



Sesame Motor Corp., A leading brand in gear technology.

# MOTOR AND SPEED REDUCER

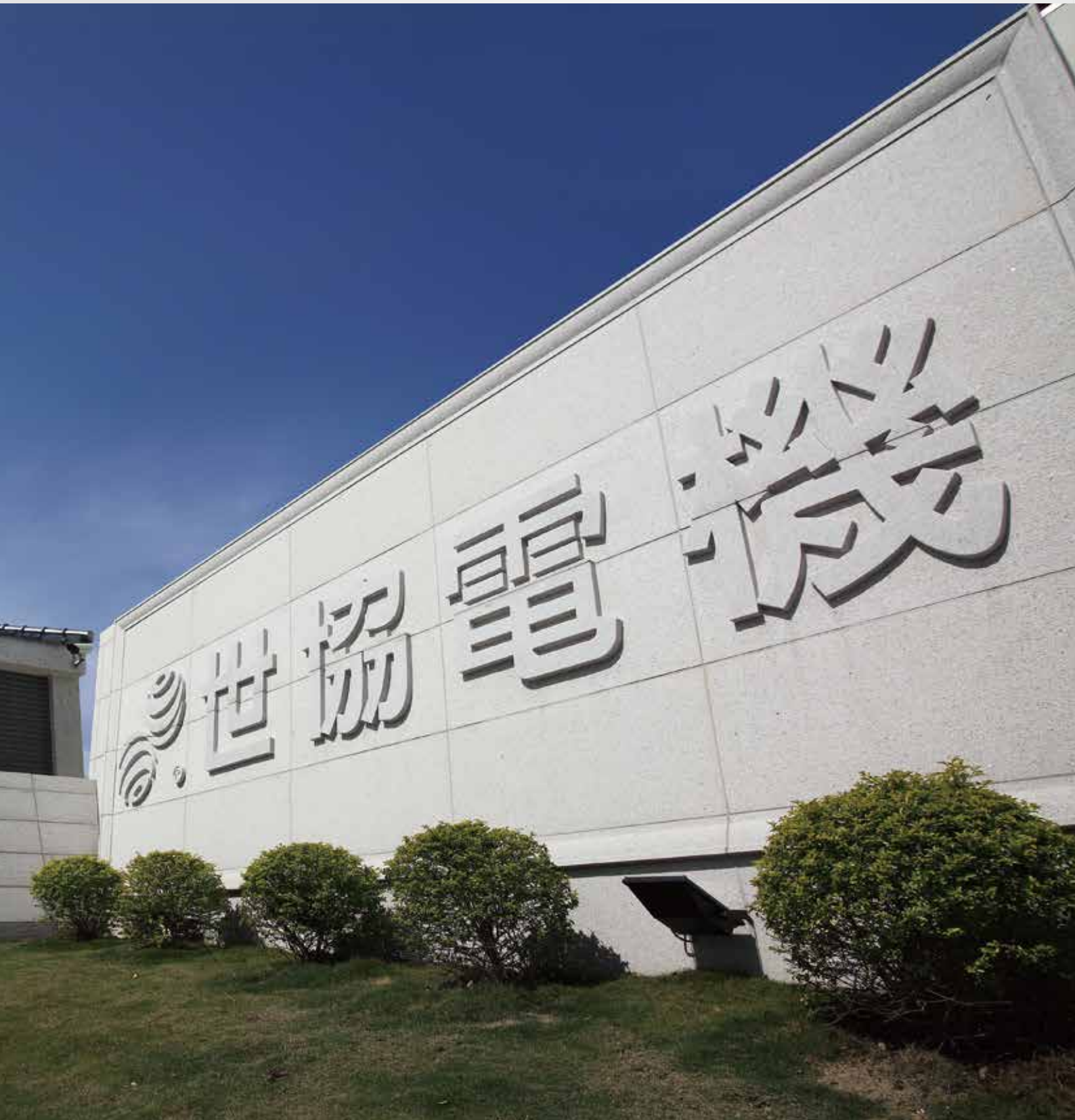


100%

Made in Taiwan

[www.sesamemotor.com](http://www.sesamemotor.com)







## Company Profile

Sesame Motor Corp., as a leading brand in Motor and gear reducer technology. "SESAME MOTOR CORP." Founded in 1990, have more than 25 years of professional motor and gearbox manufacturing and sales experience. SESAME MOTOR's 7000 square meters factory locates at Sheng Kang. Adding modern workshop facilities with the effective integration of ERP systems, purchase new processing and testing equipment; as we continuously enhance key parts' productivity we had not only expending overall productivity, shorten delivery, and ensure products' quality to achieve customer satisfaction. SESAME MOTOR products have received unanimous praise.



### Quality Policy :

- "Honesty" , to provide integrity and pragmatic services
- "Creativity" , to create customer competitive advantage
- "Positivity" , positive support and responsibility
- "Innovation" , moving forward of technical innovation

### Environmental Policy :

- Full participation to comply with eco-regulation
- Prevent pollution; save energy and reduce waste
- Keep improving and propagating Green Concept





## Company Profile

"SESAME MOTOR" is built base on spirit of "customer satisfaction, priority service" philosophy, providing three privileges "best quality, fastest delivery, and best sale service". Our products have obtained high market share in Taiwan, that had lead "SESAME MOTOR" be a well-known brand. In addition to our official branch in Shanghai, we have agents in the United States, Germany, Denmark, Poland, UK, Turkey, Russia, Korea, Japan, China, Thailand, Malaysia and India.

"SESAME MOTOR" also has a professional R & D team and experienced production-related sectors; can provide high accuracy products for different customer needs; high-quality gear and the surrounding transmission components, develop and produce other kinds of gear; customized motor products, products with detailed-oriented, high precision, low noise, high efficiency, and good quality properties. Product development are aiming three directions "science and technology, environmental protection, and innovation". Product will be used in tool machines, industrial robots, semiconductor devices, aircraft industrial, medical and rehabilitation equipment, electric scooter, electric bike, auto storage devices, green energy-related industries, testing and food machinery, bakery equipment, packaging machinery, agricultural equipment and other sophisticated automation equipment.





## Company Profile

"SESAME MOTOR" has been successively obtained CE,CCC,UL, ISO9001 and ISO14001 certification and honorary awards. As we continuously, progressively for created finest quality products; with "Honesty" for providing integrity and pragmatic service; with "Creativity" given customer "Positivity" to support & responsible for the efficiency of productivity; with "Innovation" on profession and knowledge of knowhow, by these four philosophy management, we aims to become the first market trend indicators. "SESAME MOTOR" strong operating team adhere to the blue ocean strategy of entering the international market and high-tech field, to create the future more professional, better quality of sustainable management systems, establishment of "a combination of leading technology and brand reputation" for competitive advantage.





## Trade Mark & Certification



CE Certification



UL Certification



ISO 9001:2015



ISO 14001:2015



China Compulsory Certification (CCC)



Planetary Gearhead PHL Series China SIPO Patent



Registration Number : 8580921716



Registration Number : 38E08580



Cert.No.E209009



The United States, Canada, European Union, China, Taiwan, Japan, Korea, Iran, The Philippines, Vietnam, Indonesia, Malaysia, Singapore ...etc. trade mark certifications.



# Corporate Environment





# MOTOR AND SPEED REDUCER



## Production Line



Servo Motor Gearheads Production Line



Induction Motor and Speed Reducer Production Line



Precision Gear Motor Production Line



## Applications

### Applications of Planetary Gearhead

#### Machine Tools

Metal Cutting Machines, Machining Centers, CNC Drilling Machines, Lathes and Turning Machines, Milling and Boring Machines, Grinding Machines, Drilling Machines, Planning Machines, Metal Forming Machine Tools, Presses, Tube and Wire Processing Machines.

#### Industry Machinery

Packaging Machinery, Food and Beverage Processing Machinery, Bakery Equipment, Agricultural Machinery, Textile Machinery, Shoemaking Machinery, Wood Working Machinery, Printing Machinery, Plastic processing Machinery, Laser Cutting and Welding Machines.

#### Automation Equipment

Industrial Robots, Semiconductor Devices, Automatic Storage System, Surface Treatment Equipments.

#### Aerospace Industry

#### Medical and Rehabilitation Equipment

#### Electric Scooter

#### Green Energy-Related Industries

#### Testing Devices

#### Automation and Precise Positioning Equipment with Servo Motors

### Motor and Reducer

- Machine Tool Accessories • Cutting Equipment • Bar Feeder
- Gilding Machine • Conveyor Equipment • Food Machine
- Screen Printing • Agricultural Machinery • Medical Equipment

### Gear Motor and Reducer

- Machine Tool Accessories • Cutting Equipment • Bar Feeder
- Gilding Machine • Conveyor Equipment • Food Machine
- Screen Printing • Agricultural Machinery • Medical Equipment





## TABLE OF CONTENTS



### Motor and Speed Reducer

- 13 Motor Term Brief Introduction
- 14 Power Output Calculation
- 15 Choosing a Suitable Motor
- 16 Product Name Coding System
- 21 Installation Manual



### General Purpose Motor

- 26 Induction Motor, Lead Wire Type -IP22
- 28 Induction Motor, Terminal Box Type -IP54
- 30 Reversible Motor
- 31 Reversible Motor, Lead Wire Type -IP22
- 33 Reversible Motor, Terminal Box Type -IP54



### Speed Controlled Motor

- 36 Assembled Type, Variable Speed, Induction/reversible Motor
- 38 Separated Type, Variable Speed, Induction/reversible Motor - IP22





## SESAME



### Controller

- 40 Assembled Type Speed Controller
- 41 Separated Type Speed Controller

### Brake Motor

- 48 Electro-Magnetic Induction Brake Motor -IP22
- 50 Electro-Magnetic Induction Brake Motor, Terminal Box Type -IP54
- 52 Electro-Magnetic Variable Speed Brake Motor
- 54 Electronic Instant Brake

### Clutch Brake Motor

- 57 Induction Clutch Brake Motor (40W, 60W, 90W)
- 58 Variable Speed Clutch Brake Motor (40W, 60W, 90W)
- 59 Torque Motor (3W, 6W, 10W, 20W, 40W)
- 61 Speed Reducer (2GN, 3GN, 4GN, 5GN, 5GX)
- 64 Components

# MOTOR TERM BRIEF INTRODUCTION

## Rating

Motor rating is the maximum allowance based on its temperature rising and loading. The Rating is including output, voltage, frequency, current, torque, speed and other related value. It can be classified continuously and short-time rating according to temperature limitation.

## Continuously & Short-time Rating

Time rating is defined via the motor works continuously with certain loading in ambient temperature 40°C and the motor temperature itself does not exceed the safe limit. Continuously rating means the motor can be operated continuously. Short-time rating means the motor can be operated within specified time interval only. Short-time rating motor with interval operation runs longer because of the thermal diffusion effects.

## Rated Output

Rated output means the motor works in a defined period of time with maximum loading and the motor temperature itself does not exceed the safe limit. For example, a 10HP continuous rating motor can be used as a 12HP or 13HP motor via the short-time rating usage. Thus it is marked rated output only. The RPM and torque under rated output formulation are justified as rated RPM and rated torque. The most suitable performance of motor is available only when the motor works in rated condition.

$$\text{Output} = 1.027 \cdot N \cdot T$$

$$1\text{HP} = 746 \text{ Watt}$$

1.027: Constant

N: Speed (RPM)

T: Torque (Kg · m)

## Starting Torque (see graph)

The torque produced by the motor when starting is called starting torque. The motor does not work if loading is larger than the starting torque.

## Maximum Torque (see graph)

The maximum torque is the most torque output of the motor under specified voltage and frequency. If the additional loading is larger than the maximum torque when the motor is running, the motor will stop immediately.

## Rated Torque (see graph)

The torque produced by the motor at rated output under specified voltage and frequency is rated torque. It is also the torque at rated speed.

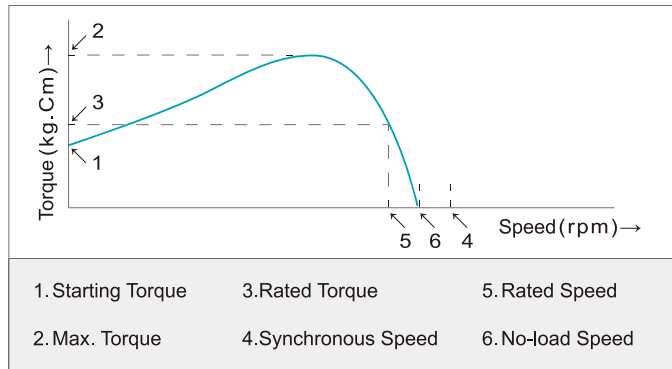
## Rated Speed (see graph)

The measured speed of the motor at rated output.

## Motor Ingress Protection Rating

Model	Rating	Explanation
Wire Type	IP22	Prevent against object diameter > 12mm such as fingers Prevent against dripping water when tilted up to 15°
Terminal Box Type	IP54	Prevent against dust and it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment. Water splashing against the enclosure from any direction.

## Speed vs. Torque Graph



## Synchronous Speed (see graph)

Motor pole and power frequency will determine the speed. In general the unit is revolutions per minute (rpm). The calculation formula is:

$$N_s = \frac{120 \cdot f}{P}$$

$N_s$  : Synchronous Speed  
 120 : Constant  
 $f$  : Hertz (Hz)  
 $P$  : Motor Pole

Example: A 4-pole motor at 60 Hz, its synchronous speed is 1800 rpm.

## No-load Speed (see graph)

Motor speed under zero load is called no-load speed. Because of slip ratio, the speed of induction motor and reversible motor will be less than their synchronous speed (approx. 20 ~ 60 rpm less).

## Slip Ratio

An indication of motor speed.

$$S = \frac{N_s - N}{N_s}$$

$S$  : Slip Ratio  
 $N_s$  : Synchronous Speed (rpm)  
 $N$  : Designated Load Speed (rpm)

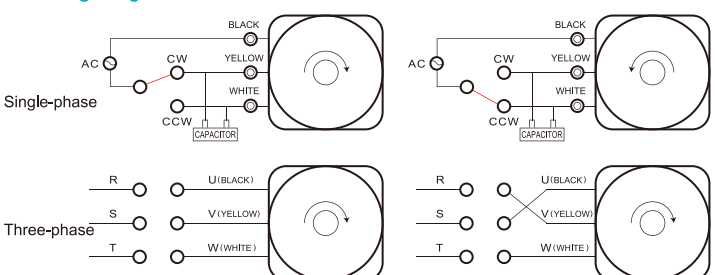
Example: If a 4-pole motor at 50 Hz pulling an object, its slip ratio is 0.1, then the motor speed is 1350 rpm.

$$N = \frac{120 \times 50}{4} (1 - 0.1) = 1500 \times 0.9 = 1350 \text{ rpm}$$

## Overrun

Overrun is the additional rotation after the power is turned off. It is indicated by turns or degree.

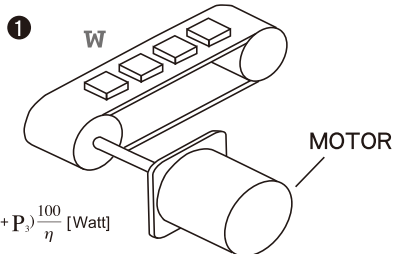
## Wiring Diagram





## POWER OUTPUT CALCULATION

### Belt Conveyor



$$P_g = (P_1 + P_2 + P_3) \frac{100}{\eta} \text{ [Watt]}$$

No-load :

$$P_1 = 9.8\mu wvL \text{ [Watt]}$$

Horizontal :

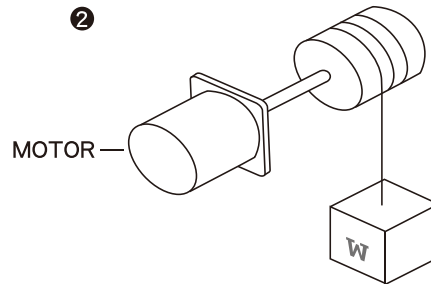
$$P_2 = \frac{\mu QL}{367} \text{ [Watt]}$$

Vertical :

$$P_3 = \pm \frac{QH}{367} \text{ [Watt]}$$

- L : Length of conveyor(m)
- W : Weight of belt in unit length(kgf/m)
- $\mu$  : Friction coefficient
- V : Belt speed(m/sec)
- Q : Quantity(kgf/h)
- $\eta$  : Efficiency(%)
- H : Height difference between two ends of belt(m)

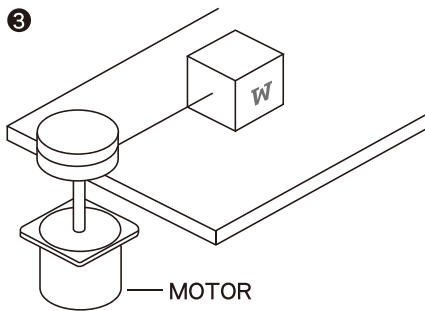
### Winding Up a Load



$$P_g = \frac{wv}{6.12} \cdot \frac{100}{\eta} \text{ [Watt]}$$

- W : Weight of belt in unit length(kgf/m)
- V : Belt speed(m/sec)
- $\eta$  : Efficiency(%)

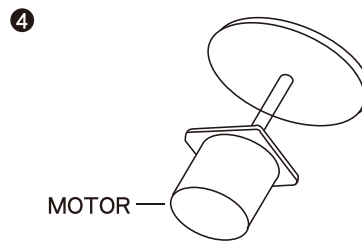
### Horizontal Movement



$$P_g = \frac{wvV}{6.12} \text{ [Watt]}$$

- W : Weight of belt in unit length(kgf/m)
- $\mu$  : Friction coefficient
- V : Belt speed(m/sec)

### Driving of an Inertia Object



$$P_g = 1.027NT \text{ [Watt]}$$

$$T \approx \frac{GD^2}{375} \cdot \frac{N}{t} \text{ [kgf-m]}$$

- N : Revolutions per minute (rpm)
- T : Torque(kgf . m)
- GD<sup>2</sup> : Flywheel effect with rotor(kgf . m<sup>2</sup>)
- t : Starting time(sec)

### General Spec of Motor

Insulation Resistance	Test value above 100MΩ by DC500V hi-resistance meter at coil and housing after rated running at constant temperature and humidity.
Insulation Endurance	Hi-pot test by 60Hz 1.8KV for one minuate at coil and housing without damage after rated running at constant temperature and humidity.
Temperature Rise	Temperature rise below 75 °C after rated running.
Ambient Temperature Range	-10 °C ~ +50 °C (motor with capacitor -10 °C ~ +40 °C)
Insulation Class	E Class (120 °C)

# CHOOSING A SUITABLE MOTOR

## AC SMALL GEAR - SPEED REDUCED, VARIABLE SPEED, BRAKE MOTOR

AC MOTOR				
VARIABLE SPEED	MODEL	Variable Speed Brake Motor	Reversible Variable Speed Motor	Variable Speed Induction Motor
	TURNING DIRECTION	Forward or Reverse	Frequent Forward/ Reverse	Single Direction
	BRAKE & HOLDING FORCE	Magnetic Brake & Holding Force	Minor Holding Force	No Holding Force
	POWER SOURCE/ OUTPUT	1 PHASE / 25W-90W <ul style="list-style-type: none"> <li>• A closed-circuit control system with motor and generator combined.</li> <li>• Wide range of speed.</li> <li>• Simple speed control, easy wiring.</li> <li>• Magnetic safety brake, great holding force.</li> </ul>	1 PHASE / 6W-60W <ul style="list-style-type: none"> <li>• A closed-circuit control system with motor and generator combined.</li> <li>• Wide range of speed.</li> <li>• Simple speed control, easy wiring.</li> <li>• Built-in easy brake function.</li> <li>• Frequent forward &amp; reverse.</li> </ul>	1 PHASE / 6W-90W <ul style="list-style-type: none"> <li>• A closed-circuit control system with motor and generator combined.</li> <li>• Wide range of speed.</li> <li>• Simple speed control, easy wiring.</li> </ul>
CONSTANT SPEED	MODEL	Brake Motor	Reversible Motor	Induction Motor
	TURNING DIRECTION	Forward or Reverse	Frequent Forward/ Reverse	Single Direction
	BRAKE & HOLDING FORCE	Magnetic Brake & Holding Force	Minor Holding Force	No Holding Force
	POWER SOURCE/ OUTPUT	1 PHASE / 25W-90W <ul style="list-style-type: none"> <li>• Magnetic safety brake, great holding force.</li> <li>• Various models.</li> </ul> 3 PHASE / 25W-90W <ul style="list-style-type: none"> <li>• Magnetic safety brake, great holding force.</li> <li>• Various models.</li> </ul>	1 PHASE / 6W-60W <ul style="list-style-type: none"> <li>• Rated 30 mins.</li> <li>• <math>\frac{\text{Starting torque}}{\text{Rated torque}} = 0.8\sim 1.0</math></li> <li>• Easy to switch directions.</li> <li>• Built-in easy brake system, minimized over run.</li> </ul>	1 PHASE / 6W-90W <ul style="list-style-type: none"> <li>• Continuous rating.</li> <li>• For general purposes</li> <li>• Multi-applications.</li> <li>• <math>\frac{\text{Starting torque}}{\text{Rated torque}} = 0.7\sim 0.9</math></li> <li>• Various models.</li> </ul> 3 PHASE / 25W-90W <ul style="list-style-type: none"> <li>• High power, high efficiency.</li> <li>• Suitable for industrial machinery.</li> </ul>

★ Specifications subject to change without prior notice.      ★ Products with UL certification will be marked "UL" on the nameplates.



## PRODUCT NAME CODING SYSTEM

### INDUCTION MOTOR

4 I K 25 C GN - A M

#### ACCESSORIES

F: Fan M: Magnetic Brake  
 P: Thermo Switch  
 T: Terminal Box  
 Ts: Small Box(87L x 59W x 43Hmm)  
 TL: Large Box(132L x 55W x 50Hmm)  
 FF: Forced Fan

#### VOLT/ POLE

A: 1ø110V/4P B: 1ø110V/2P C: 1ø220V/4P  
 D: 1ø220V/2P CE: 230V~240V (50HZ)/ 4P  
 S: 3ø220V/4P T: 3ø220V/2P U: 3ø380V/4P V: 3ø380V/2P

#### SHAFT SHAPE

A: Round (Smooth) GN: Helical Gear  
 GX: Helical Gear  
 SW: Worm Gear  
 (For Clutch Brake Motor)  
 GK: Spur Gear Shaft GS: Spur Gear Shaft  
 (GS/GX for 60W/90W Only)

C: Torque Motor Assembled with Controller  
 R: Variable Speed

#### OUTPUT

6: 6W 15: 15W 25: 25W 40: 40W 60: 60W 90: 90W

#### MOTOR SERIES

K: K Series

#### TYPE

I: Induction R: Reversible  
 T: Torque (Controller is Separated from Torque Motor)

#### SIZE

2: 60mm 3: 70mm 4: 80mm 5: 90mm

# PRODUCT NAME CODING SYSTEM

## ASSEMBLED TYPE VARIABLE SPEED MOTOR



Assembled type variable speed motor works with assembled type speed controller. For example, variable speed motor M206-001 works with speed controller US206-01.

### VOLTAGE

1: 1ø110V 2: 1ø220V  
2E: 1ø240V/50 Hz

### MOTOR TYPE

0: Induction 1: Reversible

### OUTPUT SHAFT SHAPE

0: Round Shaft  
4: GN Helical Type  
6: GX Helical Type  
7: SW Worm Gear Shaft

### OUTPUT

6: 6W 15: 15W 25: 25W 40: 40W 60: 60W 90: 90W

### SIZE

2: 60mm 3: 70mm 4: 80mm 5: 90mm

### MODEL

M: Motor



## PRODUCT NAME CODING SYSTEM

### ASSEMBLED TYPE SPEED CONTROLLER

**US** **4** **25** - **0** **1** - **D** - **1**

Assembled type speed controller works with assembled type variable speed motor. For example, US206-01-D-1 speed controller works with M206-001 variable speed motor.

#### EXTENDED CABLE

1: 1m 2: 2m 3: 3m

#### DISPLAY TYPE

**D**: Digital Display Type  
: Standard Type

#### VOLTAGE

1: 1ø110V 2: 1ø220V 2E: 1ø240V/50 Hz

#### MOTOR TYPE

0: Induction 1: Reversible

#### OUTPUT

6: 6W 15: 15W 25: 25W 40: 40W 60: 60W 90: 90W

#### SIZE

2: 60mm 3: 70mm 4: 80mm 5: 90mm

#### MODEL

**US**: Assembled Type Speed Controller

# PRODUCT NAME CODING SYSTEM

## SPEED REDUCER

5 GX 100 KE BH

### ADD. SPECS

**H:** Heavy Duty **B:** Medium Loading  
**BH:** Heavy Duty Square Flange  
BH \ H \ B are only available with 90mm frame size.

### BEARING TYPE

Precision Type:  
**KE:** Ball Bearing  
**BE:** Used For Both Self-Oiling Bearing and Ball Bearing  
General Type:  
**K:** Ball Bearing  : Self-Oiling Bearing

### SPEED RATIO

**100:** 1/100 1/3 ~ 1/180 **10X:** Intermediate Speed Reducer

### GEAR TYPE

**GN:** Helical Gear **GX:** Helical Gear  
GB series is suitable for BLDC motor.

### SIZE

**2:** 60mm **3:** 70mm **4:** 80mm **5:** 90mm

## PRODUCT NAME CODING SYSTEM

### SEPARATED TYPE SPEED CONTROLLER

S S 3 2 - HR

#### ADD. SPECS

HR: High-responsive(for 31/32 Types only)

#### VOLTAGE

1: 1ø110V 2: 1ø220V

#### MAXIMUM CURRENT

2: 2A 3: 3A

#### TYPE

Speed Controller

#### MODEL

Separated Type

### ELECTRONIC INSTANT BRAKE

SB 3 2 S - IN

#### FEATURES

IN: Inch Movement

#### PHASE

S: 3ø, 1ø (The Field N/A For Single Phase)

#### VOLTAGE

1: 110V 2: 220V

#### CURRENT

3: 3A

#### MODEL

Electronic Brake



# INDUCTION MOTOR & SPEED REDUCER INSTALLATION MANUAL

## 1.Attention

### 1.1 Install preparation

- Please read this operation manual before using this motors. Any problems caused by inappropriate operation contrary with the manual, or damage caused by natural disasters, or restructure without our permission, Sesame will not take any responsibility nor will the motor / speed reducer be covered by warranty.
- Warranty is within one year after purchase. Within warranty period, if motor / speed reducer damage is not caused by operation error or by natural disaster, then please send back the product, we should replace the damaged spare part at free of charge.
- Before Installation, ensure correct voltage can be applied to motor.
- Do not bend the lead wires.
- Installation should be proceeded by trained technicians only.
- Please wire motor correctly according to the manual to prevent fire or electrical shock.
- Do not attempt to disassemble or modify the motor to prevent electrical shock or injury.

