E

Provided Capacitor
U : 110/115V
E : 220/230V

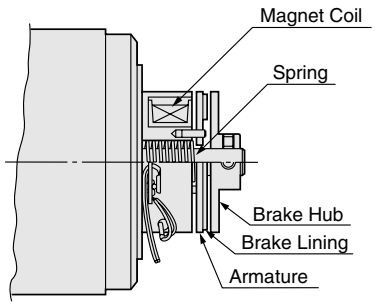
M : Electromagnetic Brake

Voltage
AW : Single-Phase 110V/115V
CW : Single-Phase 220V/230V

●Refer to page A-30 for the Product Number Code of the Gearheads.

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

■Structure



The figure above indicates an example of the structure of our electromagnetic brake motor.
The electromagnetic brake operates on the basis of a spring which presses the armature against the brake hub, stopping the motor and holding the load.
When the electromagnetic brake is excited, it attracts the armature and the brake lining is pulled away from the brake hub. The motor is able to turn freely.
The structure of the electromagnetic brake is different depending on the motor model.

■Safety Standards and CE Marking

Standards	Certification Body	Standards File No.	CE Marking
UL1004 UL519 (**2RK** type) UL547 (**4RK**, **5RK** type)	UL	E64199 (**2RK** type) E64197 (**4RK**, **5RK** type)	Low Voltage Directive
CAN/CSA-C22.2 No.100 CAN/CSA-C22.2 No.77			
EN60950	VDE	114919ÜG (**2RK** type) 6751ÜG (**4RK**, **5RK** type)	
EN60034-1 EN60034-5 IEC60034-11	Conform to EN/IEC Standards (EN/IEC certifications are scheduled)		

● For installation condition for EN/IEC standards, refer to page D-2 for further detail.

■Motor Specifications – 30 Minute Rating

●The base motor in the electromagnetic brake series is a reversible motor. However, in these motors, the friction brake is not used.

●Single-Phase 220/230V, 110/115V

Model		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Pinion Shaft Type	Round Shaft Type	W	V	Hz	A	mN・m	mN・m	r/min	μF
ⓩ 2RK6GN-CWME	2RK6A-CWME	6	Single-Phase220	60	0.11	45	41	1450	0.8
			Single-Phase230	50	0.12	50	49	1200	
			Single-Phase230	60	0.12	45	41	1450	
ⓩ 2RK6GN-AWMU	2RK6A-AWMU	6	Single-Phase110	60	0.25	45	41	1450	3.5
			Single-Phase115		0.26				
ⓣ 4RK25GN-CWME	4RK25A-CWME	25	Single-Phase220	60	0.28	140	170	1450	2.0
			Single-Phase230	50	0.26	160	205	1200	
			Single-Phase230	60	0.28	140	170	1450	
ⓣ 4RK25GN-AWMU	4RK25A-AWMU	25	Single-Phase110	60	0.54	140	170	1450	8
			Single-Phase115						
ⓣ 5RK40GN-CWME	5RK40A-CWME	40	Single-Phase220	60	0.46	260	260	1500	3.5
			Single-Phase230	50	0.40	270	315	1200	
			Single-Phase230	60	0.46	260	260	1500	
ⓣ 5RK40GN-AWMU	5RK40A-AWME	40	Single-Phase110	60	0.81	260	270	1450	12
			Single-Phase115						
ⓣ 5RK60GU-CWME	5RK60A-CWME	60	Single-Phase220	60	0.67	380	405	1450	5.0
			Single-Phase230	50	0.61	470	490	1200	
			Single-Phase230	60	0.67	380	405	1450	
ⓣ 5RK60GU-AWMU	5RK60A-AWMU	60	Single-Phase110	60	1.24	380	405	1450	20
			Single-Phase115						
ⓣ 5RK90GU-CWME	5RK90A-CWME	90	Single-Phase220	60	0.96	590	605	1450	7.0
			Single-Phase230	50	0.82	600	730	1200	
			Single-Phase230	60	0.96	590	605	1450	
ⓣ 5RK90GU-AWMU	5RK90A-AWMU	90	Single-Phase110	60	1.81	590	585	1500	30
			Single-Phase115						

ⓩ : These motors are impedance protected.

ⓣ : These motors contains a built-in thermal protector. When a motor overheats for any reason, the thermal protector is opened and the motor stops. When the motor temperature drops, the thermal protector closes and the motor restarts. Be sure to turn the motor off before inspecting.

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

■Motor General Specifications

●After rated motor operation under normal ambient temperature and humidity.

Item	Specifications
Insulation Resistance	100M Ω or more when 500V DC is applied between the windings and the frame
Dielectric Strength	Sufficient to withstand 1.5kV at 50Hz and 60Hz applied between the windings and the frame for 1 minute.
Temperature Rise	80°C or less measured by the resistance change method after the temperature of 30minute no load operation of motor with connecting a gearhead or equivalent heat radiation plate.★
Insulation Class	Class B (130°C)
Overheat Protection Device	**2RK** type is impedance protected. Built-in thermal protector (Automatic return type) Open : 130°C±5°C Close:82°C±15°C
Ambient Temperature Range	−10°C～+40°C
Ambient Humidity	85% Maximum (noncondensing)
Degree of protection	**2RK**, **4RK**, **5RK40** type : IP20 **5RK60**, **5RK90** type : IP40

★Equivalent head radiation plate sizes (material : aluminum)

Unit = mm

Size	Output power	W × D × t
60mmsq	6W	115×115×5
80mmsq	25W	135×135×5
90mmsq	40W	165×165×5
90mmsq	60W	200×200×5
90mmsq	90W	200×200×5

■Electromagnetic Brake Specifications (Power off activated Type)

Model	Voltage V	Frequency Hz	Current A	Input W	Holding Brake Torque mN•m
2RK6GN-CWME 2RK6A-CWME	Single-Phase220	60	0.02	3	30
	Single-Phase230	50	0.02	3	30
	Single-Phase230	60	0.02	3	30
2RK6GN-AWMU 2RK6A-AWMU	Single-Phase110	60	0.03	3	30
	Single-Phase115	60	0.03	3	30
4RK25GN-CWME 4RK25A-CWME	Single-Phase220	60	0.04	6	100
	Single-Phase230	50	0.05	7	100
	Single-Phase230	60	0.05	6	100
4RK25GN-AWMU 4RK25A-AWMU	Single-Phase110	60	0.08	5	100
	Single-Phase115	60	0.08	6	100
5RK40GN-CWME 5RK40A-CWME	Single-Phase220	60	0.04	6	200
	Single-Phase230	50	0.04	6	200
	Single-Phase230	60	0.04	6	200
5RK40GN-AWMU 5RK40A-AWMU	Single-Phase110	60	0.08	6	200
	Single-Phase115	60	0.09	7	200
5RK60GU-CWME 5RK60A-CWME	Single-Phase220	60	0.06	8	500
	Single-Phase230	50	0.06	9	500
	Single-Phase230	60	0.06	9	500
5RK60GU-AWMU 5RK60A-AWMU	Single-Phase110	60	0.12	9	500
	Single-Phase115	60	0.12	9	500
5RK90GU-CWME 5RK90A-CWME	Single-Phase220	60	0.06	8	500
	Single-Phase230	50	0.06	9	500
	Single-Phase230	60	0.06	9	500
5RK90GU-AWMU 5RK90A-AWMU	Single-Phase110	60	0.12	9	500
	Single-Phase115	60	0.12	9	500

■Gearmotor – Torque Table

The permissible torque with decimal gearhead with a gear ratio of 10 is ;
2GN□K : 3N • m **4GN□K** : 8N • m (for 1/25～1/36 : 6N • m) **5GN□K** : 10N • m **5GU□KB** : 20N • m

●50Hz

Unit＝N • m

Model \ Speed r/min	500	416	300	250	200	166	120	100	83	60	50	41	30	25	20	16	15	12.5	10	8.3
Model \ 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-CWME / 2GN□K	0.12	0.14	0.2	0.24	0.3	0.36	0.5	0.6	0.71	0.89	1.1	1.3	1.6	1.9	2.4	2.9	3	3	3	3
4RK25GN-CWME / 4GN□K	0.5	0.6	0.83	1	1.2	1.5	2.1	2.5	3	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8
5RK40GN-CWME / 5GN□K	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
5RK60GU-CWME / 5GU□KB	1.2	1.4	2	2.4	3	3.6	4.5	5.4	6.4	8.1	9.7	12	16	19	20	20	20	20	20	20
5RK90GU-CWME / 5GU□KB	1.8	2.1	3	3.5	4.4	5.3	6.7	8	9.6	12	14	17	20	20	20	20	20	20	20	20
5RK90GU-CWME / 5GU□KBH													24	29	30	30	30	30	30	30

