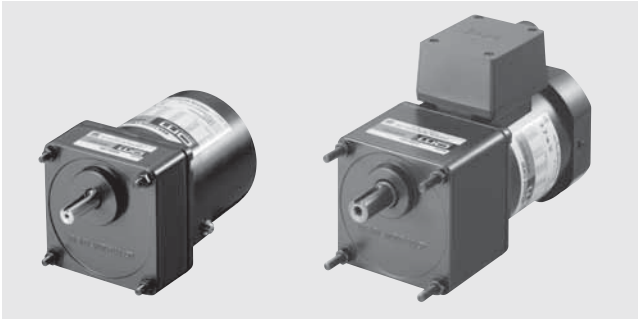
RoHS RoHS-Compliant

Induction Motors



Features

Optimal for Uni-Directional Continuous Operation

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

Safety Standards and CE Marking

Standards	Certification Body	Standards File No.	CE Marking
UL 1004 UL 2111 CSA C22.2 No.100 CSA C22.2 No.77	UL	E64199 (1 W～6 W Type) E64197 (15 W～150 W Type)	Low Voltage Directives
EN 60950-1 EN 60034-1 EN 60034-5 IEC 60664-1	Conform to EN/IEC Standards		
GB 12350	CQC	2005010401150786 (Single-Phase 1 W, 3 W Type) 2003010401091525 (Single-Phase 6 W Type) 2003010401091527 (Three-Phase 6 W Type) 2003010401091522 (Single-Phase 15 W～90 W Type) 2003010401091520 (Three-Phase 25 W～90 W Type) 2005010401150785 (2-Pole, High-Speed Type, Single-Phase 40 W～150 W Type) 2005010401150788 (2-Pole, High-Speed Type, Three-Phase 60 W～150 W Type)	

- When the motor is approved under various safety standards, the model name on the nameplate is the approved model name.
- The following products are not applicable to the table above.

4IK25GN-UT4, **4IK25A-UT4**, **5IK40GN-UT4**, **5IK40A-UT4**, **5IK60GE-UT4F**, **5IK60A-UT4F**, **5IK90GE-UT4F**, **5IK90A-UT4F**

Standards	Certification Body	Standards File No.	CE Marking
EN 60950-1 EN 60034-1 EN 60034-5 IEC 60034-11	TÜV Rheinland	R50079501	Low Voltage Directives

System Configuration

Mounting Brackets (Accessories)
(➜ Page 121)

Flexible Couplings (Accessories)
(➜ Page 123)

Brake Pack
SB50W (Sold separately)
Equipped with instantaneous stopping functions, thermal protector open detection functions.
(➜ Page 114)

Right-Angle Gearheads (Sold separately)
(➜ Page 108)

Motor

AC Power Supply

Gearheads (Sold separately)

Capacitor Cap* (Included)
Insulating cap for capacitor terminal section.

Capacitor (Included)

●Example of System Configuration

(Body) (Sold separately)

Motor (Pinion Shaft)		Long Life/Low Noise GN-S Gearhead	Mounting Bracket	Flexible Coupling
4IK25GN-CW2E	+	4GN25S	SOL4M5	MCL301012
		◎	○	○

◎: Required under this system.
○: Selectable according to necessity. Oriental Motor provides.
*Capacitor cap is included.

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

Product Number Code

●Motor

5 I K 40 GN - CW 2 T E

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①	Motor Frame Size	**0**: 42 mm **2**: 60 mm **3**: 70 mm **4**: 80 mm **5**: 90 mm
②	Motor Type	**I**: Induction Motor
③	Series	**K**: **K** Series
④	Output Power (W)	(Example) **40**: 40 W
⑤	Motor Shaft Type	**GN**: **GN** Type Pinion Shaft **GE**: **GE** Type Pinion Shaft **A**: Round Shaft
⑥	Power Supply Voltage/ Number of Poles	**AW**: Single-Phase 100 VAC, 110/115 VAC 4-Pole **BW**: Single-Phase 100 VAC, 110/115 VAC 2-Pole **CW**: Single-Phase 200 VAC, 220/230 VAC 4-Pole **DW**: Single-Phase 200 VAC, 220/230 VAC 2-Pole **SW**: Three-Phase 200/220/230 VAC 4-Pole **TW**: Three-Phase 200/220/230 VAC 2-Pole **U**: Three-Phase 400 VAC 4-Pole
⑦	**2**, **3**: RoHS-Compliant	
⑧	**T**, **T4**, **T4F**: Terminal Box Type	
⑨	Included Capacitor	**J**: For Single-Phase 100 VAC, 200 VAC **U**: For Single-Phase 110/115 VAC **E**: For Single-Phase 220/230 VAC Blank: Three-Phase Type

● The **J**, **U** and **E** at the end of the model name indicate that the unit includes a capacitor. These letters are not listed on the motor nameplate. When the motor is approved under various safety standards, the model name on the nameplate is the approved model name.
(Example) Model: **5IK40GN-CW2E** ➜ Motor nameplate and product approved under various safety standards: **5IK40GN-CW2**

●Gearhead

5 GN 50 S

① ② ③ ④

①	Gearhead Frame Size	**0**: 42 mm **2**: 60 mm **3**: 70 mm **4**: 80 mm **5**: 90 mm
②	Type of Pinion	**GN**: **GN** Type Pinion **GE**: **GE** Type Pinion
③	Gear Ratio	(Example) **50**: Gear Ratio of 1:50 **10X** denotes the decimal gearhead of gear ratio 1:10
④	**GN** Type Pinion	**S**: Long Life/Low Noise **GN-S** Gearhead, RoHS-Compliant **K**: **GN-K** Gearhead **RH**: Right-Angle/Hollow Shaft Gearhead, RoHS-Compliant **RA**: Right-Angle/Solid Shaft Gearhead, RoHS-Compliant
	GE Type Pinion	**S**: Long Life **GE-S** Gearhead **RH**: Right-Angle/Hollow Shaft Gearhead, RoHS-Compliant **RA**: Right-Angle/Solid Shaft Gearhead, RoHS-Compliant

*__GN-K__ gearhead of frame size 42 mm complies to RoHS directive.

General Specifications of Motors

1 W, 3 W Type

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

6 W～90 W Type, 2-Pole, High-Speed Type

Item	Specifications
Insulation Resistance	100 MΩ or more when 500 VDC megger is applied between the windings and the frame after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 1.5 kV (three-phase 400 VAC: 2 kV) at 50 Hz and 60 Hz applied between the windings and the frame for 1 minute after rated motor operation under normal ambient temperature and humidity.
Temperature Rise	Temperature rise of windings are 80°C or less measured by the resistance change method under normal ambient temperature and humidity, after rated motor operation with connecting a gearhead or equivalent heat radiation plate*1. (Three-phase type: 70°C or less)
Insulation Class*2	Class B (130°C)
Overheat Protection	6 W type has impedance protection. All others have built-in thermal protector (automatic return type) Operating temperature; open: 130°C±5°C, close: 82°C±15°C
Ambient Temperature	Single-phase 100 VAC, Single-phase 200 VAC, Three-phase 200 VAC: −10°C～+50°C (nonfreezing) Other voltage: −10°C～+40°C (nonfreezing)
Ambient Humidity	85% or less (noncondensing)
Degree of Protection	Lead Wire Type: IP20 Terminal Box Type: 6 W Type — IP65 (excluding the installation surface of the round shaft type) 25 W, 40 W, 60 W, 90 W Type (Pinion Shaft Type) — IP54 25 W, 40 W, 60 W, 90 W Type (Round Shaft Type) — IP40

*1 Heat radiation plate (Material: Aluminum)

Motor Type	Size (mm)	Thickness (mm)
1 W, 3 W Type	80×80	5
6 W Type	115×115	
15 W Type	125×125	
25 W Type (2-Pole, High-Speed **4IK40** Type, **4IK60** Type)	135×135	
40 W Type (2-Pole, High-Speed **5IK60** Type)	165×165	
60 W, 90 W, 150 W Type	200×200	

*2 The following products are recognized as class E (120°C).
4IK25GN-UT4, **4IK25A-UT4**, **5IK40GN-UT4**, **5IK40A-UT4**, **5IK60GE-UT4F**, **5IK60A-UT4F**, **5IK90GE-UT4F**, **5IK90A-UT4F**

RoHS

Induction Motors

1 W / 3 W

Frame Size: □42 mm

(Gearhead sold separately)

Specifications – Continuous Rating RoHS

cULus CE

Model Lead Wire Type		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Pinion Shaft Type	Round Shaft Type	W	VAC	Hz	A	mN·m	mN·m	r/min	μF
ZP 0IK1GN-AW2J	0IK1A-AW2J	1	Single-Phase 100	50	0.107	8	9.5	1000	1.5
				60	0.102		8	1200	
ZP 0IK1GN-AW3U	0IK1A-AW3U	1	Single-Phase 110	60	0.074	8	8	1200	1.0
			Single-Phase 115		0.078				
ZP 0IK1GN-CW2J	0IK1A-CW2J	0.8	Single-Phase 200	50	0.057	7	8	1000	0.35
		1		60	0.055			1200	
ZP 0IK3GN-BW2J	0IK3A-BW2J	3	Single-Phase 100	50	0.109	6	12	2400	1.8
				60	0.123		10	3000	
ZP 0IK3GN-BW3U	0IK3A-BW3U	3	Single-Phase 110	60	0.115	6	10	3000	1.5
			Single-Phase 115		0.118				
ZP 0IK3GN-DW2J	0IK3A-DW2J	2.5	Single-Phase 200	50	0.057	5	9.5	2500	0.45
		3		60	0.064			3100	

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

ZP: Impedance protected

Product Line

● Motor RoHS

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	0IK1GN-AW2J	0IK1A-AW2J
	0IK1GN-AW3U	0IK1A-AW3U
	0IK1GN-CW2J	0IK1A-CW2J
	0IK3GN-BW2J	0IK3A-BW2J
	0IK3GN-BW3U	0IK3A-BW3U
	0IK3GN-DW2J	0IK3A-DW2J

● Gearhead (Sold Separately) RoHS

Type	Gearhead Model	Gear Ratio
Parallel Shaft	0GN□K	3, 3.6, 5, 6, 7.5, 9, 12.5, 15, 18, 25, 30, 36, 50, 60, 75, 90, 100, 120, 150, 180

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

Gearmotor – Torque Table

- Gearheads are sold separately. Decimal gearheads are not available.
- Enter the gear ratio in the box (□) within the model name.
- A colored background ▭ indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (4-pole type; 50 Hz: 1500 r/min, 60 Hz: 1800 r/min, 2-pole type; 50 Hz: 3000 r/min, 60 Hz: 3600 r/min) by the gear ratio. The actual speed is 2 - 33% less than the displayed value, depending on the size of the load.

◇50 Hz

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
Motor/ Gearhead	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**
0IK1GN-AW2J	**0GN□K**	0.023	0.028	0.038	0.046	0.058	0.069	0.087	0.1	0.12	0.16	0.19	0.23	0.31	0.38	0.42	0.5	0.56	0.67	0.84	1
0IK1GN-CW2J	**0GN□K**	0.019	0.023	0.032	0.039	0.049	0.058	0.073	0.088	0.11	0.13	0.16	0.19	0.26	0.32	0.35	0.42	0.47	0.57	0.71	0.85

Unit = N·m

Model	Speed r/min	1000	833	600	500	400	333	240	200	166	120	100	83	60	50	40	33	30	25	20	16
Motor/ Gearhead	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**
0IK3GN-BW2J	**0GN□K**	0.029	0.035	0.049	0.058	0.073	0.087	0.11	0.13	0.16	0.2	0.24	0.29	0.4	0.48	0.53	0.64	0.71	0.85	1	1
0IK3GN-DW2J	**0GN□K**	0.023	0.028	0.038	0.046	0.058	0.069	0.087	0.1	0.12	0.16	0.19	0.23	0.31	0.38	0.42	0.5	0.56	0.67	0.84	1

◇60 Hz

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
Motor/ Gearhead	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**
0IK1GN-AW2J **0IK1GN-AW3U** **0IK1GN-CW2J**	**0GN□K**	0.019	0.023	0.032	0.039	0.049	0.058	0.073	0.088	0.11	0.13	0.16	0.19	0.26	0.32	0.35	0.42	0.47	0.57	0.71	0.85

Unit = N·m

Model	Speed r/min	1200	1000	720	600	480	400	288	240	200	144	120	100	72	60	48	40	36	30	24	20
Motor/ Gearhead	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**
0IK3GN-BW2J **0IK3GN-BW3U**	**0GN□K**	0.024	0.029	0.041	0.049	0.061	0.073	0.091	0.11	0.13	0.17	0.2	0.24	0.33	0.4	0.44	0.53	0.59	0.71	0.89	1
0IK3GN-DW2J	**0GN□K**	0.023	0.028	0.038	0.046	0.058	0.069	0.087	0.1	0.12	0.16	0.19	0.23	0.31	0.38	0.42	0.5	0.56	0.67	0.84	1

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) ➜ Page 107
Gearhead ➜ Page 107

Permissible Load Inertia J for Gearhead

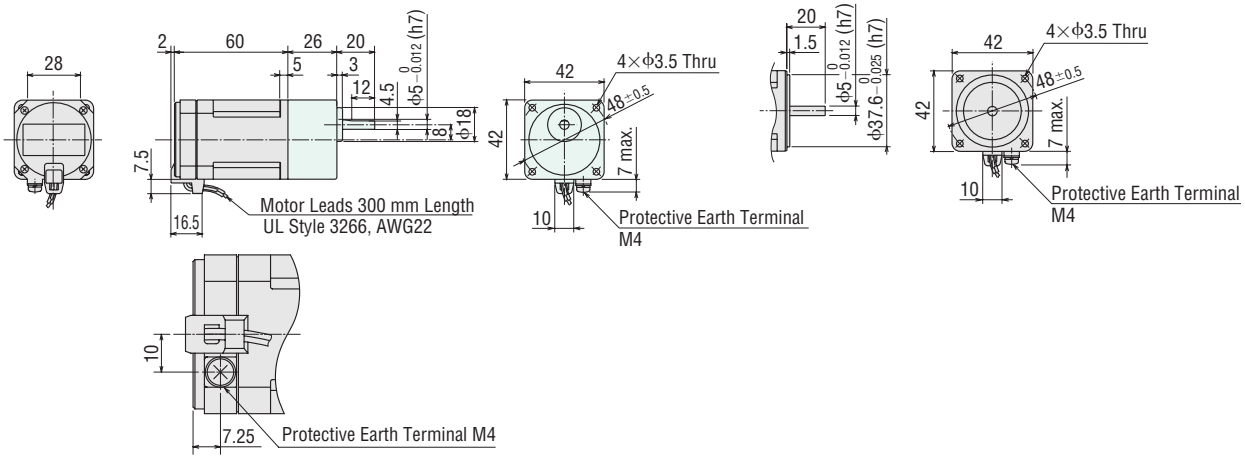
➜ Page 107

Dimensions (Unit = mm)

Mounting screws are included with gearheads.