### 1.2 Installation Conditions

The conditions below must be fulfilled to avoid any motor damage, which is not covered under warranty.

- The motor was designed to be installed on the other facilities/applications.
- Do not expose the motor to flammable or corrosive gas.
- Indoor application only. Room temperature should be maintained between -10~50°C (-10~40°C for motor with capacitor)
- The air humidity should not exceed 85%.
- The altitude of where the motor was installed should not exceed 1000 meter above the sea level.
- Do not expose the motor to the sunshine directly. Dust and spray of oil/water is also forbidden.
- Avoid any continuous vibration or impact on the motor.
- Ensure the motor was installed in a well ventilated location.

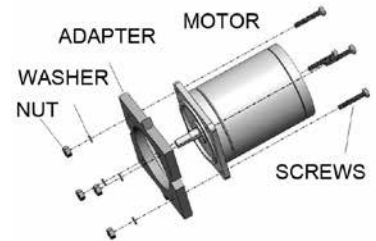
### 1.3 Preparation of start up

- Please check the power supply before starting the motor.
- High temperature might cause the coil and bearing failed earlier.
- Do not connect the motor with inverter.
- Motor might be broken if wrong wiring or overloaded.

## 2.Installation

### 2.1 Round shaft model

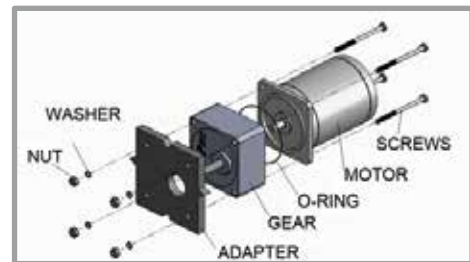
- Mount the motor on the adapt plate by screws. Make sure the motor and the adapter were tightly mounted. (Note that screws for connecting motor and machine were not included)
- Please note that there should be no gap between motor and adapt plate.



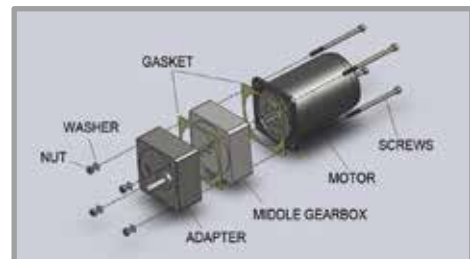
Flange dim $\square$ :	Screw	Tightening torque
60mm	M4	2.0 N · m
70mm	M5	2.5 N · m
80mm	M5	2.5 N · m
90mm	M6	3.0 N · m

### 2.2 Gear shaft model

Install motor and speed reducer by turning speed reducer left and right when gently inserting motor gear shaft into speed reducer until no gap between the mounting surfaces. Insert the screws and tighten them. No hammer or force is allowed.



★O-rings are necessary for some specific models. Please install accordingly.



★Gaskets are required when installing intermediate speed reducer.

#### ⚠ Attention

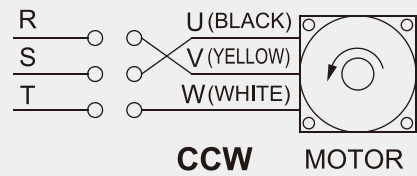
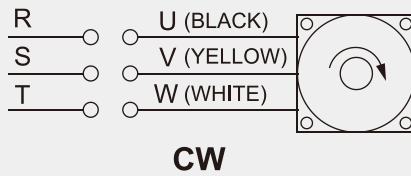
- Metal chips/unconfirmed substance left inside speed reducer or incorrect installation will damage gears and results in abnormal noise, short lifespan or accident. Please be alert.
- Installation is available only when speed reducer and motor output shaft have the same gear type. Please confirm the specification of both products before installation.
- Specification compatibility check is required before applying both products to other machinery or equipment.
- Sesame Motor Corp. is not responsible for any cause there might occur if user's neglects of specification compatibility checking.

## 3. Wiring Diagrams

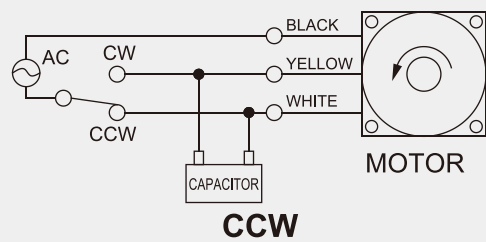
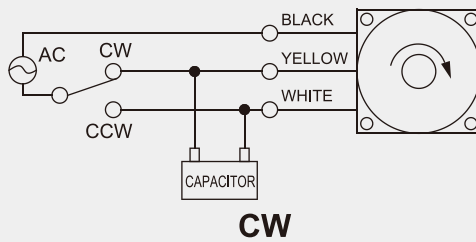
- The motor rotating direction was defined by looking toward the output shaft. In the forward direction for CW, reversed direction for CCW.
- 1 phase motor rotating direction change is available by switching wiring to CW. or CCW.
- 3 phases motor rotating direction change is available by switching any two wires of U, V, and W.

### 3.1 Induction / reversible motor

#### 3.1.1 3 phases



#### 3.1.2 1 phase

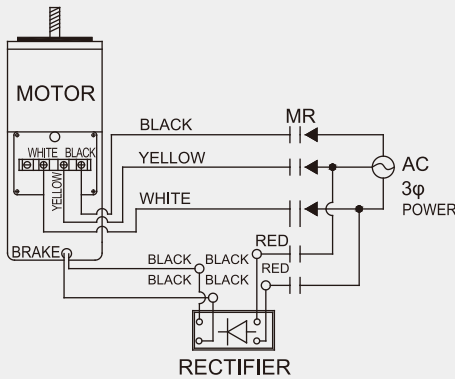


### 3.2 Brake motor

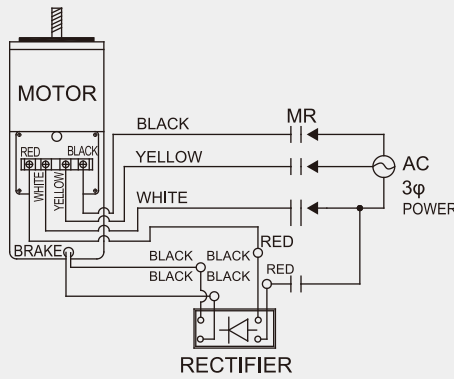


- ▶ The lining clearance will bigger than 0,3-0,35mm after a period of usage, please contact us to replace the lining.
- ▶ Isolating wiring is required when frequent braking condition.
- ▶ Brake frequency limit 10 times per minute.

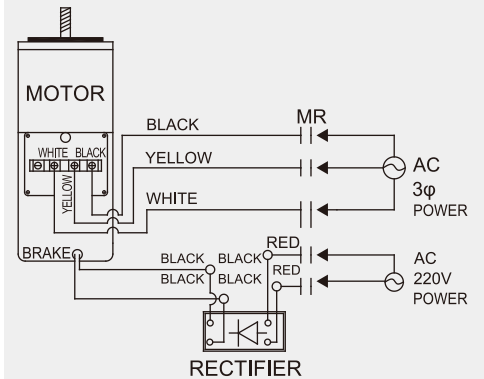
#### 3.2.1 3 phases brake motor with terminal box. (220V / IP54)



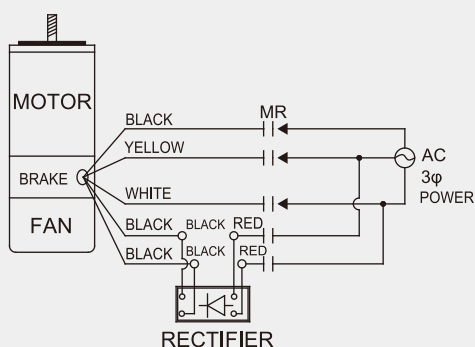
#### 3.2.2 3 phases brake motor with terminal box. (380V~460V / IP54)



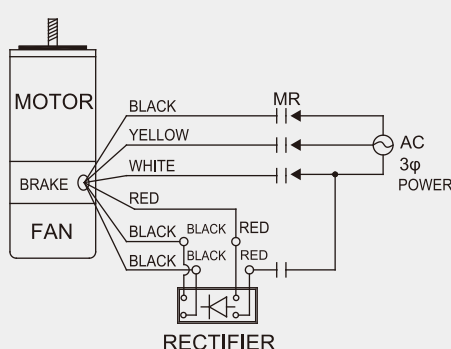
#### 3.2.3 3 phases brake motor with terminal box. (460V~600V / IP54)



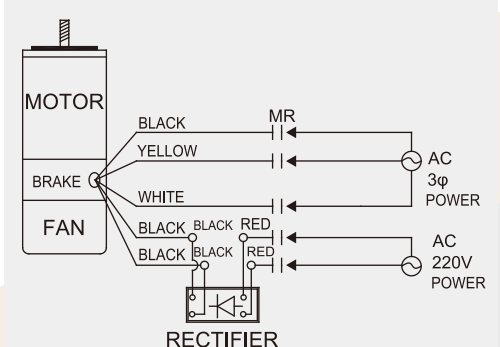
#### 3.2.4 3 phases brake motor (220V / IP22)



#### 3.2.5 3 phases brake motor (380V~460V / IP22)

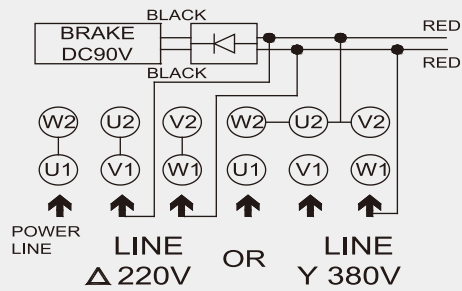


#### 3.2.6 3 phases brake motor (460V~600V / IP22)

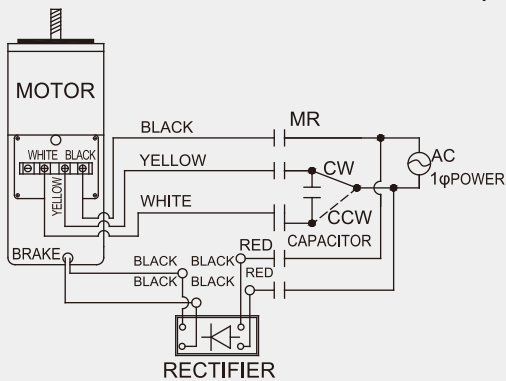


### 3. Wiring Diagrams

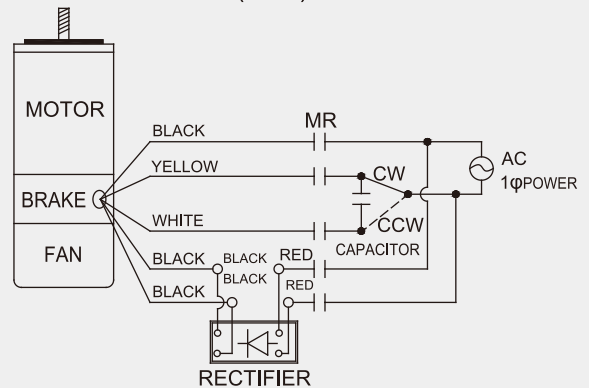
3.27  
3 phases brake motor (dual voltage)



3.28  
1 phases brake motor with terminal box (IP54)



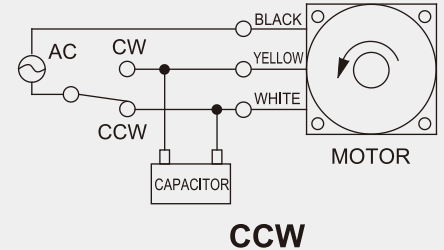
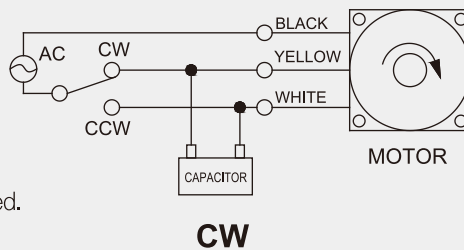
3.29  
1 phases brake motor (IP22)



### 3.3 Torque motor

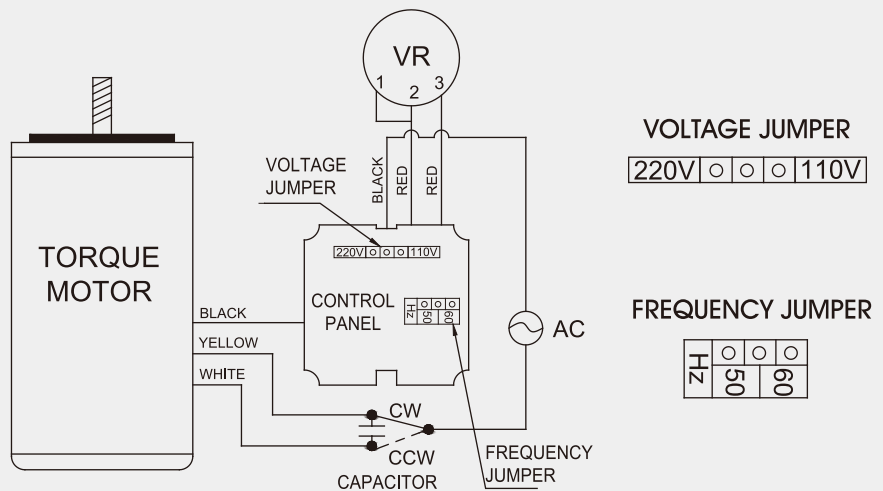
3.31 Standard type

- Motor rotating direction change is available by switching wiring to CW. or CCW.
- To adjust speed and torque, an external voltage regulator is needed.



3.32 Terminal box type

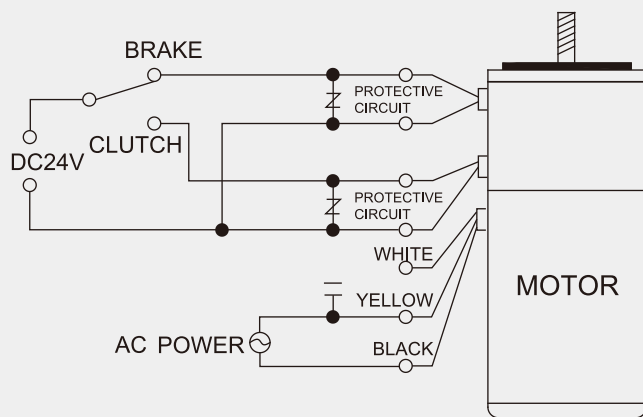
- Voltage regulator is installed in terminal box. Motor speed adjust is available by attached speed controller.



**Attention** ■ Before operate terminal type torque motor, please make sure correct voltage and frequency jumper on the control panel to prevent motor burning down.

## 3.4 Clutch brake motor

- The power supply for motor (AC) and clutch brake (DC24V) must be separated.
- The output shaft keeps rotating when switch to clutch side after power supplied. As the switch is on the brake side, the brake will stop shaft rotation and keep great holding force.
- DC power off will release the brake and hence the output shaft rotates freely.



## 4. Installation of Capacitor (Single Phase Motor Only)

- Ensure the capacitor matches the specification of the motor before installation.
- Install the capacitor with M4 screws (not included).
- Capacitor should be installed inside the electrical box or IP54 rated box to avoid electric shock.



**Attention**

- ▶ To avoid damaging on the mounting foot, the screws tightening torque should not exceed 1 N.m.
- ▶ Install capacitor at least 10 cm away from motor to prevent heat damage to capacitor.
- ▶ Connect one wire in one terminal only.

## 5. Thermally Protected Motor Precaution

- Single phase thermally protected motor will restart automatically when motor temperature falls below a certain level. Always turn off the power before conducting checks or performing work on the motor.
- Thermal switch of three phases motor is installed with two red wires. Please connect two red wires to control system. Thermally protected motor will restart automatically when motor temperature falls below a certain level. Always turn off the power before conducting checks or performing work on the motor.

## 6. Trouble Shooting Guides

Please check the motor according to procedures below if abnormal situation.


- The motor does not work or the speed cannot be raised.
  - Check if the power supply fits the motor specification?
  - Confirm if the power supply is correctly connected?
  - Confirm if the motor is overloaded?
  - Confirm if the wires are poor connected when using crimping terminal or terminal block?
  - Confirm if the capacitor is well installed?
- The motor is over heated
  - Check if the power supply fits the motor specification?
  - Check if the room temperature is under the requirement ( $< 40^{\circ}\text{C}$ )?
  - Confirm if the capacitor specification is correct?
- Noise
  - Check if the motor was blocked?
  - Check if a phase failure occurs?
  - Check if brake well functioning?
  - Check if the fan loosens?
- If the problem could not be solved via the procedures above, please DO NOT take apart the products, contact Sesame for technical support.



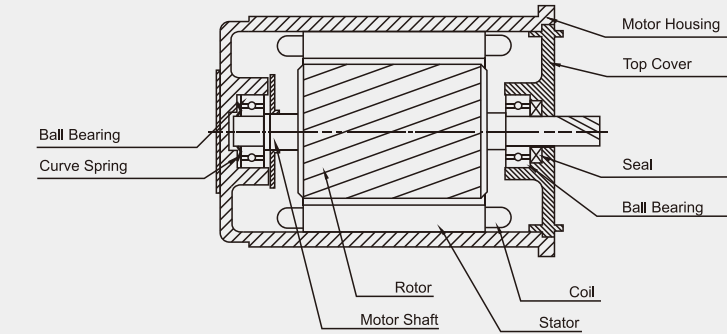
# GENERAL PURPOSE MOTOR

- Continuous Rating
- High Efficiency, Low Noise
- Multifunctional
- 1 Phase: with Capacitor
- 3 Phase: Continuous Running, Suitable for Industrial Machinery


## INDUCTION MOTOR, LEAD-WIRE TYPE (6W-90W)



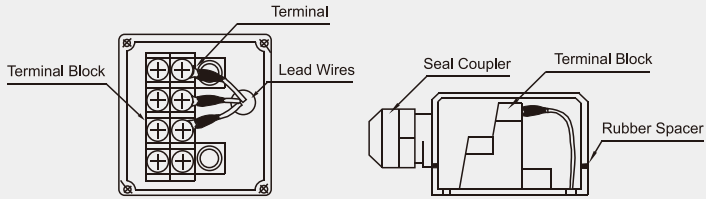
### INDUCTION MOTOR CONSTRUCTION



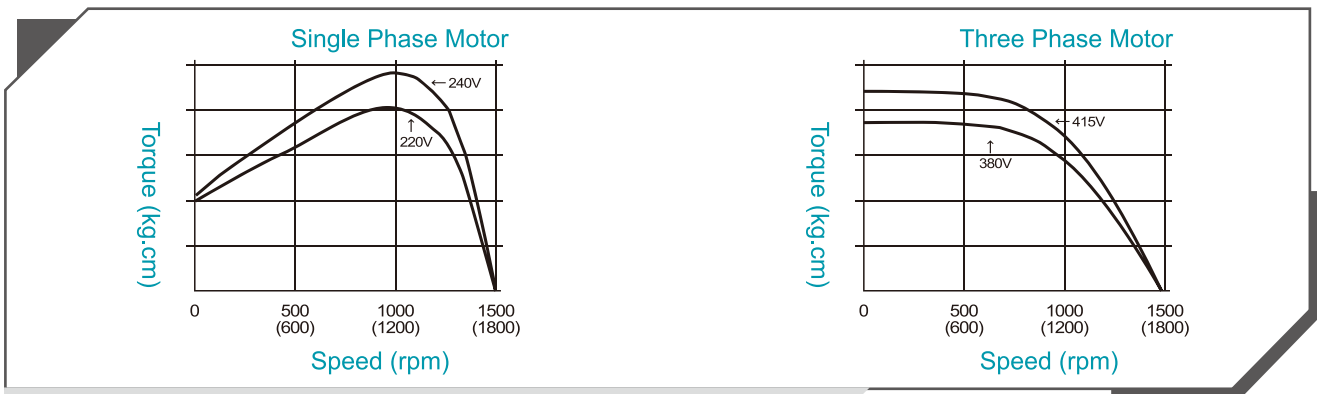
## INDUCTION MOTOR, TERMINAL BOX TYPE (6W-90W)



### TERMINAL BOX CONSTRUCTION



## INDUCTION MOTOR CURVE

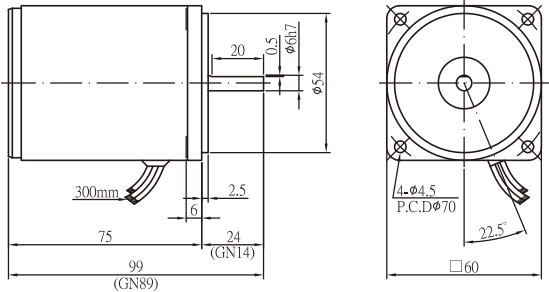


NOTES : At 50Hz, a 4-pole motor has synchronous turning speed of 1500rpm, 1800rpm at 60Hz.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

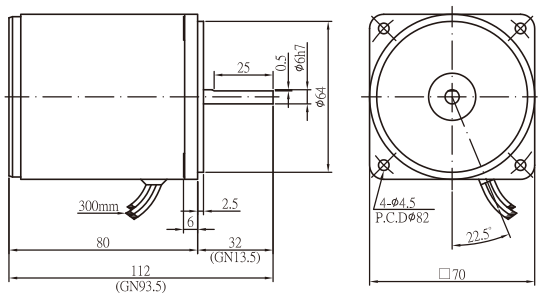
## IK Series INDUCTION MOTOR, LEAD-WIRE TYPE-IP22

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



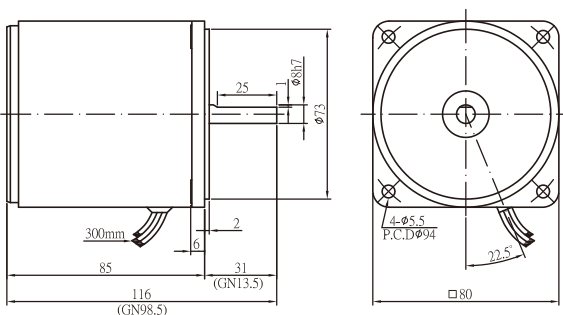
6W

6W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITOR (μF)
2IK6A(GN)-A	6	1φ100/110	50/60	4	1150/1400	Continuous	0.7/0.63	0.51/0.41	0.22/0.21	2.5/300V
2IK6A(GN)-C	6	1φ200/220	50/60	4	1150/1550	Continuous	0.65/0.7	0.51/0.54	0.1/0.1	0.7/450V
2IK6A(GN)-CE	6	1φ230/240	50	4	1100/1200	Continuous	0.74/0.77	0.55/0.5	0.11/0.1	0.7/450V



15W

15W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
3IK15A(GN)-A	15	1φ100/110	50/60	4	1200/1600	Continuous	0.88/1.04	1.22/0.91	0.36/0.35	5/300V
3IK15A(GN)-C	15	1φ200/220	50/60	4	1150/1600	Continuous	0.75/1.1	1.12/0.93	0.18/0.18	1.2/450V
3IK15A(GN)-CE	15	1φ230/240	50	4	1300/1300	Continuous	1.06/1.06	1.14/1.13	0.17/0.17	1.2/450V

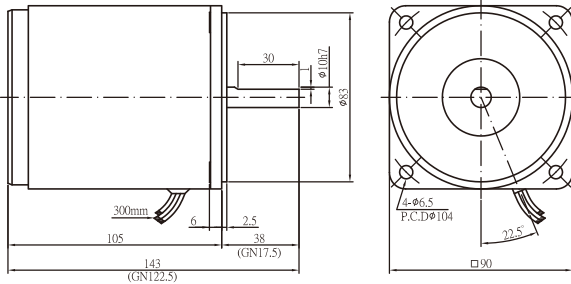


25W

25W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
4IK25A(GN)-A	25	1φ100/110	50/60	4	1250/1600	Continuous	1.4/1.4	1.93/1.51	0.57/0.45	6/300V
4IK25A(GN)-C	25	1φ200/220	50/60	4	1250/1600	Continuous	1.57/1.38	1.91/1.52	0.28/0.25	1.5/450V
4IK25A(GN)-CE	25	1φ230/240	50	4	1300/1300	Continuous	1.38/1.55	1.9/1.86	0.25/0.24	1.5/450V
4IK25A(GN)-S	25	3φ220	50/60	4	1300/1550	Continuous	5.12/4.04	1.89/1.56	0.22/0.19	-
4IK25A(GN)-U	25	3φ380	50/60	4	1200/1350	Continuous	3.96/2.97	2.04/1.79	0.11/0.11	-

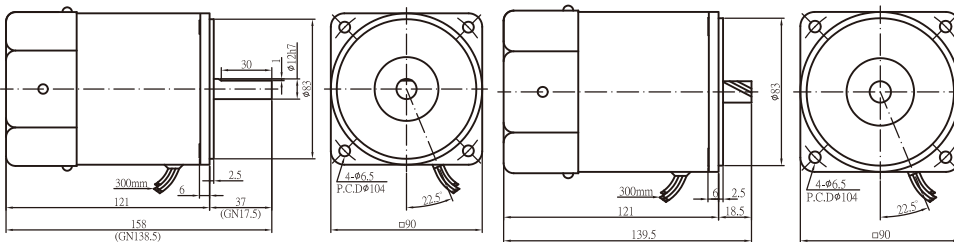
# IK Series INDUCTION MOTOR, LEAD-WIRE TYPE-IP22