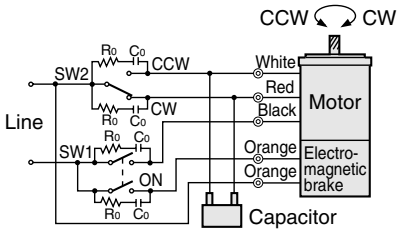
●60Hz

Unit＝N • m

Model \ Speed r/min	600	500	360	300	240	200	144	120	100	72	60	50	36	30	24	20	18	15	12	10
Model \ 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-CWME 2RK6GN-AWMU / 2GN□K	0.1	0.12	0.17	0.2	0.25	0.3	0.42	0.5	0.6	0.75	0.9	1.1	1.4	1.6	2	2.4	2.7	3	3	3
4RK25GN-CWME 4RK25GN-AWMU / 4GN□K	0.41	0.5	0.69	0.83	1	1.2	1.7	2.1	2.5	3.1	3.7	4.5	5.6	6.7	8	8	8	8	8	8
5RK40GN-CWME / 5GN□K	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
5RK40GN-AWMU / 5GN□K	0.66	0.79	1.1	1.3	1.6	2	2.7	3.3	3.9	4.9	5.9	7.1	8.9	10	10	10	10	10	10	10
5RK60GU-CWME 5RK60GU-AWMU / 5GU□KB	0.98	1.2	1.6	2	2.5	3	3.7	4.4	5.3	6.7	8	9.6	13.4	16	18	20	20	20	20	20
5RK90GU-CWME / 5GU□KB	1.5	1.8	2.5	2.9	3.7	4.4	5.5	6.6	7.9	10	12	14	20	20	20	20	20	20	20	20
5RK90GU-CWME / 5GU□KBH													20	24	27	30	30	30	30	30
5RK90GU-AWMU / 5GU□KB	1.4	1.7	2.4	2.8	3.6	4.3	5.3	6.4	7.7	9.7	12	14	19	20	20	20	20	20	20	20
5RK90GU-AWMU / 5GU□KBH													19	23	26	30	30	30	30	30

●Gearheads are sold separately.
●Enter the gear ratio in the box within the model number. A colored background indicates gear shaft rotation in the same direction as the motor shaft; a white background indicates rotation in the opposite direction.
●The speed is calculated by dividing the motor's synchronous speed (50Hz : 1500r/min, 60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2~20% less than the displayed value, depending on the size of the load.

■Wiring Diagram



Run/Stop
SW1 operates motor and electromagnetic brake action. Motor will rotate when SW1 is switched simultaneously to ON (short circuit).
When SW1 is switched simultaneously to OFF (open), the motor stops immediately by the electromagnetic brake and holds the load.
If you wish to release the brake while the motor is stopped, apply voltage between only two brake leadwires. The electromagnetic brake is released and the motor shaft can be rotated easily by hand.

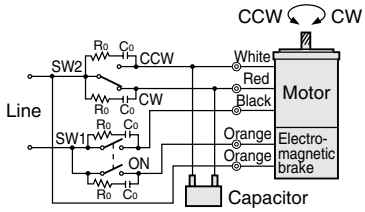
Direction of Rotation
To rotate the motor in a clockwise (CW) direction, switch SW2 to CW. To rotate it in a counterclockwise (CCW) direction, switch SW2 to CCW.
Directions of motor rotation are shown when the motor is viewed from the shaft end of the motor.

● R_0 and C_0 indicates surge absorber circuit. **EPCR1201-2** is available as an optional surge absorber.

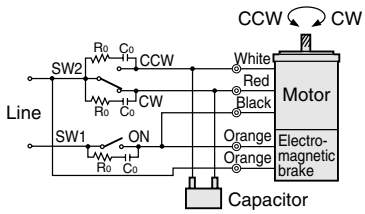
■Variation in Braking Time according to Connection

Connection can be simplified by using the wiring diagram shown in figure ②, rather than the normal wiring shown in figure ①.
Using the connection shown in figure ②, however, results in a 50ms. increase in braking time over that shown in figure ①, with a corresponding increase in overrun.
The reason for this is that the electromagnetic energy of the motor continues to have the effect on the coil of the electromagnetic brake, so that the electromagnet continues to operate for 50ms. even though the excitation has been canceled. The brake therefore takes longer to engage.

①**Normal Connection**

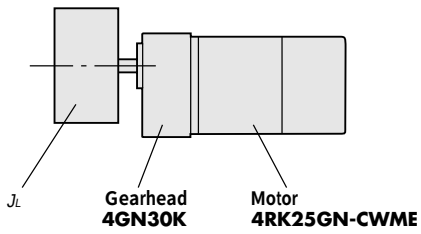


②**Simplified Connection**



■Starting and Braking Characteristics

As an example, we have calculated the motor starting time, braking time and overrun when driving an inertial load (J_L= 0.025kg • m^2) for the motor **4RK25GN-CWME** when combined with a gearhead **4GN30K**.
∗ Motor power supply: Single-Phase 230V 50Hz



First, convert load inertia to its corresponding value at the motor shaft.

$$J_M = \frac{J_L}{i^2} = \frac{0.025}{30^2} = 0.275 \times 10^{-4} \text{ kg} \cdot \text{m}^2$$

J_L : Inertia of the load [kg • m^2]
J_M : Inertia at motor shaft [kg • m^2]
i : Gear ratio

●Overrun

The overrun of the motor shaft based on the graph on this page is:

N_M 2.3 revolutions

Overrun of gearhead output shaft is:

$$N_G = \frac{N_M}{i} = \frac{2.3}{30} = 0.077 \text{ revolutions } (28°)$$

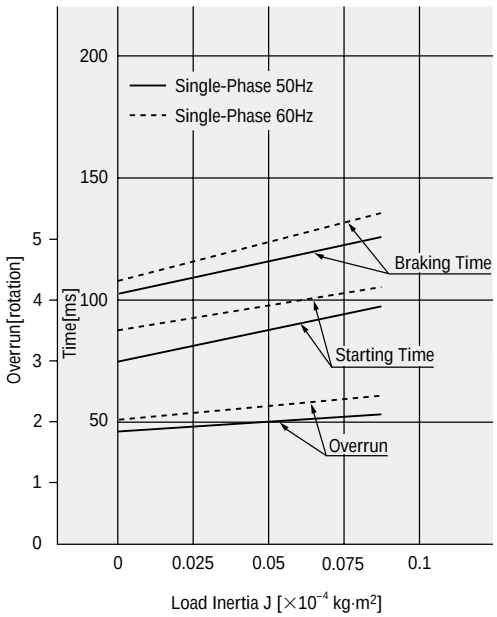
●Starting time and braking time

Using the graph again gives:

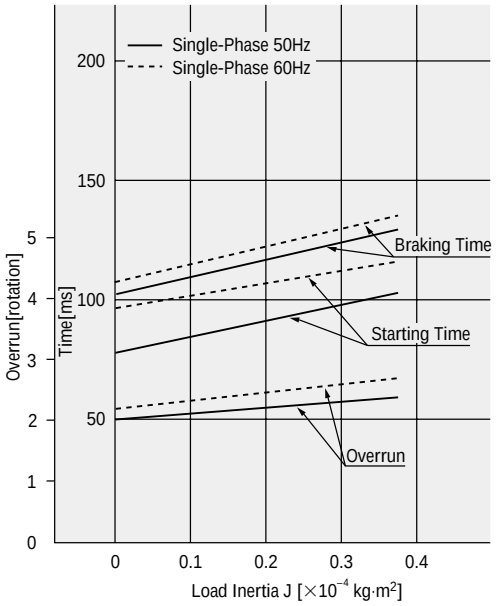
Starting time t_1 95 ms
Braking time t_2 125 ms

The starting time of an electromagnetic brake motor is equal to the motor starting time plus the electromagnetic brake release time. If the electromagnetic brake is left released, the motor can be started much faster. Optimum time for release of the brake is at least 10ms. before starting up the motor.

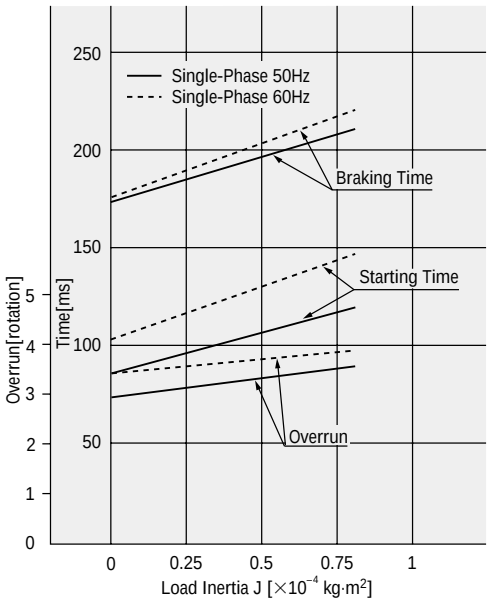
2RK6GN-CWME / 2RK6GN-AWMU (Reference Values)
2RK6A-CWME / 2RK6A-AWMU



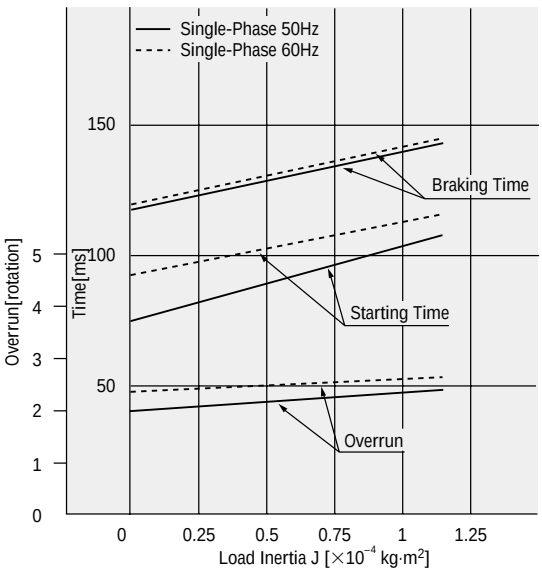
4RK25GN-CWME / 4RK25GN-AWMU (Reference Values)
4RK25A-CWME / 4RK25A-AWMU