◇Lead Wire Type

Mass: Motor 0.3 kg
Gearhead 0.2 kg

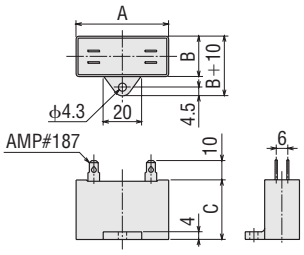


◇Shaft Section of Round Shaft Type

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

Detail Drawing of Protective Earth Terminal

◇Capacitor (Included with the motors)



◇Capacitor Dimensions (mm)

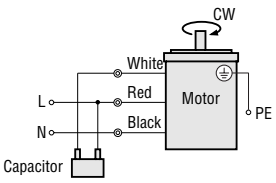
Model		Capacitor Model	A	B	C	Mass (g)	Capacitor Cap
Pinion Shaft Type	Round Shaft Type						
0IK1GN-AW2J	**0IK1A-AW2J**	CH15FAUL	31	14.5	23.5	18	Included
0IK1GN-AW3U	**0IK1A-AW3U**	CH10FAUL	31	14.5	23.5	18	
0IK1GN-CW2J	**0IK1A-CW2J**	CH035BFAUL	31	17	27	24	
0IK3GN-BW2J	**0IK3A-BW2J**	CH18FAUL	31	14.5	23.5	18	
0IK3GN-BW3U	**0IK3A-BW3U**	CH15FAUL	31	14.5	23.5	18	
0IK3GN-DW2J	**0IK3A-DW2J**	CH045BFAUL	31	17	27	24	

Connection Diagrams

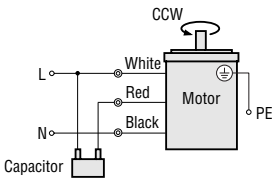
- The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft type.

0IK1GN-AW2J, 0IK1GN-AW3U, 0IK1GN-CW2J
0IK3GN-BW2J, 0IK3GN-BW3U, 0IK3GN-DW2J

Clockwise



Counterclockwise



PE: Protective Earth

Note:

Change the direction of single-phase motor rotation only after bringing the motor to a stop.
If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.

RoHS

Induction Motors

6 W

Frame Size: □60 mm

Lead Wire Type

Terminal Box Type

(Gearhead sold separately)

■Specifications – Continuous Rating RoHS

cULus CE

Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	W	VAC	Hz	A	mN·m	mN·m	r/min	μF
ZP **2IK6GN-AW2J (2IK6A-AW2J)**	**2IK6GN-AW2TJ (2IK6A-AW2TJ)**	6	Single-Phase 100	50	0.199	45	49	1200	3.5
				60	0.217	40	41	1450	
ZP **2IK6GN-AW2U (2IK6A-AW2U)**	**2IK6GN-AW2TU (2IK6A-AW2TU)**	6	Single-Phase 110	60	0.178	40	41	1450	2.5
			Single-Phase 115		0.182				
ZP **2IK6GN-CW2J (2IK6A-CW2J)**	**2IK6GN-CW2TJ (2IK6A-CW2TJ)**	6	Single-Phase 200	50	0.100	45	49	1150	0.8
				60	0.103	40	41	1450	
ZP **2IK6GN-CW2E (2IK6A-CW2E)**	**2IK6GN-CW2TE (2IK6A-CW2TE)**	6	Single-Phase 220	50	0.103	38	49	1150	0.6
				60	0.091	40	41	1450	
			Single-Phase 230	50	0.107	45	49	1200	
				60	0.094	40	41	1450	
ZP **2IK6GN-SW2 (2IK6A-SW2)**	**2IK6GN-SW2T (2IK6A-SW2T)**	6	Three-Phase 200	50	0.081	49	49	1200	–
				60	0.072	41	41	1400	
			Three-Phase 220	60	0.076	41	41	1500	
			Three-Phase 230	60	0.079	41	41	1500	

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

ZP: Impedance protected

■Product Line

●Motor RoHS

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	**2IK6GN-AW2J**	**2IK6A-AW2J**
	2IK6GN-AW2U	**2IK6A-AW2U**
	2IK6GN-CW2J	**2IK6A-CW2J**
	2IK6GN-CW2E	**2IK6A-CW2E**
	2IK6GN-SW2	**2IK6A-SW2**
Terminal Box	**2IK6GN-AW2TJ**	**2IK6A-AW2TJ**
	2IK6GN-AW2TU	**2IK6A-AW2TU**
	2IK6GN-CW2TJ	**2IK6A-CW2TJ**
	2IK6GN-CW2TE	**2IK6A-CW2TE**
	2IK6GN-SW2T	**2IK6A-SW2T**

●Gearhead (Sold Separately) RoHS

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

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

Gearmotor – Torque Table

- Gearheads and decimal gearheads are sold separately.
- Enter the code that represents the terminal box type "**T**" in the box (■) within the model name.
- Enter the gear ratio in the box (□) within the model name.
- A colored background ▭ indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2 - 20% less than the displayed value, depending on the size of the load.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio: 10) between the gearhead and the motor. In that case, the permissible torque is 3 N·m.

◇50 Hz

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
Motor/ Gearhead	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-AW2■J **2IK6GN-CW2■J** **2IK6GN-CW2■E** **2IK6GN-SW2■**	**2GN□S**	0.12	0.14	0.20	0.24	0.30	0.36	0.50	0.60	0.71	0.89	1.1	1.3	1.6	1.9	2.4	2.9	3	3	3	3

◇60 Hz

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
Motor/ Gearhead	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-AW2■J **2IK6GN-AW2■U** **2IK6GN-CW2■J** **2IK6GN-CW2■E** **2IK6GN-SW2■**	**2GN□S**	0.10	0.12	0.17	0.20	0.25	0.30	0.42	0.50	0.60	0.75	0.90	1.1	1.4	1.6	2.0	2.4	2.7	3	3	3

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) ➜ Page 107
Gearhead ➜ Page 107

Permissible Load Inertia J for Gearhead

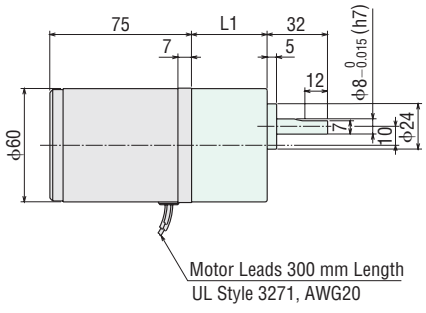
➜ Page 107

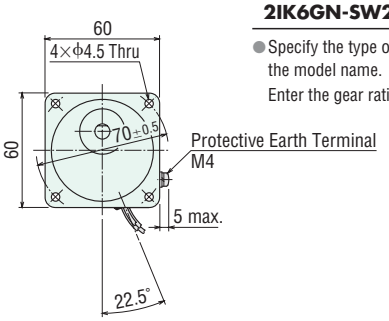
Dimensions (Unit = mm)

Mounting screws are included with gearheads.

◇Lead Wire Type ①

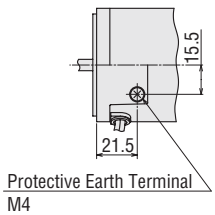
Mass: Motor 0.7 kg
Gearhead 0.4 kg





Motor Model	Gearhead Model	Gear Ratio	L1
2IK6GN-AW2■ **2IK6GN-CW2■** **2IK6GN-SW2**	**2GN□S**	**3~18**	30
		25~180	40

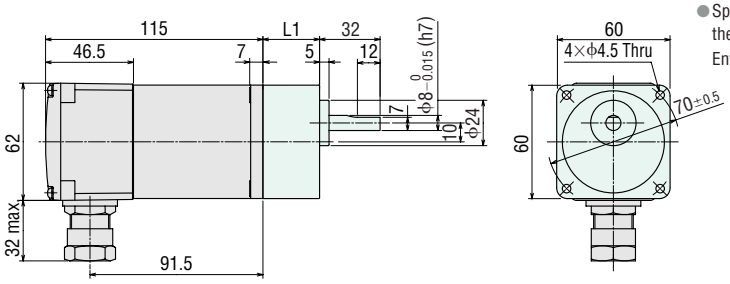
- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (■) within the model name.
  Enter the gear ratio in the box (□) within the model name.



Detail Drawing of Protective Earth Terminal

◇Terminal Box Type ②

Mass: Motor 0.9 kg
Gearhead 0.4 kg



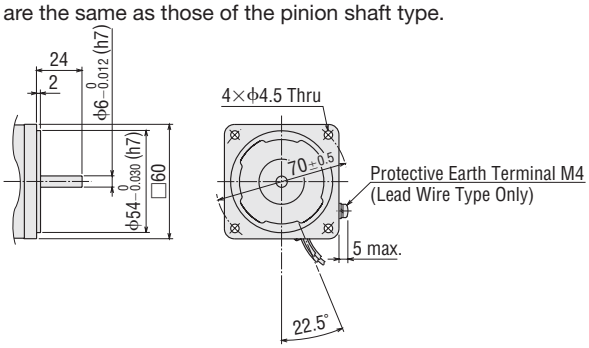
Motor Model	Gearhead Model	Gear Ratio	L1
2IK6GN-AW2T□ **2IK6GN-CW2T□** **2IK6GN-SW2T**	**2GN□S**	**3～18**	30
		25～180	40

● Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.
Enter the gear ratio in the box (□) within the model name.

● Use cable with a diameter of ϕ8 ～ ϕ12 mm.

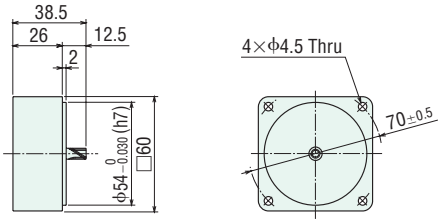
◇Shaft Section of Round Shaft Type

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

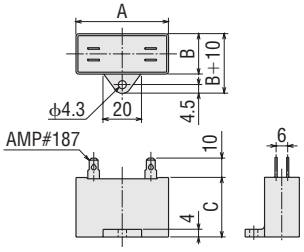


◇Decimal Gearhead

Can be connected to **GN** pinion shaft type.
2GN10XS
Mass: 0.2 kg



◇Capacitor
(Included with single-phase motors)

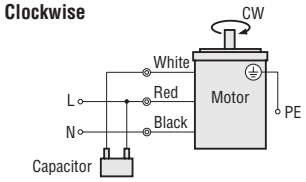


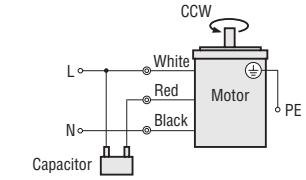
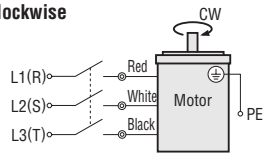
◇Capacitor Dimensions (mm)

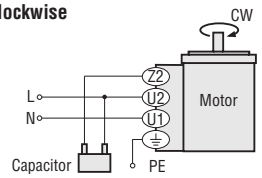
Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Capacitor Model	A	B	C	Mass (g)	Capacitor Cap
Lead Wire Type	Terminal Box Type						
2IK6GN-AW2J (2IK6A-AW2J)	**2IK6GN-AW2TJ (2IK6A-AW2TJ)**	CH35FAUL2	31	17	27	25	Included
2IK6GN-AW2U (2IK6A-AW2U)	**2IK6GN-AW2TU (2IK6A-AW2TU)**	CH25FAUL2	31	17	27	25	
2IK6GN-CW2J (2IK6A-CW2J)	**2IK6GN-CW2TJ (2IK6A-CW2TJ)**	CH08BFAUL	31	17	27	20	
2IK6GN-CW2E (2IK6A-CW2E)	**2IK6GN-CW2TE (2IK6A-CW2TE)**	CH06BFAUL	31	14.5	23.5	15	

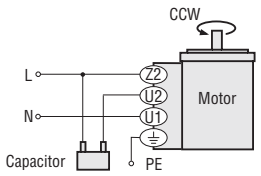
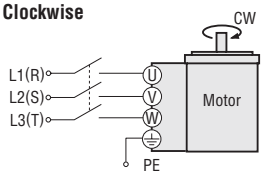
Connection Diagrams

- The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft type.
- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.

<table>
<tr><th colspan="2">Lead Wire Type</th><th colspan="2">Terminal Box Type</th></tr>
<tr><th>2IK6GN-AW2□
2IK6GN-CW2□</th><th>2IK6GN-SW2</th><th>2IK6GN-AW2T□
2IK6GN-CW2T□</th><th>2IK6GN-SW2T</th></tr>
<tr><td>Clockwise
 

Counterclockwise
 
</td><td>Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between R, S and T.</td><td>Clockwise
 

Counterclockwise
 
</td><td>Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between U, V and W.</td></tr>
</table>

PE: Protective Earth

Note:

Change the direction of single-phase motor rotation only after bringing the motor to a stop.

If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.

RoHS

Induction Motors

15 W

Frame Size: □70 mm

(Gearhead sold separately)

Specifications – Continuous Rating RoHS

Model Lead Wire Type		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Pinion Shaft Type	Round Shaft Type	W	VAC	Hz	A	mN·m	mN·m	r/min	μF
TP 3IK15GN-AW2J	3IK15A-AW2J	15	Single-Phase 100	50	0.36	80	125	1200	5.5
				60	0.37	65	105	1450	
TP 3IK15GN-AW2U	3IK15A-AW2U	15	Single-Phase 110	60	0.33	65	105	1450	4.5
			Single-Phase 115		0.34				
TP 3IK15GN-CW2J	3IK15A-CW2J	15	Single-Phase 200	50	0.18	80	125	1200	1.5
				60	0.19	65	105	1450	
TP 3IK15GN-CW2E	3IK15A-CW2E	15	Single-Phase 220	50	0.19	70	125	1200	1.0
				60	0.16	65	105	1450	
			Single-Phase 230	50	0.19	75	125	1200	
				60	0.16	65	105	1450	

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

TP: Contains a built-in thermal protector. If 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.

Product Line

●Motor RoHS

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	3IK15GN-AW2J	3IK15A-AW2J
	3IK15GN-AW2U	3IK15A-AW2U
	3IK15GN-CW2J	3IK15A-CW2J
	3IK15GN-CW2E	3IK15A-CW2E

●Gearhead (Sold Separately) RoHS

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

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

Gearmotor – Torque Table

- Gearheads and decimal gearheads are sold separately.
- Enter the gear ratio in the box (□) within the model name.
- A colored background ▭ indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2 - 20% less than the displayed value, depending on the size of the load.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio: 10) between the gearhead and the motor. In that case, the permissible torque is 5 N·m.

◇50 Hz

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
Motor/ Gearhead	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-AW2J **3IK15GN-CW2J** **3IK15GN-CW2E**	**3GN□S**	0.30	0.36	0.51	0.61	0.76	0.91	1.3	1.5	1.8	2.3	2.7	3.3	4.1	5	5	5	5	5	5	5

◇60 Hz

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
Motor/ Gearhead	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-AW2J **3IK15GN-AW2U** **3IK15GN-CW2J** **3IK15GN-CW2E**	**3GN□S**	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

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) ➜ Page 107
Gearhead ➜ Page 107

Permissible Load Inertia J for Gearhead

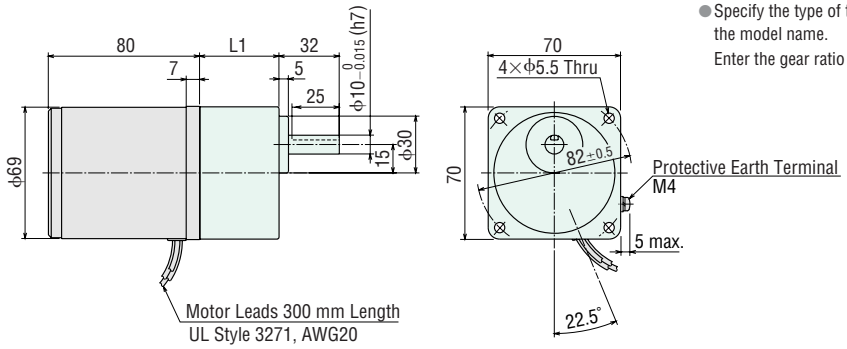
➜ Page 107

Dimensions (Unit = mm)

Mounting screws are included with gearheads.