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



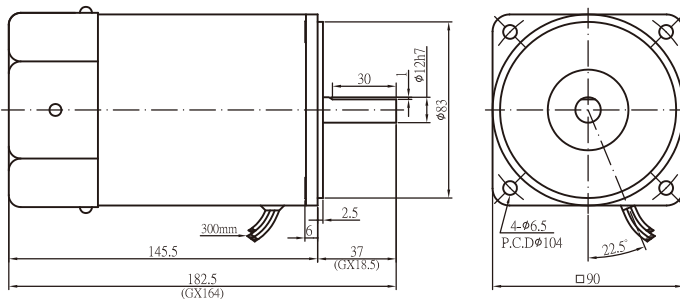
40W

40W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK40A(GN)-A	40	1φ100/110	50/60	4	1250/1600	Continuous	2.14/2.66	3.17/2.41	0.87/0.76	10/300V
5IK40A(GN)-C	40	1φ200/220	50/60	4	1300/1650	Continuous	1.75/2.17	3.01/2.35	0.4/0.34	2.5/450V
5IK40A(GN)-CE	40	1φ230/240	50	4	1350/1350	Continuous	2.3/2.58	2.87/2.84	0.32/0.32	2.5/450V
5IK40A(GN)-S	40	3φ220	50/60	4	1400/1600	Continuous	10.51/7.83	2.83/2.4	0.29/0.27	-
5IK40A(GN)-U	40	3φ380	50/60	4	1350/1600	Continuous	9.25/6.68	2.85/2.45	0.16/0.15	-



60W/  
60W-GX

60W/60W-GX MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK60A(GN, GX)-AF	60	1φ100/110	50/60	4	1200/1650	Continuous	2.6/2.94	5.0/3.5	1.8/1.12	16/300V
5IK60A(GN, GX)-CF	60	1φ200/220	50/60	4	1250/1600	Continuous	3.62/4.41	4.64/3.63	0.64/0.54	4/450V
5IK60A(GN, GX)-CEF	60	1φ230/240	50	4	1300/1350	Continuous	4.14/5.22	4.56/4.4	0.56/0.55	4/450V
5IK60A(GN, GX)-SF	60	3φ220	50/60	4	1300/1550	Continuous	13.72/10.70	4.47/3.77	0.41/0.39	-
5IK60A(GN, GX)-UF	60	3φ380	50/60	4	1400/1550	Continuous	14.33/10.15	4.2/3.79	0.21/0.22	-



90W

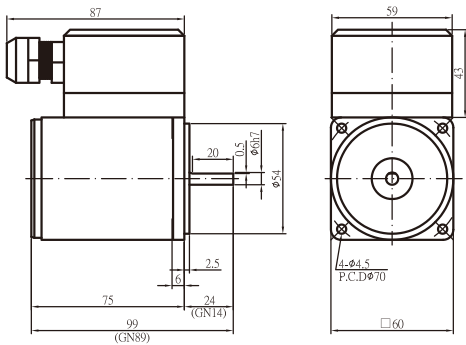
90W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK90A(GX)-AF	90	1φ100/110	50/60	4	1300/1650	Continuous	4.76/5.86	6.68/5.33	1.5/1.41	22/250V
5IK90A(GX)-CF	90	1φ200/220	50/60	4	1300/1650	Continuous	4.3/4.21	6.7/5.34	0.76/0.72	6/450V 5/450V
5IK90A(GX)-CEF	90	1φ230/240	50	4	1350/1350	Continuous	4.93/5.08	6.44/6.42	0.66/0.68	5/450V
5IK90A(GX)-SF	90	3φ220	50/60	4	1400/1650	Continuous	23.3/18.25	6.4/5.3	0.7/0.6	-
5IK90A(GX)-UF	90	3φ380	50/60	4	1400/1650	Continuous	23.3/18.14	6.3/5.3	0.4/0.34	-

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

## IK Series

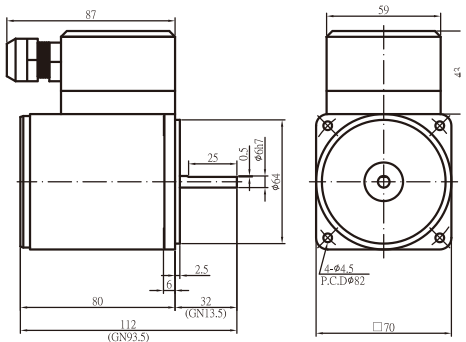
### INDUCTION MOTOR, TERMINAL BOX TYPE-IP54

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



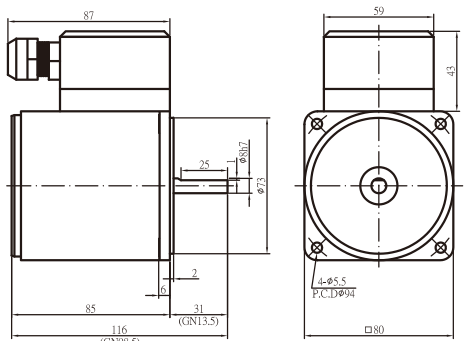
6W

6W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
2IK6A(GN)-AT	6	1φ100/110	50/60	4	1150/1400	Continuous	0.7/0.63	0.5/0.41	0.22/0.21	2.5/300V
2IK6A(GN)-CT	6	1φ200/220	50/60	4	1150/1550	Continuous	0.65/0.7	0.51/0.54	0.1/0.1	0.7/450V
2IK6A(GN)-CET	6	1φ230/240	50	4	1100/1200	Continuous	0.74/0.77	0.55/0.5	0.11/0.1	0.7/450V



15W

15W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
3IK15A(GN)-AT	15	1φ100/110	50/60	4	1150/1650	Continuous	0.88/1.04	1.22/0.91	0.36/0.35	5/300V
3IK15A(GN)-CT	15	1φ200/220	50/60	4	1150/1600	Continuous	0.75/1.1	1.12/0.93	0.18/0.18	1.2/450V
3IK15A(GN)-CET	15	1φ230/240	50	4	1300/1300	Continuous	1.06/1.06	1.14/1.13	0.17/0.17	1.2/450V



25W

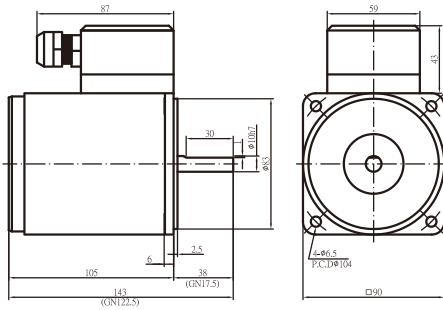
25W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
4IK25A(GN)-AT	25	1φ100/110	50/60	4	1250/1600	Continuous	1.4/1.4	1.93/1.51	0.57/0.45	6/300V
4IK25A(GN)-CT	25	1φ200/220	50/60	4	1250/1600	Continuous	1.57/1.38	1.91/1.52	0.28/0.25	1.5/450V
4IK25A(GN)-CET	25	1φ230/240	50	4	1300/1300	Continuous	1.38/1.55	1.9/1.86	0.25/0.24	1.5/450V
4IK25A(GN)-ST	25	3φ220	50/60	4	1300/1550	Continuous	5.12/4.04	1.89/1.56	0.22/0.19	-
4IK25A(GN)-UT	25	3φ380	50/60	4	1200/1350	Continuous	3.96/2.97	2.04/1.79	0.11/0.11	-



## IK Series

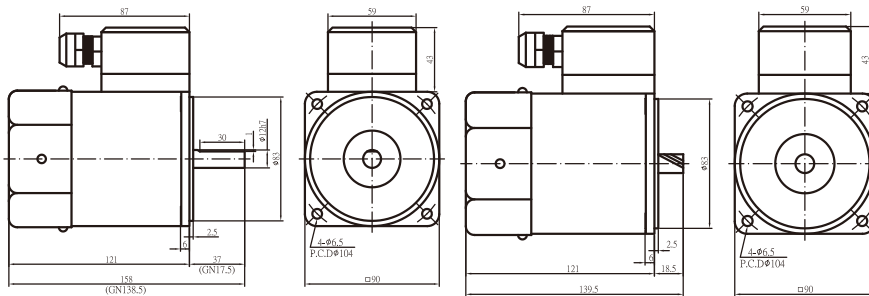
### INDUCTION MOTOR, TERMINAL BOX TYPE-IP54

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



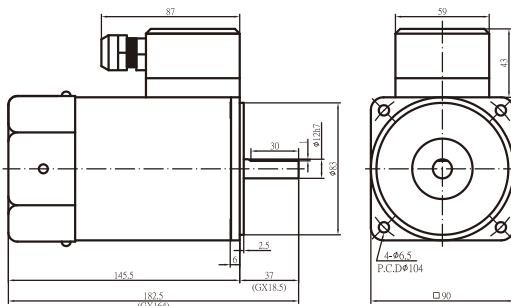
40W

40W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK40A(GN)-AT	40	1φ100/110	50/60	4	1250/1600	Continuous	2.14/2.66	3.17/2.41	0.87/0.76	10/300V
5IK40A(GN)-CT	40	1φ200/220	50/60	4	1300/1650	Continuous	1.75/2.17	3.01/2.35	0.4/0.34	2.5/450V
5IK40A(GN)-CET	40	1φ230/240	50	4	1350/1350	Continuous	2.3/2.58	2.87/2.84	0.32/0.32	2.5/450V
5IK40A(GN)-ST	40	3φ220	50/60	4	1400/1600	Continuous	10.51/7.83	2.83/2.4	0.29/0.27	-
5IK40A(GN)-UT	40	3φ380	50/60	4	1350/1600	Continuous	9.25/6.68	2.85/2.45	0.16/0.15	-



60W/  
60W-GX

60W/60W-GX MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK60A(GN, GX)-AFT	60	1φ100/110	50/60	4	1200/1650	Continuous	2.6/2.94	5.0/3.5	1.8/1.12	16/300V
5IK60A(GN, GX)-CFT	60	1φ200/220	50/60	4	1250/1600	Continuous	3.62/4.41	4.64/3.63	0.64/0.54	4/450V
5IK60A(GN, GX)-CEFT	60	1φ230/240	50	4	1350/1350	Continuous	4.14/5.22	4.56/4.4	0.56/0.55	4/450V
5IK60A(GN, GX)-SFT	60	3φ220	50/60	4	1300/1550	Continuous	13.72/10.70	4.47/3.77	0.41/0.39	-
5IK60A(GN, GX)-UFT	60	3φ380	50/60	4	1400/1550	Continuous	14.33/10.15	4.2/3.79	0.21/0.22	-



90W

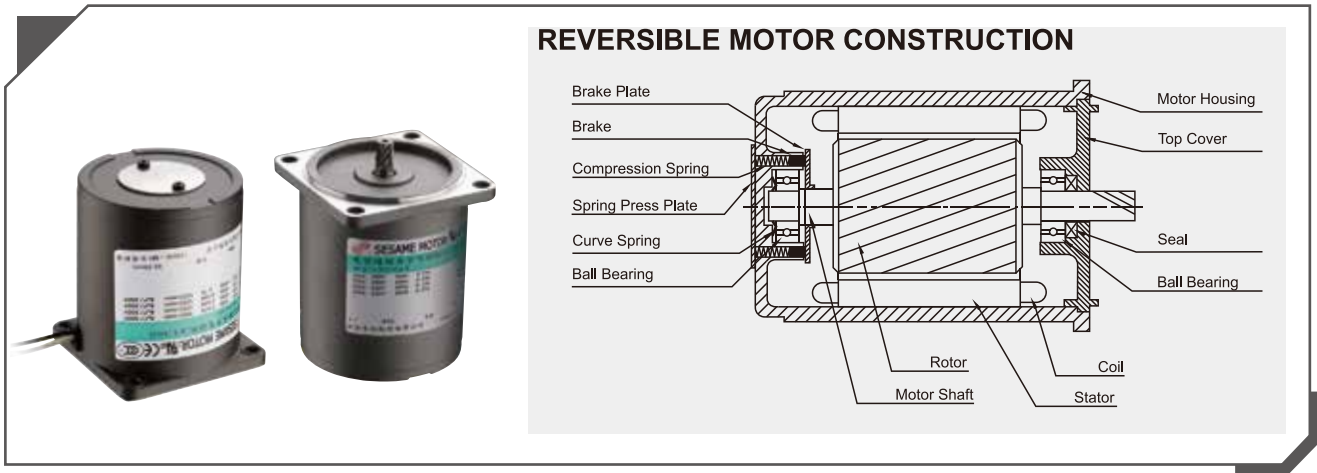
90W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK90A(GX)-AFT	90	1φ100/110	50/60	4	1300/1650	Continuous	4.76/5.86	6.68/5.33	1.5/1.41	22/250V
5IK90A(GX)-CFT	90	1φ200/220	50/60	4	1300/1650	Continuous	4.3/4.21	6.89/5.34	0.76/0.72	5/450V
5IK90A(GX)-CEFT	90	1φ230/240	50	4	1350/1350	Continuous	4.93/5.08	6.44/6.42	0.66/0.68	5/450V
5IK90A(GX)-SFT	90	3φ220	50/60	4	1400/1650	Continuous	23.3/18.25	6.4/5.3	0.7/0.6	-
5IK90A(GX)-UFT	90	3φ380	50/60	4	1400/1650	Continuous	23.3/18.14	6.3/5.3	0.4/0.3	-

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

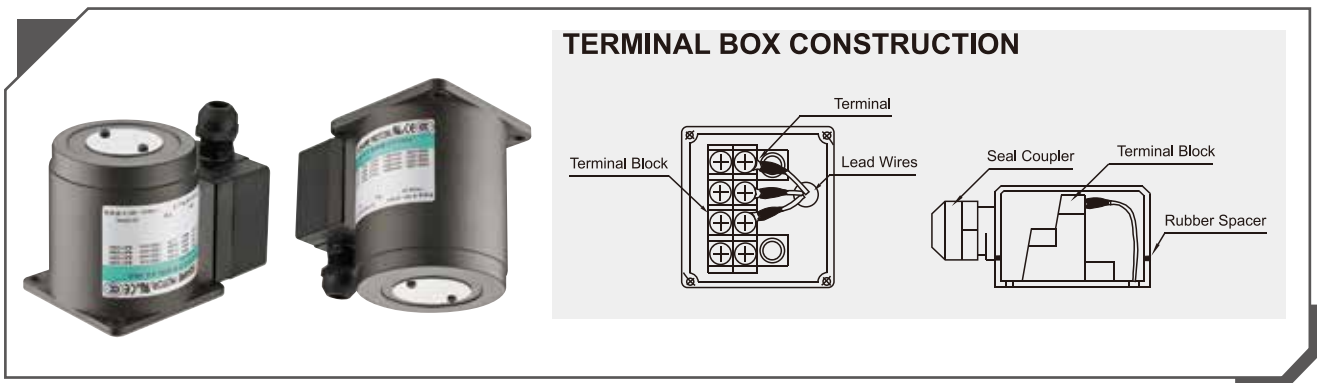
## RK Series REVERSIBLE MOTOR

- Rated Time: 30 minutes
- Built-in Easy Brake System
- Frequent Forward/Reverse Usage
- Few Over Run, Minor Holding Force

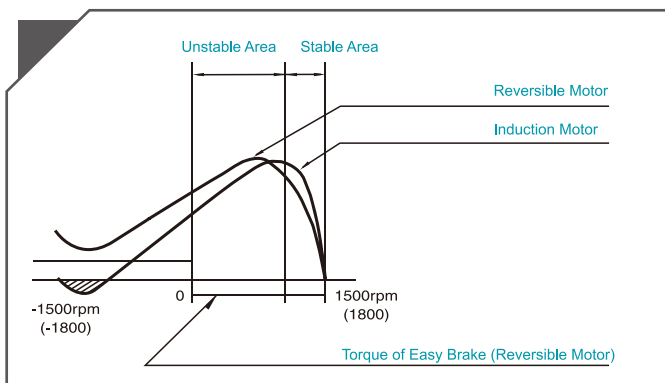
### REVERSIBLE MOTOR, LEAD WIRE TYPE (6W-60W)



### REVERSIBLE MOTOR, TERMINAL BOX TYPE (6W-60W)



### REVERSIBLE MOTOR CURVE



Notes : At 50Hz, a 4-Pole motor has synchronous turning speed of 1500rpm, 1800rpm at 60Hz.

### BRAKE TORQUE & OVERRUNS

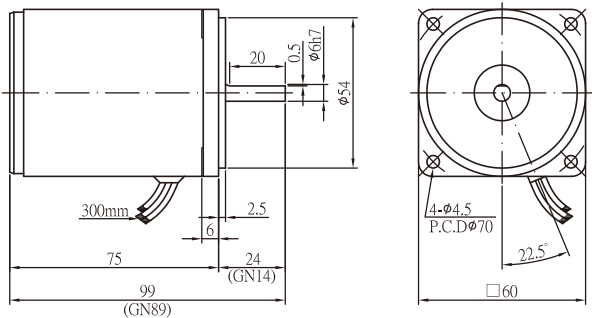
OUTPUT (W)	BRAKE TORQUE (kg.cm)	OVERTURNS (TURNS)
6	0.59	4-6
15	1.27	4-6
25	1.47	4-6
40	3.92	4-6
60	3.92	4-6

※ FOR REFERENCE ONLY

# RK Series

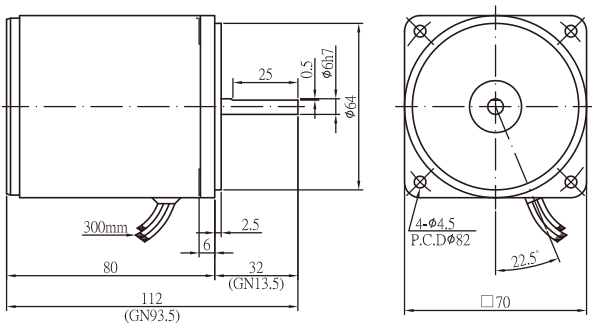
## REVERSIBLE MOTOR, LEAD WIRE TYPE-IP22

■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm



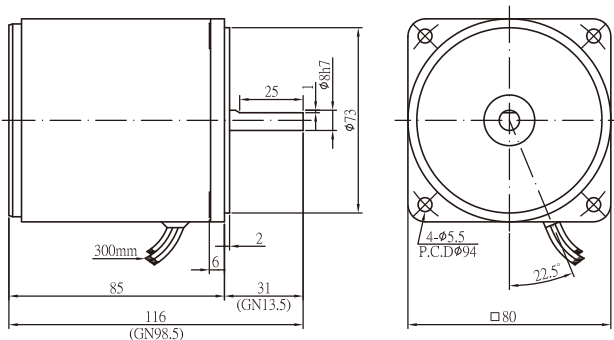
6W

6W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
2RK6A(GN)-A	6	1ø100/110	50/60	4	900/1150	30 /minutes	0.72/0.7	0.57/0.51	0.24/0.25	3.3/300V 3/300V
2RK6A(GN)-C	6	1ø200/220	50/60	4	1000/1300	30 /minutes	0.72/0.8	0.55/0.45	0.13/0.15	1/450V
2RK6A(GN)-CE	6	1ø230/240	50	4	1100/1050	30 /minutes	0.95/0.94	0.53/0.55	0.14/0.14	1/450V



15W

15W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
3RK15A(GN)-A	15	1ø100/110	50/60	4	1200/1450	30 /minutes	1.17/1.24	1.16/0.95	0.37/0.44	6/300V
3RK15A(GN)-C	15	1ø200/220	50/60	4	1200/1450	30 /minutes	0.96/1.34	0.96/0.97	0.20/0.23	1.5/450V
3RK15A(GN)-CE	15	1ø230/240	50	4	1250	30 /minutes	1.36/1.31	1.14/1.19	0.19/0.21	1.5/450V



25W

25W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
4RK25A(GN)-A	25	1ø100/110	50/60	4	1250/1650	30 /minutes	1.65/1.92	1.95/1.48	0.56/0.51	8/300V
4RK25A(GN)-C	25	1ø200/220	50/60	4	1300/1600	30 /minutes	1.98/1.94	1.89/1.54	0.29/0.30	2.5/450V 2/450V
4RK25A(GN)-CE	25	1ø230/240	50	4	1350/1350	30 /minutes	2.22/2.19	1.8/1.82	0.25/0.25	2/450V

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# MOTOR AND SPEED REDUCER

GENERAL PURPOSE MOTOR

SPEED CONTROLLED MOTOR

CONTROLLER

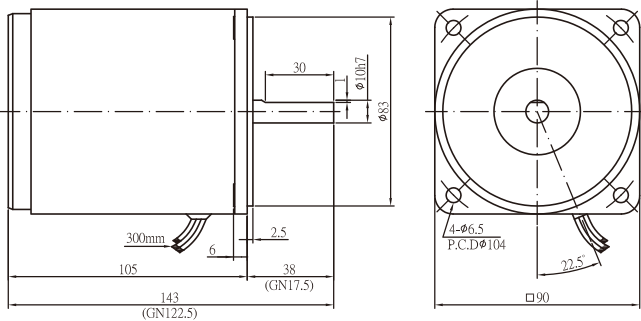
BRAKE MOTOR

CLUTCH BRAKE MOTOR

TORQUE MOTOR

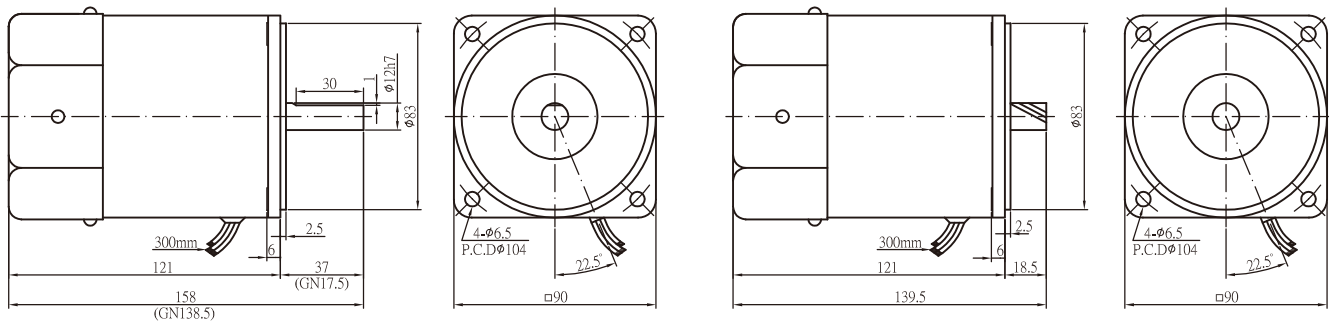
SPEED REDUCER

COMPONENTS



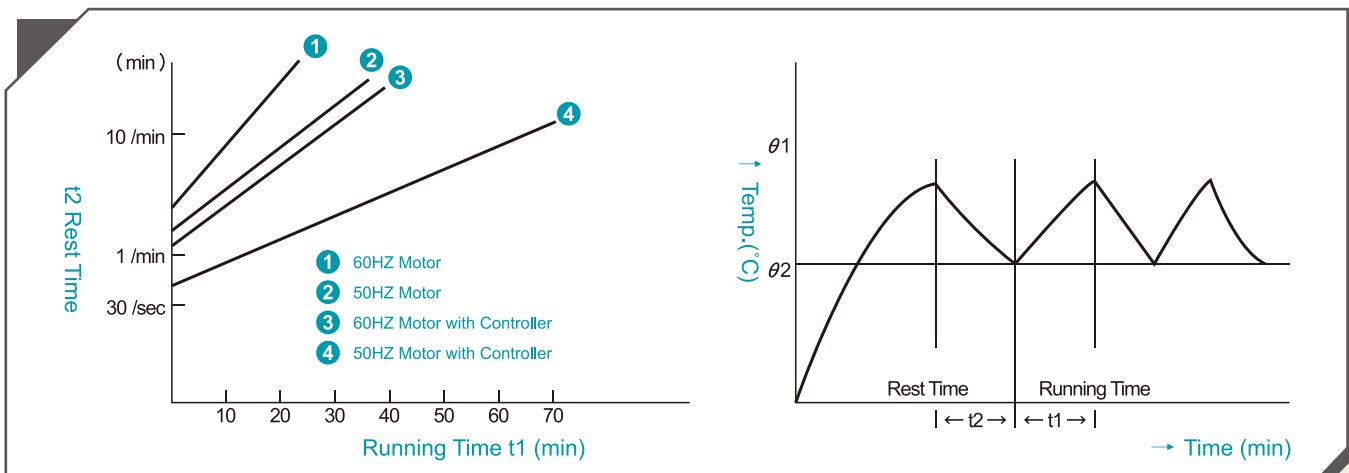
40W

40W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5RK40A(GN)-A	40	1φ100/110	50/60	4	1050/1500	30 /minutes	2.43/3.1	2.83/2.64	0.99/1.01	12/300V
5RK40A(GN)-C	40	1φ200/220	50/60	4	1150/1500	30 /minutes	3.76/2.73	3.35/2.64	0.54/0.53	4/450V 3/350V
5RK40A(GN)-CE	40	1φ230/240	50	4	1150/1300	30 /minutes	2.41/3.17	3.36/3.04	0.49/0.44	3/450V



60W/60W-GX

60W/60W-GX MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5RK60A(GN, GX)-AF	60	1φ100/110	50/60	4	1300/1600	30 /minutes	3.08/4.03	4.82/3.78	1.34/1.25	16/300V
5RK60A(GN, GX)-CF	60	1φ200/220	50/60	4	1250/1600	30 /minutes	2.38/2.97	4.68/3.68	0.75/0.73	4/450V
5RK60A(GN, GX)-CEF	60	1φ230/240	50	4	1300	30 /minutes	4.33/4.72	4.59/4.6	0.57/0.63	4/450V



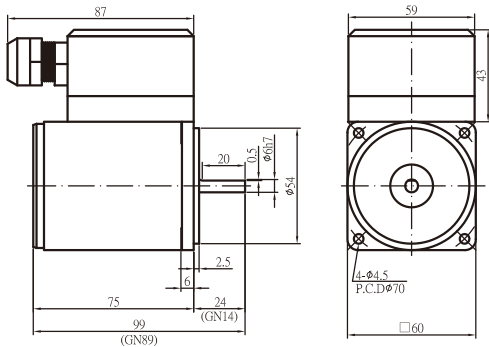
## REMARKS :

- "Rated Time" indicates the time limit to which the motor must stop running after its continuous operation, and resume to run only after cooling down. Otherwise, the motor may burn down due to overheating.
- Reversible motors can also be used according to the methods shown above.