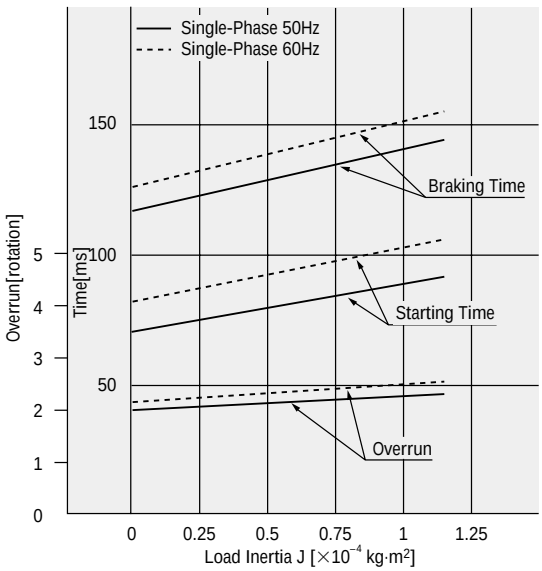
5RK40GN-CWME / 5RK40GN-AWMU (Reference Values)
5RK40A-CWME / 5RK40A-AWMU



5RK60GU-CWME / 5RK60GU-AWMU (Reference Values)
5RK60A-CWME / 5RK60A-AWMU



5RK90GU-CWME / 5RK90GU-AWMU (Reference Values)
5RK90A-CWME / 5RK90A-AWMU

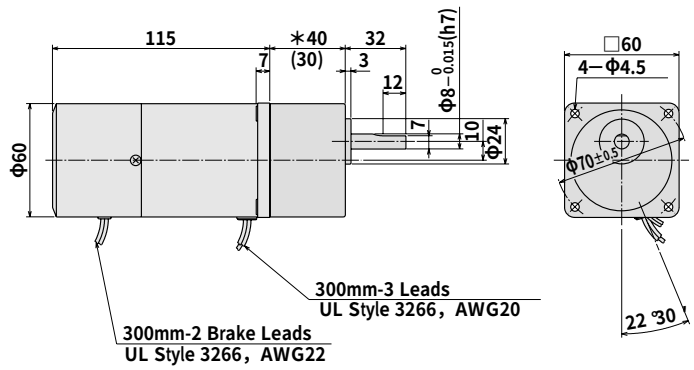


■Dimensions (Scale 1/4, Unit =mm)

●Motor
2RK6GN-AWMU
2RK6GN-CWME

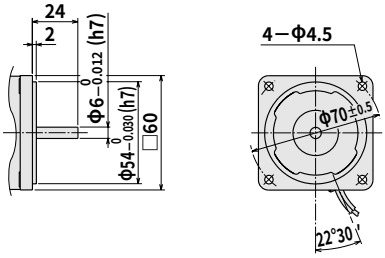
Gearhead
2GN□K (Sold separately)

Mass : Motor 0.9kg
Gearhead 0.4kg

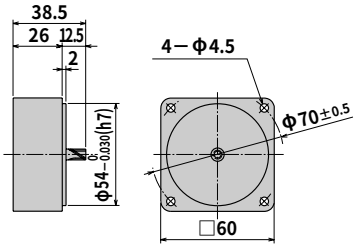


Asterisk(∗)indicates the dimensions of **2GN25K～180K**,
the figure in the parenthesis indicates the dimensions of **2GN3K～18K**.

●**Round Shaft Type**
2RK6A-AWMU
2RK6A-CWME
Mass : 0.9kg



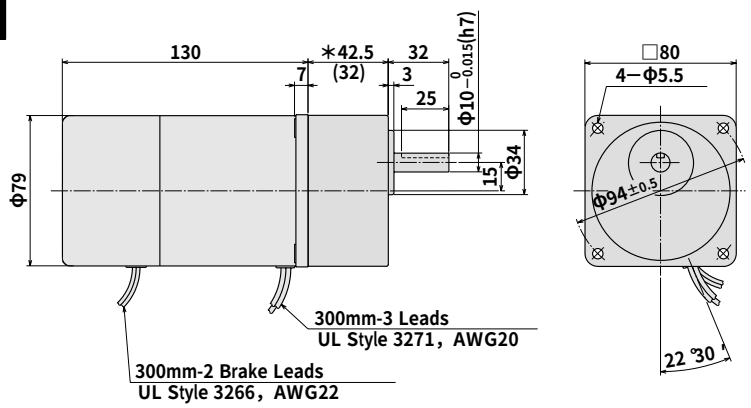
●**Decimal Gearhead**
2GN10XK (Sold separately) Mass **:** 0.2kg
Can be connected to all models of pinion shaft type.



●Motor
4RK25GN-AWMU
4RK25GN-CWME

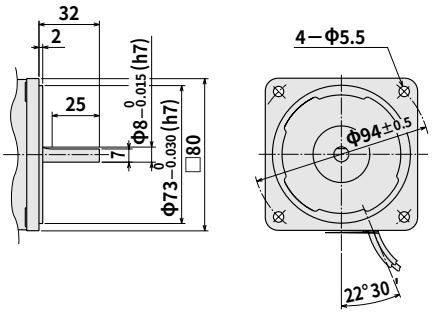
Gearhead
4GN□K (Sold separately)

Mass : Motor 2.0kg
Gearhead 0.65kg

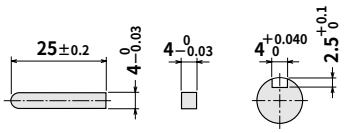


Asterisk(∗)indicates the dimensions of **4GN25K～180K**,
the figure in the parenthesis indicates the dimensions of **4GN3K～18K**.

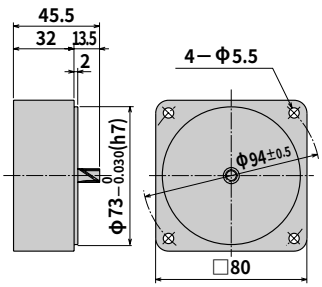
●**Round Shaft Type**
4RK25A-AWMU
4RK25A-CWME
Mass : 2.0kg



●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.



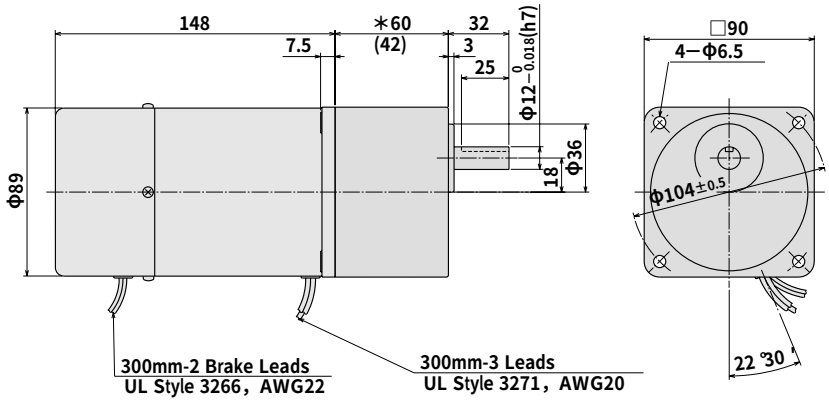
●**Decimal Gearheads**
4GN10XK (Sold separately) Mass **:** 0.4kg
Can be connected to all models of pinion shaft type.



●Motor
5RK40GN-AWMU
5RK40GN-CWME

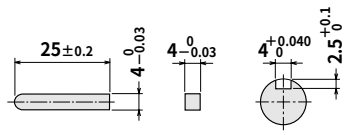
Gearhead
5GN□K (Sold separately)

Mass : Motor 2.9kg
Gearhead 1.5kg

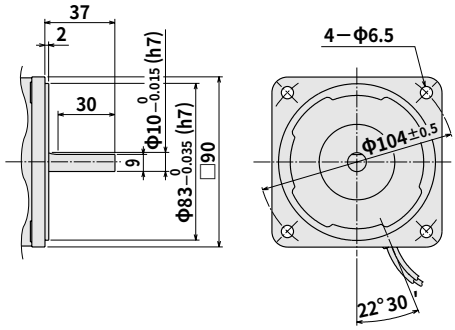


Asterisk(∗)indicates the dimensions of **5GN25K～180K**,
the figure in the parenthesis indicates the dimensions of **5GN3K～18K**.

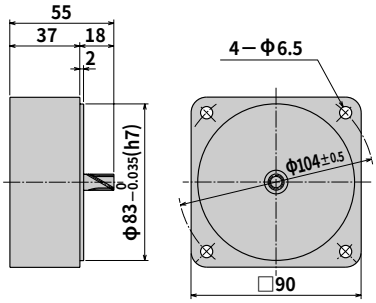
●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.