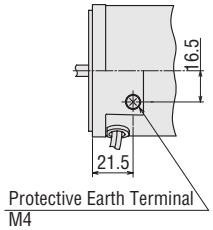
◇Lead Wire Type

Mass: Motor 1.1 kg
Gearhead 0.55 kg



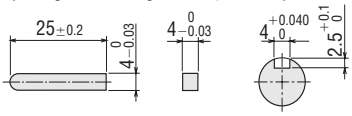
Motor Model	Gearhead Model	Gear Ratio	L1
3IK15GN-AW2□ **3IK15GN-CW2□**	**3GN□S**	**3~18**	32
		25~180	42

- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.
  Enter the gear ratio in the box (□) within the model name.



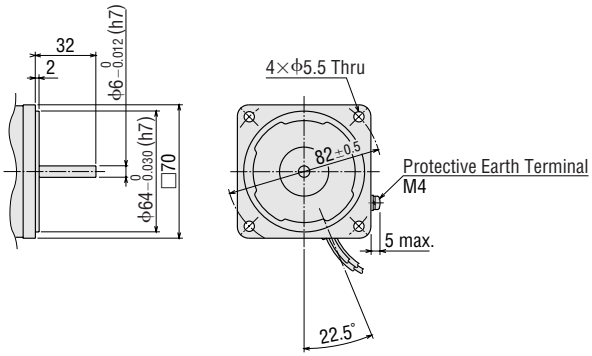
Detail Drawing of Protective Earth Terminal

◇Key and Key Slot (The key is included with the gearhead)



◇Shaft Section of Round Shaft Type

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

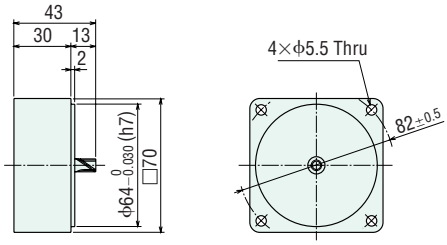


◇Decimal Gearhead

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

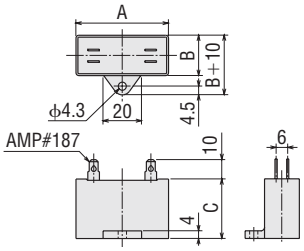
3GN10XS

Mass: 0.3 kg



◇Capacitor

(Included with single-phase motors)



◇Capacitor Dimensions (mm)

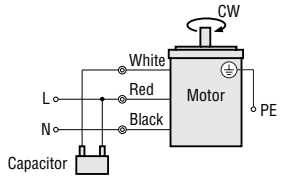
Model		Capacitor Model	A	B	C	Mass (g)	Capacitor Cap
Pinion Shaft Type	Round Shaft Type						
3IK15GN-AW2J	**3IK15A-AW2J**	CH55FAUL2	38	21	31	40	Included
3IK15GN-AW2U	**3IK15A-AW2U**	CH45FAUL2	37	18	27	30	
3IK15GN-CW2J	**3IK15A-CW2J**	CH15BFAUL	38	21	31	35	
3IK15GN-CW2E	**3IK15A-CW2E**	CH10BFAUL	37	18	27	30	

■Connection Diagrams

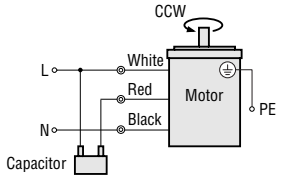
- The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft type.
- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.

3IK15GN-AW2□
3IK15GN-CW2□

Clockwise



Counterclockwise



PE: Protective Earth

Note:

Change the direction of single-phase motor rotation only after bringing the motor to a stop.

If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.

RoHS

Induction Motors

25 W

Frame Size: □80 mm

Lead Wire Type

Terminal Box Type

(Gearhead sold separately)

Right-angle gearheads (hollow shaft or solid shaft) can be combined.
Right-Angle Gearheads ➜ Page 108

■Specifications – Continuous Rating RoHS

c UL us CE

Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	W	VAC	Hz	A	mN·m	mN·m	r/min	μF
TP 4IK25GN-AW2J (4IK25A-AW2J)	4IK25GN-AW2TJ (4IK25A-AW2TJ)	25	Single-Phase 100	50	0.51	130	205	1200	8.0
				60	0.52	120	170	1450	
TP 4IK25GN-AW2U (4IK25A-AW2U)	4IK25GN-AW2TU (4IK25A-AW2TU)	25	Single-Phase 110	60	0.46	120	170	1450	6.5
			Single-Phase 115						
TP 4IK25GN-CW2J (4IK25A-CW2J)	4IK25GN-CW2TJ (4IK25A-CW2TJ)	25	Single-Phase 200	50	0.26	120	205	1200	2.0
				60			170	1450	
TP 4IK25GN-CW2E (4IK25A-CW2E)	4IK25GN-CW2TE (4IK25A-CW2TE)	25	Single-Phase 220	50	0.27	110	205	1200	1.5
				60	0.23		170	1450	
			Single-Phase 230	50	0.27	120	205	1200	
				60	0.23		170	1450	
TP 4IK25GN-SW2 (4IK25A-SW2)	4IK25GN-SW2T (4IK25A-SW2T)	25	Three-Phase 200	50	0.23	240	190	1300	–
				60	0.21	160	160	1550	
			Three-Phase 220	60	0.21	160	160	1600	
			Three-Phase 230	60	0.22	160	160	1600	
TP –	4IK25GN-UT4* (4IK25A-UT4*)	25	Three-Phase 400	50	0.12	240	190	1300	–

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

✻ Conforms to EN/IEC standards only. Bears the CE Marking.

Note:

A three-phase 400 VAC motor cannot be used with an inverter. Using them together may lead to deterioration of the motor wiring insulation and damage the products.

TP: Contains a built-in thermal protector. If 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.

■Product Line

●Motor RoHS

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	4IK25GN-AW2J	4IK25A-AW2J
	4IK25GN-AW2U	4IK25A-AW2U
	4IK25GN-CW2J	4IK25A-CW2J
	4IK25GN-CW2E	4IK25A-CW2E
	4IK25GN-SW2	4IK25A-SW2
Terminal Box	4IK25GN-AW2TJ	4IK25A-AW2TJ
	4IK25GN-AW2TU	4IK25A-AW2TU
	4IK25GN-CW2TJ	4IK25A-CW2TJ
	4IK25GN-CW2TE	4IK25A-CW2TE
	4IK25GN-SW2T	4IK25A-SW2T
	4IK25GN-UT4	4IK25A-UT4

●Gearhead/Right-Angle Gearhead (Sold Separately) RoHS

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

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

Gearmotor – Torque Table

- Gearheads and decimal gearheads are sold separately.
- Enter the code that represents the terminal box type "**T**" in the box (■) within the model name.
- Enter the gear ratio in the box (□) within the model name.
- A colored background [ ] indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2 - 20% less than the displayed value, depending on the size of the load.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio: 10) between the gearhead and the motor. In that case, the permissible torque is 8 N·m. When a gearhead of 1/25～1/36 is connected, the value for permissible torque is 6 N·m.

◇50 Hz

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
Motor/ Gearhead	Gear Ratio	**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
4IK25GN-AW2■J **4IK25GN-CW2■J** **4IK25GN-CW2■E**	**4GN□S**	0.50	0.60	0.83	1.0	1.2	1.5	2.1	2.5	3.0	3.7	4.5	5.4	6.8	8	8	8	8	8	8	8
4IK25GN-SW2■ **4IK25GN-UT4**	**4GN□S**	0.46	0.55	0.77	0.92	1.2	1.4	1.9	2.3	2.8	3.5	4.2	5.0	6.3	7.5	8	8	8	8	8	8

◇60 Hz

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
Motor/ Gearhead	Gear Ratio	**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
4IK25GN-AW2■J **4IK25GN-AW2■U** **4IK25GN-CW2■J** **4IK25GN-CW2■E**	**4GN□S**	0.41	0.50	0.69	0.83	1.0	1.2	1.7	2.1	2.5	3.1	3.7	4.5	5.6	6.7	8	8	8	8	8	8
4IK25GN-SW2■	**4GN□S**	0.39	0.47	0.65	0.78	0.97	1.2	1.6	1.9	2.3	2.9	3.5	4.2	5.3	6.3	7.9	8	8	8	8	8

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) ➜ Page 107
Gearhead ➜ Page 107

Permissible Load Inertia J for Gearhead

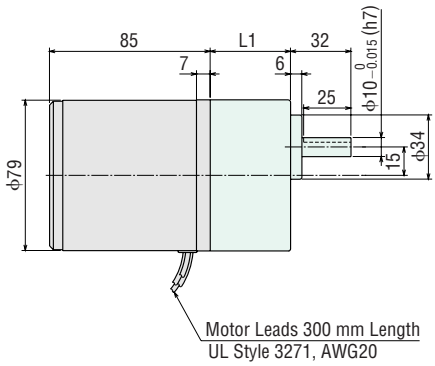
➜ Page 107

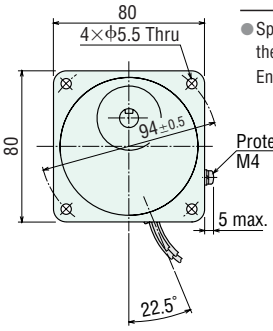
Dimensions (Unit = mm)

Mounting screws are included with gearheads.

◇Lead Wire Type ①

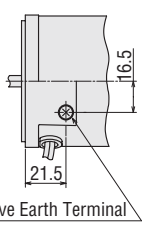
Mass: Motor 1.5 kg
Gearhead 0.65 kg





Motor Model	Gearhead Model	Gear Ratio	L1
4IK25GN-AW2■ **4IK25GN-CW2■** **4IK25GN-SW2**	**4GN□S**	**3～18**	32
		25～180	42.5

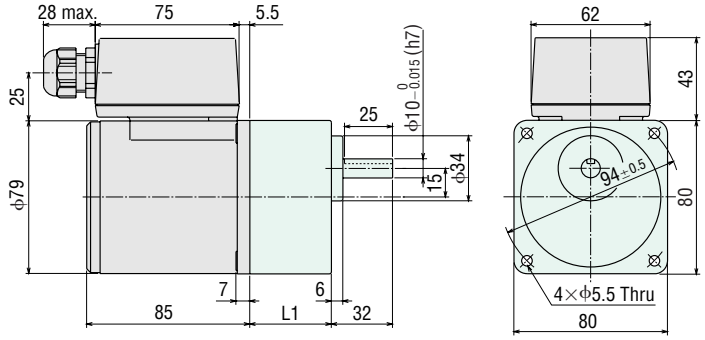
- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (■) within the model name.
  Enter the gear ratio in the box (□) within the model name.



Detail Drawing of Protective Earth Terminal

◇Terminal Box Type ②

Mass: Motor 1.7 kg
Gearhead 0.65 kg



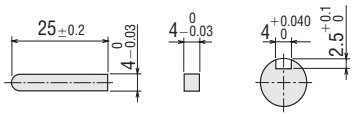
● Use cable with a diameter of φ6 ~ φ12 mm.

Motor Model	Gearhead Model	Gear Ratio	L1
4IK25GN-AW2T□ **4IK25GN-CW2T□** **4IK25GN-SW2T** **4IK25GN-UT4**	**4GN□S**	**3~18**	32
		25~180	42.5

● Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.
Enter the gear ratio in the box (□) within the model name.

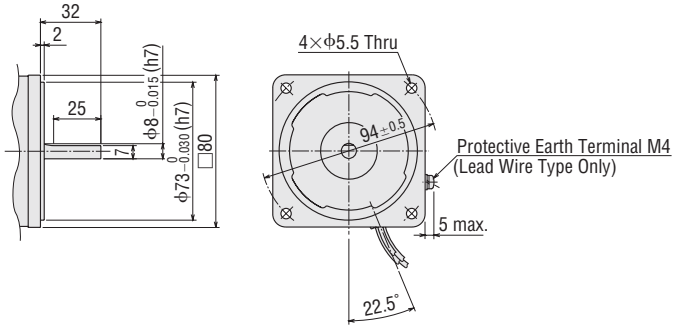
◇Key and Key Slot

(The key is included with the gearhead)



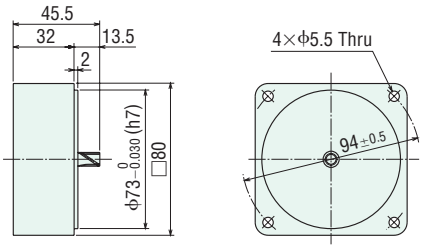
◇Shaft Section of Round Shaft Type

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



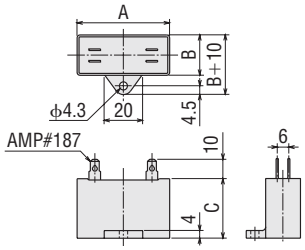
◇Decimal Gearhead

Can be connected to **GN** pinion shaft type.
4GN10XS
Mass: 0.4 kg



◇Capacitor

(Included with single-phase motors)

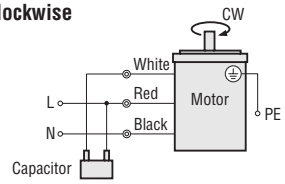
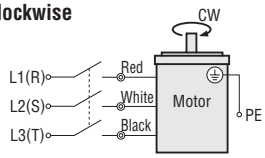


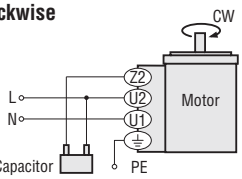
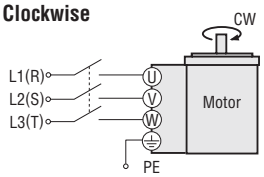
◇Capacitor Dimensions (mm)

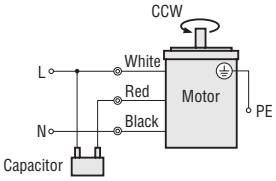
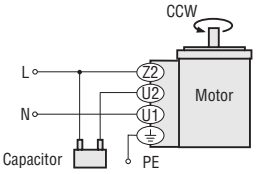
Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Capacitor Model	A	B	C	Mass (g)	Capacitor Cap
Lead Wire Type	Terminal Box Type						
4IK25GN-AW2J (4IK25A-AW2J)	**4IK25GN-AW2TJ (4IK25A-AW2TJ)**	CH80CFAUL2	48	21	31	45	Included
4IK25GN-AW2U (4IK25A-AW2U)	**4IK25GN-AW2TU (4IK25A-AW2TU)**	CH65CFAUL2	48	19	29	40	
4IK25GN-CW2J (4IK25A-CW2J)	**4IK25GN-CW2TJ (4IK25A-CW2TJ)**	CH20BFAUL	48	19	29	35	
4IK25GN-CW2E (4IK25A-CW2E)	**4IK25GN-CW2TE (4IK25A-CW2TE)**	CH15BFAUL	38	21	31	35	

Connection Diagrams

- The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft type.
- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.