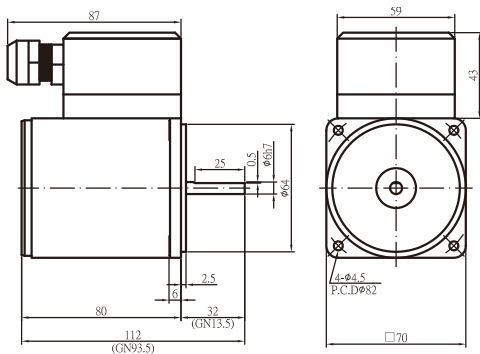
## RK Series REVERSIBLE MOTOR, TERMINAL BOX TYPE-IP54

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



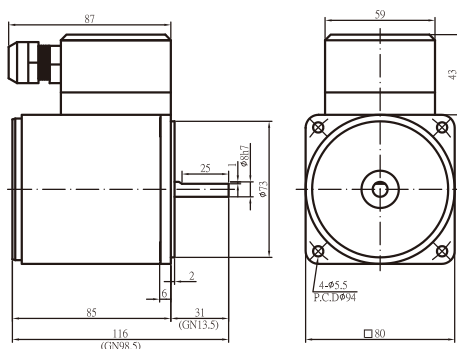
6W

6W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (µF)
2RK6A(GN)-AT	6	1ø100/110	50/60	4	900/1150	30 /minutes	0.72/0.7	0.57/0.51	0.24/0.25	3.3/300V 3/300V
2RK6A(GN)-CT	6	1ø200/220	50/60	4	1000/1300	30 /minutes	0.72/0.8	0.55/0.45	0.13/0.15	1/450V
2RK6A(GN)-CET	6	1ø230/240	50	4	1100/1050	30 /minutes	0.95/0.94	0.53/0.55	0.14/0.14	1/450V



15W

15W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (µF)
3RK15A(GN)-AT	15	1ø100/110	50/60	4	1200/1450	30 /minutes	1.17/1.24	1.16/0.95	0.37/0.44	6/300V
3RK15A(GN)-CT	15	1ø200/220	50/60	4	1200/1450	30 /minutes	0.96/1.34	0.96/0.97	0.20/0.23	1.5/450V
3RK15A(GN)-CET	15	1ø230/240	50	4	1250	30 /minutes	1.36/1.31	1.14/1.19	0.19/0.21	1.5/450V



25W

25W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (µF)
4RK25A(GN)-AT	25	1ø100/110	50/60	4	1250/1650	30 /minutes	1.65/1.92	1.95/1.48	0.56/0.51	8/300V
4RK25A(GN)-CT	25	1ø200/220	50/60	4	1300/1600	30 /minutes	1.98/1.94	1.89/1.54	0.29/0.3	2.5/450V 2/450V
4RK25A(GN)-CET	25	1ø230/240	50	4	1350/1350	30 /minutes	2.22/2.19	1.8/1.82	0.25/0.25	2/450V

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# MOTOR AND SPEED REDUCER

GENERAL PURPOSE MOTOR

SPEED CONTROLLED MOTOR

CONTROLLER

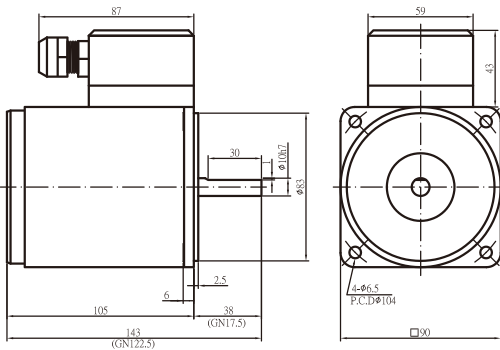
BRAKE MOTOR

CLUTCH BRAKE MOTOR

TORQUE MOTOR

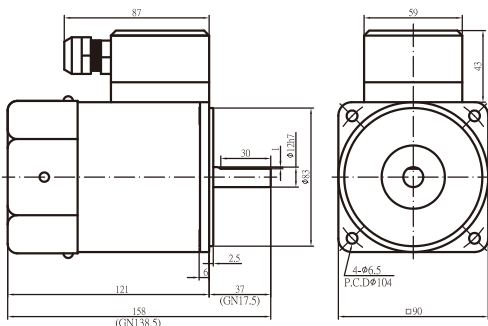
SPEED REDUCER

COMPONENTS

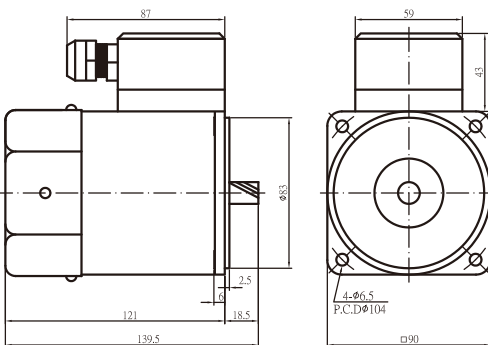


40W

40W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5RK40A(GN)-AT	40	1φ100/110	50/60	4	1050/1500	30 /minutes	2.43/3.1	2.83/2.64	0.99/1.01	12/300V
5RK40A(GN)-CT	40	1φ200/220	50/60	4	1150/1500	30 /minutes	3.76/2.73	3.35/2.64	0.54/0.53	4/450V 3/450V
5RK40A(GN)-CET	40	1φ230/240	50	4	1150/1300	30 /minutes	2.41/3.17	3.36/3.04	0.49/0.44	3/450V



60W



60W-GX

60W/60W-GX MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5RK60A(GN, GX)-AFT	60	1φ100/110	50/60	4	1300/1600	30 /minutes	3.08/4.03	4.82/3.78	1.34/1.25	16/300V
5RK60A(GN, GX)-CFT	60	1φ200/220	50/60	4	1250/1600	30 /minutes	2.38/2.97	4.68/3.68	0.75/0.73	4/450V
5RK60A(GN, GX)-CEFT	60	1φ230/240	50	4	1300	30 /minutes	4.33/4.72	4.59/4.6	0.57/0.63	4/450V

## REMARKS :

- "Rated Time" indicates the time limit to which the motor must stop running after its continuous operation, and resume to run only after cooling down. Otherwise, the motor may be burn down to overheating.
- The usage of the reversible motor (terminal box type) is the same as the reversible motor (lead-wire type).

# SPEED CONTROLLED MOTOR

- Easy Wiring and Speed Control
- Built-in Electronic Brake Circuits for Instant Braking
- Wide Range of Variable Speeds
- Parallel Rotation Performance
- High-Responsive and Great Stability in Speed Control
- Linkable to Other Control Systems

## ASSEMBLED TYPE (US Series)



Circuits, capacitor, and variable resistor are assembled into one control box, which is attached to the motor via connector. Ready-to-use.

- ⊙ Output: 6W-90W
- ⊙ Motor should be used along with an assembled type controller.

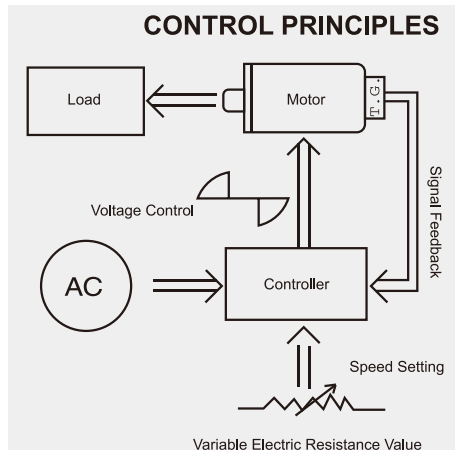
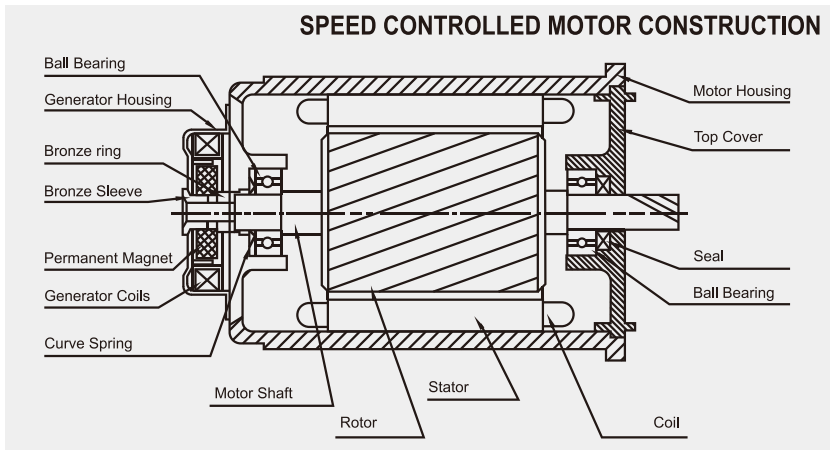
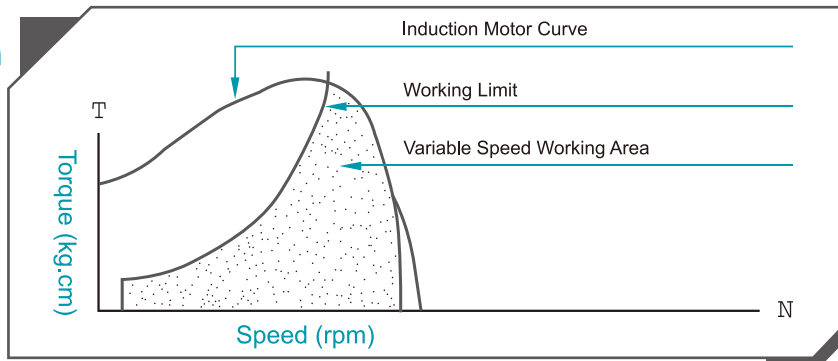
## SEPARATED TYPE (SS Series)



According to different purpose and needs, induction and reversible motors equipped with generators will adopt various wiring methods and controller types.

- ⊙ Variable Speed, Forward/Reverse
- ⊙ Instant Braking
- ⊙ Parallel Rotation
- ⊙ Connectable to Other Systems
- ⊙ Output: 6W-90W

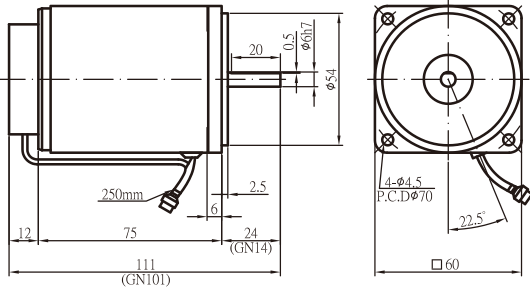
## SPEED-TORQUE CURVE



Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

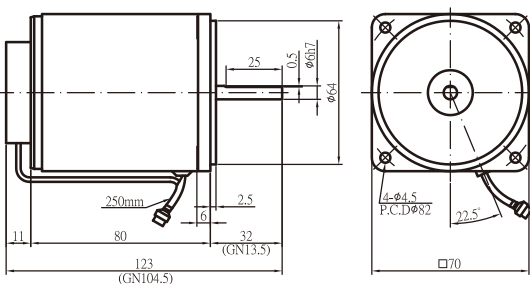
■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm

## ASSEMBLED TYPE, VARIABLE SPEED, INDUCTION/REVERSIBLE MOTOR



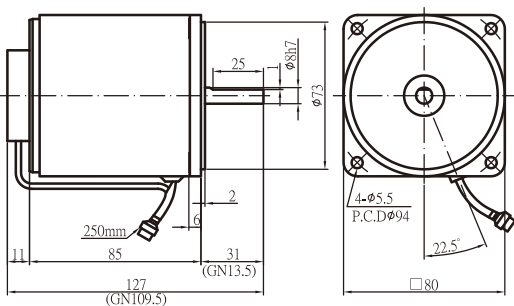
6W

6W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	M206-(0/4)01	Continuous	6	100/110	50/60	4	0.22/0.21	90~1400/90~1700	0.7/0.63	0.4/0.55	0.72/0.5
	M206-(0/4)02	Continuous	6	200/220	50/60	4	0.1/0.1	90~1400/90~1700	0.65/0.7	0.44/0.66	0.6/0.7
	M206-(0/4)02E	Continuous	6	230/240	50	4	0.11/0.1	90~1400	0.74/0.77	0.39/0.52	0.72/0.8
REVERSIBLE	M206-(0/4)11	30 /minutes	6	100/110	50/60	4	0.24/0.25	90~1400/90~1700	0.72/0.7	0.3/0.49	0.6/0.52
	M206-(0/4)12	30 /minutes	6	200/220	50/60	4	0.13/0.15	90~1400/90~1700	0.72/0.8	0.26/0.52	0.67/0.7
	M206-(0/4)12E	30 /minutes	6	230/240	50	4	0.14/0.14	90~1400	0.95/0.94	0.36/0.31	0.8/0.8



15W

15W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	M315-(0/4)01	Continuous	15	100/110	50/60	4	0.36/0.35	90~1400/90~1700	0.88/1.04	0.9/1.5	1.0/1.1
	M315-(0/4)02	Continuous	15	200/220	50/60	4	0.18/0.18	90~1400/90~1700	0.75/1.1	1.1/1.5	1.0/1.1
	M315-(0/4)02E	Continuous	15	230/240	50	4	0.17/0.17	90~1400	1.06/1.06	1.40/1.32	1.02/1.25
REVERSIBLE	M315-(0/4)11	30 /minutes	15	100/110	50/60	4	0.37/0.44	90~1400/90~1700	1.17/1.24	1.1/1.2	0.9/0.85
	M315-(0/4)12	30 /minutes	15	200/220	50/60	4	0.20/0.23	90~1400/90~1700	0.96/1.34	1.4/1.2	0.9/0.85
	M315-(0/4)12E	30 /minutes	15	230/240	50	4	0.19/0.21	90~1400	1.36/1.31	1.52/1.4	1.20/1.10



25W

25W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	M425-(0/4)01	Continuous	25	100/110	50/60	4	0.57/0.45	90~1400/90~1700	1.4/1.4	2.17/2.5	1.4/1.4
	M425-(0/4)02	Continuous	25	200/220	50/60	4	0.28/0.25	90~1400/90~1700	1.57/1.38	2.1/2.4	1.6/1.3
	M425-(0/4)02E	Continuous	25	230/240	50	4	0.25/0.24	90~1400	1.38/1.55	2.2/2.4	1.5/1.7
REVERSIBLE	M425-(0/4)11	30 /minutes	25	100/110	50/60	4	0.56/0.51	90~1400/90~1700	1.65/1.92	2.2/2.9	1.5/1.9
	M425-(0/4)12	30 /minutes	25	200/220	50/60	4	0.29/0.3	90~1400/90~1700	1.98/1.94	2.4/2.6	1.9/1.8
	M425-(0/4)12E	30 /minutes	25	230/240	50	4	0.25/0.25	90~1400	2.22/2.19	2.7/2.9	2.24/2.3

GENERAL PURPOSE MOTOR

SPEED CONTROLLED MOTOR

CONTROLLER

BRAKE MOTOR

CLUTCH BRAKE MOTOR

TORQUE MOTOR

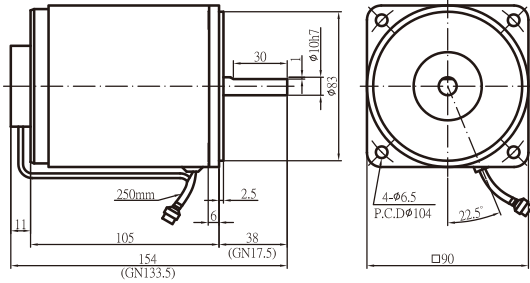
SPEED REDUCER

COMPONENTS



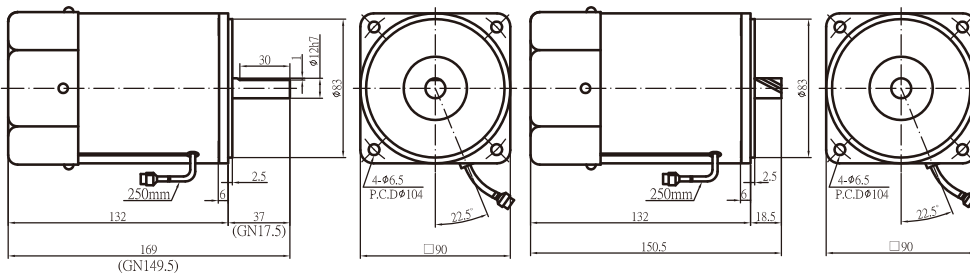
# ASSEMBLED TYPE, VARIABLE SPEED, INDUCTION/REVERSIBLE MOTOR

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



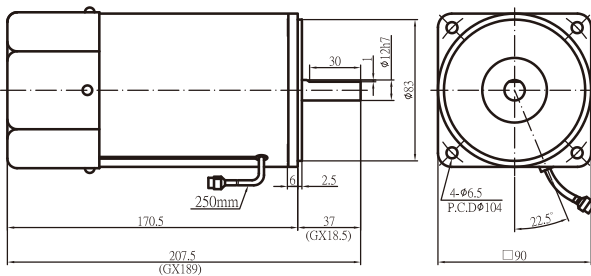
40W

40W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	M540-(0/4)01	Continuous	40	100/110	50/60	4	0.87/0.76	90~1400/90~1700	2.14/2.66	3.18/4.2	2.2/2.8
	M540-(0/4)02	Continuous	40	200/220	50/60	4	0.4/0.34	90~1400/90~1700	1.75/2.17	3.6/4.2	1.8/2.1
	M540-(0/4)02E	Continuous	40	230/240	50	4	0.32/0.32	90~1400	2.3/2.58	4.4/4.6	2.4/2.6
REVERSIBLE	M540-(0/4)11	30 /minutes	40	100/110	50/60	4	0.99/1.01	90~1400/90~1700	2.43/3.1	2.8/3.4	1.9/2.4
	M540-(0/4)12	30 /minutes	40	200/220	50/60	4	0.54/0.53	90~1400/90~1700	3.76/2.37	3/3.4	3/2.2
	M540-(0/4)12E	30 /minutes	40	230/240	50	4	0.49/0.44	90~1400	2.4/3.17	3/3.9	2/2.6



60W/  
60W-GX

60W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	M560-(0/4/6)01	Continuous	60	100/110	50/60	4	1.8/1.12	90~1400/90~1700	2.6/2.94	5.6/6.9	3.5/4.0
	M560-(0/4/6)02	Continuous	60	200/220	50/60	4	0.64/0.54	90~1400/90~1700	3.62/4.41	5.9/6.9	3.6/4.3
	M560-(0/4/6)02E	Continuous	60	230/240	50	4	0.56/0.55	90~1400	4.14/5.22	6.17/7.2	4.37/5.2
REVERSIBLE	M560-(0/4/6)11	30 /minutes	60	100/110	50/60	4	1.34/1.25	90~1400/90~1700	3.08/4.03	4.6/5.6	3.2/3.3
	M560-(0/4/6)12	30 /minutes	60	200/220	50/60	4	0.75/0.73	90~1400/90~1700	2.38/2.97	5.5/5.8	2.3/2.5
	M560-(0/4/6)12E	30 /minutes	60	230/240	50	4	0.57/0.63	90~1400	4.33/4.72	6.02/5.6	4.73/4.10



90W

■ The GN of 90W denotes light loading

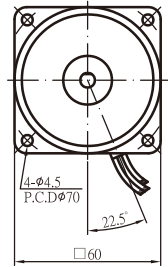
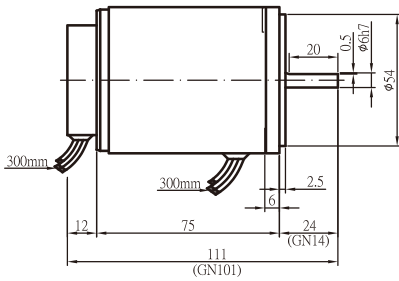
90W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	M590-(0/6)01	Continuous	90	100/110	50/60	4	1.5/1.41	90~1400/90~1700	4.76/5.86	8.4/10.2	5/6.1
	M590-(0/6)02	Continuous	90	200/220	50/60	4	0.76/0.72	90~1400/90~1700	4.3/4.21	8/8.7	5.7/6.0
	M590-(0/6)02E	Continuous	90	230/240	50	4	0.66/0.68	90~1400	4.93/5.08	9.8/10.2	5.2/5.6

NOTES : The Assembled Type, Variable Speed Reversible Motor is used in the same way as the Reversible Motor, Lead-Wire Type.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

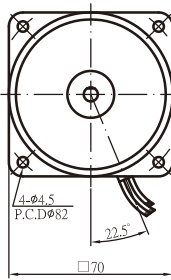
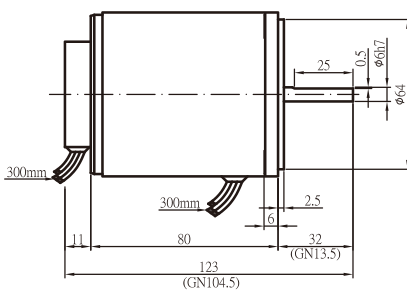
■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm

## SEPARATED TYPE, VARIABLE SPEED, INDUCTION/REVERSIBLE MOTOR -IP22



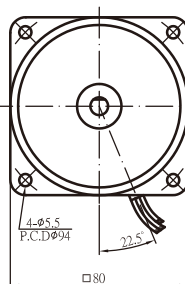
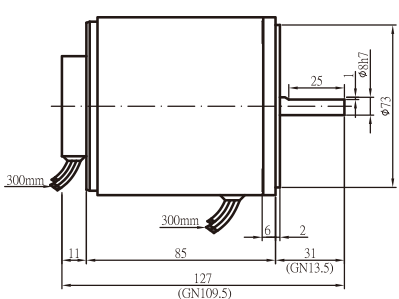
6W

6W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	2IK6RA(GN)-A	Continuous	6	100/110	50/60	4	0.22/0.21	90~1400/90~1700	0.7/0.63	0.4/0.55	0.72/0.5
	2IK6RA(GN)-C	Continuous	6	200/220	50/60	4	0.1/0.1	90~1400/90~1700	0.65/0.7	0.44/0.66	0.6/0.7
	2IK6RA(GN)-CE	Continuous	6	230/240	50	4	0.11/0.1	90~1400	0.74/0.77	0.39/0.52	0.72/0.8
REVERSIBLE	2RK6RA(GN)-A	30 /minutes	6	100/110	50/60	4	0.24/0.25	90~1400/90~1700	0.72/0.7	0.3/0.49	0.6/0.52
	2RK6RA(GN)-C	30 /minutes	6	200/220	50/60	4	0.13/0.15	90~1400/90~1700	0.72/0.8	0.26/0.52	0.67/0.7
	2RK6RA(GN)-CE	30 /minutes	6	230/240	50	4	0.14/0.14	90~1400	0.95/0.94	0.36/0.31	0.8/0.8



15W

15W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	3IK15RA(GN)-A	Continuous	15	100/110	50/60	4	0.36/0.35	90~1400/90~1700	0.89/1.24	0.9/1.5	1.0/1.1
	3IK15RA(GN)-C	Continuous	15	200/220	50/60	4	0.18/0.18	90~1400/90~1700	0.75/1.10	1.1/1.5	1.0/1.1
	3IK15RA(GN)-CE	Continuous	15	230/240	50	4	0.17/0.17	90~1400	1.06/1.06	1.40/1.32	1.02/1.25
REVERSIBLE	3RK15RA(GN)-A	30 /minutes	15	100/110	50/60	4	0.37/0.44	90~1400/90~1700	1.17/1.24	1.1/1.2	0.9/0.85
	3RK15RA(GN)-C	30 /minutes	15	200/220	50/60	4	0.20/0.23	90~1400/90~1700	0.96/1.34	1.4/1.2	0.9/0.85
	3RK15RA(GN)-CE	30 /minutes	15	230/240	50	4	0.19/0.21	90~1400	1.36/1.31	1.5/1.4	1.20/1.15



25W

25W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	4IK25RA(GN)-A	Continuous	25	100/110	50/60	4	0.57/0.45	90~1400/90~1700	1.4/1.4	2.17/2.5	1.4/1.4
	4IK25RA(GN)-C	Continuous	25	200/220	50/60	4	0.28/0.25	90~1400/90~1700	1.57/1.38	2.1/2.4	1.6/1.3
	4IK25RA(GN)-CE	Continuous	25	230/240	50	4	0.25/0.24	90~1400	1.38/1.55	2.2/2.4	1.5/1.7
REVERSIBLE	4RK25RA(GN)-A	30 /minutes	25	100/110	50/60	4	0.56/0.51	90~1400/90~1700	1.65/1.92	2.2/2.9	1.5/1.9
	4RK25RA(GN)-C	30 /minutes	25	200/220	50/60	4	0.29/0.3	90~1400/90~1700	1.98/1.94	2.4/2.6	1.9/1.8
	4RK25RA(GN)-CE	30 /minutes	25	230/240	50	4	0.25/0.25	90~1400	2.22/2.19	2.7/2.9	2.24/2.3