●**Round Shaft Type**
5RK40A-AWMU
5RK40A-CWME
Mass : 2.9kg



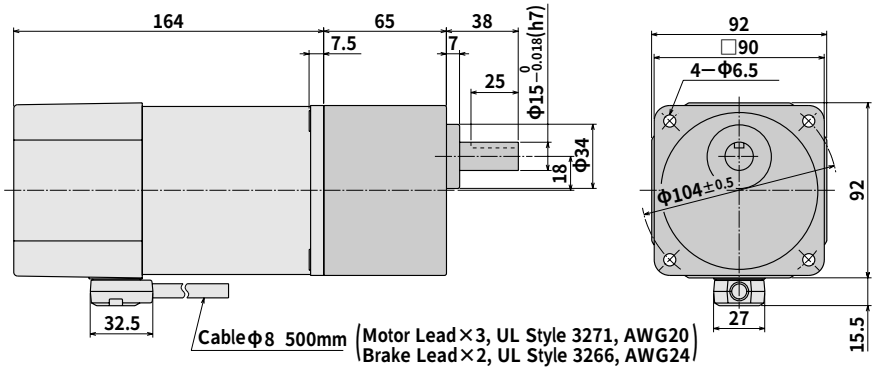
●**Decimal Gearheads**
5GN10XK (Sold separately) Mass : 0.6kg
Can be connected to all models except the right-angle gearhead.



●Motor
5RK60GU-AWMU
5RK60GU-CWME

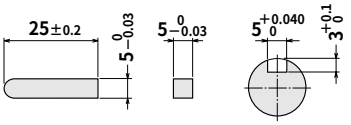
Gearhead
5GU□KB (Sold separately)

Mass : Motor 3.4kg
Gearhead 1.5kg

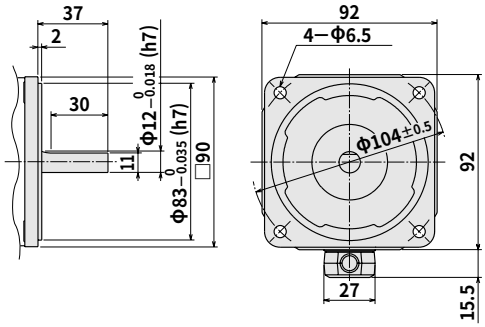


Cable direction can be switched to the opposite direction.

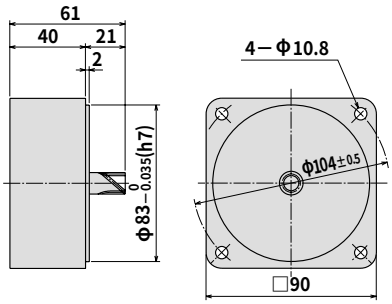
●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.



●**Round Shaft Type**
5RK60A-AWMU
5RK60A-CWME Mass : 3.4kg



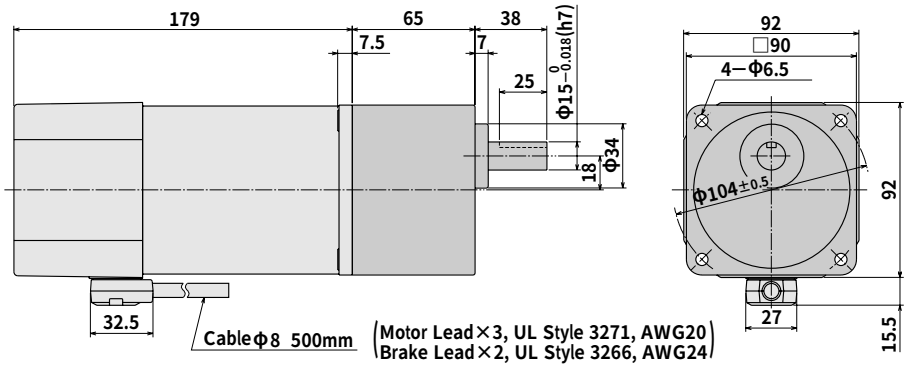
●**Decimal Gearheads**
5GU10XKB (Sold separately) Mass : 0.6kg
Can be connected to all models except the right-angle gearhead.



●Motor
5RK90GU-AWMU
5RK90GU-CWME

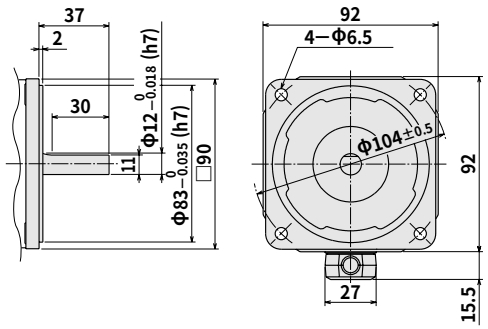
Gearhead
5GU□KB (Sold separately)

Mass : Motor 3.9kg
Gearhead 1.5kg

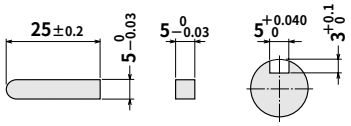


Cable direction can be switched to the opposite direction.

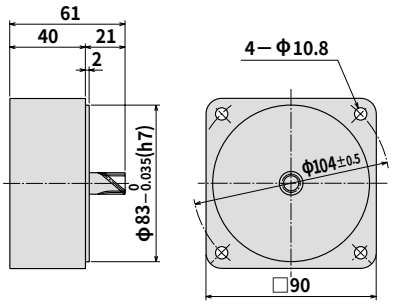
●**Round Shaft Type**
5RK90A-AWMU
5RK90A-CWME Mass : 3.9kg



●**Key and Key Slot** (Scale 1/2)
The key is provided with the gearhead.

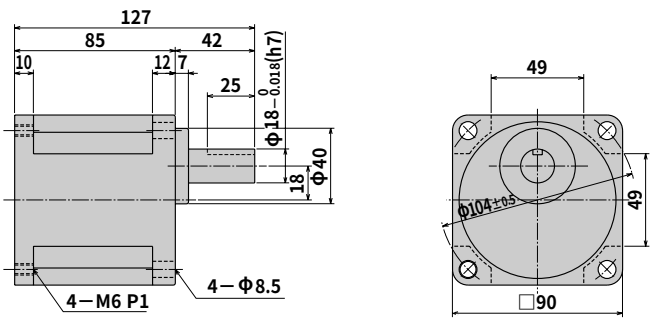


●**Decimal Gearheads**
5GU10XKB＊ (Sold separately) Mass：0.6kg
Can be connected to all models except the right-angle gearhead.



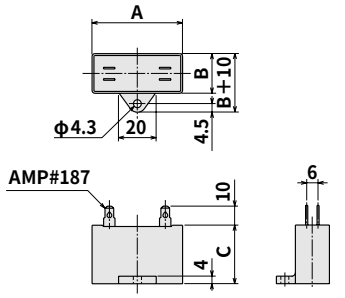
＊ For **5GU□KB**.

●**High Power Gearhead** **5GU□KBH** (Sold separately) Mass：1.9kg

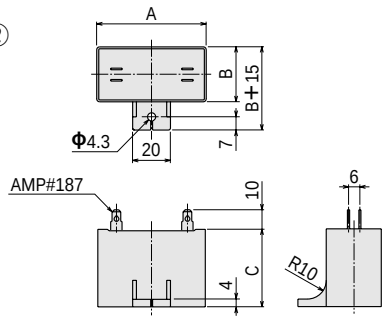


●Capacitor (included with the motor)

①



②



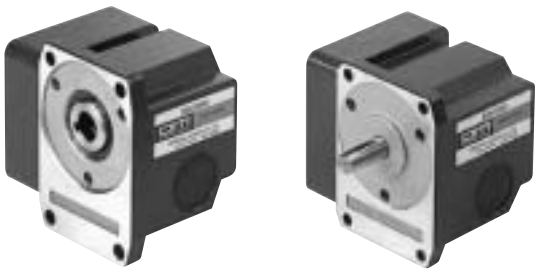
Dimensions (mm)

Model		Capacitor Model	A	B	C	Mass (g)	Dimension No
2RK6GN-AWMU	**2RK6A-AWMU**	CH35FAUL	31	17	27	25	①
2RK6GN-CWME	**2RK6A-CWME**	CH08BFAUL	31	17	27	25	①
4RK25GN-AWMU	**4RK25A-AWMU**	CH80CFAUL	48	19	29	40	①
4RK25GN-CWME	**4RK25A-CWME**	CH20BFAUL	48	19	29	35	①
5RK40GN-AWMU	**5RK40A-AWMU**	CH120CFAUL	58	21	31	50	①
5RK40GN-CWME	**5RK40A-CWME**	CH35BFAUL	58	22	35	55	①
5RK60GU-AWMU	**5RK60A-AWMU**	CH200CFAUL	58	29	41	95	②
5RK60GU-CWME	**5RK60A-CWME**	CH50BFAUL	58	29	41	85	②
5RK90GU-AWMU	**5RK90A-AWMU**	CH300CFAUL	58	35	50	140	②
5RK90GU-CWME	**5RK90A-CWME**	CH70BFAUL	58	35	50	130	②

●If you need to order a capacitor without a motor, add "-C" to the capacitor model number shown. A capacitor cap is always included with a capacitor.

■Right-Angle Gearheads (Sold separately)

The right-angle gearhead provides an output shaft at a right angle to the motor's output shaft. Refer to page 50 for further detail.