<table>
<tr><th colspan="2">Lead Wire Type</th><th colspan="2">Terminal Box Type</th></tr>
<tr><th>4IK25GN-AW2□
4IK25GN-CW2□</th><th>4IK25GN-SW2</th><th>4IK25GN-AW2T□
4IK25GN-CW2T□</th><th>4IK25GN-SW2T
4IK25GN-UT4</th></tr>
<tr><td>Clockwise
 
</td><td rowspan="2">Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between R, S and T.</td><td>Clockwise
 
</td><td rowspan="2">Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between U, V and W.</td></tr>
<tr><td>Counterclockwise
 
</td><td>Counterclockwise
 
</td></tr>
</table>

PE: Protective Earth

Note:

Change the direction of single-phase motor rotation only after bringing the motor to a stop.

If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.

RoHS

Induction Motors

40 W

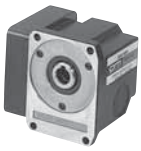
Frame Size: □90 mm

Lead Wire Type

Terminal Box Type

(Gearhead sold separately)

Right-angle gearheads (hollow shaft or solid shaft) can be combined.
Right-Angle Gearheads ➜ Page 108



Specifications – Continuous Rating RoHS

cULus CE

Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	W	VAC	Hz	A	mN·m	mN·m	r/min	μF
TP 5IK40GN-AW2J (5IK40A-AW2J)	5IK40GN-AW2TJ (5IK40A-AW2TJ)	40	Single-Phase 100	50	0.76	200	315	1250	11
				60	0.74		260	1500	
TP 5IK40GN-AW2U (5IK40A-AW2U)	5IK40GN-AW2TU (5IK40A-AW2TU)	40	Single-Phase 110	60	0.68	200	260	1500	9.0
			Single-Phase 115		0.67				
TP 5IK40GN-CW2J (5IK40A-CW2J)	5IK40GN-CW2TJ (5IK40A-CW2TJ)	40	Single-Phase 200	50	0.39	200	315	1250	3.0
				60	0.40		260	1500	
TP 5IK40GN-CW2E (5IK40A-CW2E)	5IK40GN-CW2TE (5IK40A-CW2TE)	40	Single-Phase 220	50	0.39	200	315	1250	2.3
				60	0.35		260	1500	
			Single-Phase 230	50	0.39		300	1300	
				60	0.34		260	1500	
TP 5IK40GN-SW2 (5IK40A-SW2)	5IK40GN-SW2T (5IK40A-SW2T)	40	Three-Phase 200	50	0.32	400	300	1300	–
				60	0.30	260	260	1550	
			Three-Phase 220	60	0.30	260	260	1600	
			Three-Phase 230	60	0.31	260	260	1600	
TP –	5IK40GN-UT4* (5IK40A-UT4*)	40	Three-Phase 400	50	0.16	500	315	1250	–

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

✻ Conforms to EN/IEC standards only. Bears the CE Marking.

Note:

A three-phase 400 VAC motor cannot be used with an inverter. Using them together may lead to deterioration of the motor wiring insulation and damage the products.

TP: Contains a built-in thermal protector. If 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.

Product Line

● Motor RoHS

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	5IK40GN-AW2J	5IK40A-AW2J
	5IK40GN-AW2U	5IK40A-AW2U
	5IK40GN-CW2J	5IK40A-CW2J
	5IK40GN-CW2E	5IK40A-CW2E
	5IK40GN-SW2	5IK40A-SW2
Terminal Box	5IK40GN-AW2TJ	5IK40A-AW2TJ
	5IK40GN-AW2TU	5IK40A-AW2TU
	5IK40GN-CW2TJ	5IK40A-CW2TJ
	5IK40GN-CW2TE	5IK40A-CW2TE
	5IK40GN-SW2T	5IK40A-SW2T
	5IK40GN-UT4	5IK40A-UT4

● Gearhead/Right-Angle Gearhead (Sold Separately) RoHS

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

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

Gearmotor – Torque Table

- Gearheads and decimal gearheads are sold separately.
- Enter the code that represents the terminal box type "**T**" in the box (■) within the model name.
- Enter the gear ratio in the box (□) within the model name.
- A colored background ▭ indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2 - 20% less than the displayed value, depending on the size of the load.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio: 10) between the gearhead and the motor. In that case, the permissible torque is 10 N·m.

◇50 Hz

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
Motor/ Gearhead	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-AW2■J **5IK40GN-CW2■J** **5IK40GN-CW2■E** (Single-phase 220 VAC)	**5GN□S**	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
5IK40GN-CW2■E (Single-phase 230 VAC) **5IK40GN-SW2■**	**5GN□S**	0.73	0.87	1.2	1.5	1.8	2.2	3.0	3.6	4.4	5.5	6.6	7.9	9.9	10	10	10	10	10	10	10
5IK40GN-UT4	**5GN□S**	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

◇60 Hz

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
Motor/ Gearhead	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-AW2■J **5IK40GN-AW2■U** **5IK40GN-CW2■J** **5IK40GN-CW2■E** **5IK40GN-SW2■**	**5GN□S**	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

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) ➜ Page 107
Gearhead ➜ Page 107

Permissible Load Inertia J for Gearhead

➜ Page 107

Dimensions (Unit = mm)

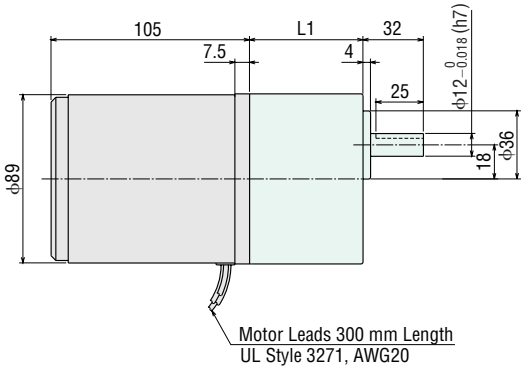
Mounting screws are included with gearheads.

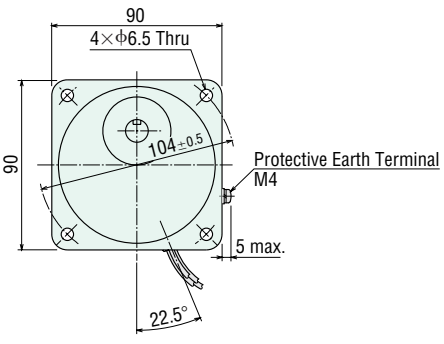
◇Lead Wire Type ①

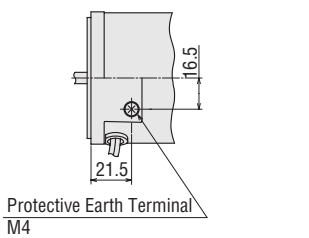
Mass: Motor 2.5 kg
Gearhead 1.5 kg

Motor Model	Gearhead Model	Gear Ratio	L1
5IK40GN-AW2■ **5IK40GN-CW2■** **5IK40GN-SW2**	**5GN□S**	**3～18**	42
		25～180	60

- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (■) within the model name.
  Enter the gear ratio in the box (□) within the model name.







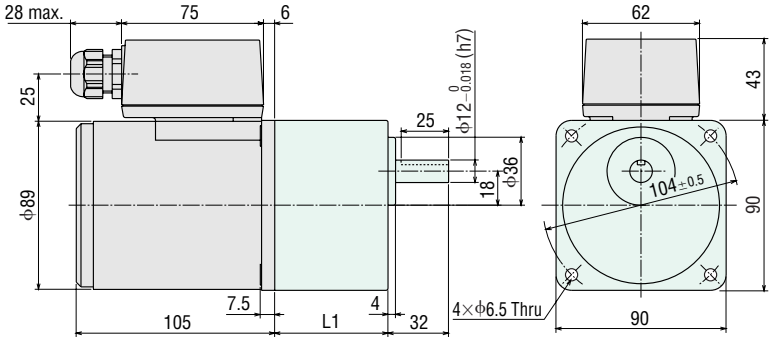
Detail Drawing of Protective Earth Terminal

◇Terminal Box Type ②

Mass: Motor 2.6 kg
Gearhead 1.5 kg

Motor Model	Gearhead Model	Gear Ratio	L1
5IK40GN-AW2T□ **5IK40GN-CW2T□** **5IK40GN-SW2T** **5IK40GN-UT4**	**5GN□S**	**3~18**	42
		25~180	60

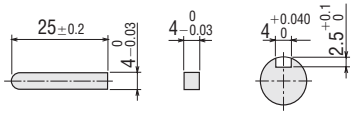
● Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.
Enter the gear ratio in the box (□) within the model name.



● Use cable with a diameter of Φ6 ~ Φ12 mm.

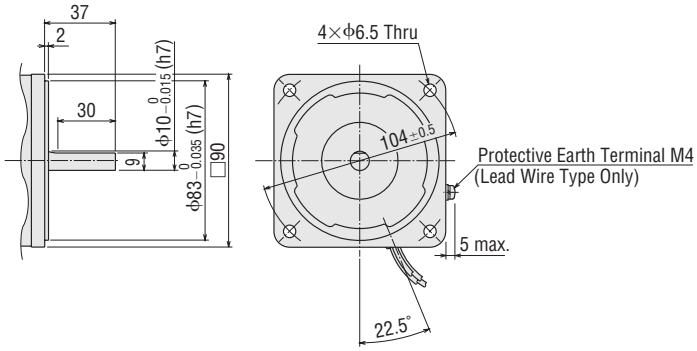
◇Key and Key Slot

(The key is included with the gearhead)



◇Shaft Section of Round Shaft Type

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

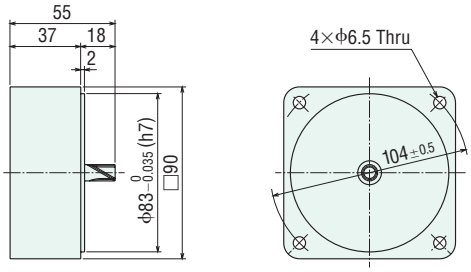


◇Decimal Gearhead

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

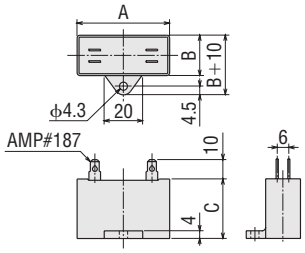
5GN10XS

Mass: 0.6 kg



◇Capacitor

(Included with single-phase motors)

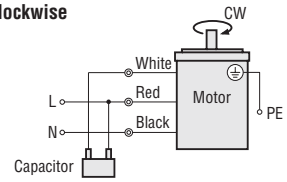
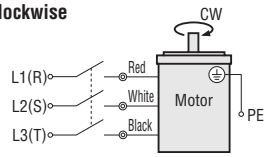


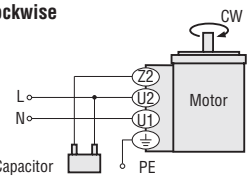
◇Capacitor Dimensions (mm)

Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Capacitor Model	A	B	C	Mass (g)	Capacitor Cap
Lead Wire Type	Terminal Box Type						
5IK40GN-AW2J **(5IK40A-AW2J)**	**5IK40GN-AW2TJ** **(5IK40A-AW2TJ)**	CH110CFAUL2	58	21	31	50	Included
5IK40GN-AW2U **(5IK40A-AW2U)**	**5IK40GN-AW2TU** **(5IK40A-AW2TU)**	CH90CFAUL2	48	22.5	31.5	45	
5IK40GN-CW2J **(5IK40A-CW2J)**	**5IK40GN-CW2TJ** **(5IK40A-CW2TJ)**	CH30BFAUL	58	21	31	50	
5IK40GN-CW2E **(5IK40A-CW2E)**	**5IK40GN-CW2TE** **(5IK40A-CW2TE)**	CH23BFAUL	48	21	31	40	

Connection Diagrams

- The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft type.
- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.

<table>
<tr><th colspan="2">Lead Wire Type</th><th colspan="2">Terminal Box Type</th></tr>
<tr><th>5IK40GN-AW2□
5IK40GN-CW2□</th><th>5IK40GN-SW2</th><th>5IK40GN-AW2T□
5IK40GN-CW2T□</th><th>5IK40GN-SW2T
5IK40GN-UT4</th></tr>
<tr>
<td>Clockwise
 
</td>
<td rowspan="2">Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between R, S and T.</td>
<td>Clockwise
 
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 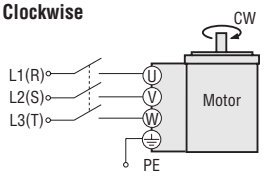

Counterclockwise
To change the rotation direction, change any two connections between U, V and W.</td>
</tr>
<tr>
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 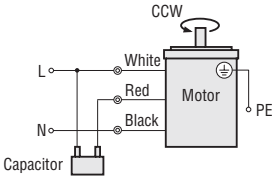
</td>
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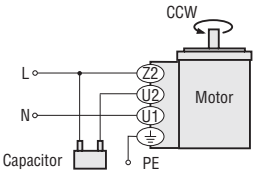
 
</td>
</tr>
</table>

PE: Protective Earth

Note:

Change the direction of single-phase motor rotation only after bringing the motor to a stop.

If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.

RoHS

Induction Motors

60 W

Frame Size: □90 mm

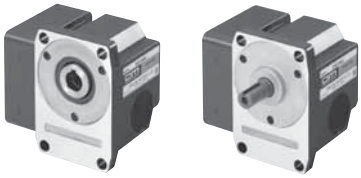
Lead Wire Type

Terminal Box Type

(Gearhead sold separately)

Right-angle gearheads (hollow shaft or solid shaft) can be combined.

Right-Angle Gearheads ➜ Page 108



Specifications – Continuous Rating RoHS

cULus CE

Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	W	VAC	Hz	A	mN·m	mN·m	r/min	μF
TP **5IK60GE-AW2J (5IK60A-AW2J)**	**5IK60GE-AW2TJ (5IK60A-AW2TJ)**	60	Single-Phase 100	50	1.20	320	490	1200	20
				60	1.19		405	1450	
TP **5IK60GE-AW2U (5IK60A-AW2U)**	**5IK60GE-AW2TU (5IK60A-AW2TU)**	60	Single-Phase 110	60	1.09	320	405	1450	18
			Single-Phase 115		1.10				
TP **5IK60GE-CW2J (5IK60A-CW2J)**	**5IK60GE-CW2TJ (5IK60A-CW2TJ)**	60	Single-Phase 200	50	0.57	320	490	1200	5.0
				60	0.65		405	1450	
TP **5IK60GE-CW2E (5IK60A-CW2E)**	**5IK60GE-CW2TE (5IK60A-CW2TE)**	60	Single-Phase 220	50	0.55	320	490	1200	4.0
				60	0.54		405	1450	
			Single-Phase 230	50	0.57		490	1200	
				60	0.54		405	1450	
TP **5IK60GE-SW2 (5IK60A-SW2)**	**5IK60GE-SW2T (5IK60A-SW2T)**	60	Three-Phase 200	50	0.50	600	450	1300	–
				60	0.43	500	380	1550	
			Three-Phase 220	60	0.45	500	380	1600	
			Three-Phase 230	60	0.46	500	380	1600	
TP –	**5IK60GE-UT4F* (5IK60A-UT4F*)**	60	Three-Phase 400	50	0.25	550	470	1250	–

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

✻Conforms to EN/IEC standards only. Bears the CE Marking.