GENERAL PURPOSE MOTOR

SPEED CONTROLLED MOTOR

CONTROLLER

BRAKE MOTOR

CLUTCH BRAKE MOTOR

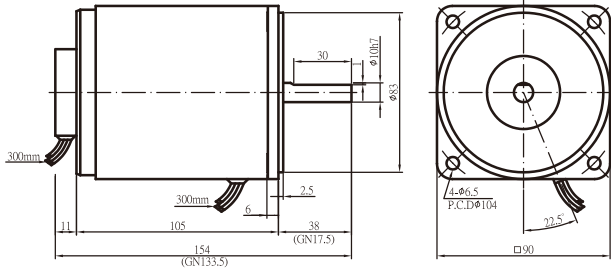
TORQUE MOTOR

SPEED REDUCER

COMPONENTS

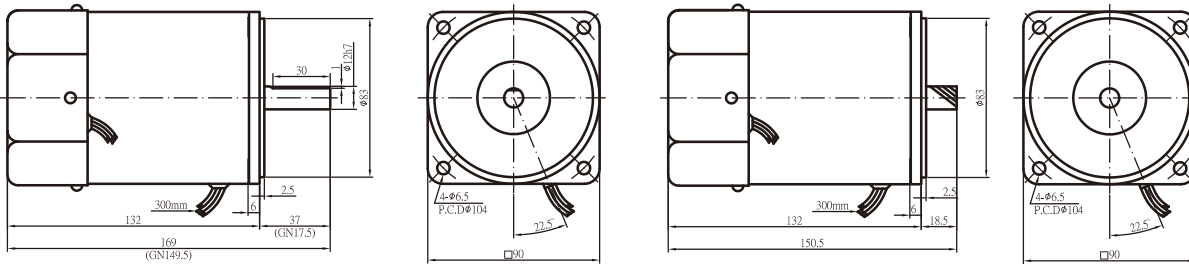
# SEPARATED TYPE, VARIABLE SPEED, INDUCTION/REVERSIBLE MOTOR -IP22

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



40W

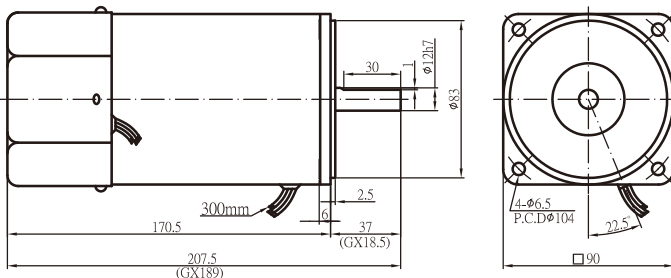
40W TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	5IK40RA(GN)-A	Continuous	40	100/110	50/60	4	0.87/0.76	90~1400/90~1700	2.14/2.66	3.18/4.2	2.2/2.8
	5IK40RA(GN)-C	Continuous	40	200/220	50/60	4	0.4/0.34	90~1400/90~1700	1.75/2.17	3.6/4.2	1.8/2.1
	5IK40RA(GN)-CE	Continuous	40	230/240	50	4	0.32/0.32	90~1400	2.3/2.58	4.4/4.6	2.4/2.6
REVERSIBLE	5RK40RA(GN)-A	30 /minutes	40	100/110	50/60	4	0.99/1.01	90~1400/90~1700	2.43/3.1	2.8/3.4	1.9/2.4
	5RK40RA(GN)-C	30 /minutes	40	200/220	50/60	4	0.54/0.53	90~1400/90~1700	3.76/2.37	3/3.4	3/2.2
	5RK40RA(GN)-CE	30 /minutes	40	230/240	50	4	0.49/0.44	90~1400	2.41/3.17	3/3.9	2/2.6



■ The GN of 60W denotes light loading

60W/60W-GX

60W/60W-GX TYPE	MODEL	RATED TIME	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)	
										1200rpm	90rpm
INDUCTION	5IK60RA(GN)-AF	Continuous	60	100/110	50/60	4	1.80/1.12	90~1400/90~1700	2.60/2.94	5.6/6.9	3.5/4.0
	5IK60RGX-AF										
	5IK60RA(GN)-CF										
REVERSIBLE	5IK60RGX-CF	Continuous	60	200/220	50/60	4	0.64/0.54	90~1400/90~1700	3.62/4.41	5.9/6.9	4.6/4.4
	5IK60RGX-CE										
	5IK60RGX-CEF										
REVERSIBLE	5RK60RA(GN)-AF	30 /minutes	60	100/110	50/60	4	1.34/1.25	90~1400/90~1700	3.08/4.03	4.60/5.60	3.20/3.30
	5RK60RGX-AF										
	5RK60RA(GN)-CF										
REVERSIBLE	5RK60RGX-CF	30 /minutes	60	200/220	50/60	4	0.75/0.73	90~1400/90~1700	2.38/2.97	5.5/5.8	2.3/2.5
	5RK60RGX-CE										
	5RK60RA(GN)-CEF										
REVERSIBLE	5RK60RGX-CEF	30 /minutes	60	230/240	50	4	0.57/0.63	90~1400	4.33/4.72	6.02/5.60	4.73/4.10
	5RK60RGX-CE										
	5RK60RGX-CEF										



90W

■ The GN of 90W denotes light loading

90W MODEL	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
5IK90RA(GS, GX)-AF	90	100/110	50/60	4	1.51/1.41	90~1400/90~1700	4.76/5.86	8.4/10.2	5/6.1	22	250
5IK90RA(GS, GX)-CF	90	200/220	50/60	4	0.76/0.72	90~1400/90~1700	4.3/4.21	8/8.7	4.4/4.4	5	450
5IK90RA(GS, GX)-CEF	90	230/240	50	4	0.66/0.68	90~1400	4.93/5.08	9.8/10.2	5.2/5.6	5	450

NOTES : Above models are rated continuously.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

## ASSEMBLED TYPE SPEED CONTROLLER

### INSTRUCTION & PRECAUTIONS

- Power supply leads should be thicker than 0.75mm<sup>2</sup>.
- Variable speed ranges from 90-1400rpm at 50Hz, and 90-1700rpm at 60Hz.
- Due to the construction of the gear motor, please reverse the CW/CCW wires when you wish to switch to an opposite rotational direction.
- The STOP and RUN switches are for short interval stops only.  
If the motor must be stopped for a longer period, please turn off the power supply.



#### INDUCTION MOTOR MODELS

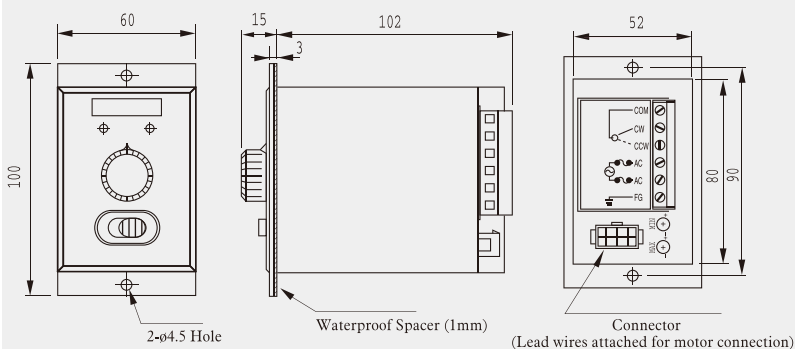
VOLTAGE	MODEL	NAME	SPECIFICATION	CONTROLLER
1ø 100V~125V	US206-001	M206-001		US206-01
	US206-401	M206-401		
	US315-001	M315-001		US315-01
	US315-401	M315-401		
	US425-001	M425-001		US425-01
	US425-401	M425-401		
	US540-001	M540-001		US540-01
	US540-401	M540-401		
	US560-001	M560-001		US560-01
	US560-401	M560-401		
1ø 200V~240V	US560-601	M560-601		US560-01
	US590-001	M590-001		US590-01
	US590-601	M590-601		
	US206-002	M206-002		US206-02
	US206-402	M206-402		
	US206-002E	M206-002E		US206-02E
	US206-402E	M206-402E		
	US425-002	M425-002		US425-02
	US425-402	M425-402		
	US425-002E	M425-002E		US425-02E
	US425-402E	M425-402E		
	US540-002	M540-002		US540-02
	US540-402	M540-402		
	US540-002E	M540-002E		US540-02E
	US540-402E	M540-402E		
	US560-002	M560-002		US560-02
	US560-402	M560-402		
	US560-602	M560-602		
	US560-002E	M560-002E		US560-02E
	US560-402E	M560-402E		
	US560-602E	M560-602E		
	US590-002	M590-002		US590-02
	US590-602	M590-602		
	US590-002E	M590-002E		US590-02E
US590-602E	M590-602E			

#### REVERSIBLE MOTOR MODELS

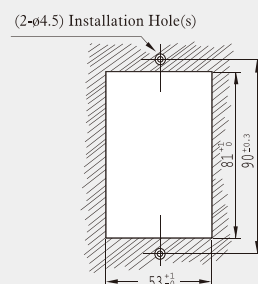
VOLTAGE	MODEL	NAME	SPECIFICATION	CONTROLLER
1ø 100V~125V	US206-011	M206-011		US206-11
	US206-411	M206-411		
	US315-011	M315-011		US315-11
	US315-411	M315-411		
	US425-011	M425-011		US425-11
	US425-411	M425-411		
	US540-011	M540-011		US540-11
	US540-411	M540-411		
	US560-011	M560-011		US560-11
	US560-411	M560-411		
1ø 200V~240V	US560-611	M560-611		
	US206-012	M206-012		US206-12
	US206-412	M206-412		
	US206-012E	M206-012E		US206-12E
	US206-412E	M206-412E		
	US425-012	M425-012		US425-12
	US425-412	M425-412		
	US425-012E	M425-012E		US425-12E
	US425-412E	M425-412E		
	US540-012	M540-012		US540-12
	US540-412	M540-412		
	US540-012E	M540-012E		US540-12E
	US540-412E	M540-412E		
	US560-012	M560-012		US560-12
US560-412	M560-412			
US560-012E	M560-012E		US560-12E	
US560-412E	M560-412E			
US560-612	M560-612			
US560-012E	M560-012E			
US560-412E	M560-412E		US560-12E	
US560-612E	M560-612E			

#### ■ DIMENSIONS OF ASSEMBLED TYPE SPEED CONTROLLER

SCALE : 1/4 UNIT : mm WEIGHT : 0.5kg



#### ■ THE MACHINING OF THE INSTALLATION HOLES



# SEPARATED TYPE SPEED CONTROLLER

## SS21 /SS22



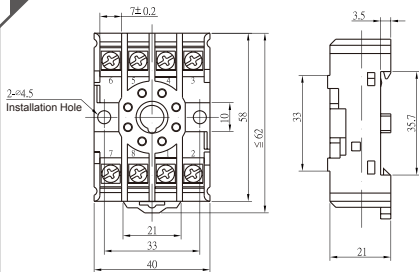
## SS31-HR /SS32-HR



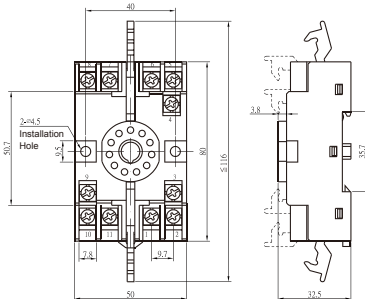
### MODEL SPECIFICATIONS

MODEL	SS21	SS22	SS31-HR	SS32-HR
POWER RANGE	100~125V	200~240V	100~125V	200~240V
FREQUENCY	50/60Hz			
MAX. CURRENT ALLOWED	2A	2A	3A	3A
SUITABLE MOTOR	6W-90W			
SPEED CONTROL RANGE	90~1400rpm (50Hz) / 90~1700rpm (60Hz)			
VARIABLE SPEED RATIO	5%	5%	3%	3%
INSTANT BRAKE	-	-	Electronic Brake	Electronic Brake
BRAKE HOLDING TIME	-	-	0.5 Second	0.5 Second
INSULATION RESISTANCE	Tested value at 10MΩ and above, measured by DC 500V Hi-Resistance meter between the housing and terminals.			
HI-POT INSULATION	No damages caused after 1kV at 60Hz was tested between the housing and terminals.			
AMBIENT TEMPERATURE	-10~+40°			
STORAGE TEMPERATURE	-20~+60°			

### 8-PIN BASE

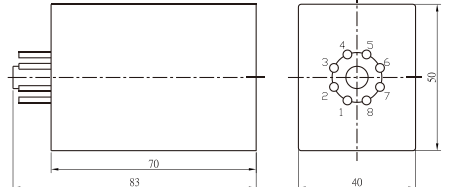


### 11-PIN BASE

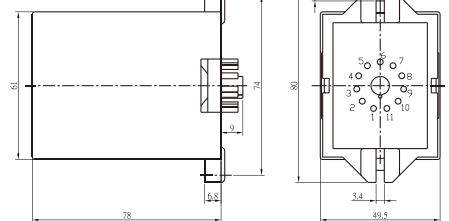


### DIMENSIONS

#### SS21/ SS22



#### SS31-HR/ SS32-HR

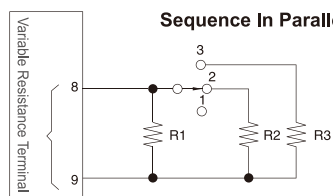


## APPLICATION OF STEPPED SPEED

- Once applicable speed is decided, as speed is changed, variable electric resistance value can be fixed.
1. Parallel Type: the switch first makes contact with the connecting terminal, then returns to the original terminal point.
  2. Series Type: the switch leaves the previous connecting point, then makes contact with another terminal point.
- Either type is applicable, please wire accordingly. When using the parallel type switch, an open-circuit mode is created at the instant of switching, where a rapid increase of motor speed must be taken into precaution.

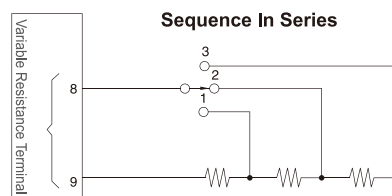
SS21、SS31-HR  
SS22、SS32-HR

### Sequence In Parallel



SS21、SS31-HR  
SS22、SS32-HR

### Sequence In Series



■ Sequence In Parallel Resistance Value (MAX. 20KΩ)  $R = \frac{R1 \times R2}{R1 + R2}, \frac{R1 \times R3}{R1 + R3}$

■ Sequence In Series Resistance Value (MAX. 20KΩ)  $R = R1 + R2 + R3$

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.



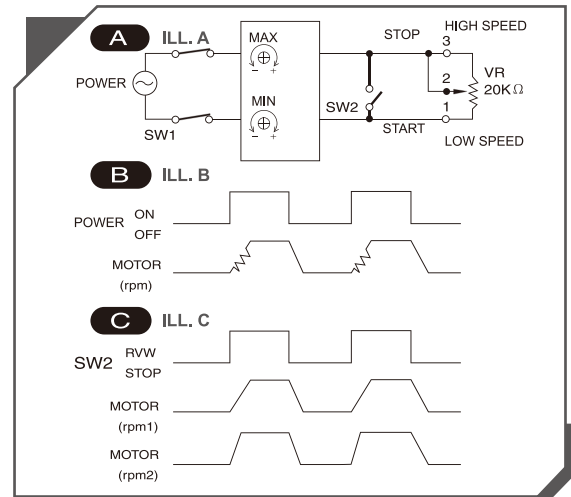
## WIRING APPLICATION FOR SEPARATE TYPE CONTROLLER

### HOW TO IMPROVE STARTING FEATURES ON INTERVAL USAGE

When turning on power switch (SW1) of the controller, the motor needs more time to start. The surges between ON/OFF cause motor starting speed un-steady temporarily. (see ILL. B)

On interval usage or motor is not in use for short time, please leave power connected to the controller. A better starting feature is available by controlling RUN/STOP with SW2. (see MOTOR rpm1 of ILL. C)

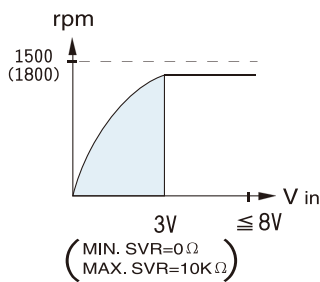
To get a better starting response, turn SVR on MIN. clockwise slightly (but keep the motor still stop) to raise a substitution on bias voltage from zero. (see MOTOR rpm2 of ILL. C)



### THE USAGE OF SPEED CONTROL IN DC VOLTAGE

- The variable resistance used for speed control could be replaced by inputting a DC voltage. The wiring below is for application reference.
- Be cautious in application that voltage input must not exceed 8V, and the SVR of MIN. must be turned left to zero.
- Special attention to the isolation status between control signal side (V in) and power supply side (see Table 1) to avoid controller burn down and current leakage.
- Be sure to connect 220Ω, 1/2W resistor.

ILL.A Curves of motor speed against V in



ILL.B Wiring diagram of controller V in-GND terminals

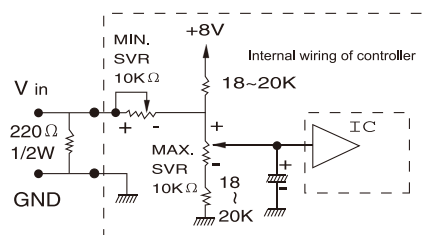


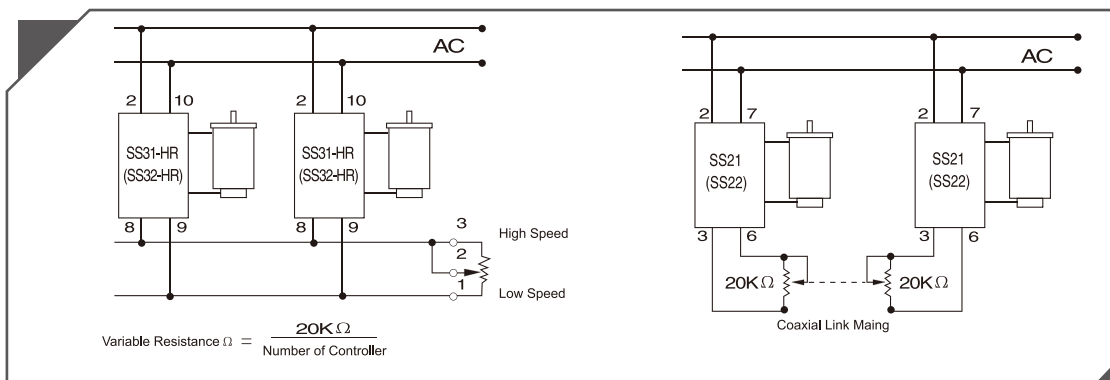
Table 1. isolation for connecting terminals and power

Model name	V in connecting terminals	GND connecting terminals	Isolation beside power supply
SS21 SS22	6	3	NO
SS31-HR SS32-HR	8	9	YES

### PARALLEL ROTATION

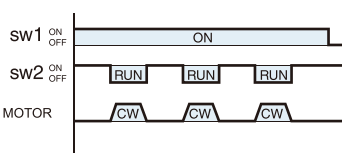
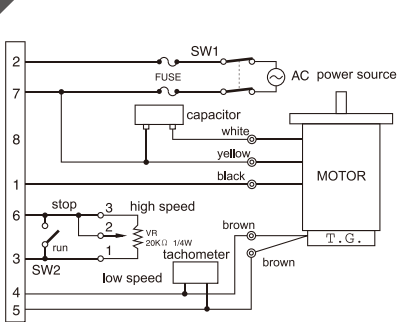
When a single variable resistance (only for SS31/SS32) or coaxial multi-variable resistances (only for SS21/SS22) are used to control several motors, the wiring of the controller are shown as below.

Speed of each motor may have minor variation due to different loading and product tolerance.



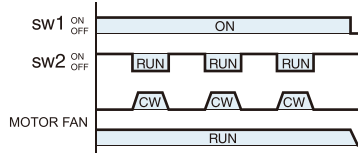
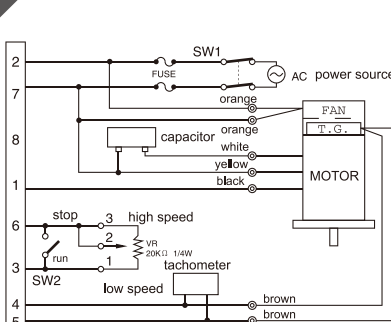
# SS21 SS22 EXTERNAL WIRING CONNECTIONS

## SINGLE ROTATING DIRECTION + VARIABLE SPEED



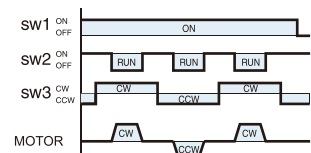
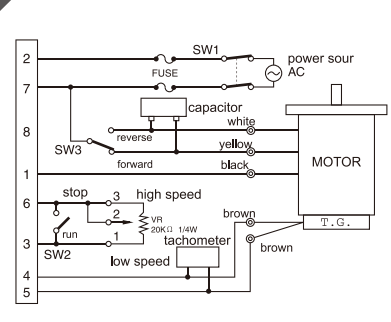
SWITCH NUMBER	SPECIFICATION
<b>SW1</b>	AC250V,5A above
<b>SW2</b>	DC20V,10mA
Variable resistance(VR)	20K $\Omega$ , 1/4W, B Character

## SINGLE ROTATING DIRECTION + FAN + VARIABLE SPEED



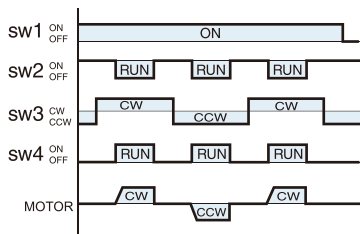
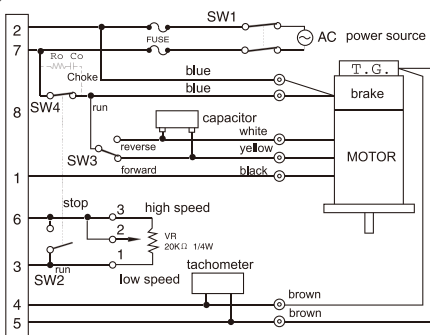
SWITCH NUMBER	SPECIFICATION
<b>SW1</b>	AC250V,5A above
<b>SW2</b>	DC20V,10mA
Variable resistance(VR)	20K $\Omega$ , 1/4W, B Character

## REVERSIBLE + VARIABLE SPEED



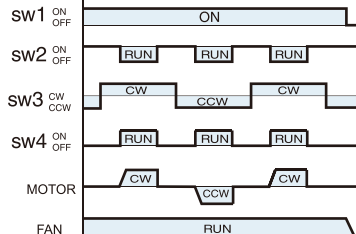
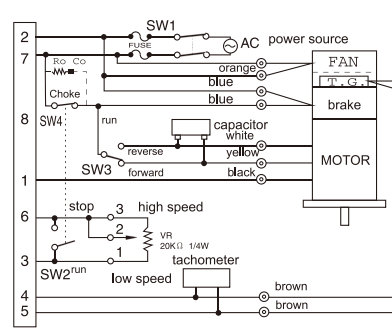
SWITCH NUMBER	SPECIFICATION
<b>SW1,SW3</b>	AC250V,5A above
<b>SW2</b>	DC20V,10mA
Variable resistance(VR)	20K $\Omega$ , 1/4W, B Character

## REVERSIBLE + MAGNETIC BRAKE + VARIABLE SPEED



SWITCH NUMBER	SPECIFICATION
<b>SW1,SW3,SW4</b>	AC250V,5A above
<b>SW2</b>	DC20V,10mA
Contacting point protection(Ro Co)	Ro=5-200 $\Omega$ (1/2W above) Co=0.1-0.2 $\mu$ F (400VAC above)
Variable resistance(VR)	20K $\Omega$ , 1/4W, B Character

## REVERSIBLE + FAN + MAGNETIC BRAKE + VARIABLE SPEED

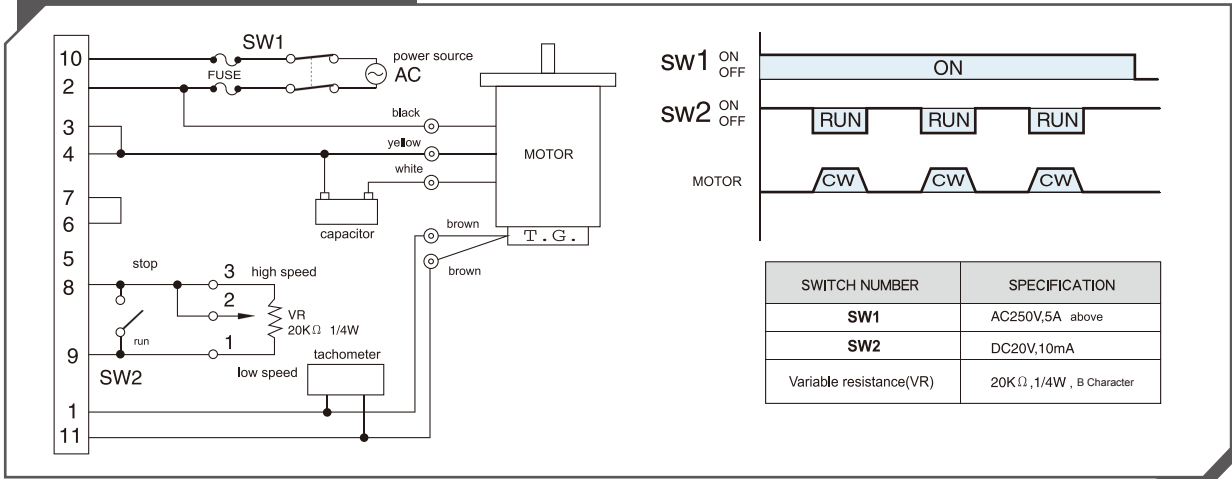


SWITCH NUMBER	SPECIFICATION
<b>SW1,SW3,SW4</b>	AC250V,5A above
<b>SW2</b>	DC20V,10mA
Contacting point protection(Ro Co)	Ro=5-200 $\Omega$ (1/2W above) Co=0.1-0.2 $\mu$ F (400VAC above)
Variable resistance(VR)	20K $\Omega$ , 1/4W, B Character

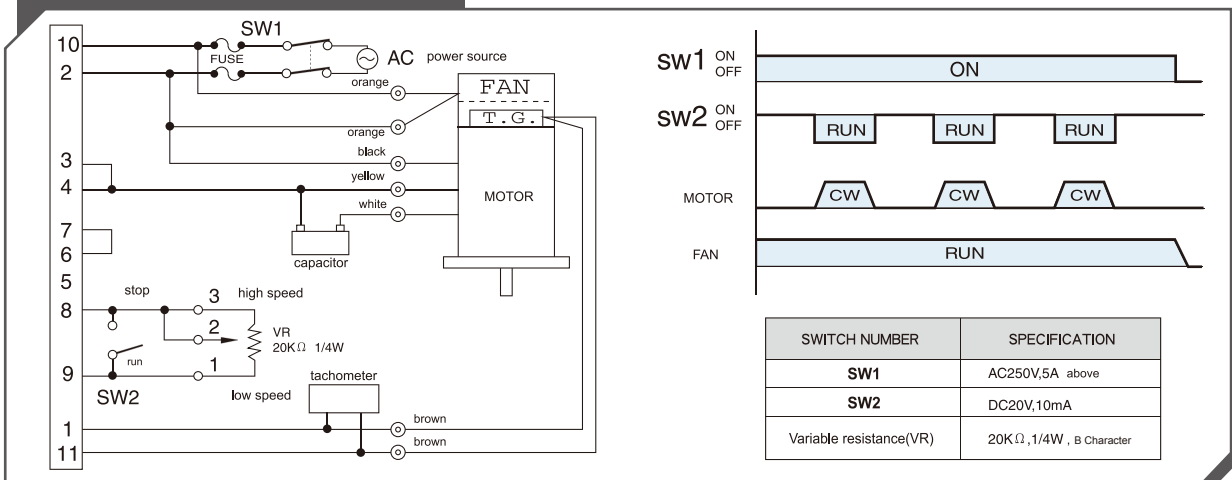
Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