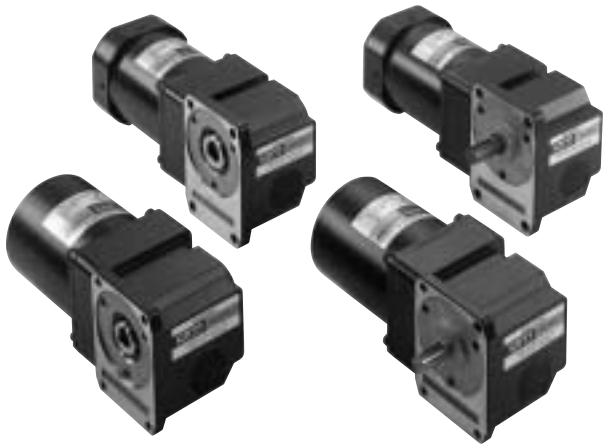
■Accessories (Sold separately)

●Motor Mounting Brackets

Optional aluminum die-cast mounting brackets are available. They can be used to install motors without gearheads. Refer to page 58 for further detail.

Right-Angle Gearheads

Right-Angle gearheads are flange-mounted gearheads that use worm gears and special helical gears. They allow motors to be installed at right angles to the axis of equipment such as belt conveyors. They are available in hollow shaft **RH** and solid shaft **RA** models and are ideal for keeping equipment compact.



■Features

- Right angle gearheads with mounting sizes of 80 mm (for 25W) or 90 mm (for 40 W) are available for **GN** pinion and mounting sizes of 90 mm (for 60 or 90 W) are available for **GU** pinion. They can be connected to all Oriental Motor AC motors with the exception of **BH**, **FBLⅡ**, **HBL**, **FPW** series.
- The output shaft is perpendicular to the motor shaft, so the motor can be installed perpendicular to the axis being driven.
- Eleven available models span gear ratios are available from 3：1 to 150：1,offering tremendous selection. The optimum gear ratio can be selected just as with ordinary gearheads. The maximum permissible torques are also the same as for ordinary gearheads.
- Hollow shaft gearheads allow additional space savings and simpler mechanism designs since they do not require couplings for mounting. Usually, hollow shaft gearheads are locked with a torque arm when mounted so the gearhead does not rotate from the reactive force of the load. When mounted with a torque arm, no centering is needed, so it is faster to mount the gearhead on the device.

■Product Number Code

5 GU 25 R H

Type of shaft
H : Hollow type
A : Solid type

Gear Ratio

R : Right Angle Gearhead

GN : **GN** pinion
GU : **GU** pinion

Gearhead Frame Size
4 : 80mmsq.
5 : 90mmsq.

■Types

Type of shaft	Model
Hollow shaft	**4GN3RH～4GN150RH**
	5GN3RH～5GN150RH
	5GU3RH～5GU150RH
Solid shaft	**4GN3RA～4GN150RA**
	5GN3RA～5GN150RA
	5GU3RA～5GU150RA

■Output Torque of Gearmotor

The output torque when a gearhead is directly connected is calculated as follows :

- **Torque**……$T_G = T_M \times i \times \eta$

T_G : Output Torque at Gear Shaft [N·m]
T_M : Motor Torque [N·m]
i : Gear Ratio of Gearhead
η : Gearhead Efficiency

■Specifications

Gearhead Model	Gear Ratio	Maximum Permissible Torque N·m	Permissible Overhung Load N		Permissible Thrust Load N
			10mm from shaft end	20mm from shaft end	
4GN□RH	**3～150**	8	250✻	220✻	100
5GN□RH	**3～150**	10	350✻	310✻	200
5GU□RH	**3～150**	20	560✻	500✻	250
4GN□RA	**3～15**	8	100	150	100
	25～150		200	300	
5GN□RA	**3～15**	10	250	350	200
	25～150		300	450	
5GU□RA	**3～7.5**	20	400	500	250
	12.5～25		450	600	
	30～150		500	700	

✻Overhung load values for hollow shaft models are distances from the flange mounting surface.
● Enter the gear ratio in the box (□) within the model name.
Note : Unlike most worm gear mechanisms, the right-angle gear does not have self-locking capabilities.

■Calculating permissible overhung load for hollow shaft models

When the end of the shaft being driven is supported as in the figure below, calculate the permissible overhung load using the following equations.
(This mechanism is the most demanding in terms of overhung load.)

●4GN□RH

$$\text{Permissible overhung load } W\ (N) = \frac{59.5}{59.5 + Lp} \times 295\ (N)✻$$

✻295 (N) : Permissible overhung load at flange mounting surface

●5GN□RH

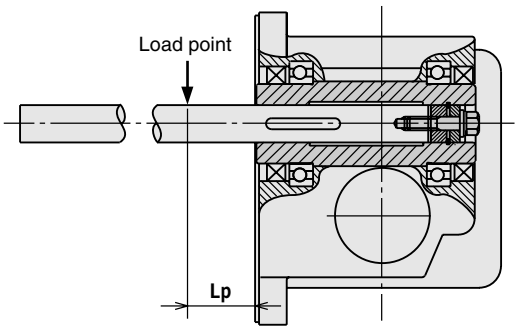
$$\text{Permissible overhung load } W\ (N) = \frac{70}{70 + Lp} \times 400\ (N)✻$$

✻400 (N) : Permissible overhung load at flange mounting surface

●5GU□RH

$$\text{Permissible overhung load } W\ (N) = \frac{68.5}{68.5 + Lp} \times 645\ (N)✻$$

✻645 (N) : Permissible overhung load at flange mounting surface



Lp (mm) : Distance from flange mounting surface to overhung load point

■Gearhead Efficiency

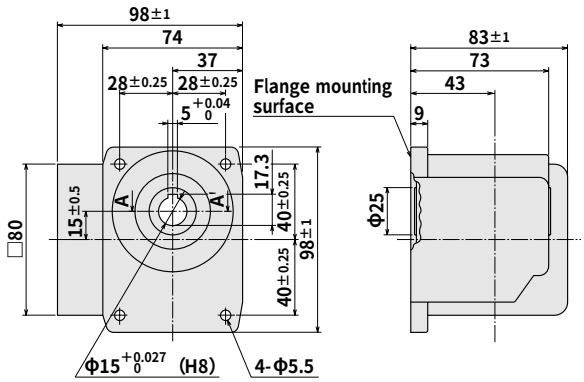
The permissible torques shown on the following page cover most motor combinations. For motor combinations not covered, use the efficiency value in the table below for your calculations.
When making a selection, remember that the transfer efficiency at startup is lower than at the rated speed.

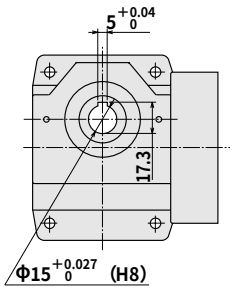
Gearhead Model \ Gear Ratio		3	5	7.5	12.5	15	25	30	50	75	100	150
4GN□RH	Rating	40%		50%	60%							
	Start up	40%		50%	54%							
5GN□RH	Rating	50%		68%			60%					
	Start up	50%		60%			54%					
5GU□RH	Rating	50%		68%				60%				50%
	Start up	50%		60%				54%				45%
4GN□RA	Rating	50%			60%							
	Start up	50%			54%							
5GN□RA	Rating	68%					60%					
	Start up	60%					54%					
5GU□RA	Rating	68%						60%				50%
	Start up	60%						54%				45%

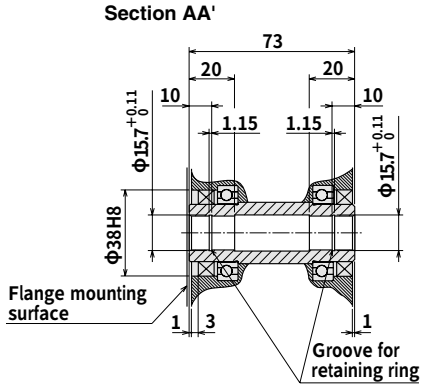
■Dimensions (Scale 1/4, Unit＝mm)

●Hollow shaft type

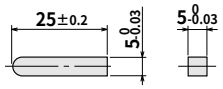
●4GN□RH Mass : 1.6kg



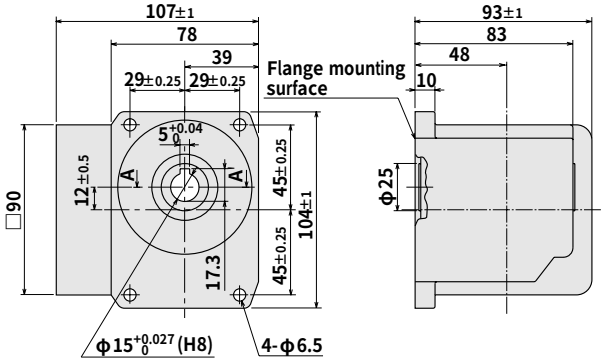


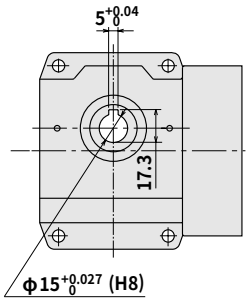


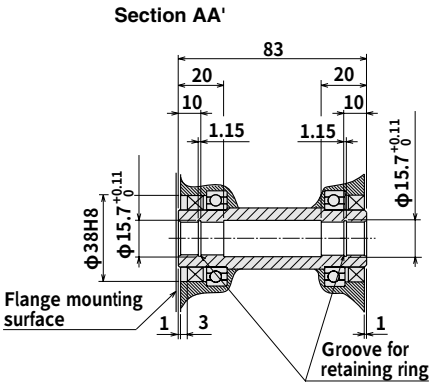
●Key (Unit=mm)
(The key is provided with the gearhead.)