Note:

A three-phase 400 VAC motor cannot be used with an inverter. Using them together may lead to deterioration of the motor wiring insulation and damage the products.

TP: Contains a built-in thermal protector. If 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.

Product Line

●Motor RoHS

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	**5IK60GE-AW2J**	**5IK60A-AW2J**
	5IK60GE-AW2U	**5IK60A-AW2U**
	5IK60GE-CW2J	**5IK60A-CW2J**
	5IK60GE-CW2E	**5IK60A-CW2E**
	5IK60GE-SW2	**5IK60A-SW2**
Terminal Box	**5IK60GE-AW2TJ**	**5IK60A-AW2TJ**
	5IK60GE-AW2TU	**5IK60A-AW2TU**
	5IK60GE-CW2TJ	**5IK60A-CW2TJ**
	5IK60GE-CW2TE	**5IK60A-CW2TE**
	5IK60GE-SW2T	**5IK60A-SW2T**
	5IK60GE-UT4F	**5IK60A-UT4F**

●Gearhead/Right-Angle Gearhead (Sold Separately) RoHS

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

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

Gearmotor – Torque Table

- Gearheads and decimal gearheads are sold separately.
- Enter the code that represents the terminal box type "**T**" in the box (■) within the model name.
- Enter the gear ratio in the box (□) within the model name.
- A colored background [ ] indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2 - 20% less than the displayed value, depending on the size of the load.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio: 10) between the gearhead and the motor. In that case, the permissible torque is 20 N·m.

◇50 Hz

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
Motor/ Gearhead	Gear Ratio	**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
5IK60GE-AW2■J **5IK60GE-CW2■J** **5IK60GE-CW2■E**	**5GE□S**	1.2	1.4	2.0	2.4	3.0	3.6	4.5	5.4	6.4	8.1	9.7	11.6	16.2	19.4	20	20	20	20	20	20
5IK60GE-SW2■	**5GE□S**	1.1	1.3	1.8	2.2	2.7	3.3	4.1	4.9	5.9	7.4	8.9	10.7	14.9	17.8	19.9	20	20	20	20	20
5IK60GE-UT4F	**5GE□S**	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

◇60 Hz

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
Motor/ Gearhead	Gear Ratio	**3**	**3.6**	**5**	**6**	**7.5**	**9**	**12.5**	**15**	**18**	**25**	**30**	**36**	**50**	**60**	**75**	**90**	**100**	**120**	**150**	**180**
5IK60GE-AW2■J **5IK60GE-AW2■U** **5IK60GE-CW2■J** **5IK60GE-CW2■E**	**5GE□S**	0.98	1.2	1.6	2.0	2.5	3.0	3.7	4.4	5.3	6.7	8.0	9.6	13.4	16.0	17.9	20	20	20	20	20
5IK60GE-SW2■	**5GE□S**	0.92	1.1	1.5	1.8	2.3	2.8	3.5	4.2	5.0	6.3	7.5	9.0	12.5	15.0	16.8	20	20	20	20	20

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) ➜ Page 107
Gearhead ➜ Page 107

Permissible Load Inertia J for Gearhead

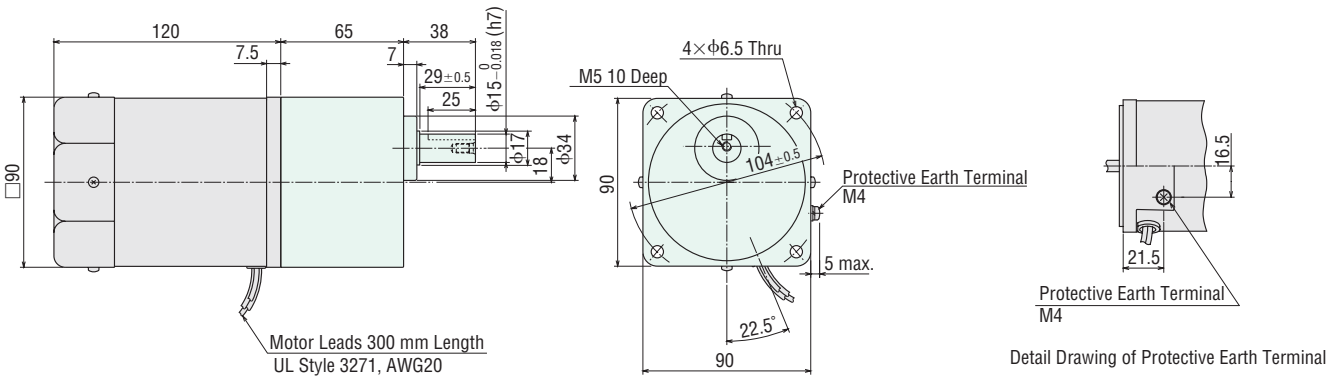
➜ Page 107

Dimensions (Unit = mm)

Mounting screws are included with gearheads.

◇Lead Wire Type ①

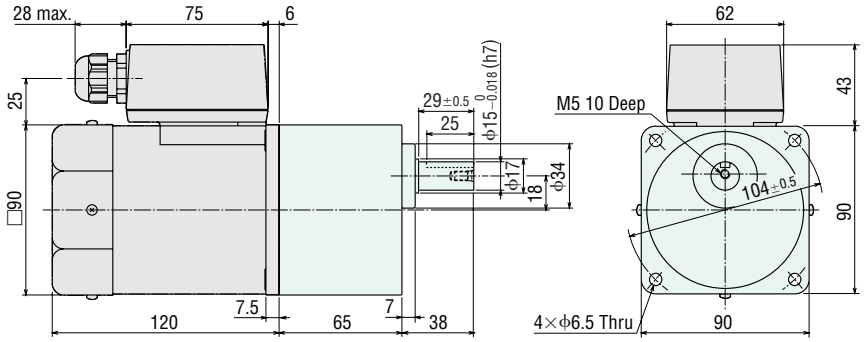
Mass: Motor 2.7 kg
Gearhead 1.5 kg



Detail Drawing of Protective Earth Terminal

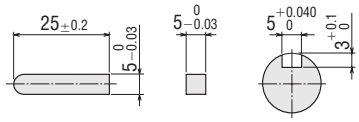
◇Terminal Box Type ②

Mass: Motor 2.8 kg
Gearhead 1.5 kg



◇Key and Key Slot

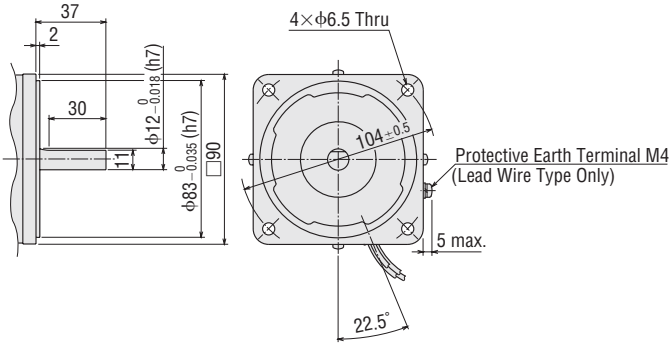
(The key is included with the gearhead)



● Use cable with a diameter of Φ6 ~ Φ12 mm.

◇Shaft Section of Round Shaft Type

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

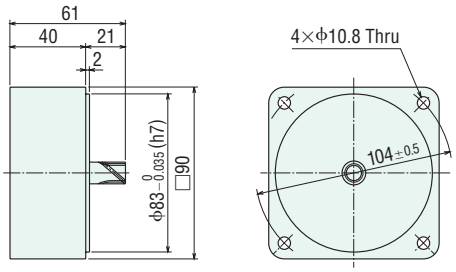


◇Decimal Gearhead

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

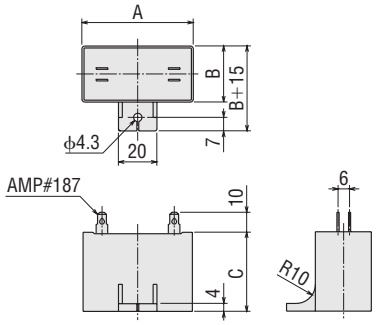
5GE10XS

Mass: 0.6 kg



◇Capacitor

(Included with single-phase motors)

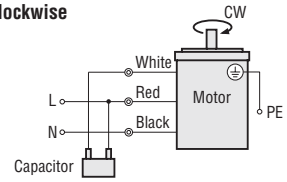
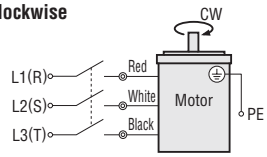


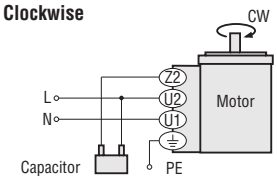
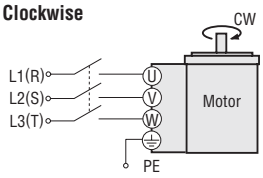
◇Capacitor Dimensions (mm)

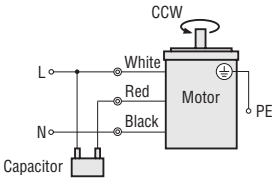
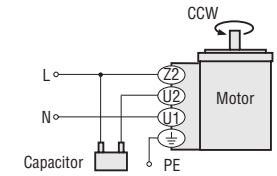
Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Capacitor Model	A	B	C	Mass (g)	Capacitor Cap
Lead Wire Type	Terminal Box Type						
5IK60GE-AW2J (5IK60A-AW2J)	**5IK60GE-AW2TJ (5IK60A-AW2TJ)**	CH200CFAUL2	58	29	41	95	Included
5IK60GE-AW2U (5IK60A-AW2U)	**5IK60GE-AW2TU (5IK60A-AW2TU)**	CH180CFAUL2	58	29	41	95	
5IK60GE-CW2J (5IK60A-CW2J)	**5IK60GE-CW2TJ (5IK60A-CW2TJ)**	CH50BFAUL	58	29	41	85	
5IK60GE-CW2E (5IK60A-CW2E)	**5IK60GE-CW2TE (5IK60A-CW2TE)**	CH40BFAUL	58	23.5	37	70	

Connection Diagrams

- The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft type.
- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.

<table>
<tr><th colspan="2">Lead Wire Type</th><th colspan="2">Terminal Box Type</th></tr>
<tr><th>5IK60GE-AW2□
5IK60GE-CW2□</th><th>5IK60GE-SW2</th><th>5IK60GE-AW2T□
5IK60GE-CW2T□</th><th>5IK60GE-SW2T
5IK60GE-UT4F</th></tr>
<tr><td>Clockwise
 
</td><td rowspan="2">Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between R, S and T.</td><td>Clockwise
 
</td><td rowspan="2">Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between U, V and W.</td></tr>
<tr><td>Counterclockwise
 
</td><td>Counterclockwise
 
</td></tr>
</table>

PE: Protective Earth

Note:

Change the direction of single-phase motor rotation only after bringing the motor to a stop.

If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.

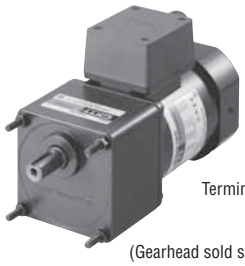
RoHS

Induction Motors

90 W

Frame Size: □90 mm

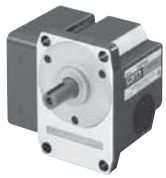
Lead Wire Type



Terminal Box Type

(Gearhead sold separately)

Right-angle gearheads (hollow shaft or solid shaft) can be combined.
Right-Angle Gearheads ➜ Page 108



Specifications – Continuous Rating RoHS

cULus CE

Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Output Power	Voltage	Frequency	Current	Starting Torque	Rated Torque	Rated Speed	Capacitor
Lead Wire Type Dimension ①	Terminal Box Type Dimension ②	W	VAC	Hz	A	mN·m	mN·m	r/min	μF
TP 5IK90GE-AW2J (5IK90A-AW2J)	5IK60GE-AW2TJ (5IK90A-AW2TJ)	90	Single-Phase 100	50	1.64	450	700	1250	28
				60	1.67		585	1500	
TP 5IK90GE-AW2U (5IK90A-AW2U)	5IK90GE-AW2TU (5IK90A-AW2TU)	90	Single-Phase 110	60	1.45	450	585	1500	20
			Single-Phase 115		1.44				
TP 5IK90GE-CW2J (5IK90A-CW2J)	5IK90GE-CW2TJ (5IK90A-CW2TJ)	90	Single-Phase 200	50	0.80	450	730	1200	7.0
				60	0.93		605	1450	
TP 5IK90GE-CW2E (5IK90A-CW2E)	5IK90GE-CW2TE (5IK90A-CW2TE)	90	Single-Phase 220	50	0.74	450	730	1200	6.0
				60	0.82		605	1450	
			Single-Phase 230	50	0.76		730	1200	
				60	0.81		605	1450	
TP 5IK90GE-SW2 (5IK90A-SW2)	5IK90GE-SW2T (5IK90A-SW2T)	90	Three-Phase 200	50	0.64	850	680	1300	–
				60	0.59	700	570	1550	
			Three-Phase 220	60	0.60	700	570	1600	
			Three-Phase 230	60	0.61	700	570	1600	
TP –	5IK90GE-UT4F* (5IK90A-UT4F*)	90	Three-Phase 400	50	0.35	850	700	1250	–

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

*Conforms to EN/IEC standards only. Bears the CE Marking.

Note:

A three-phase 400 VAC motor cannot be used with an inverter. Using them together may lead to deterioration of the motor wiring insulation and damage the products.

TP: Contains a built-in thermal protector. If 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.

Product Line

●Motor RoHS

Type	Model	
	Pinion Shaft Type	Round Shaft Type
Lead Wire	5IK90GE-AW2J	5IK90A-AW2J
	5IK90GE-AW2U	5IK90A-AW2U
	5IK90GE-CW2J	5IK90A-CW2J
	5IK90GE-CW2E	5IK90A-CW2E
	5IK90GE-SW2	5IK90A-SW2
Terminal Box	5IK90GE-AW2TJ	5IK90A-AW2TJ
	5IK90GE-AW2TU	5IK90A-AW2TU
	5IK90GE-CW2TJ	5IK90A-CW2TJ
	5IK90GE-CW2TE	5IK90A-CW2TE
	5IK90GE-SW2T	5IK90A-SW2T
	5IK90GE-UT4F	5IK90A-UT4F

●Gearhead/Right-Angle Gearhead (Sold Separately) RoHS

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

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

Gearmotor – Torque Table

- Gearheads and decimal gearheads are sold separately.
- Enter the code that represents the terminal box type "**T**" in the box (■) within the model name.
- Enter the gear ratio in the box (□) within the model name.
- A colored background ▭ indicates gear shaft rotation in the same direction as the motor shaft, while the others rotate in the opposite direction.
- The speed is calculated by dividing the motor's synchronous speed (50 Hz: 1500 r/min, 60 Hz: 1800 r/min) by the gear ratio. The actual speed is 2 - 20% less than the displayed value, depending on the size of the load.
- To reduce the speed beyond the gear ratio in the table, attach a decimal gearhead (gear ratio: 10) between the gearhead and the motor. In that case, the permissible torque is 20 N·m.