## SS31-HR SS32-HR EXTERNAL WIRING CONNECTIONS

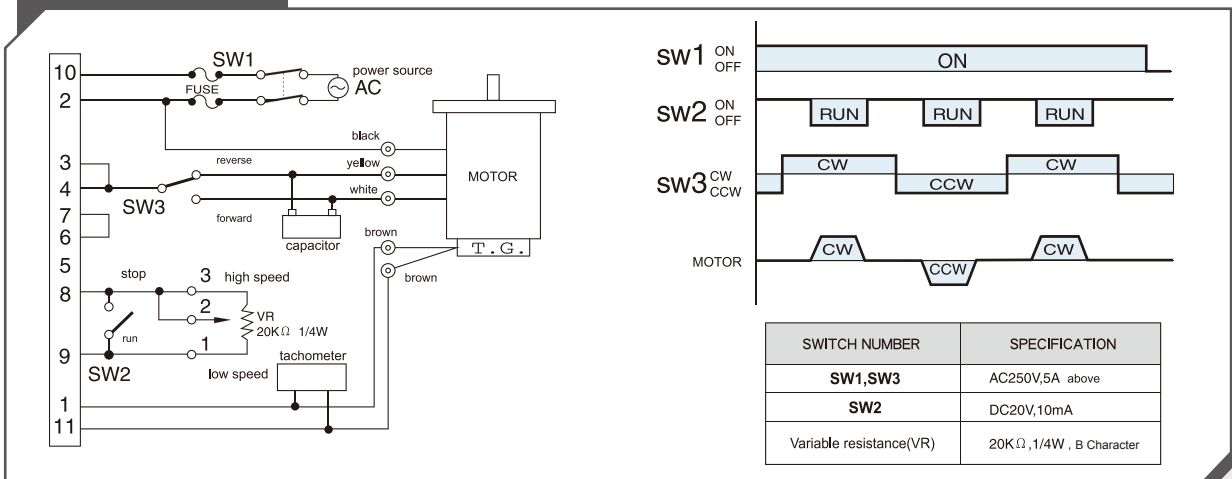
### SINGLE ROTATING DIRECTION + VARIABLE SPEED



### SINGLE ROTATING DIRECTION + FAN + VARIABLE SPEED

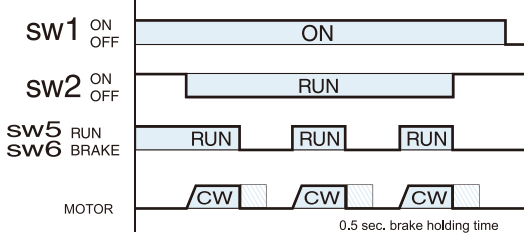
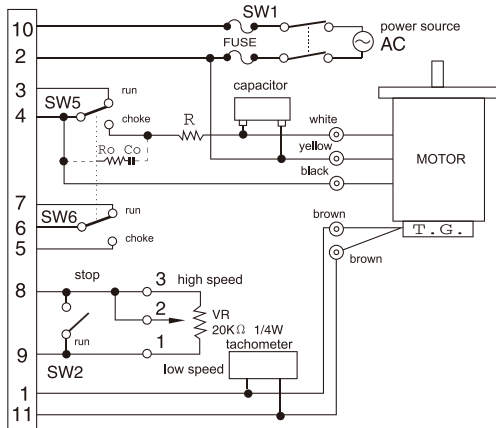


### REVERSIBLE + VARIABLE SPEED



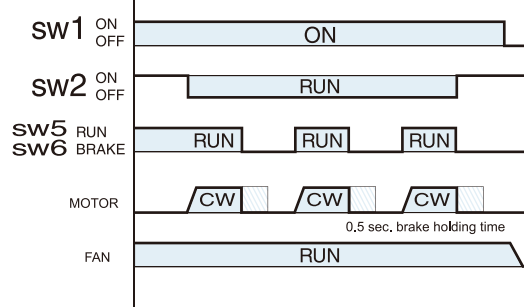
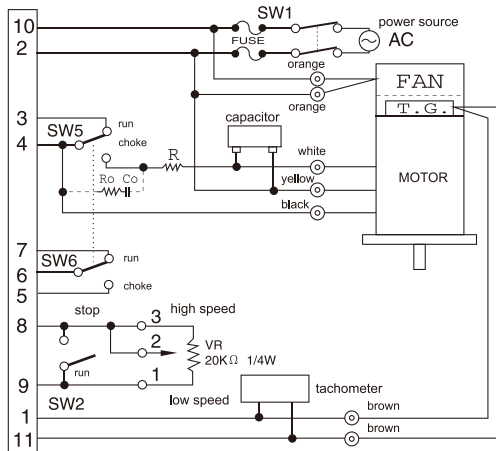
# SS3I-HR SS32-HR EXTERNAL WIRING CONNECTIONS

## SINGLE ROTATING DIRECTION + VARIABLE SPEED + ELECTRONIC BRAKE



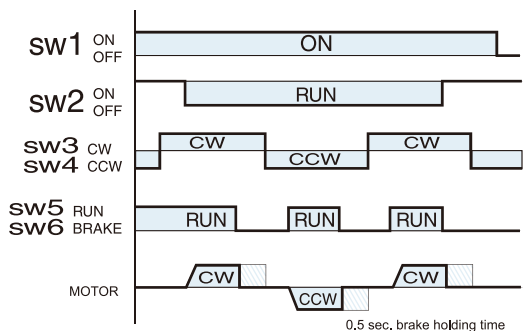
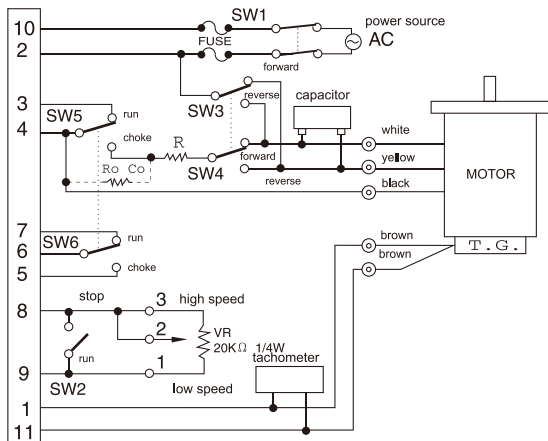
SWITCH NUMBER	SPECIFICATION
SW1,SW5,SW6	AC250V,5A above
SW2	DC20V,10mA
External resistance(Ro Co)	10W 10Ω
Contacting point protection(Ro Co)	Ro=5-200Ω (1/2W above) Co=0.1-0.2 μF (400VAC above)
Variable resistance(VR)	20KΩ, 1/4W, B Character

## SINGLE ROTATING DIRECTION + FAN + VARIABLE SPEED + ELECTRONIC BRAKE



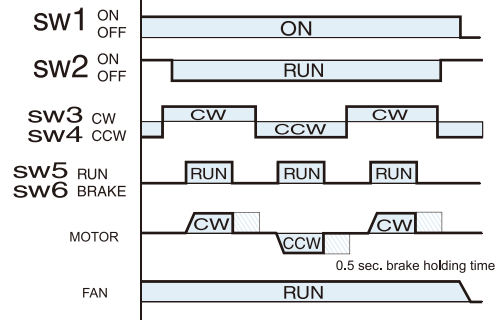
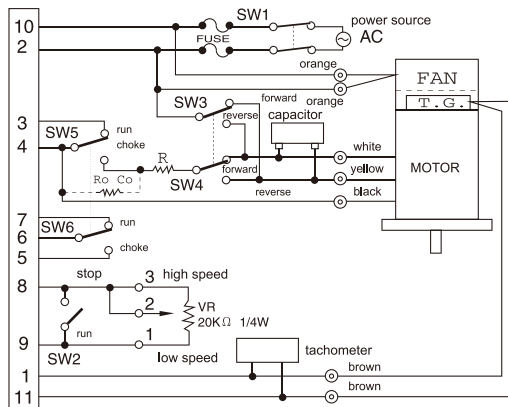
SWITCH NUMBER	SPECIFICATION
SW1,SW3,SW4,SW5,SW6	AC250V,5A above
SW2	DC20V,10mA
External resistance(R)	10W 10Ω
Contacting point protection(Ro Co)	Ro=5-200Ω (1/2W above) Co=0.1-0.2 μF (400VAC above)
Variable resistance(VR)	20KΩ, 1/4W, B Character

## REVERSIBLE + VARIABLE SPEED + ELECTRONIC BRAKE



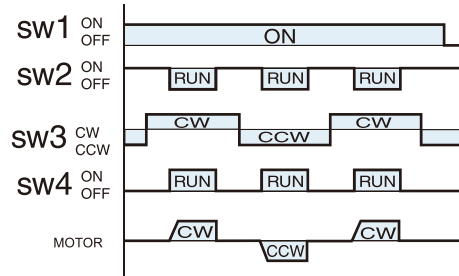
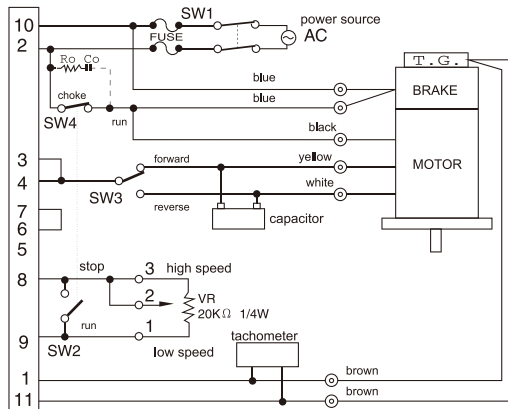
## SS31-HR SS32-HR EXTERNAL WIRING CONNECTIONS

REVERSIBLE + FAN + VARIABLE SPEED + ELECTRONIC BRAKE



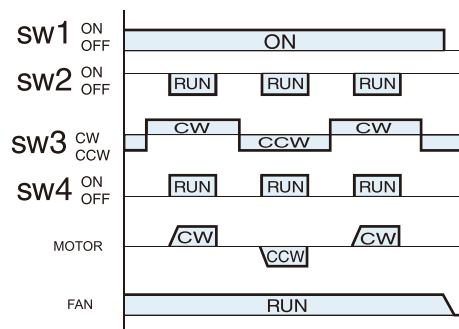
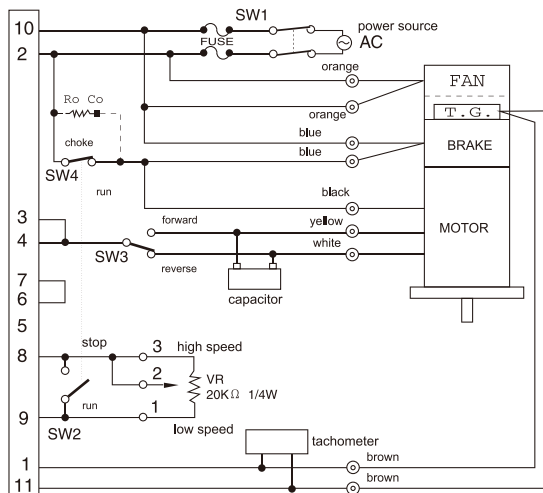
SWITCH NUMBER	SPECIFICATION
SW1,SW3,SW4,SW5,SW6	AC250V,5A above
SW2	DC20V,10mA
External resistance(Ro Co)	10W 10Ω
Contacting point protection(Ro Co)	Ro=5-200Ω (1/2W above) Co=0.1-0.2μF (400VAC above)
Variable resistance(VR)	20KΩ, 1/4W, B Character

REVERSIBLE + MAGNETIC BRAKE + VARIABLE SPEED



SWITCH NUMBER	SPECIFICATION
SW1,SW3,SW4	AC250V,5A above
SW2	DC20V,10mA
Contacting point protection(Ro Co)	Ro=5-200Ω (1/2W above) Co=0.1-0.2μF (400VAC above)
Variable resistance(VR)	20KΩ, 1/4W, B Character

REVERSIBLE + FAN + MAGNETIC BRAKE + VARIABLE SPEED





# BRAKE MOTOR

## CONSTRUCTION (POWER-OFF BRAKE TYPE)

Our brake motor is an excitation type motor. Once voltage is introduced into the coil, the magnet working against the spring will hold the moving plate, releasing the brake, and allowing the motor shaft to move freely.

### INSULATION RESISTANCE

Tested value at  $10M\Omega$  and above, measured by DC 500V Hi-Resistance meter between the coil and housing.

### HI-POT RESISTANCE

No damages caused after 1kV at 60Hz was tested for one minute between the coil and housing.



## ADJUSTMENT OF THE BRAKE CLEARANCE

Brake clearance is the gap between magnetic coils and moving plate. The ideal pre-setting is 0.15mm (around the thickness of a name card). After a period of usage, the clearance is widened due to lining friction and wear. If the clearance is bigger than 0.3mm, please contact us or replace the lining.

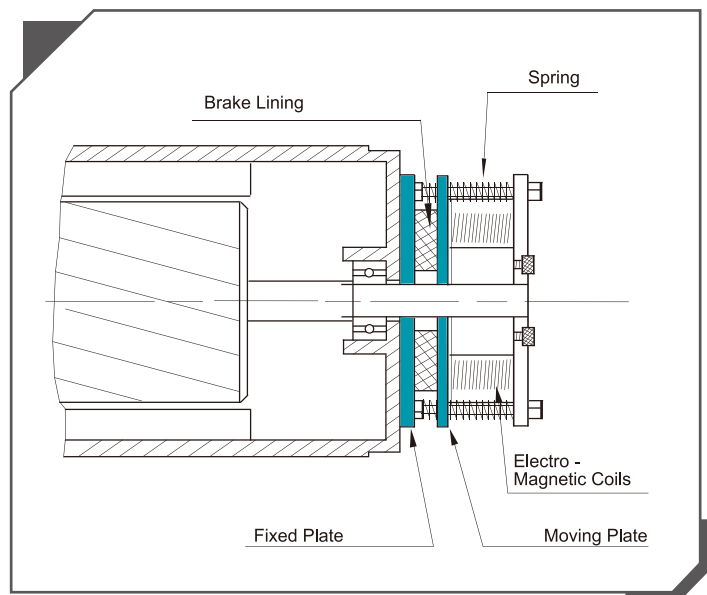
## FEATURES

### HIGH BRAKING & HOLDING FORCE

Built-in excitation brake: as the power is shut off, it can stop the motor instantly and accurately holds the load, making it most suitable for emergency braking.

### BRAKE PRECISION

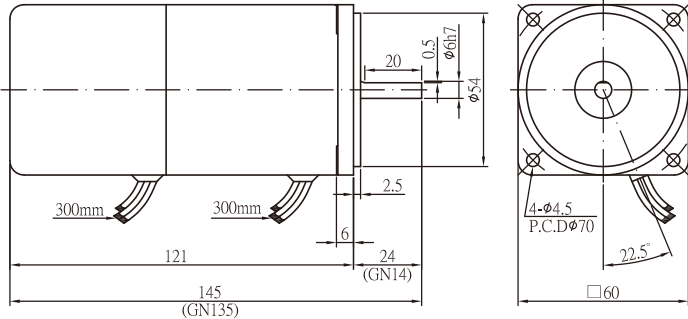
Regardless of rpm, the magnetic brake can control the overturns within 2-3 turns, making it suitable for frequent forward/reverse operation.



Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

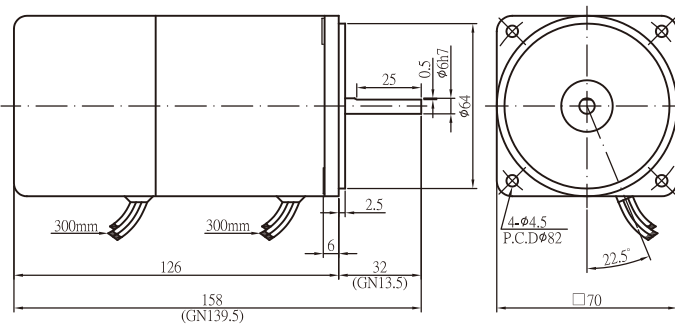
## ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR -IP22

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



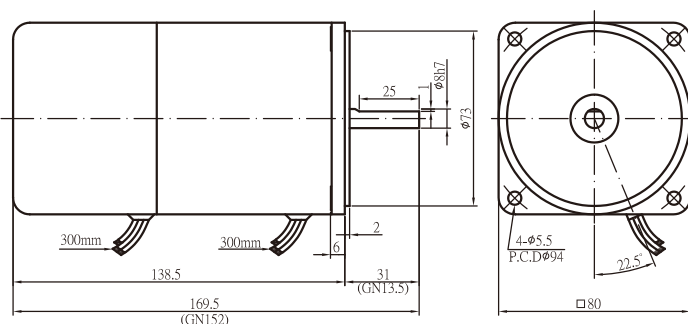
6W

6W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
2IK6A(GN)-AM	6	1φ100/110	50/60	4	1150/1400	30 /minutes	0.7/0.63	0.5/0.41	0.22/0.21	2.5/300V
2IK6A(GN)-CM	6	1φ200/220	50/60	4	1150/1550	30 /minutes	0.65/0.7	0.51/0.54	0.1/0.11	0.7/450V
2IK6A(GN)-CEM	6	1φ230/240	50	4	1100/1200	30 /minutes	0.74/0.77	0.55/0.5	0.11/0.1	0.7/450V



15W

15W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
3IK15A(GN)-AM	15	1φ100/110	50/60	4	1150/1650	30 /minutes	0.88/1.04	1.22/0.91	0.36/0.35	5/300V
3IK15A(GN)-CM	15	1φ200/220	50/60	4	1150/1600	30 /minutes	0.75/1.1	1.12/0.93	0.18/0.18	1.2/450V
3IK15A(GN)-CEM	15	1φ230/240	50	4	1300/1300	30 /minutes	1.06/1.06	1.14/1.13	0.17/0.17	1.2/450V



25W

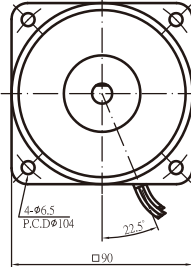
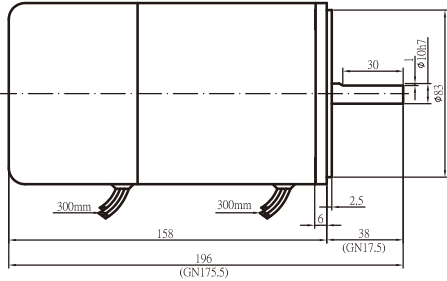
25W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
4IK25A(GN)-AM	25	1φ100/110	50/60	4	1250/1600	30 /minutes	1.4/1.4	1.93/1.51	0.57/0.45	6/300V
4IK25A(GN)-CM	25	1φ200/220	50/60	4	1250/1600	30 /minutes	1.57/1.38	1.91/1.52	0.28/0.25	1.5/450V
4IK25A(GN)-CEM	25	1φ230/240	50	4	1300/1300	30 /minutes	1.38/1.55	1.9/1.86	0.25/0.24	1.5/450V
4IK25A(GN)-SM	25	3φ220	50/60	4	1300/1550	30 /minutes	5.12/4.04	1.89/1.56	0.22/0.19	-
4IK25A(GN)-UM	25	3φ380	50/60	4	1200/1350	30 /minutes	3.96/2.97	2.04/1.79	0.11/0.11	-

### NOTES :

1. The applicable frequency for the ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR should not exceed more than 10 times per minute.
2. Static friction torque of a ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR is: 6W~25W: 4Kg.cm, 40W~90W: 10Kg.cm.

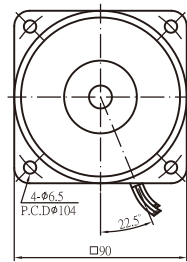
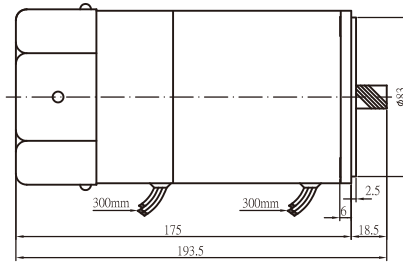
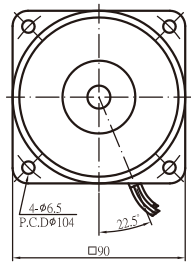
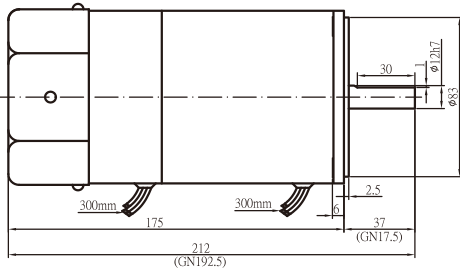
# ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR -IP22

■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm



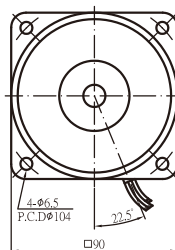
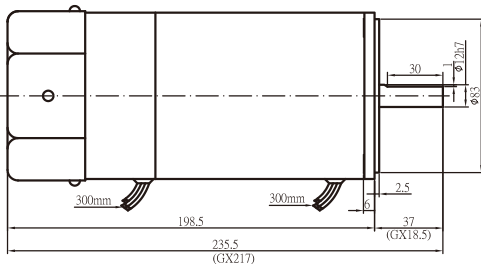
**40W**

40W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK40A(GN)-AM	40	1ø100/110	50/60	4	1250/1600	30 /minutes	2.14/2.66	3.17/2.41	0.87/0.76	10/300V
5IK40A(GN)-CM	40	1ø200/220	50/60	4	1300/1650	30 /minutes	1.75/2.17	3.01/2.35	0.4/0.34	2.5/450V
5IK40A(GN)-CEM	40	1ø230/240	50	4	1350/1350	30 /minutes	2.3/2.58	2.87/2.84	0.32/0.32	2.5/450V
5IK40A(GN)-SM	40	3ø220	50/60	4	1400/1600	30 /minutes	10.51/7.83	2.83/2.4	0.32/0.28	-
5IK40A(GN)-UM	40	3ø380	50/60	4	1350/1600	30 /minutes	9.25/6.68	2.85/2.45	0.16/0.15	-



**60W/60W-GX**

60W/60W-GX MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK60GX-AFM	60	1ø100/110	50/60	4	1200/1650	30 /minutes	2.6/2.94	5.0/3.5	1.8/1.12	16/300V
5IK60A(GN)-AFM										
5IK60GX-CFM	60	1ø200/220	50/60	4	1250/1600	30 /minutes	3.62/4.41	4.64/3.63	0.64/0.54	4/450V
5IK60A(GN)-CFM										
5IK60GX-CEFM	60	1ø230/240	50	4	1300/1350	30 /minutes	4.14/5.22	4.56/4.4	0.56/0.55	4/450V
5IK60A(GN)-CEFM										
5IK60GX-SFM	60	3ø220	50/60	4	1300/1550	30 /minutes	13.72/10.70	4.47/3.77	0.41/0.39	-
5IK60A(GN)-SFM										
5IK60GX-UFM	60	3ø380	50/60	4	1400/1550	30 /minutes	14.33/10.15	4.2/3.79	0.21/0.22	-
5IK60A(GN)-UFM										



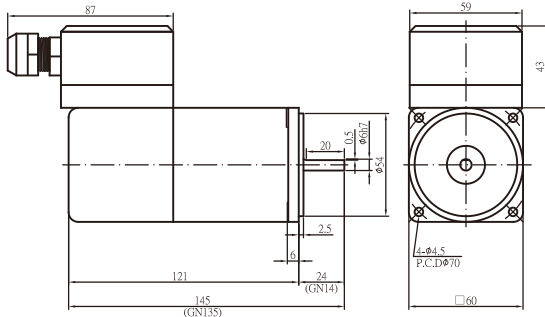
**90W**

90W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK90A(GX)-AFM	90	1ø100/110	50/60	4	1300/1650	30 /minutes	4.76/5.86	6.68/5.33	1.5/1.41	22/250V
5IK90A(GX)-CFM	90	1ø200/220	50/60	4	1300/1650	30 /minutes	4.3/4.21	6.89/5.34	0.76/0.72	5/450V
5IK90A(GX)-CEFM	90	1ø230/240	50	4	1350/1350	30 /minutes	4.93/5.08	6.44/6.42	0.66/0.68	5/450V
5IK90A(GX)-SFM	90	3ø220	50/60	4	1400/1650	30 /minutes	23.3/18.25	6.4/5.3	0.7/0.6	-
5IK90A(GX)-UFM	90	3ø380	50/60	4	1400/1650	30 /minutes	23.3/18.14	6.27/5.23	0.4/0.3	-

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

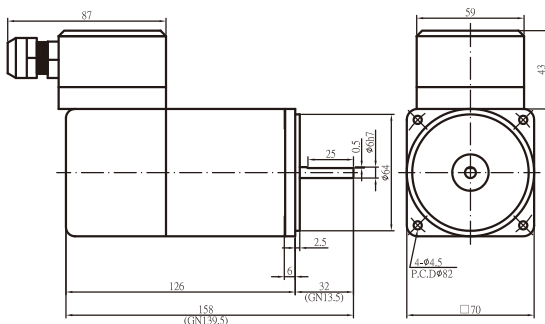
## ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR, TERMINAL BOX TYPE -IP54

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



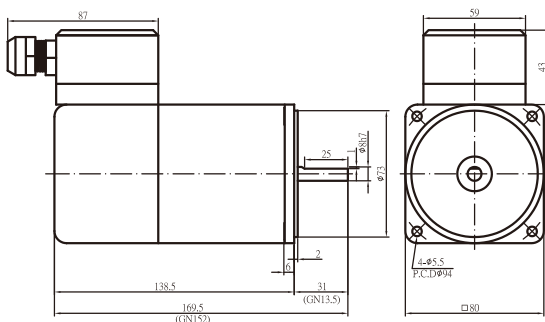
6W

6W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
2IK6A(GN)-AMT	6	1φ100/110	50/60	4	1150/1400	30 /minutes	0.7/0.63	0.51/0.41	0.22/0.21	2.5/300V
2IK6A(GN)-CMT	6	1φ200/220	50/60	4	1150/1550	30 /minutes	0.65/0.7	0.51/0.54	0.1/0.11	0.7/450V
2IK6A(GN)-CEMT	6	1φ230/240	50	4	1100/1200	30 /minutes	0.74/0.77	0.55/0.5	0.11/0.1	0.7/450V



15W

15W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
3IK15A(GN)-AMT	15	1φ100/110	50/60	4	1150/1650	30 /minutes	0.88/1.04	1.22/0.91	0.36/0.35	5/300V
3IK15A(GN)-CMT	15	1φ200/220	50/60	4	1150/1600	30 /minutes	0.75/1.1	1.12/0.93	0.18/0.18	1.2/450V
3IK15A(GN)-CEMT	15	1φ230/240	50	4	1300/1300	30 /minutes	1.06/1.06	1.14/1.13	0.17/0.17	1.2/450V



25W

25W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
4IK25A(GN)-AMT	25	1φ100/110	50/60	4	1250/1600	30 /minutes	1.4/1.4	1.93/1.51	0.57/0.45	6/300V
4IK25A(GN)-CMT	25	1φ200/220	50/60	4	1250/1600	30 /minutes	1.57/1.38	1.91/1.52	0.28/0.25	1.5/450V
4IK25A(GN)-CEMT	25	1φ230/240	50	4	1300/1300	30 /minutes	1.38/1.55	1.9/1.86	0.25/0.24	1.5/450V
4IK25A(GN)-SMT	25	3φ220	50/60	4	1300/1550	30 /minutes	5.12/4.04	1.89/1.56	0.22/0.19	-
4IK25A(GN)-UMT	25	3φ380	50/60	4	1200/1350	30 /minutes	3.96/2.97	2.04/1.79	0.11/0.11	-

### NOTES :

1. The applicable frequency for the ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR should not exceed more than 10 times per minute.
2. Static friction torque of a ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR is: 6W~25W: 4Kg.cm, 40W~90W: 10Kg.cm.