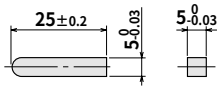
●5GN□RH Mass : 2.0kg



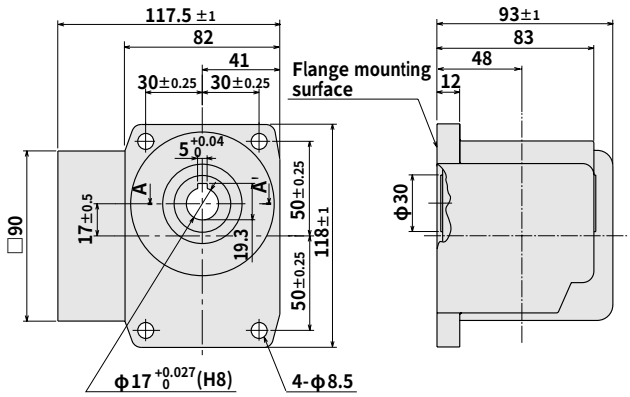


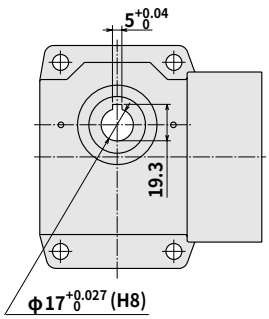


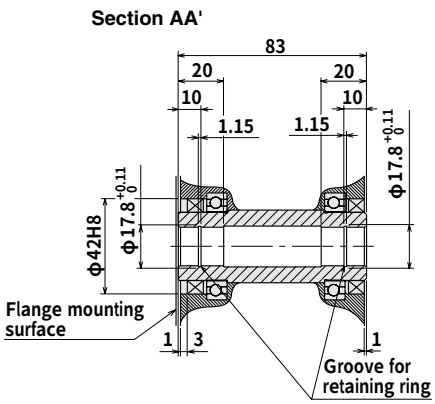
●Key (Unit=mm)
(The key is provided with the gearhead.)



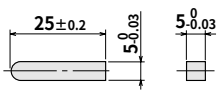
●5GU□RH Mass : 2.5kg





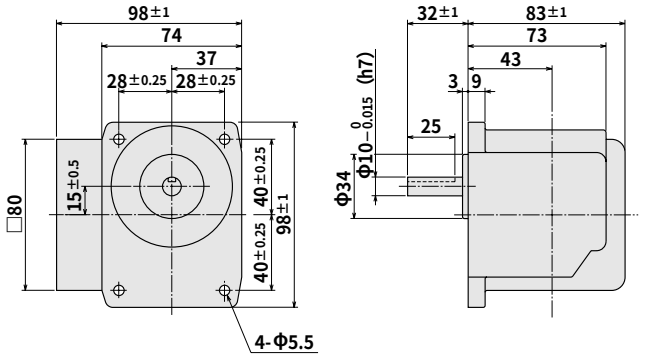


●Key (Unit=mm)
(The key is provided with the gearhead.)

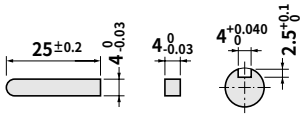


●Solid shaft type

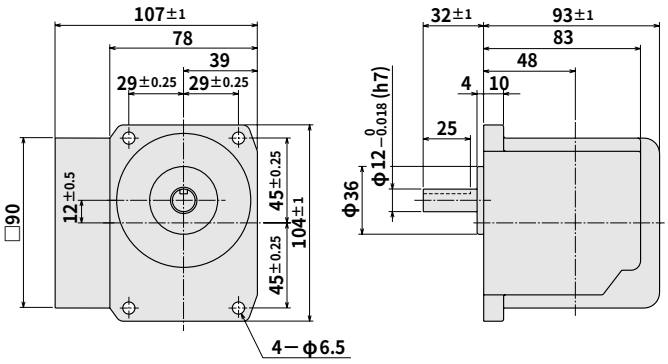
●4GN□RA Mass : 1.6kg



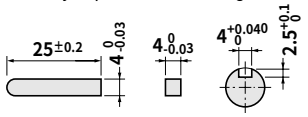
●Key and Key Slot (Scale 1/2, Unit = mm)
(The key is provided with the gearhead.)



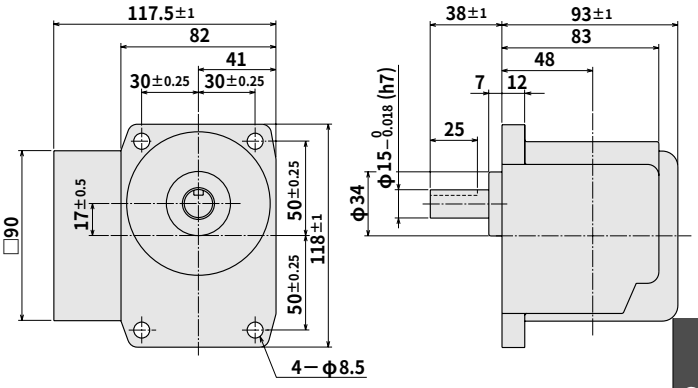
●5GN□RA Mass : 2.0kg



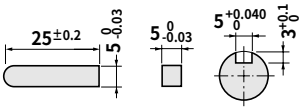
●Key and Key Slot (Scale 1/2, Unit = mm)
(The key is provided with the gearhead.)



●5GU□RA Mass : 2.5kg



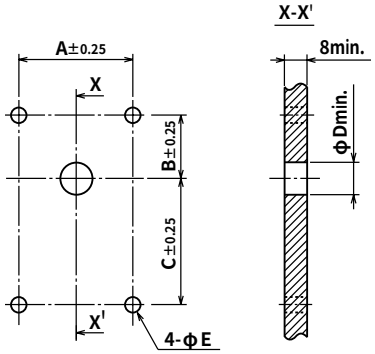
●Key and Key Slot (Scale 1/2, Unit = mm)
(The key is provided with the gearhead.)



●Dimensions of gearhead mount

Allow at least 8mm for the thickness of the mounting plate and use screws of appropriate length.

Unit = mm



Unit = mm

Type	Model	A	B	C	φD	φE
Hollow shaft	**4GN□RH**	56	25	55	φ15	φ5.5
	5GN□RH	58	33	57	φ15	φ6.5
	5GU□RH	60	33	67	φ17	φ8.5
Solid shaft	**4GN□RA**	56	25	55	φ35	φ5.5
	5GN□RA	58	33	57	φ37	φ6.5
	5GU□RA	60	33	67	φ35	φ8.5

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

■ Installing for Hollow Shaft Models

●Example of Mounting the Load

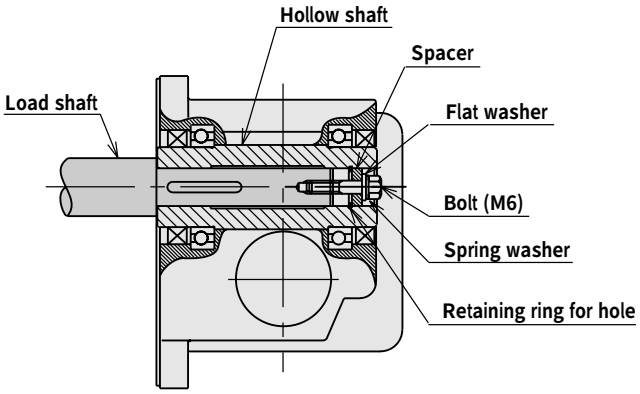
The diagrams below show how to mount loads depending on the shape of the shaft. Hollow shafts are finished to an inner diameter tolerance of H8 and machined with a key groove for mounting the load shaft. The recommended tolerance for the load shaft is h7. Use the key provided with the product by fastening it to the shaft. Apply a coating of molybdenum disulfide or similar grease to the inner diameter of the load shaft to prevent binding. Recommended load shaft dimensions are shown below.

Unit = mm

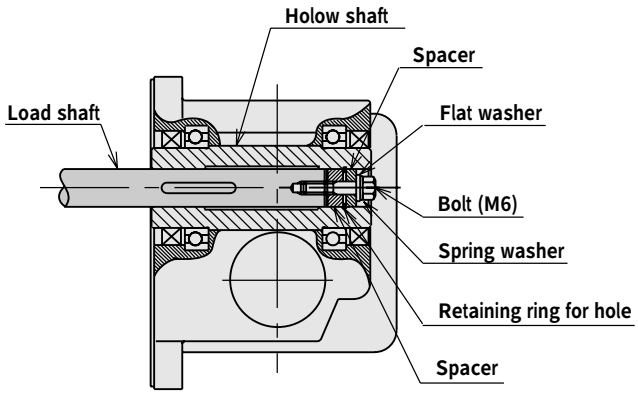
Model	Inner diameter of hollow-shaft [H8]	Recommended load shaft diameter [h7]
4GN□RH	$\phi 15^{+0.027}_{0}$	$\phi 15^{0}_{-0.018}$
5GN□RH	$\phi 15^{+0.027}_{0}$	$\phi 15^{0}_{-0.018}$
5GU□RH	$\phi 17^{+0.027}_{0}$	$\phi 17^{0}_{-0.018}$

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

Stepped-down shafts



Straight load shafts



Note : If the bolt extends out more than 4 mm from the end of the hollow shaft, no safety cover can be installed. (RH model hollow shaft gearheads include safety covers.)