◇50 Hz

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
Motor/ Gearhead	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**
5IK90GE-AW2■J	**5GE□S**	1.7	2.0	2.8	3.4	4.3	5.1	6.4	7.7	9.2	11.6	13.9	16.6	20	20	20	20	20	20	20	20
5IK90GE-CW2■J **5IK90GE-CW2■E**	**5GE□S**	1.8	2.1	3.0	3.5	4.4	5.3	6.7	8.0	9.6	12.0	14.5	17.3	20	20	20	20	20	20	20	20
5IK90GE-SW2■	**5GE□S**	1.7	2.0	2.8	3.3	4.1	5.0	6.2	7.4	8.9	11.2	13.5	16.2	20	20	20	20	20	20	20	20
5IK90GE-UT4F	**5GE□S**	1.7	2.0	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

◇60 Hz

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
Motor/ Gearhead	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**
5IK90GE-AW2■J **5IK90GE-AW2■U**	**5GE□S**	1.4	1.7	2.4	2.8	3.6	4.3	5.3	6.4	7.7	9.7	11.6	13.9	19.3	20	20	20	20	20	20	20
5IK90GE-CW2■J **5IK90GE-CW2■E**	**5GE□S**	1.5	1.8	2.5	2.9	3.7	4.4	5.5	6.6	7.9	10.0	12.0	14.4	20	20	20	20	20	20	20	20
5IK90GE-SW2■	**5GE□S**	1.4	1.7	2.3	2.8	3.5	4.2	5.2	6.2	7.5	9.4	11.3	13.5	18.8	20	20	20	20	20	20	20

Permissible Overhung Load and Permissible Thrust Load

Motor (Round shaft type) ➜ Page 107
Gearhead ➜ Page 107

Permissible Load Inertia J for Gearhead

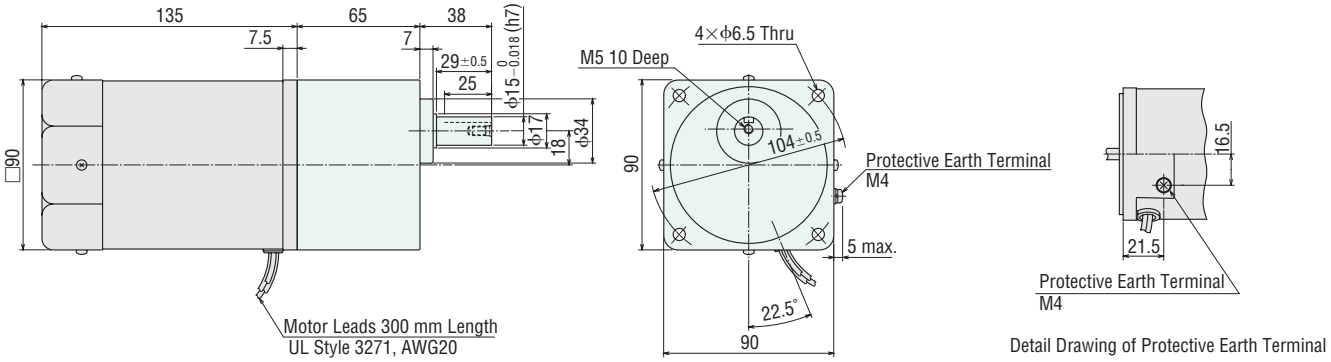
➜ Page 107

Dimensions (Unit = mm)

Mounting screws are included with gearheads.

◇Lead Wire Type ①

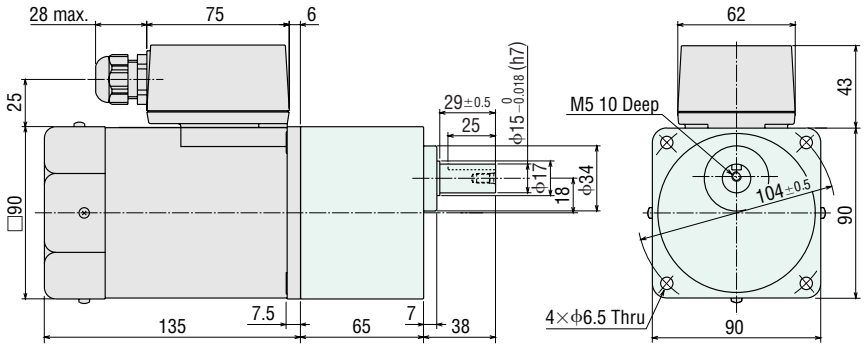
Mass: Motor 3.2 kg
Gearhead 1.5 kg



Detail Drawing of Protective Earth Terminal

◇ Terminal Box Type ②

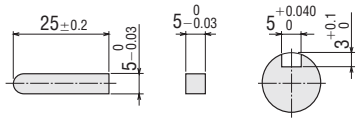
Mass: Motor 3.3 kg
Gearhead 1.5 kg



● Use cable with a diameter of ϕ6 ～ ϕ12 mm.

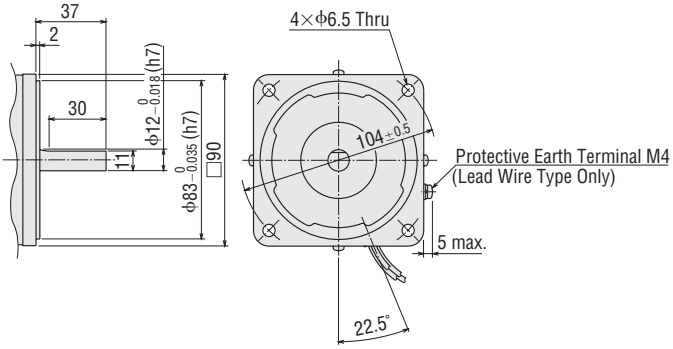
◇Key and Key Slot

(The key is included with the gearhead)



◇Shaft Section of Round Shaft Type

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

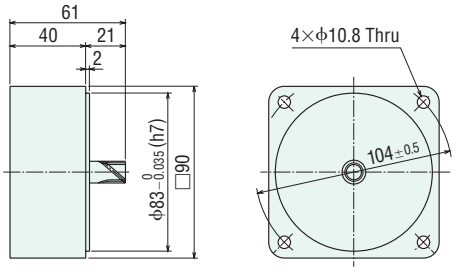


◇Decimal Gearhead

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

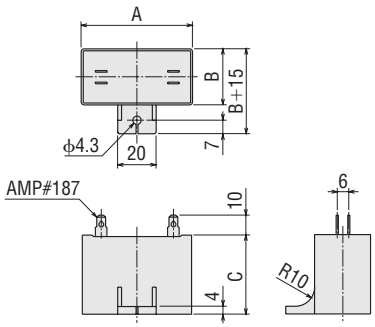
5GE10XS

Mass: 0.6 kg



◇Capacitor

(Included with single-phase motors)

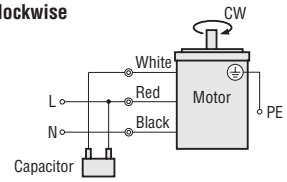
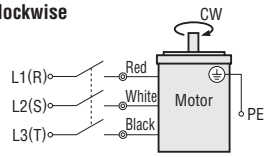


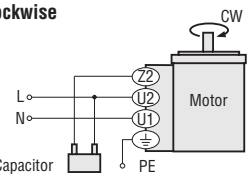
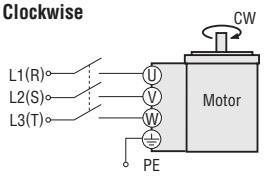
◇Capacitor Dimensions (mm)

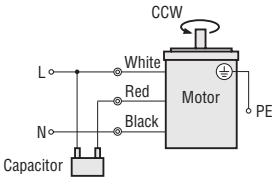
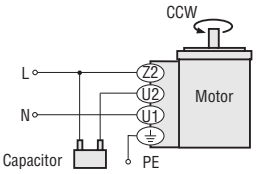
Model Upper Model Name: Pinion Shaft Type Lower Model Name ( ): Round Shaft Type		Capacitor Model	A	B	C	Mass (g)	Capacitor Cap
Lead Wire Type	Terminal Box Type						
5IK90GE-AW2J (5IK90A-AW2J)	**5IK90GE-AW2TJ (5IK90A-AW2TJ)**	CH280CFAUL2	58	35	50	140	Included
5IK90GE-AW2U (5IK90A-AW2U)	**5IK90GE-AW2TU (5IK90A-AW2TU)**	CH200CFAUL2	58	29	41	95	
5IK90GE-CW2J (5IK90A-CW2J)	**5IK90GE-CW2TJ (5IK90A-CW2TJ)**	CH70BFAUL	58	35	50	130	
5IK90GE-CW2E (5IK90A-CW2E)	**5IK90GE-CW2TE (5IK90A-CW2TE)**	CH60BFAUL	58	29	41	85	

Connection Diagrams

- The direction of motor rotation is as viewed from the shaft end of the motor. CW represents the clockwise direction, while CCW represents the counterclockwise direction.
- Connection diagrams are also valid for the equivalent round shaft type.
- Specify the type of the capacitor to be included by entering **J**, **U** or **E** in the box (□) within the model name.

<table>
<tr><th colspan="2">Lead Wire Type</th><th colspan="2">Terminal Box Type</th></tr>
<tr><th>5IK90GE-AW2□
5IK90GE-CW2□</th><th>5IK90GE-SW2</th><th>5IK90GE-AW2T□
5IK90GE-CW2T□</th><th>5IK90GE-SW2T
5IK90GE-UT4F</th></tr>
<tr><td>Clockwise
 
</td><td rowspan="2">Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between R, S and T.</td><td>Clockwise
 
</td><td rowspan="2">Clockwise
 

Counterclockwise
To change the rotation direction, change any two connections between U, V and W.</td></tr>
<tr><td>Counterclockwise
 
</td><td>Counterclockwise
 
</td></tr>
</table>

PE: Protective Earth

Note:

Change the direction of single-phase motor rotation only after bringing the motor to a stop.

If an attempt is made to change the direction of rotation while the motor is rotating, motor may ignore reversing command or change its direction of rotation after some delay.

RoHS RoHS-Compliant

Brake Pack for Standard AC Motors

SB50W

The **SB50W** provides instantaneous stop, forward/reverse operation, electromagnetic brake control and thermal protector open detection functions integrated into one unit. These brake packs can sense when the thermal protector is opened, further ensuring the safety of your equipment.

Features

●Four Functions in One Integrated Unit

The **SB50W** provides instantaneous stop, forward/reverse operation, electromagnetic brake control and thermal protector open detection functions*.

*Thermal protector open detection function
(Available only when combined with a motor having a built-in thermal protector) When the motor's thermal protector (overheat protection device) is activated, the **SB50W** outputs an alarm signal and automatically cuts the power supply to the motor. The motor will not restart by itself, even after the temperature drops and the thermal protector recovers, until the power is cycled. Possible to reset the alarm through external signals.

●Wide Voltage Range of 100 to 230 VAC

The **SB50W** covers a single-phase voltage range of 100 to 230 VAC ±10%, 50/60 Hz, accommodating all of the world's key voltage specifications.

●Conforms to Safety Standards

This is the world first brake pack which conforms to safety standards. The CE marking is used in accordance with the EMC directives and low voltage directives.

●Supports Motors with 1 to 90 W Output

The **SB50W** can be used with induction, reversible, electromagnetic brake and watertight, dust-resistant motors with an output range of 1 to 90 W.

●Switchable Sink/Source Logic

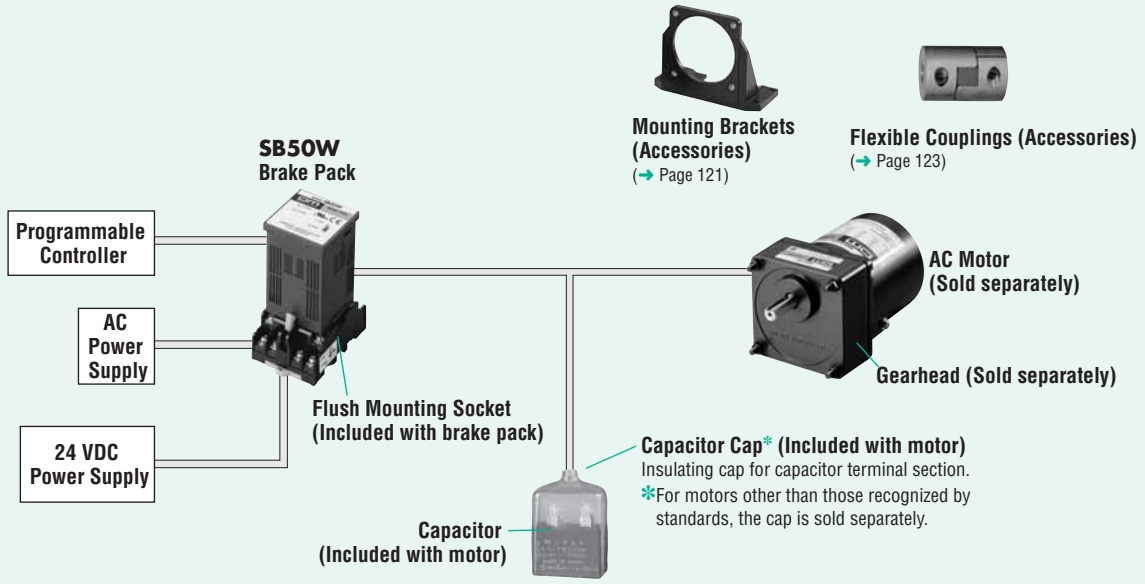
Select the sink mode or source mode for the input/output circuit. You can change the setting at any time.

Safety Standards and CE Marking

Standards	Certification Body	Standards File No.	CE Marking
UL 508	UL	E91291	Low Voltage Directives EMC Directives
CSA C22.2 No.14			
EN 50178 EN 60950-1	Conform to EN Standards		

●The EMC value changes according to the wiring and layout. Therefore, the final EMC level must be checked with the brake pack incorporated in the user's equipment.

System Configuration



●Example of System Configuration

◎: Required under this system.
○: Selectable according to necessity. Oriental Motor provides.

(Body)		(Sold separately)			
Brake Pack	+	Motor (Pinion Shaft)	Long Life, Parallel-Shaft	Mounting Bracket	Flexible Coupling
SB50W		4IK25GN-CW2E	4GN25S	SOL4M5	MCL301012
◎		◎	◎	○	○

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

Specifications RoHS

Model	Power Supply Voltage	Frequency	Applicable Motor Output Voltage	Functions	Power Source for Control	Input Signals	Output Signals	Braking Current Duration
SB50W	Single-phase 100-230 VAC ±10%	50/60 Hz	1 W～90 W	Instantaneous stop Forward/reverse operation Electromagnetic brake control (Electromagnetic brake motors) Thermal protector open detection (Alarm output) Sink/Source logic switch	24 VDC ±10% 0.1 A min.	CW, CCW, FREE/ALARM-RESET Input specifications Photocoupler input Input impedance 4.7 kΩ 24 VDC ±10%	ALARM Output specifications Open collector output External use conditions 26.4 VDC max. 10 mA min.	Approximately 0.2～0.4 seconds

General Specifications

Item	Specifications
Insulation Resistance	100 MΩ or more when measured by a 500 VDC megger between the power supply input terminal and the signal input terminal after rated motor operation under normal ambient temperature and humidity.
Dielectric Strength	Sufficient to withstand 3.0 kV at 50 Hz or 60 Hz applied between the power supply input terminal and the signal input terminal for 1 minute after rated motor operation under normal ambient temperature and humidity.
Ambient Temperature	0°C～+40°C (nonfreezing)
Ambient Humidity	85% or less (noncondensing)
Degree of Protection	IP10

Applicable Products

World **K** Series 1 W～90 W	Induction Motors* Reversible Motors Electromagnetic Brake Motors

*Except for 2-pole type

Braking Current

When a motor is stopped suddenly, a large half-wave rectified current flows through the motor for approximately 0.2 to 0.4 seconds. When connecting a circuit breaker, fuse or transformer, refer to the table below for the braking current (peak value) and select its current capacity.