GENERAL PURPOSE MOTOR

SPEED CONTROLLED MOTOR

CONTROLLER

BRAKE MOTOR

CLUTCH BRAKE MOTOR

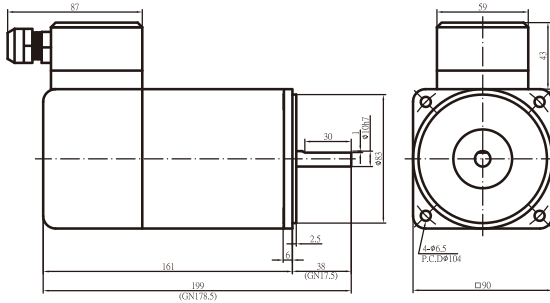
TORQUE MOTOR

SPEED REDUCER

COMPONENTS

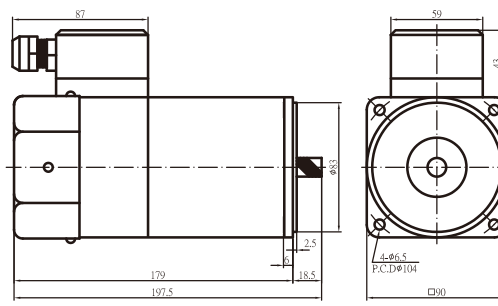
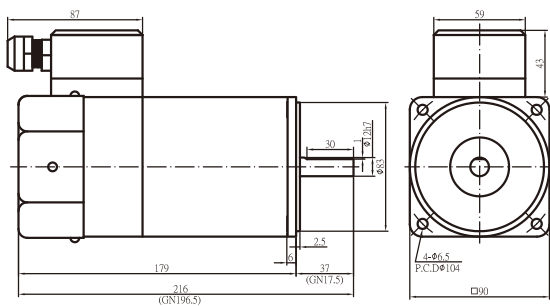
# ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR, TERMINAL BOX TYPE -IP54

■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm



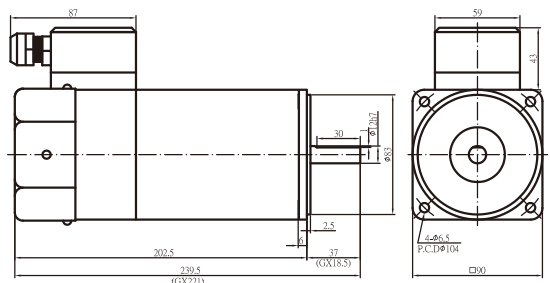
40W

40W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RRATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK40A(GN)-AMT	40	1φ100/110	50/60	4	1250/1600	30 /minutes	2.14/2.66	3.17/2.41	0.87/0.76	10/300V
5IK40A(GN)-CMT	40	1φ200/220	50/60	4	1300/1650	30 /minutes	1.75/2.17	3.01/2.35	0.4/0.34	2.5/450V
5IK40A(GN)-CEMT	40	1φ230/240	50	4	1350/1350	30 /minutes	2.3/2.58	2.87/2.84	0.32/0.32	2.5/450V
5IK40A(GN)-SMT	40	3φ220	50/60	4	1400/1600	30 /minutes	10.51/7.83	2.83/2.4	0.29/0.27	-
5IK40A(GN)-UMT	40	3φ380	50/60	4	1350/1600	30 /minutes	9.25/6.68	2.85/2.45	0.16/0.15	-



60W/60W-GX

60W/60W-GX MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK60A(GN)-AFMT 5IK60GX-AFMT	60	1φ100/110	50/60	4	1200/1650	30 /minutes	2.6/2.94	5.0/3.5	1.8/1.12	16/300V
5IK60A(GN)-CFMT 5IK60GX-CFMT	60	1φ200/220	50/60	4	1250/1600	30 /minutes	3.62/4.41	4.64/3.63	0.64/0.54	4/450V
5IK60A(GN)-CEFMT 5IK60GX-CEFMT	60	1φ220/240	50	4	1300/1350	30 /minutes	4.14/5.22	4.56/4.40	0.56/0.55	4/450V
5IK60A(GN)-SFMT 5IK60GX-SFMT	60	3φ220	50/60	4	1300/1550	30 /minutes	13.72/10.70	4.47/3.77	0.41/0.39	-
5IK60A(GN)-UFMT 5IK60GX-UFMT	60	3φ380	50/60	4	1400/1550	30 /minutes	14.33/10.15	4.2/3.79	0.21/0.22	-



90W

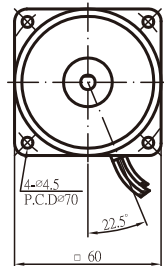
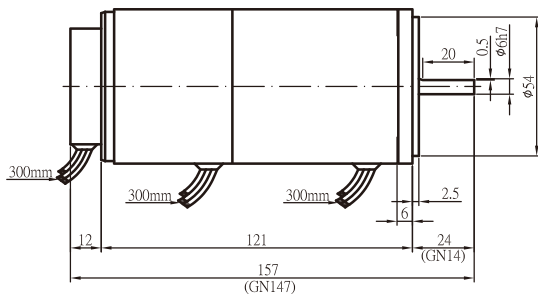
90W MODEL	OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
5IK90A(GX)-AFMT	90	1φ100/110	50/60	4	1300/1650	30 /minutes	4.76/5.86	6.68/5.33	1.5/1.41	22/250V
5IK90A(GX)-CFMT	90	1φ200/220	50/60	4	1300/1650	30 /minutes	4.3/4.21	6.89/5.34	0.76/0.72	5/450V
5IK90A(GX)-CEFMT	90	1φ220/240	50	4	1350/1350	30 /minutes	4.93/5.08	6.44/6.42	0.66/0.68	5/450V
5IK90A(GX)-SFMT	90	3φ220	50/60	4	1400/1650	30 /minutes	23.3/18.25	6.4/5.3	0.7/0.6	-
5IK90A(GX)-UFMT	90	3φ380	50/60	4	1400/1650	30 /minutes	23.3/18.14	6.3/5.3	0.4/0.3	-

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.



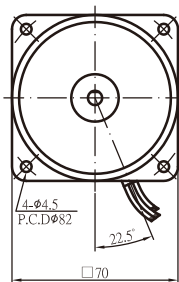
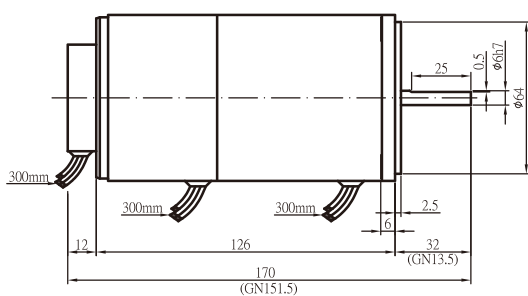
## ELECTRO-MAGNETIC VARIABLE SPEED BRAKE MOTOR

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



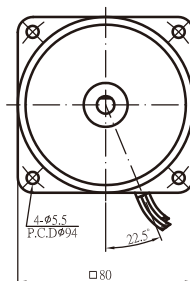
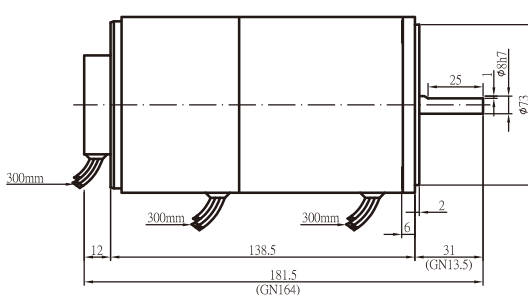
6W

6W TYPE	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
2IK6RA(GN)-AM	6	100/110	50/60	4	0.22/0.21	90~1400/90~1700	0.7/0.63	0.4/0.55	0.72/0.5	2.5	300
2IK6RA(GN)-CM	6	200/220	50/60	4	0.1/0.11	90~1400/90~1700	0.65/0.7	0.44/0.66	0.6/0.7	0.7	450
2IK6RA(GN)-CEM	6	230/240	50	4	0.11/0.1	90~1400	0.74/0.77	0.39/0.52	0.72/0.8	0.7	450



15W

15W TYPE	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
3IK15RA(GN)-AM	15	100/110	50/60	4	0.36/0.35	90~1400/90~1700	0.88/1.04	0.9/1.5	1.0/1.1	5	300
3IK15RA(GN)-CM	15	200/220	50/60	4	0.18/0.18	90~1400/90~1700	0.75/1.1	1.1/1.5	1.0/1.1	1.2	450
3IK15RA(GN)-CEM	15	230/240	50	4	0.17/0.17	90~1400	1.06/1.06	1.40/1.32	1.02/1.25	1.2	450



25W

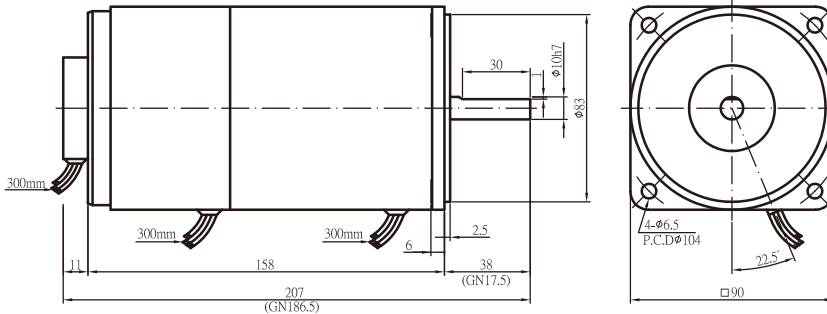
25W TYPE	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
4IK25RA(GN)-AM	25	100/110	50/60	4	0.57/0.45	90~1400/90~1700	1.4/1.4	2.17/2.5	1.4/1.4	6	300
4IK25RA(GN)-CM	25	200/220	50/60	4	0.28/0.25	90~1400/90~1700	1.57/1.38	2.1/2.4	1.6/1.3	1.5	450
4IK25RA(GN)-CEM	25	230/240	50	4	0.25/0.24	90~1400	1.38/1.55	2.2/2.4	1.5/1.7	1.5	450

### NOTES :

1. The applicable frequency for the ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR should not exceed more than 10 times per minute.
2. Static friction torque of a ELECTRO-MAGNETIC INDUCTION BRAKE MOTOR is: 6W~25W: 4Kg.cm, 40W~90W: 10Kg.cm.

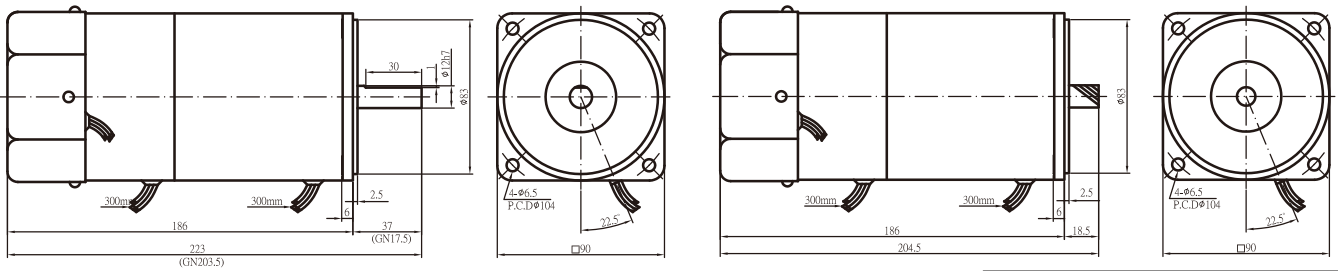
# ELECTRO-MAGNETIC VARIABLE SPEED BRAKE MOTOR

■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm



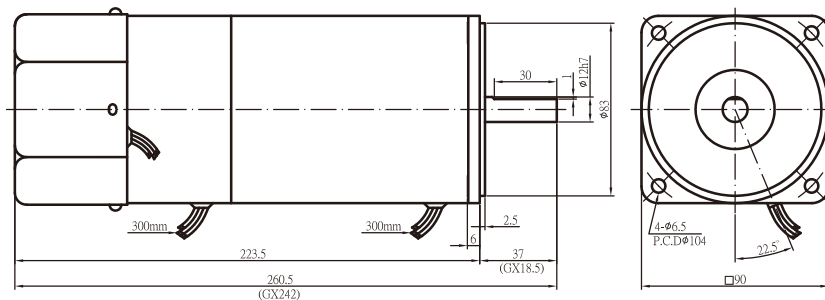
**40W**

40W TYPE	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
5IK40RA(GN)-AM	40	100/110	50/60	4	0.87/0.76	90~1400/90~1700	2.14/2.66	3.18/4.2	2.2/2.8	10	300
5IK40RA(GN)-CM	40	200/220	50/60	4	0.4/0.34	90~1400/90~1700	1.75/2.17	3.6/4.2	1.8/2.1	2.5	450
5IK40RA(GN)-CEM	40	230/240	50	4	0.32/0.32	90~1400	2.3/2.58	4.4/4.6	2.4/2.6	2.5	450



**60W/60W-GX**

60W/60W-GX TYPE	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
5IK60RA(GN)-AFM 5IK60RGX-AFM	60	100/110	50/60	4	1.8/1.12	90~1400/90~1700	2.6/2.94	5.6/6.9	3.5/4.0	16	300
5IK60RA(GN)-CFM 5IK60RGX-CFM	60	200/220	50/60	4	0.64/0.54	90~1400/90~1700	3.62/4.41	5.9/6.9	4.6/4.4	4	450
5IK60RA(GN)-CEFM 5IK60RGX-CEFM	60	230/240	50	4	0.56/0.55	90~1400	4.1/5.22	6.17/7.2	4.37/5.2	4	450



**90W**

90W TYPE	RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
5IK90RA(GX)-AFM	90	100/110	50/60	4	1.5/1.41	90~1400/90~1700	4.76/5.86	8.4/10.2	5/6.1	22	250
5IK90RA(GX)-CFM	90	200/220	50/60	4	0.76/0.72	90~1400/90~1700	4.3/4.21	8/8.7	4.4/4.4	5	450
5IK90RA(GX)-CEFM	90	230/240	50	4	0.66/0.68	90~1400	4.93/5.08	9.8/10.2	5.2/5.6	5	450

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

## ELECTRONIC INSTANT BRAKE (SB Series)

### OPERATING FREQUENCY AND LIMITATION

Although the "IN" model could be used for inch movement, a rise in temperature would result from frequent start-stop action of the motor. Please suspend operation temporarily if the surface temperature of the motor exceeds 90°C.

### BRAKING PRINCIPLES

Electronic brake circuit is design to introduce pulsated direct current rectified by the half wave into motor, to produce directional magnetic field and stop the motor instantly. Brake current is produced by the controller and introduced into motor in a very short time only. The time frame for brake current enter into the motor (approx 0.5 seconds) is controlled by timing circuit inside the controller. No friction created between parts, therefore lifespan is extended.

### INSTALLATION CAUTIONS.

- Apply only one electronic brake onto one motor.
- Motor wiring depends on motor output, please follow the wire diagram to make the wire connection.
- When SW1 is switched from "run" to "brake", the electronic brake is applied to stop the motor instantly.
- Be cautious about the 200 and above voltage among terminals when wiring.
- Apply industrial standard relay switch and gate switch. SB32-IN and SB32S-IN contact capacity is above AC200V, 5A.
- Wire-diagram, it is based on motor shaft point of view, as for clockwise rotate connectivity.
  - For conduct counter-clock rotation: 1. induction motor: yellow line and white wire on the exchange. 2. reversible motor: switch SW2 switches.
  - CW: clockwise CCW: counter-clockwise rotation
- For operated a reversible motor, it is require more than 0.5 second to switch its reversible mode.
- In the case of frequent braking, its external resistance will be very hot. For the installation, should pay particular attention.
- Within 0.5 seconds after motor start and operation, please do not perform reversible operation.
- To protect power connect spot from spark light when power on or off, it is required to enforce the connectivity via wire diagram such as surge absorber with CR circuit.  $R_o=5\sim 200\Omega$  (1/2W above)  $C_o=0.1\sim 0.2\ \mu F$  (400VAC above)



## SPECIFICATIONS

MODEL	VOLTAGE (V)	PHASE	BRAKE HOLDING FORCE	BRAKE PRECISION	MOTOR OUTPUT (W)	TEMPERATURE
SB31-IN	100 ~ 125	1 $\phi$ Single Phase	0.5 / Second	200°	6 ~ 90	-10°C ~ +40°C
SB32-IN	200 ~ 240	1 $\phi$ Single Phase	0.5 / Second	200°	6 ~ 90	-10°C ~ +40°C
SB32S-IN	200 ~ 240	3 $\phi$ Three Phase	0.5 / Second	200°	6 ~ 90	-10°C ~ +40°C

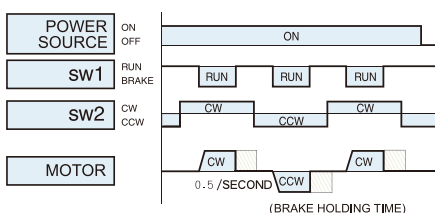
### INSULATING RESISTANCE :

Tested value at 10M $\Omega$  and above, measured by DC 500V hi-resistance meter between the coil and housing.

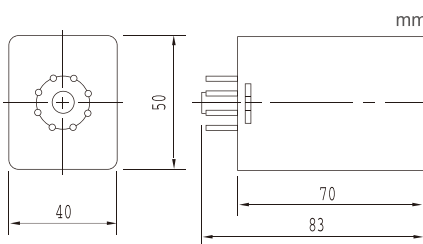
### INSULATION ENDURANCE :

No damages caused after 1kV at 60Hz was tested for one minute between the coil and housing.

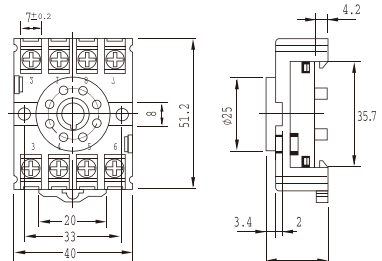
### OPERATIONAL STEPS OF AN ELECTRONIC BRAKE



### DRAWING DIMENSIONS



### 8-PIN BASE :

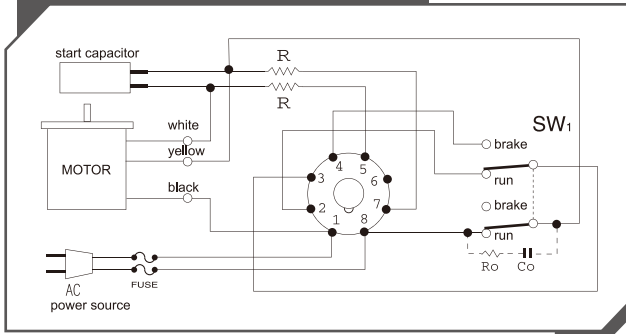


# ELECTRONIC INSTANT BRAKE

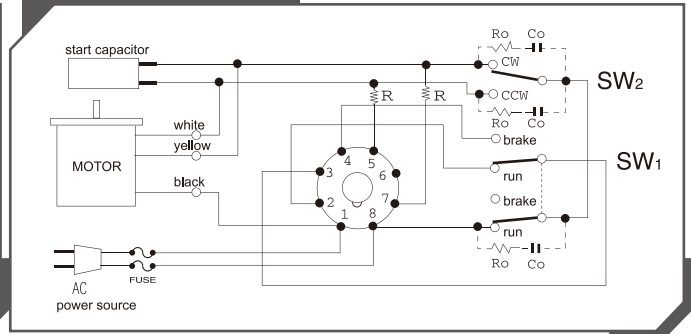
## SB31-IN SINGLE PHASE 110~125V

## SB32-IN SINGLE PHASE 200~240V

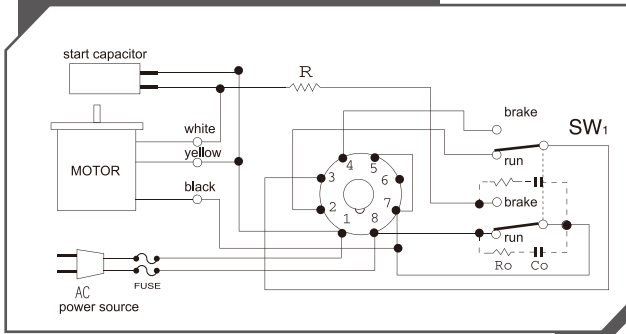
OUTPUT 6W~25W · SINGLE DIRECTION ROTATION



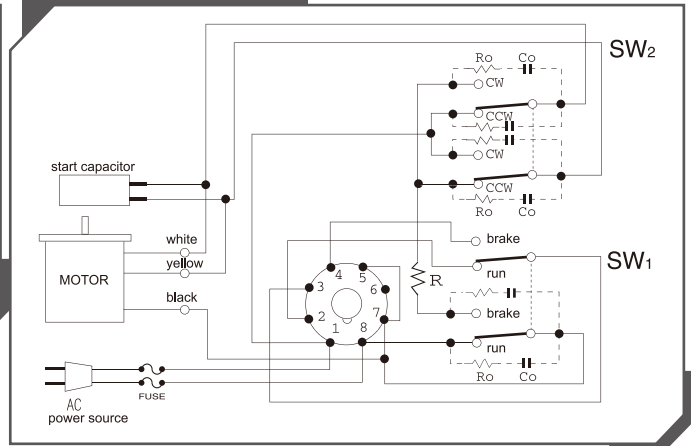
OUTPUT 6W~25W · REVERSIBLE



OUTPUT 40W~90W · SINGLE DIRECTION ROTATION

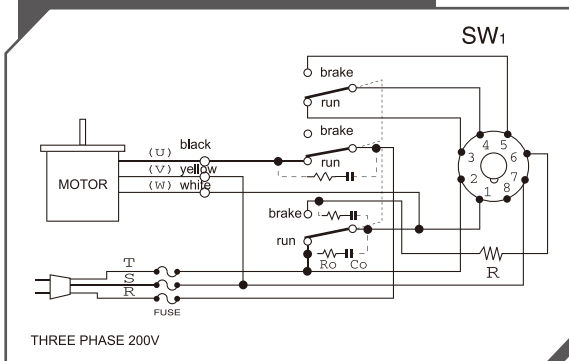


OUTPUT 40W~90W · REVERSIBLE

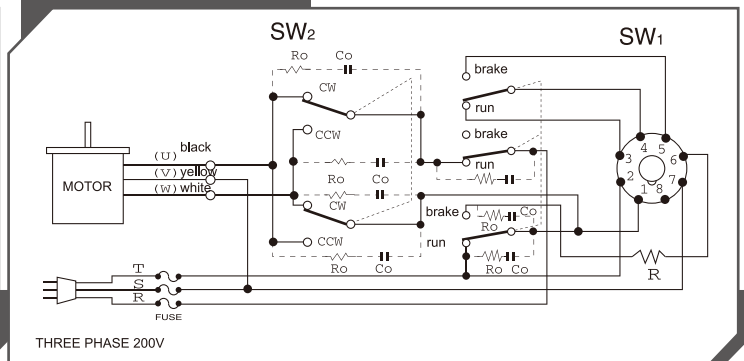


## SB32S THREE PHASE 200~240V

OUTPUT 25W~90W · SINGLE DIRECTION ROTATION



OUTPUT 25W~90W · REVERSIBLE



## SELECTION OF EXTERNAL RESISTANCE

- Output 6W~25W: external resistance 20W/20Ω. (Model:DDR20W20 Ω)
- In frequent braking situation, temperature of external resistance would be very high. please use external resistance 30W20Ω. (Model:DDR30W20Ω)
- Output 40W~90W: external resistance 50W/50Ω. (Model:DDR50W50 Ω)
- In frequent braking situation, temperature of external resistance would be very high. please use external resistance 80W50Ω. (Model:DDR80W50Ω)

## CLUTCH BRAKE MOTOR

### FEATURES



#### ■ SUITABLE FOR HIGHLY FREQUENT START/STOP OPERATION

High precision and responsive clutch and brake are most suitable for frequent start/stop applications.

#### ■ PRECISE POSITIONING

When the brake is in use, the clutch will separate the link from the brake, so there are no overruns, making positioning precise and accurate.