■ Gearmotor — Torque Table

- The speed is calculated by dividing the motor's synchronous speed (50Hz: 1600r/min) by the gear ratio. The actual speed is 2 ～ 20% less than the listed value, depending on the size of the load.
- The efficiency of the gear assembly at startup is lower than the rating, so output torque is lower.
- All output shafts rotate opposite to the direction of motor shaft rotation.

●Induction Motors

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4IK25GN-CWE /	Rating	0.25	0.41	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
4GN□RH	Start up	0.14	0.24	0.45	0.81	0.97	1.6	1.9	3.2	4.9	6.5	8
5IK40GN-CWE /	Rating	0.45	0.75	1.5	2.6	3.1	4.5	5.4	9	10	10	10
5GN□RH	Start up	0.3	0.5	0.9	1.5	1.8	2.7	3.2	5.4	8.1	10	10
5IK60GU-CWE /	Rating	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
4GU□RH	Start up	0.48	0.8	1.4	2.4	2.9	4.8	5.2	8.6	13	17	20
5IK90GU-CWE /	Rating	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
5GN□RH	Start up	0.68	1.1	2	3.4	4.1	6.8	7.3	12	18	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4IK25GN-CWE /	Rating	0.31	0.51	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
4GN□RA	Start up	0.18	0.3	0.45	0.81	0.97	1.6	1.9	3.2	4.9	6.5	8
5IK40GN-CWE /	Rating	0.61	1	1.5	2.6	3.1	4.5	5.4	9	10	10	10
5GN□RA	Start up	0.36	0.6	0.9	1.5	1.8	2.7	3.2	5.4	8.1	10	10
5IK60GU-CWE /	Rating	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
5GU□RA	Start up	0.58	0.96	1.4	2.4	2.9	4.8	5.2	8.6	13	17	20
5IK90GU-CWE /	Rating	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
5GU□RA	Start up	0.81	1.4	2	3.4	4.1	6.8	7.3	12	18	20	20

●Reversible Motors

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4RK25GN-CWE /	Rating	0.25	0.41	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
4GN□RH	Start up	0.19	0.32	0.6	1.1	1.3	2.2	2.6	4.3	6.5	8	8
5RK40GN-CWE /	Rating	0.47	0.79	1.6	2.7	3.2	4.7	5.7	9.5	10	10	10
5GN□RH	Start up	0.41	0.68	1.2	2	2.4	3.6	4.4	7.3	10	10	10
5RK60GU-CWE /	Rating	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
5GU□RH	Start up	0.71	1.2	2.1	3.5	4.2	7.1	7.6	13	19	20	20
5RK90GU-CWE /	Rating	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
5GU□RH	Start up	0.9	1.5	2.7	4.5	5.4	9	9.7	16	20	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4RK25GN-CWE /	Rating	0.31	0.51	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
4GN□RA	Start up	0.24	0.4	0.6	1.1	1.3	2.2	2.6	4.3	6.5	8	8
5RK40GN-CWE /	Rating	0.64	1.1	1.6	2.7	3.2	4.7	5.7	9.5	10	10	10
5GN□RA	Start up	0.49	0.81	1.2	2	2.4	3.6	4.4	7.3	10	10	10
5RK60GU-CWE /	Rating	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
5GU□RA	Start up	0.85	1.4	2.1	3.5	4.2	7.1	7.6	13	19	20	20
5RK90GU-CWE /	Rating	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
5GU□RA	Start up	1.1	1.8	2.7	4.5	5.4	9	9.7	16	20	20	20

●Electromagnetic Brake Motors

Hollow shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4RK25GN-CWME/	Rating	0.25	0.41	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
4GN□RH	Start up	0.19	0.32	0.6	1.1	1.3	2.2	2.6	4.3	6.5	8	8
5RK40GN-CWME/	Rating	0.47	0.79	1.6	2.7	3.2	4.7	5.7	9.5	10	10	10
5GN□RH	Start up	0.41	0.68	1.2	2	2.4	3.6	4.4	7.3	10	10	10
5RK60GU-CWME/	Rating	0.74	1.2	2.5	4.2	5	8.3	8.8	15	20	20	20
5GU□RH	Start up	0.71	1.2	2.1	3.5	4.2	7.1	7.6	13	19	20	20
5RK90GU-CWME/	Rating	1.1	1.8	3.7	6.2	7.4	12	13	20	20	20	20
5GU□RH	Start up	0.9	1.5	2.7	4.5	5.4	9	9.7	16	20	20	20

Solid shaft (All output shafts rotate opposite to the direction of motor shaft rotation.)

Unit = N·m

Model	speed r/min	500	300	200	120	100	60	50	30	20	15	10
	Gear ratio	**3**	**5**	**7.5**	**12.5**	**15**	**25**	**30**	**50**	**75**	**100**	**150**
4RK25GN-CWME/	Rating	0.31	0.51	0.77	1.5	1.8	3.1	3.7	6.2	8	8	8
4GN□RA	Start up	0.24	0.4	0.6	1.1	1.3	2.2	2.6	4.3	6.5	8	8
5RK40GN-CWME/	Rating	0.64	1.1	1.6	2.7	3.2	4.7	5.7	9.5	10	10	10
5GN□RA	Start up	0.49	0.81	1.2	2	2.4	3.6	4.4	7.3	10	10	10
5RK60GU-CWME/	Rating	1	1.7	2.5	4.2	5	8.3	8.8	15	20	20	20
5GU□RA	Start up	0.85	1.4	2.1	3.5	4.2	7.1	7.6	13	19	20	20
5RK90GU-CWME/	Rating	1.5	2.5	3.7	6.2	7.4	12	13	20	20	20	20
5GU□RA	Start up	1.1	1.8	2.7	4.5	5.4	9	9.7	16	20	20	20

Motor Mounting Brackets

〈Example of Use〉

Six kinds of mounting brackets for motors and gearheads are available as shown below. These brackets come with tapped holes. To mount the motor and gearhead, simply fasten with the screws provided with gearhead.
To attach motor alone to **PAL□N** type mounting brackets, use the screws provided with the brackets. Note that the screws are not provided with **SOL□M□** type mounting brackets.

Please note that these mounting brackets cannot be used with the right-angle gearheads.

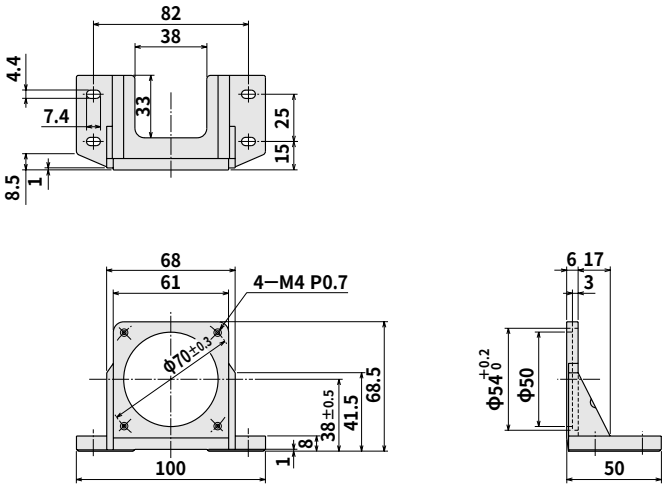
■For 60mm sq.

Model: **PAL2N**
Mass: 45g Material: Aluminum

Applicable Products

- **2GN□K**
- 60mm sq. frame size motors

● **Dimensions** (Scale 1/4, Unit = mm)



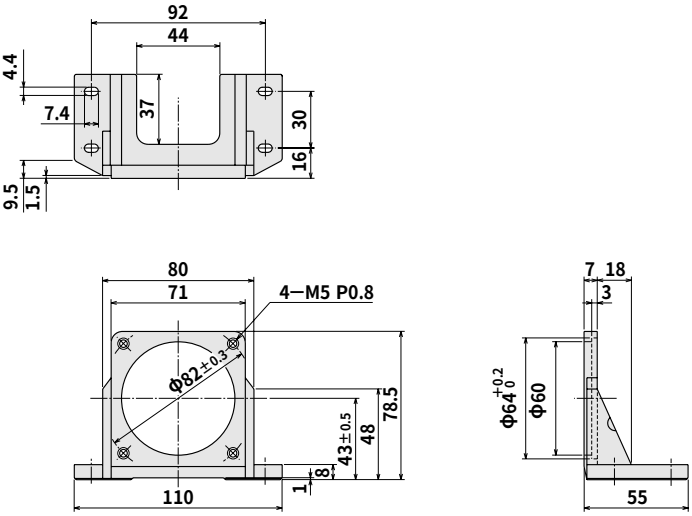
■For 70mm sq.