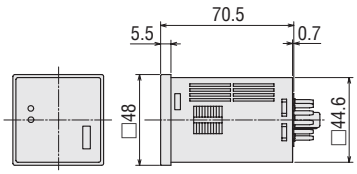
Motor Output Power	Braking Current [A] (Peak Value)	
	100/110/115 VAC	200/220/230 VAC
1 W	1.0	0.3*
6 W	1.5	1.0
15 W	4.5	2.5
25 W	7.5	4.0
40 W	12	7.0
60 W	18	8.5
90 W	26	17

*Can be used only for 200 VAC.

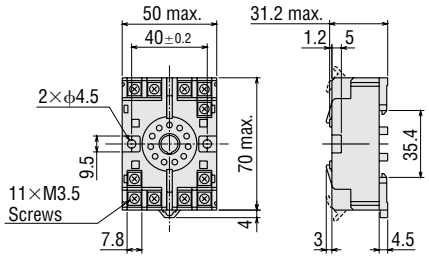
Dimensions (Unit = mm)

◇SB50W

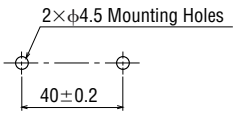
Mass: 0.1 kg



◇Flush Mounting Socket (Included with brake pack)



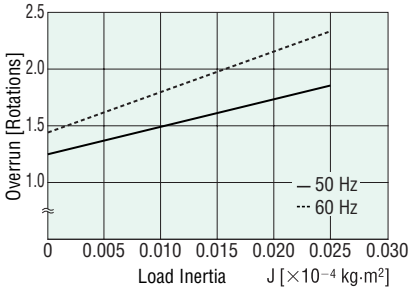
◇Flush Mounting Socket Panel Cut-Out



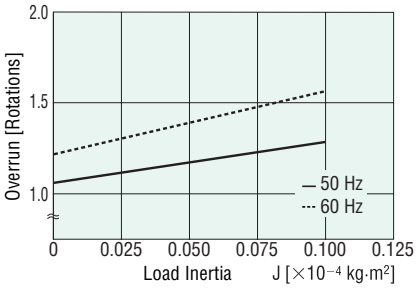
Braking Characteristics (Reference Values)

●Induction Motors

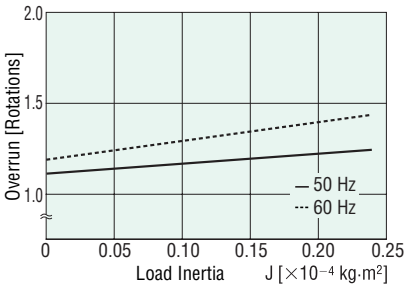
1 W



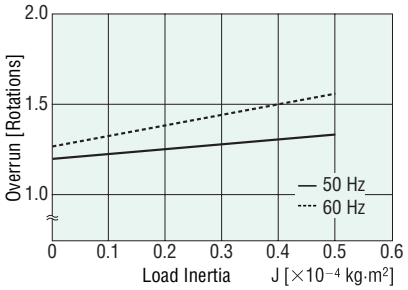
6 W



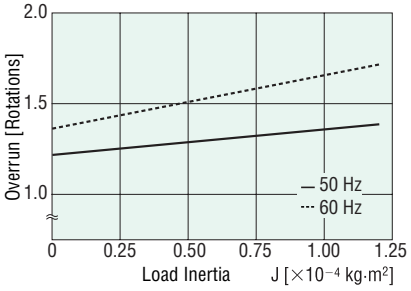
15 W



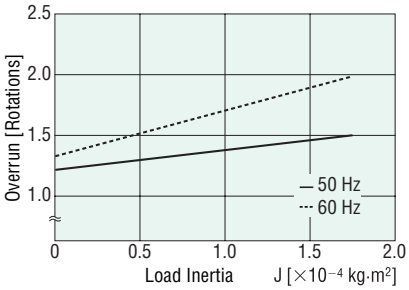
25 W



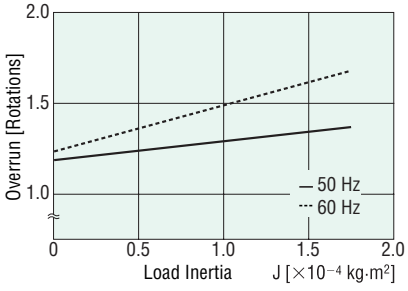
40 W



60 W

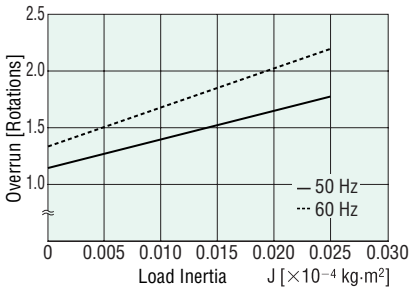


90 W

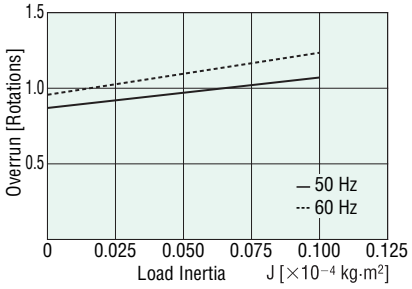


●Reversible Motors

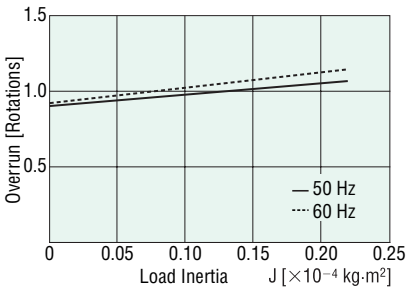
1 W



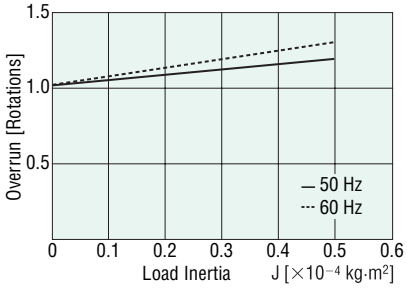
6 W



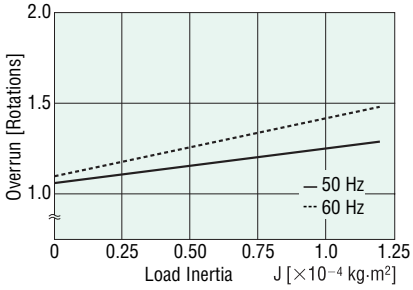
15 W



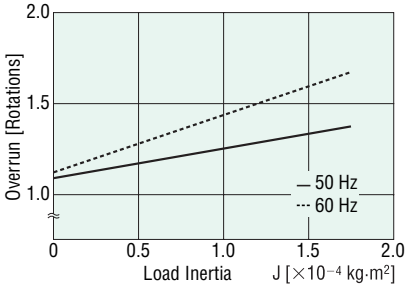
25 W



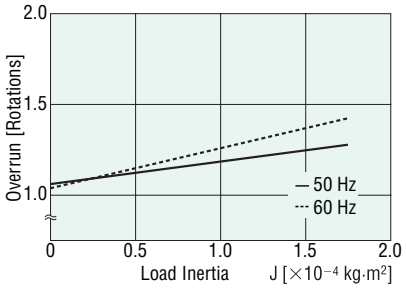
40 W



60 W

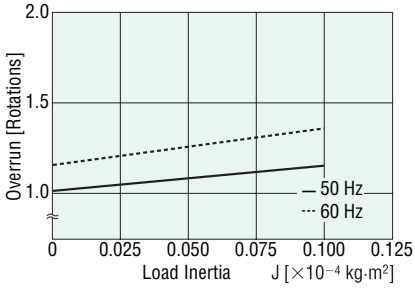


90 W

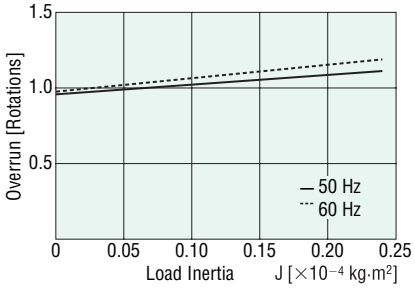


●Electromagnetic Brake Motors

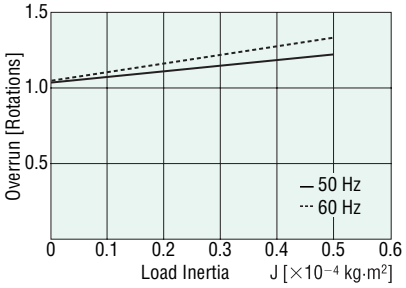
6 W



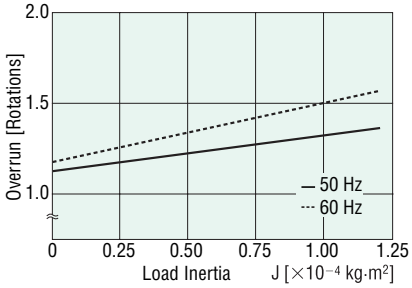
15 W



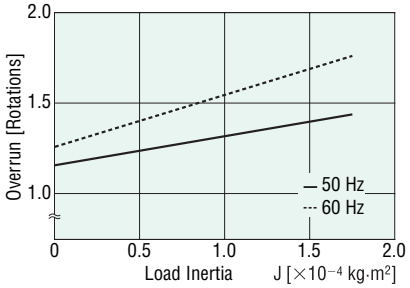
25 W



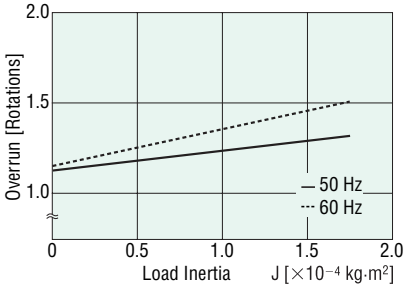
40 W



60 W



90 W



Connection and Operation

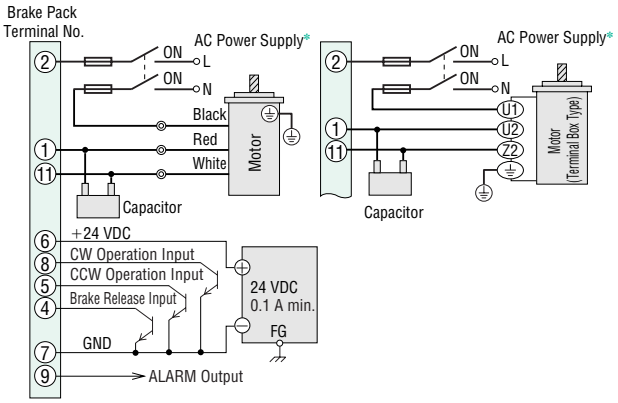
Names and Functions of Brake Pack Parts

No.	Name	Factory Setting	Functions
①	POWER Indicator (Green)	–	Lit when 24 VDC is supplied.
②	ALARM Indicator (Red)	–	Lit when the ALARM output is "OFF."
③	Motor Output Select Switch	60－90 W	Used to set the motor output.
④	SINK/SOURCE Select Switch	SINK	Used to switch between Sink/Source for the control signal output.

Connection Diagrams

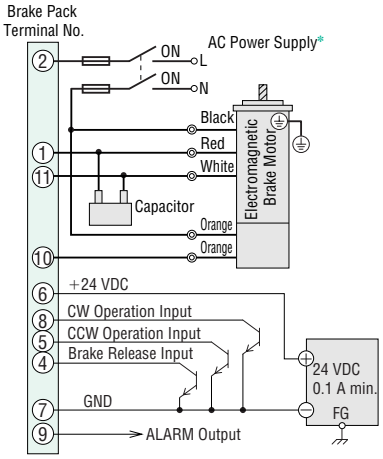
The wiring diagram is for when the SINK/SOURCE select switch is set to the "SINK" side.

◇Induction Motors/Reversible Motors



*Single-phase 100/110/115 VAC, single-phase 200/220/230 VAC

◇Electromagnetic Brake Motors



*Single-phase 100/110/115 VAC, single-phase 200/220/230 VAC

Terminal Arrangement for Flush Mounting Socket

Terminal No.	Signal Name	Description
①	Motor/Capacitor	Connect the motor and capacitor.
②	AC Power Input (L)	Single-phase 100－115 VAC Single-phase 200－230 VAC
③	NC	Not used. Leave this terminal unconnected.
④*1	Brake Release Input*2	Not an instantaneous stop but a natural stop
	ALARM-RESET Input	Reset ALARM Output.
⑤	CCW Operation Input*3	Motor runs in the CCW direction during "ON."
⑥	DC Power Input	+24 VDC input
⑦	GND	GND
⑧	CW Operation Input	Motor runs in the CCW direction during "ON."
⑨	ALARM Output	Turns "OFF" when the motor's thermal protector is "open."
⑩	Electromagnetic Brake*4	Connect to the electromagnetic brake.
⑪	Motor/Capacitor	Connect the motor and capacitor.

*1 Functions as a brake release input during normal operation, and as an ALARM-RESET input when the ALARM output is OFF.
*2 Releases the electromagnetic brake for electromagnetic brake motors.
*3 Not used with an induction motor with four lead wires.
*4 Only for electromagnetic brake motors.

Notes:

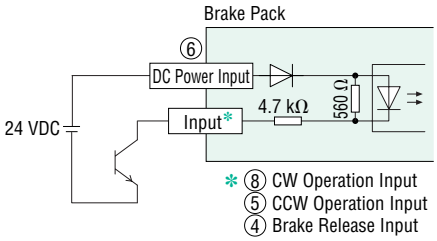
- The input-signal voltage is 24 VDC±10% and 0.1 A or more.
- Minimize the length of the motor cable and the input/output signal cable to reduce EMI.
- Use a cable of AWG18 (0.75 mm²) or more in diameter for the motor cable and power cable.
- Be sure to connect the GND terminal to GND (negative side) of the external controller, or the unit will not operate.

●I/O Signal Circuit

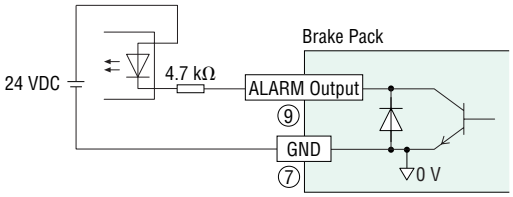
The I/O signal circuit can be switched between the sink mode and source mode using the sink/source select switch on the brake pack. The factory setting is the sink mode.

◇Sink Logic

•Input Circuit

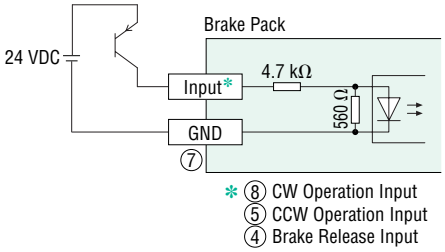


•Output Circuit

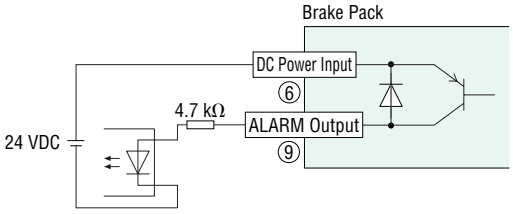


◇Source Logic

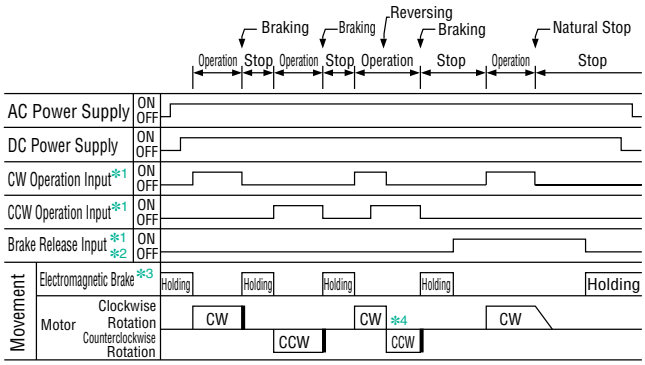
•Input Circuit



•Output Circuit



●Timing Chart



*1 Turn on CW operation input, CCW operation input, and brake release input after turning on AC power.
The motor does not operate if they are input ahead of AC power.
The ALARM indicator will light and ALARM output will switch to "OFF."

*2 The brake release input becomes ALARM-RESET input when the ALARM output is OFF.

*3 Only for electromagnetic brake motors.

*4 The induction motor will not accommodate instantaneous forward/reverse switching.

◇CW Operation Input

Turning the CW operation signal to "ON" causes the motor's output shaft to turn in the CW direction. Turning it to "OFF" triggers an instantaneous stop.

◇CCW Operation Input

Turning the CCW operation signal to "ON" causes the motor's output shaft to turn in the CCW direction. Turning it to "OFF" triggers an instantaneous stop.

If both the CW and CCW operation signals are simultaneously turned to "ON," the CW operation signal will take priority. Therefore, the wiring must be changed with an induction motor having four lead wires.

◇Brake Release Input [ALARM-RESET Input]

Functions as a brake release input during normal operation, and as an ALARM-RESET input when the ALARM output is OFF.

•When normal: [Brake Release Input]

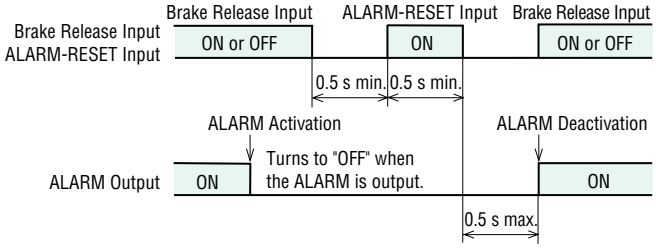
Turning the brake release signal to "ON" disables both the electronic brake and electromagnetic brake. When the CW and CCW operation signals are turned to "OFF," the motor operates via inertial force before coming to a natural stop. When the motor is stationary, the electromagnetic brake is not activated, so the motor's output shaft can be moved freely.

Turning the brake release signal to "OFF" (or leaving the signal unconnected) and turning both CW and CCW operation signals to "OFF" will activate the electronic brake and electromagnetic brake, bringing the motor to an instantaneous stop. Once the motor stops, the electronic brake will release automatically. However, the electromagnetic brake will continue to operate and hold the load.

•When ALARM output is OFF: [ALARM-RESET Input]

When ALARM output is turned OFF, turn all input signals "OFF" and input 0.5 seconds or more for ALARM-RESET input.

Wait at least 0.5 seconds after turning the ALARM-RESET input OFF before restarting operation.



It is also possible to deactivate the alarm by turning off the power and turning it on again. Turn off the DC or AC power, and turn all input signals "OFF" before turning on the power again.

◇ALARM Output (Thermal Protector Open Detection)

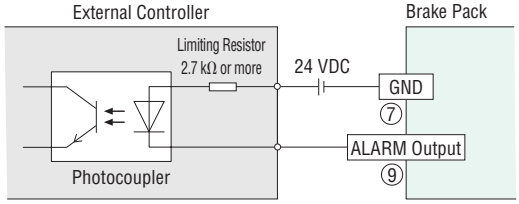
Since the **SB50W** ALARM output function detects the operations of the thermal protector, the current flowing in the motor is monitored. Operation occurs under the following conditions:

- When the thermal protector built-in to the motor is opened
- When there is improper connection/disconnection of the power supply cable and motor cable
- When the input signal is turned "ON" before the AC power is turned on
- When the AC power is turned off while the motor is in operation or while it is stopped

In the above conditions, state of the **SB50W** ALARM output is "OFF," the ALARM indicator lamp (red) on the panel lights up, and power supply to the motor is stopped.

With electromagnetic brake motors, the brake is activated in order to hold the load in position.

✻When the DC power is turned on, the alarm indication lamp lights up instantaneously, but this is not an abnormality.



Use a power source of 26.4 VDC or less, and limit the output current to 10 mA or less.

■Operating/Braking Repetition Cycle

The repeated operation and braking of a motor will cause about a temperature increase in the motor and brake pack, thereby limiting the continuous operating time.

Observe the repetition cycle given in the table below for the operation and braking of the motor. The motor may generate heat depending on the conditions in which it is driven. Ensure that the temperature of the motor case does not exceed 90˚C.

Motor Output Power	Repetition Cycle
1 W～25 W	2 seconds or more
40 W～90 W	4 seconds or more

(A repetition cycle of two seconds represents operation for one second and stopping for one second.)

Accessories

Motor/Gearhead Mounting Brackets RoHS

Mounting Brackets for attaching and securing a motor and gearhead. They are high-strength type, which can be used with high power motors/gearheads. These brackets come with tapped holes. To mount the motor and gearhead, simply fasten with the screws provided to the gearhead. To mount the motor alone, mounting screws must be provided separately.

Please note that these mounting brackets cannot be used with the following products.
- Right-angle gearheads (**RH** type, **RA** type)

For Motor Frame Size: □42 mm

Model: SOL0M3

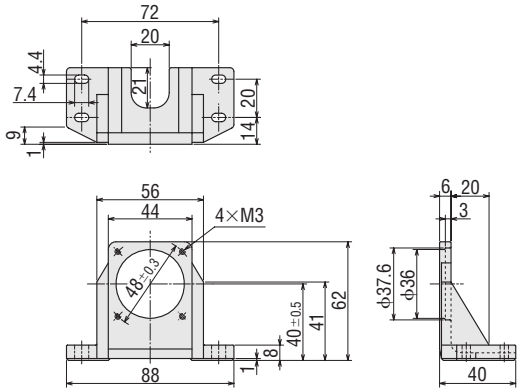
Mass: 85 g Material: Aluminum

◇Applicable Products

0GN Gearhead

Motor with the flame size of □42 mm

Dimensions (Unit = mm)



For Motor Frame Size: □60 mm

Model: SOL2M4

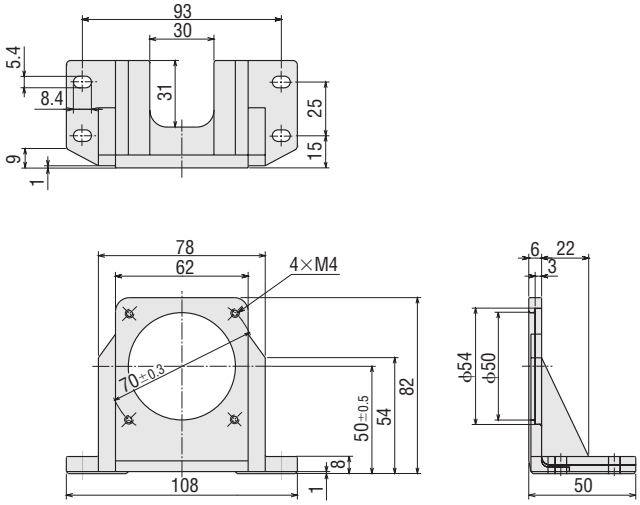
Mass: 135 g Material: Aluminum

◇Applicable Products

2GN Gearhead

Motor with the flame size of □60 mm

Dimensions (Unit = mm)

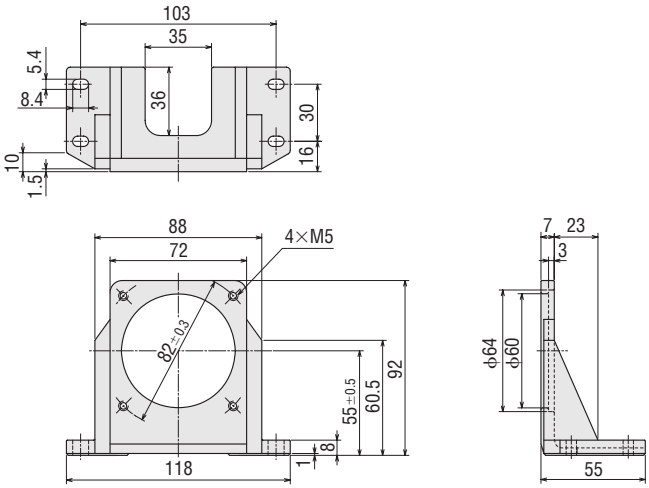


For Motor Frame Size: □70 mm

● Model: **SOL3M5**
Mass: 175 g Material: Aluminum

◇Applicable Products
3GN Gearhead
Motor with the flame size of □70 mm

● Dimensions (Unit = mm)

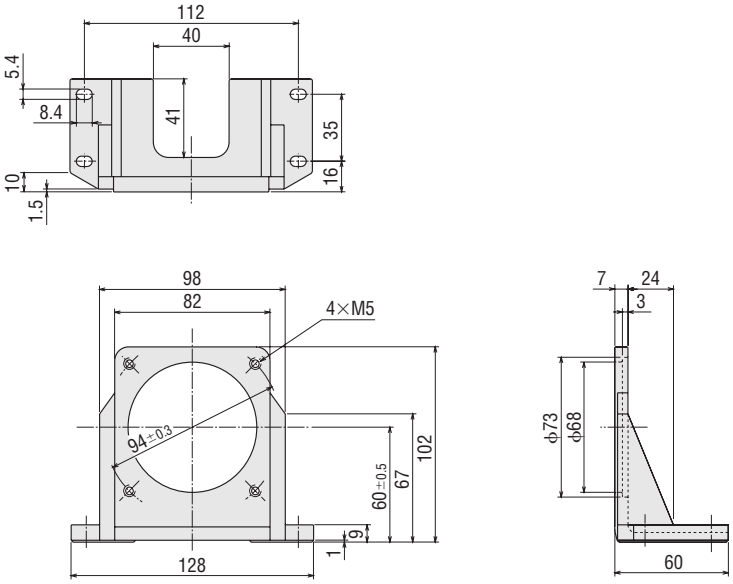


For Motor Frame Size: □80 mm

● Model: **SOL4M5**
Mass: 210 g Material: Aluminum

◇Applicable Products
4GN Gearhead
Motor with the flame size of □80 mm

● Dimensions (Unit = mm)

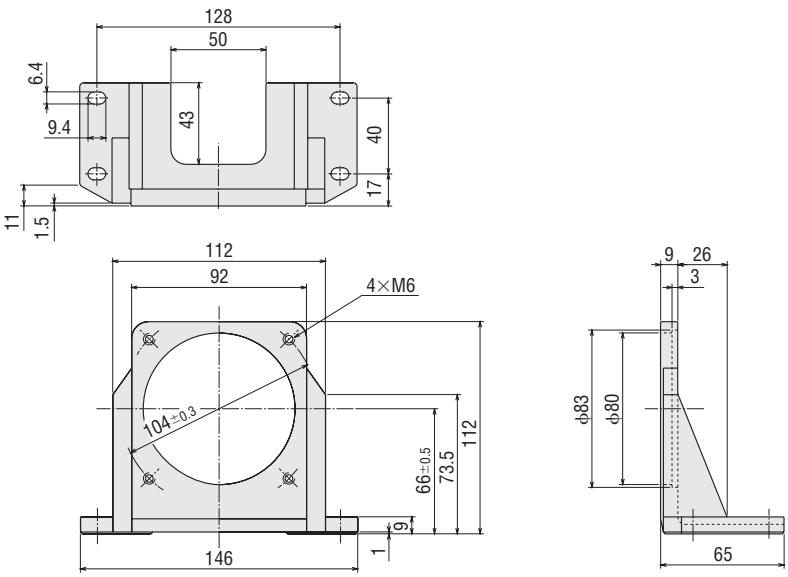


For Motor Frame Size: □90 mm

● Model: **SOL5M6**
Mass: 270 g Material: Aluminum

◇Applicable Products
5GN Gearhead
5GE Gearhead
Motor with the flame size of □90 mm

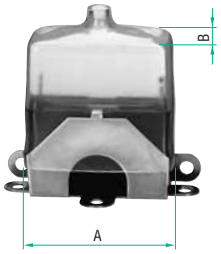
● Dimensions (Unit = mm)



Capacitor Cap RoHS

Insulating cap for capacitor terminal section.

(Example of use)



Model	External Dimensions A×B (Unit = mm)	Applicable Capacitor Model
CHC5835AUL	58×35	CH400300A

Note:
Ten capacitor caps are included in one bag.
Order capacitor caps in a multiple of one bag.

Use a capacitor cap suitable for the external dimensions (A×B) of the capacitor.
Material: Polyvinyl chloride
Our capacitor caps are recognized by UL.
UL File No. E56078

Flexible Couplings RoHS

These products are the clamping type couplings to connect between the shaft of motor/gearhead and the shaft of the equipment to be connected.
Once the motor and gearhead are determined, the coupling can be done.

Features

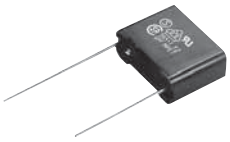
- Couplings come with shaft holes and have standardized combinations for different diameter shaft holes.
- Characteristics are the same for clockwise and counterclockwise rotation.
- Oil-resistant and electrically insulated.
- Aluminum alloy construction.
- The shaft being driven is not damaged, since shafts are joined by clamping.
- Easy installation due to a separated hub and sleeve design.

Gearhead Model	Coupling Type
0GN□K	**MCL20**
2GN□S	**MCL20** **MCL30**
3GN□S	**MCL30**
4GN□S **4GN□RA**	**MCL30** **MCL40**
5GN□S **5GN□RA**	**MCL30** **MCL40**
5GE□S **5GE□RA**	**MCL40** **MCL55**

✻Type of coupling varies depending on condition of the load.

CR Circuit for Surge Suppression RoHS

This product is used to protect the contacts of the relay and/or switch used for controlling the reversal of direction and the electromagnetic brake.

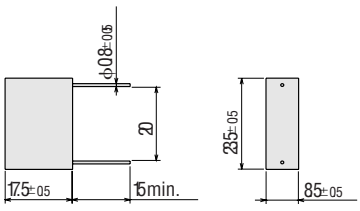


Model: **EPCR1201-2**

250 VAC (120 Ω, 0.1 μF)

Dimensions (Unit = mm)

Mass: 5 g



This product is manufactured at a plant certified with the international standards **ISO 9001** (for quality assurance) and **ISO 14001** (for systems of environmental management).

Orientalmotor

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