Model: **PAL3N**
Mass: 75g Material: Aluminum

Applicable Products

- **3GN□K**
- 70mm sq. frame size motors

● **Dimensions** (Scale 1/4, Unit = mm)



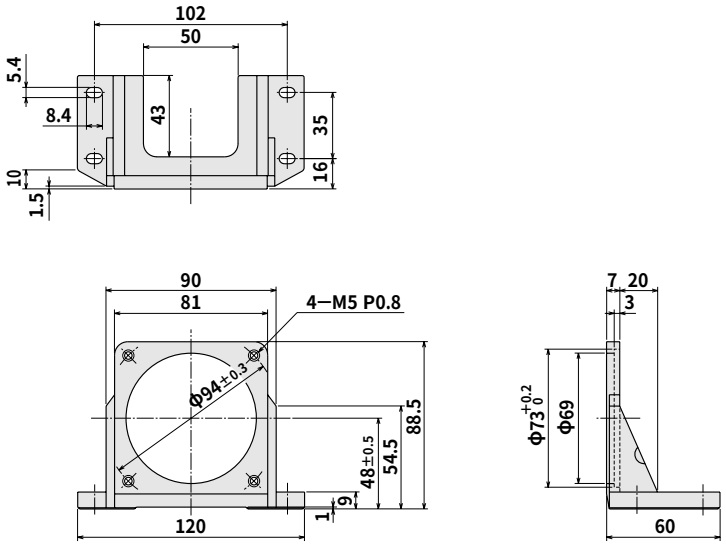
■ For 80mm sq.

Model: **PAL4N**
Mass: 120g Material: Aluminum

Applicable Products

- **4GN□K**
- 80mm sq. frame size motors

● **Dimensions** (Scale 1/4, Unit = mm)



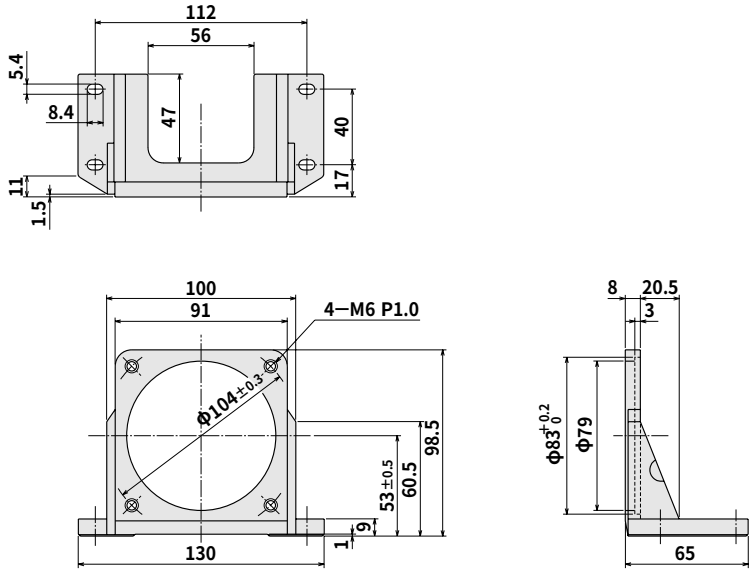
■ For 90mm sq.

Model: **PAL5N**
Mass: 140g Material: Aluminum

Applicable Products

- **5GN□K**
- 90mm sq. frame size motors

● **Dimensions** (Scale 1/4, Unit = mm)



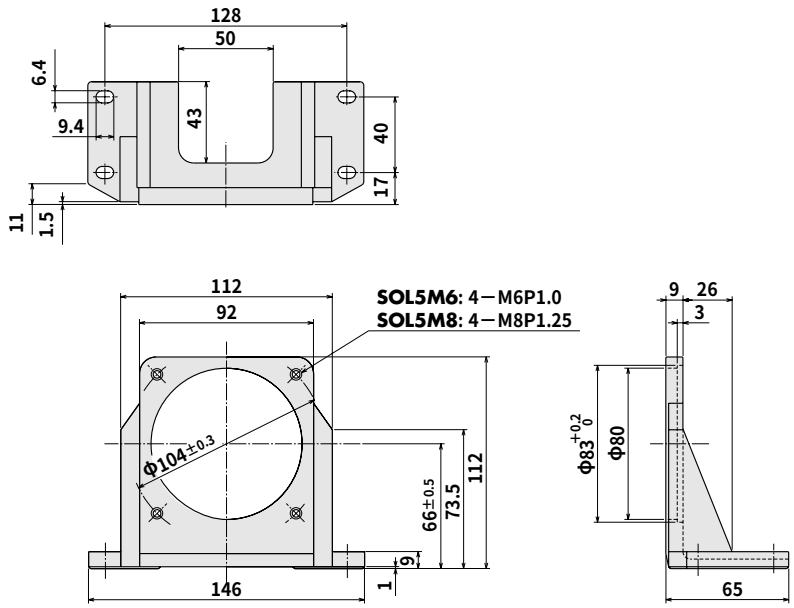
Model: **SOL5M6 , SOL5M8**
Mass: 270g Material: Aluminum

Applicable Products

SOL5M6
- **5GU□KB**
- 90mm sq. frame size motors

SOL5M8
- **5GU□KBH**

● **Dimensions** (Scale 1/4, Unit = mm)



Safety Standards

■ Standards for Motors

The following is a listing of the standards pertaining to electrical motors.

1. EN Standards

VDE and TÜV Rheinland approved motors and fans are evaluated in accordance with the items required for motors under the following standards. Forty-eight hour humidity experiments are conducted in addition experiments with motor and fan characteristics.

① EN60034 (＝IEC60034, DIN VDE0530)
Stipulates general requirements for motors.

② EN60950(＝IEC60950)
Safety of information technology equipment, including electrical business equipment.

This standard covers information technology equipment, including electrical business equipment.

2. IEC Standards

IEC60664 (DIN VDE0110)
Stipulates insulation distances for motors.

3. UL Standards

① UL519:Impedance Protected Motors
Establishes requirements for impedance protected motors.

② UL547 :Thermal Protectors for Motors
Establishes requirements for thermal protectors as well as for motor/thermal protector combinations.

③ UL1004:Electric Motors
Establishes general requirements for all types of electrical motors.

④ UL2111 : Overheating Protection for Motors
Establishes requirements for overheating protection for motors. Previously, requirements for impedance protected motors were established under UL519 while requirements for thermal protectors for motors were established under UL547. UL2111 was published on March 28, 1997, combining UL519 and UL547, and partially integrating C22.2 No. 77 (Motors With Inherent Overheating Protection) under the CSA standards.

4. CSA Standards

① C22.2 N0.100: Motors and Generators
Establishes general requirements for motors.

② C22.2 N0.77: Motors with Inherent Overheating Protection
Establishes special requirements for motors with inherent overheating protection that supplement those of C22.2 N0.100.

■ CE Marking

To distribute equipment within the European Union, the CE marking is mandatory for certifying that the equipment concerned complies with EC Directives (safety). To obtain a ruling that the equipment satisfies the required items of each directive, the manufacturer must usually verify that the equipment complies with the EN standards applicable to the EC Directives, or, if not available, with the IEC standards. The manufacturer then composes a declaration stating compliance with the directives and applies the CE marking. (However, depending on the risk of danger, formal testing by an approving authority may be required and the self-composed declaration is then issued after receiving proof of formal testing.)

The major scope of compliance and period of obligation are as follows:

1. The Advantages of Approved Components

Under EC Directives, not all components in a device or piece of equipment have to be approved. However, when nonapproved components are used, the manufacturer of the equipment must evaluate and verify the safety of the component itself. If approved components are used, the manufacturer has the advantage of the benefits listed below:

1) Simplified component safety evaluation.
2) Simplified documentation and testing when lodging equipment standards applications with an approving authority.

This makes it much easier for the equipment to comply with the necessary directives.

2. Oriental Motor ŝ Approach to CE Marking

The ensure that the company's products comply with the low voltage directives, we have issued a declaration of voluntary compliance with the standards imposed by the approving authorities within the E.U. Our view is that the EMC Directives do not directly pertain to our products themselves since all of Oriental Motor sales are to equipment manufacturers. The controllers used in the company's products and equipment as well as equipment as a whole, including electrical components, are subject to the EMC Directives. Additionally, since the properties of equipment in relation to EMC Directives will vary depending upon the controller, electrical component configuration, wiring, general configuration and level of danger, clients should verify compliance with EC Directives themselves. When a client is using our products in other equipment, Oriental Motor will provide methods such as adequately efficient filters and ferrite cores required by EMC measures. AC motors and AC fans are outside the range of applicability of EMC Directives because it has been judged both theoretically and experientially that there is no influence on emissions or immunity. Also, DC fans that function alone conform to EMC Directives.

3. Compliance

Oriental Motor's products have received the following VDE, TÜV Rheinland and DEMKO approval.

	Applicable Standards				Certification Body
	EN 60950	DIN VDE 0160	DIN VDE 0530	EN60034-1.5.11	
AC Motors	○	—	○	○	VDEorDEMKOorTÜV

Clients should inquire at their local Oriental Motor sales office when a copy of the company's product approval or declaration of voluntary compliance with the low voltage directives is required for lodging an application with approving authorities.

4. Installation Conditions

The following installation conditions must be rigidly adhered to in order to ensure that products are used with greater safety.

Over voltage Category : Ⅱ (IEC60664-1)
Pollution Degree: Class 2 (IEC60664-1)
Protective Structure: Dependent on model.

5. Protection Against Electrocution

Oriental Motor products are designed with Class 1 basic insulation When being used, the following must always be observed:

1) Install products inside protective grounded enclosures so that they are out of the direct reach of users.
2) Always ground any product housing that is within the direct reach of users.

The products listed in this catalogue are the specific models designated for the European market.
Specifications subject to change without notice.

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