#### ■ SIMPLE DESIGN

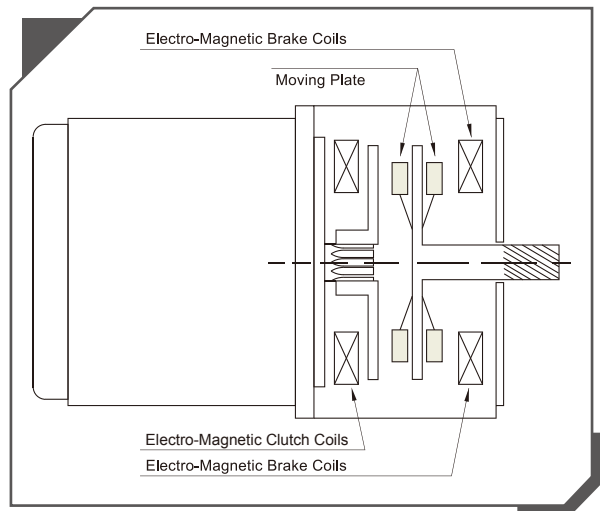
Adapting compact and space-saving design, making it easy to operate and looking elegant.

### CONSTRUCTION OF CLUTCH BRAKER

A clutch brake is a precision clutch assembled with a brake, suitable for highly frequent start/stop operation. After adjoining with a speed reducer, it can easily accomplish actions such as positioning, inch movement and interval transportation.

#### ■ SPECIFICATION OF THE CLUTCH BRAKER

MODELS	GK TYPE		GS TYPE	
	BRAKER	CLUTCH	BRAKER	CLUTCH
STATIC FRICTION TORQUE (kg.cm)	10	10	15	15
DYNAMIC FRICTION TORQUE (kg.cm)	7	7	10	10
RATED VOLTAGE (DC-V)	24	24	24	24
CAPACITY (AT 20°C) (W)	8	6	8	6
BRAKE FREQUENCY	Max. : 100 rounds /min			



#### ■ INSULATING RESISTANCE :

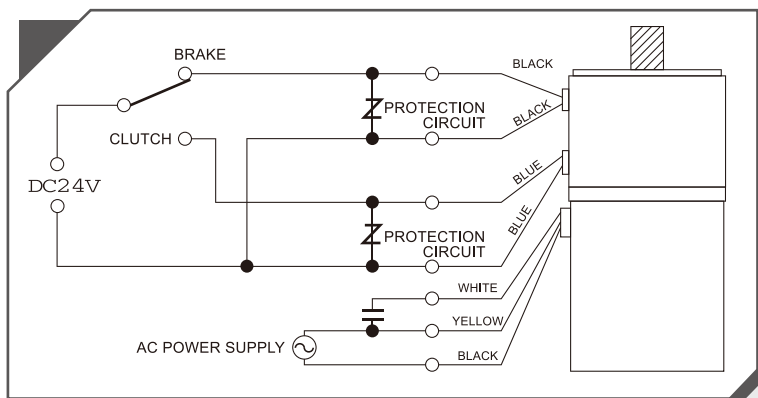
Tested value at 10MΩ and above, measured by DC 500V hi-resistance meter between the coil and housing.

#### ■ INSULATION ENDURANCE:

No damages caused after 1kV at 60Hz was tested between the coil and housing.

### WIRING OF A CLUTCH BRAKE

The power source for the motor (AC) and the clutch/brake (DC24V) must be separated. As the switch is on the clutch side when the motor is rotating, the output shaft will start rotating and transmits power accordingly. As the switch is on the brake side, it would stop instantly and hold great retention force. If the DC power is shut off, the output shaft can rotate freely.



GENERAL PURPOSE MOTOR

SPEED CONTROLLED MOTOR

CONTROLLER

BRAKE MOTOR

CLUTCH BRAKE MOTOR

TORQUE MOTOR

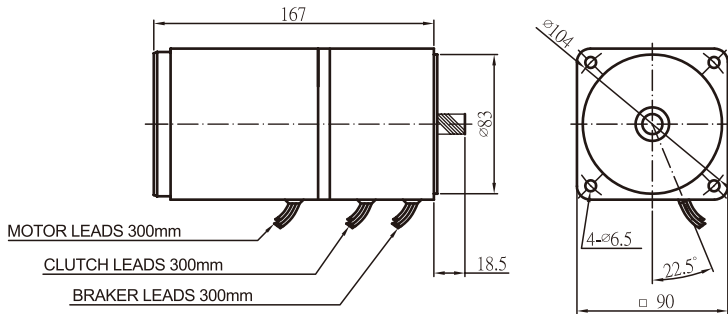
SPEED REDUCER

COMPONENTS



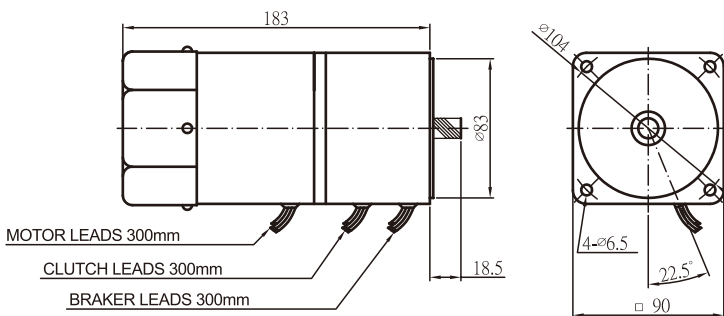
# INDUCTION CLUTCH BRAKE MOTOR

■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm



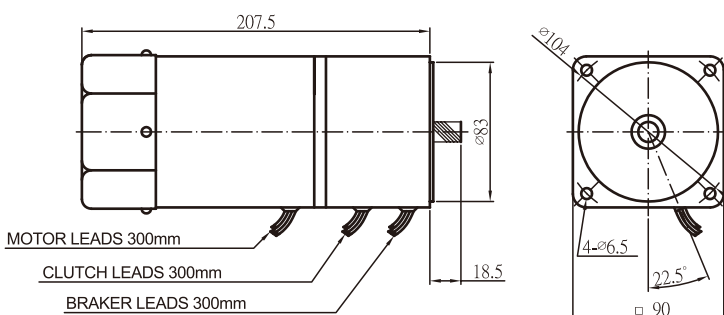
40W

40W MODEL		OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
MOTOR	CLUTCH BRAKE										
5IK40GK-A	MBC90GN-DC24V	40	1ø100/110	50/60	4	1250/1600	Continuous	2.14/2.66	3.17/2.41	0.87/0.76	10/300V
5IK40GK-C	MBC90GN-DC24V	40	1ø200/220	50/60	4	1300/1650	Continuous	1.75/2.17	3.01/2.35	0.4/0.34	2.5/450V
5IK40GK-CE	MBC90GN-DC24V	40	1ø230/240	50	4	1350/1350	Continuous	2.3/2.58	2.87/2.84	0.32/0.32	2.5/450V
5IK40GK-S	MBC90GN-DC24V	40	3ø220	60	4	1400/1600	Continuous	10.51/7.83	2.83/2.4	0.29/0.27	-
5IK40GK-U	MBC90GN-DC24V	40	3ø380	60	4	1350/1600	Continuous	9.25/6.68	2.85/2.45	0.16/0.15	-



60W

60W MODEL		OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
MOTOR	CLUTCH BRAKE										
5IK60GS-AF	MBC90GX-DC24V	60	1ø100/110	50/60	4	1200/1650	Continuous	2.6/2.94	5.0/3.5	1.8/1.12	16/300V
5IK60GS-CF	MBC90GX-DC24V	60	1ø200/220	50/60	4	1250/1600	Continuous	3.62/4.41	4.64/3.63	0.64/0.54	4/450V
5IK60GS-CEF	MBC90GX-DC24V	60	1ø230/240	50	4	1300/1350	Continuous	4.14/5.22	4.56/4.40	0.56/0.55	4/450V
5IK60GS-SF	MBC90GX-DC24V	60	3ø220	60	4	1300/1550	Continuous	13.72/10.70	4.47/3.77	0.41/0.39	-
5IK60GS-UF	MBC90GX-DC24V	60	3ø380	60	4	1400/1550	Continuous	14.33/10.15	4.2/3.79	0.21/0.22	-



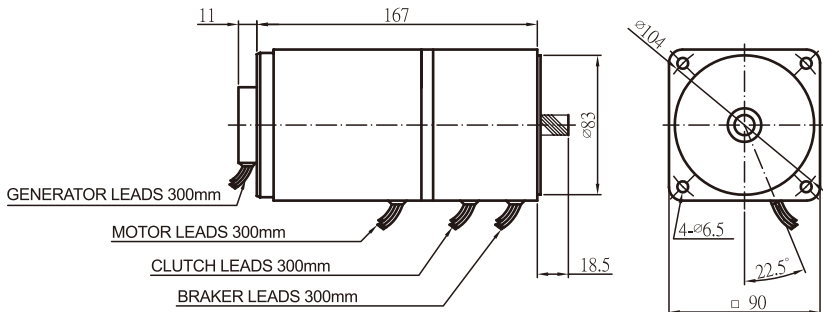
90W

90W MODEL		OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	RATED SPEED (rpm)	RATED TIME	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
MOTOR	CLUTCH BRAKE										
5IK90GS-AF	MBC90GX-DC24V	90	1ø100/110	50/60	4	1300/1650	Continuous	4.76/5.86	6.68/5.33	1.5/1.41	22/250V
5IK90GS-CF	MBC90GX-DC24V	90	1ø200/220	50/60	4	1300/1650	Continuous	4.3/4.21	6.89/5.34	0.76/0.72	5/450V
5IK90GS-CEF	MBC90GX-DC24V	90	1ø230/240	50	4	1350/1350	Continuous	4.93/5.08	6.44/6.42	0.66/0.68	5/450V
5IK90GS-SF	MBC90GX-DC24V	90	3ø220	60	4	1400/1650	Continuous	23.3/18.25	6.4/5.3	0.7/0.6	-
5IK90GS-UF	MBC90GX-DC24V	90	3ø380	60	4	1400/1650	Continuous	23.3/18.14	6.3/5.3	0.4/0.3	-

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

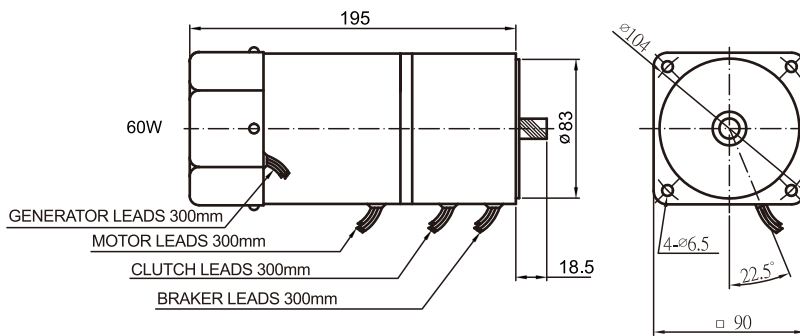
## VARIABLE SPEED CLUTCH BRAKE MOTOR

■ OUTLINE & SPECIFICATION  
■ UNIT : mm



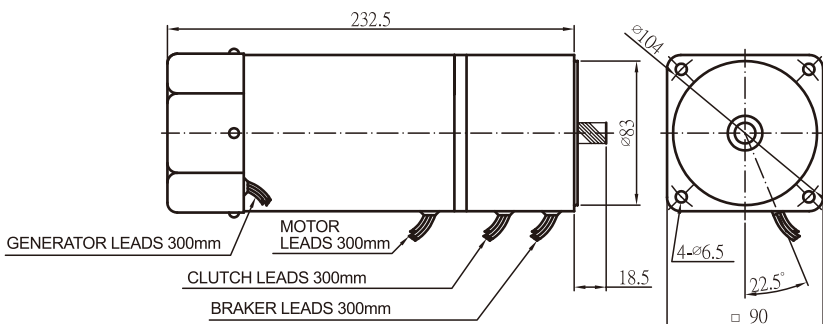
40W

40W MODEL		RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
MOTOR	CLUTCH BRAKE								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
5IK40RGK-A	MBC90GN-DC24V	40	100/110	50/60	4	0.87/0.76	90~1400/90~1700	2.14/2.66	3.18/4.2	2.2/2.8	10	300
5JK40RGK-C	MBC90GN-DC24V	40	200/220	50/60	4	0.4/0.34	90~1400/90~1700	1.75/2.17	3.6/4.2	1.8/2.1	2.5	450
5IK40RGK-CE	MBC90GN-DC24V	40	230/240	50	4	0.32/0.32	90~1400	2.3/2.58	4.4/4.6	2.4/2.6	2.5	450



60W

60W MODEL		RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
MOTOR	CLUTCH BRAKE								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
5IK60RGK-AF	MBC90GN-DC24V	60	100/110	50/60	4	1.8/1.12	90~1400/90~1700	2.6/2.94	5.6/6.9	3.5/4.0	16	300
5JK60RGK-CF	MBC90GN-DC24V	60	200/220	50/60	4	0.64/0.54	90~1400/90~1700	3.62/4.41	5.9/6.9	4.6/4.4	4	450
5IK60RGK-CEF	MBC90GN-DC24V	60	230/240	50	4	0.56/0.55	90~1400	4.14/5.22	7.2	5.2	4	450



90W

90W MODEL		RATED OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	POLE (P)	CURRENT (A)	ADJUSTABLE RANGE (rpm)	STARTING TORQUE (Kg.cm)	MAXIMUM TORQUE/ PRE-SET TURNINGS (Kg.cm)		CAPACITOR	
MOTOR	CLUTCH BRAKE								1200rpm	90rpm	CAPACITY (μF)	WITHSTAND VOLTAGE (VAC)
5IK90RGS-AF	MBC90GX-DC24V	90	100/110	50/60	4	1.5/1.41	90~1400/90~1700	4.76/5.86	8.4/10.2	5/6.1	22	250
5JK90RGS-CF	MBC90GX-DC24V	90	200/220	50/60	4	0.76/0.72	90~1400/90~1700	4.3/4.21	8/8.7	4.4/4.4	5	450
5IK90RGS-CEF	MBC90GX-DC24V	90	230/240	50	4	0.66/0.68	90~1400	4.93/5.08	9.8/10.2	5.2/5.6	5	450

### NOTES :

1. A clutch motor has great inertia according to the stop frequency and interval. When selecting a speed reducer, please calculate the feedback inertia accurately on your machine and advise us, so we can provide you the applicable model of speed reducer.
2. Instant start and stop will result in great currents, causing the temperature to rise rapidly, thus the start-stop frequency could not exceed 20 times per minute. GK model clutch brake motors have GN shafts, and GS model clutch brake motors have GX shafts.

GENERAL PURPOSE MOTOR

SPEED CONTROLLED MOTOR

CONTROLLER

BRAKE MOTOR

CLUTCH BRAKE MOTOR

TORQUE MOTOR

SPEED REDUCER

COMPONENTS

# TORQUE MOTOR

## CHARACTERISTICS OF THE TORQUE MOTOR

- 1 A torque motor possesses strong starting torque and sloping characteristics. Within the full range of revolution-torque curve, especially under low speed and constraint, it can rotate steadily.
- 2 The motor torque changes approximately proportion to the square of the voltage. The speed can be changed easily by varying the voltage supplied to the motor.
- 3 The torque motor is designed differently than other motors. It can obtain stable torque in low speed under a restrained condition. Suitable in force static-torque situation, or restraints mode is required when the high-speed operation is finished. Continuously operation is available at 60V, rated for short interval operation is required above 60V, and 5 minutes rated at 110V. ※When operated under the restraint mode with speed reducer, the motor output torque would increase greatly. Please do not exceed the allowable torque of the speed reducer, and NEVER strike with force to stop the motor to prevent impact damage to the speed reducer.
- 4 In an application where an object is released continuously at a constant speed and wound up with constant tension, the torque must be doubled and the speed must be halved if the diameter of the winding spool is doubled.
- 5 Within the range of the revolution-torque characteristic curve, the motor can be used as a brake when the rotating motion is in the opposite direction.

## TYPES OF THE TORQUE MOTOR

### REGULATOR BUILT-IN TYPE

The voltage regulator is stored inside the terminal box, where it can control the motor speed easily with the speed controller it is attached to. No need to attach the regulator on the exterior of the motor, making the installation more convenient.

### STANDARD TYPE

External voltage regulator is required to adjust speed and torque.

MODEL	RATED TIME	MAX. OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	RATED SPEED (rpm)	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
2TK3(C)A(GN)-AP	5 min./ Continuous	3/1	110/60	60	990/570	0.59/0.33	0.19/0.14	0.44/0.37	6 μ f/300V
	5 min./ Continuous	3/1	110/60	50	1150/880	1.02/0.39	0.26/0.11	0.47/0.33	6 μ f/300V
3TK6(C)A(GN)-AP	5 min./ Continuous	6/2	110/60	60	1550/1070	2.23/0.57	0.38/0.18	0.76/0.44	10 μ f/300V
	5 min./ Continuous	6/2	110/60	50	1250/840	2.20/0.58	0.47/0.23	0.59/0.36	10 μ f/300V
4TK10(C)A(GN)-AP	5 min./ Continuous	10/3	110/60	60	1500/700	2.87/0.99	0.65/0.41	0.91/0.61	12 μ f/300V
	5 min./ Continuous	10/3	110/60	50	1140/1050	2.94/1.15	0.86/0.28	0.67/0.49	12 μ f/300V
5TK20(C)A(GN)-AP	5 min./ Continuous	20/5	110/60	60	1340/1170	4.61/2.37	1.45/0.42	1.87/1.25	20 μ f/300V
	5 min./ Continuous	20/5	110/60	50	1100/1010	4.57/1.95	1.76/0.48	1.36/0.92	20 μ f/300V
5TK40(C)A(GX)-AFP	5 min./ Continuous	40/10	110/60	60	1510/1280	7.89/2.09	2.58/0.76	1.55/0.97	24 μ f/300V
	5 min./ Continuous	40/10	110/60	50	1360/680	6.9/2.37	0.72/1.44	1.10/0.92	24 μ f/300V

MODEL	RATED TIME	MAX. OUTPUT (W)	VOLTAGE (V)	FREQ. (HZ)	RATED SPEED (rpm)	STARTING TORQUE (Kg.cm)	RATED TORQUE (Kg.cm)	RATED CURRENT (A)	CAPACITY (μF)
2TK3(C)A(GN)-CP	5 min./ Continuous	3/1	220/120	60	1170/1180	0.63/0.36	0.23/0.08	0.18/0.14	1 μ f/450V
	5 min./ Continuous	3/1	220/120	50	1070/650	0.76/0.32	0.27/0.15	0.15/0.10	1 μ f/450V
3TK6(C)A(GN)-CP	5 min./ Continuous	6/2	220/120	60	1240/1050	1.38/0.62	0.47/0.18	0.33/0.22	2 μ f/450V
	5 min./ Continuous	6/2	220/120	50	1100/1180	1.63/0.7	0.54/0.17	0.27/0.20	2 μ f/450V
4TK10(C)A(GN)-CP	5 min./ Continuous	10/3	220/120	60	1200/1300	2.76/1.23	0.80/0.22	0.37/0.28	2.5 μ f/450V
	5 min./ Continuous	10/3	220/120	50	1050/1020	2.84/1.19	0.91/0.28	0.29/0.21	2.5 μ f/450V
5TK20(C)A(GN)-CP	5 min./ Continuous	20/5	220/120	60	1350/1240	3.97/1.24	1.44/0.39	0.5/0.32	3 μ f/450V
	5 min./ Continuous	20/5	220/120	50	1070/760	4.26/1.35	1.83/0.65	0.37/0.24	3 μ f/450V
5TK40(C)A(GX)-CFP	5 min./ Continuous	40/10	220/120	60	1480/1360	7.9/2.4	2.63/0.72	0.45/0.5	6 μ f/450V
	5 min./ Continuous	40/10	220/120	50	1100/900	7.1/3.2	3.53/1.1	0.71/0.54	6 μ f/450V

NOTES : Custom order is required when applied voltage exceeding the rated voltage.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

# MOTOR AND SPEED REDUCER

GENERAL PURPOSE MOTOR

SPEED CONTROLLED MOTOR

CONTROLLER

BRAKE MOTOR

CLUTCH BRAKE MOTOR

TORQUE MOTOR

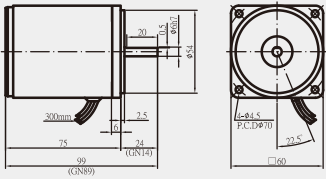
SPEED REDUCER

COMPONENTS

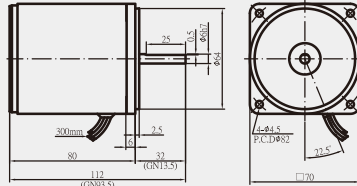


## TORQUE MOTOR

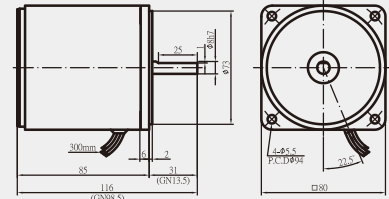
■ OUTLINE & SPECIFICATION  
■ UNIT : mm



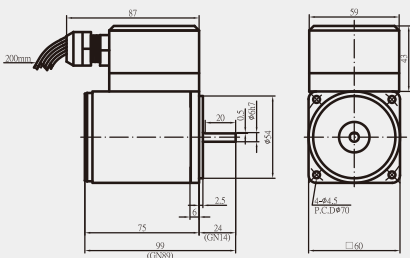
**3W 2TK3A(GN)-AP(CP)**



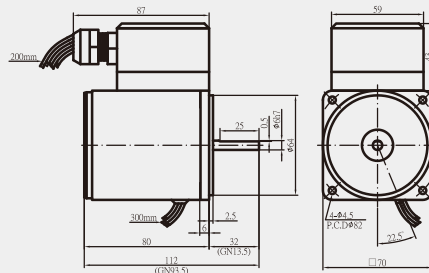
**6W 3TK6A(GN)-AP(CP)**



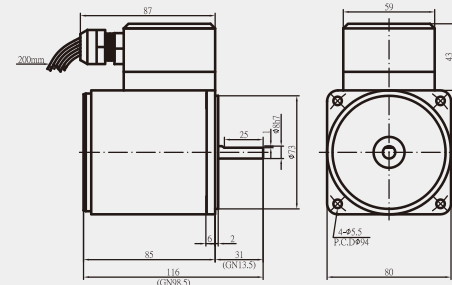
**10W 4TK10A(GN)-AP(CP)**



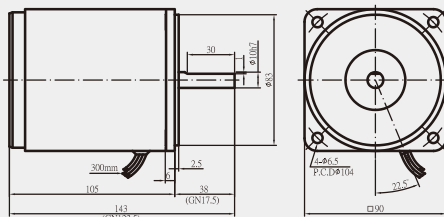
**3W 2TK3CA(GN)-AP(CP)**



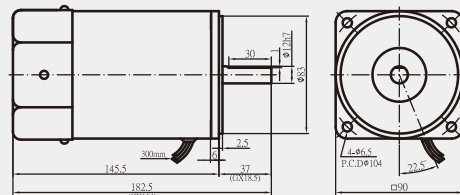
**6W 3TK6CA(GN)-AP(CP)**



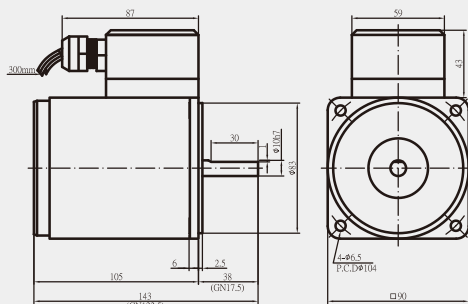
**10W 4TK10CA(GN)-AP(CP)**



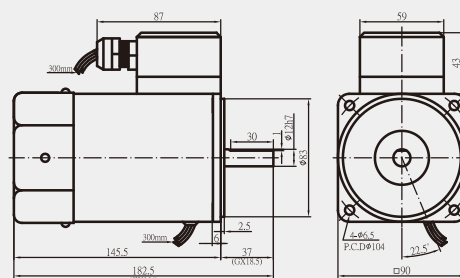
**20W 5TK20A(GN)-AP(CP)**



**40W 5TK40A(GN/GX)-AP(CP)**



**20W 5TK20CA(GN)-AP(CP)**



**40W 5TK40CA(GN/GX)-AP(CP)**

# SPEED REDUCER

■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm

## HOW TO SELECT A SPEED REDUCER

### ■ ROTATION AND TORQUE GIVEN FROM CONJUNCTION WITH SPEED REDUCER

Following is the calculation formula:

$$\text{Rotations : } N_G = \frac{N_M}{i}$$

$$\text{Torque : } T_G = T_M \cdot i \cdot \eta$$

$N_G$  : Rotations after conjunction with speed reducer (rpm)

$N_M$  : Rotations of motor (rpm)

$i$  : Ratio

$T_G$  : Torque after conjunction with speed reducer (kg·cm)

$T_M$  : Torque of motor (kg·cm)

$\eta$  : The transmission efficiency of speed reducer

### ■ MAXIMUM TORQUE ALLOWED

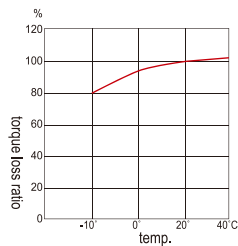
The maximum torque a speed reducer can tolerate is limited due to materials or other specs. Please see the specification of speed reducer for maximum torque allowed at different ratio.

### ■ ALLOWABLE RADIAL LOAD AND AXIAL LOAD

Radial load refers to the bending load of output shaft at the 1/2 point, commonly used in units linked by chains. Radial load can be disregarded if a coupling is used. Do not over-load since radial load and axial load may affect service life and strength.

### ■ ADJUSTED THE SPEED REDUCER RATIO VIA ENVIRONMENT TEMPERATURE

Transmission efficiency of a speed reducer apparently does affected by the environment temperature. The graphic display the torque loss percentage at different ambient temperature (for reference only).



### ■ MOTOR EQUIP WITH ROUND SHAFT AND GEAR SHAFT, ONLY GEAR SHAFT CAN CONJUNCT WITH SPEED REDUCER.



### ■ LOAD PATTERNS VS. LIFESPAN OF SPEED REDUCER

Speed Reducer lifespan will vary by ways of loading including but not limit to operation time frame, different type of bearing. The following table assumes that the load gear is under the maximum permissible torque. (Reference for engineers)

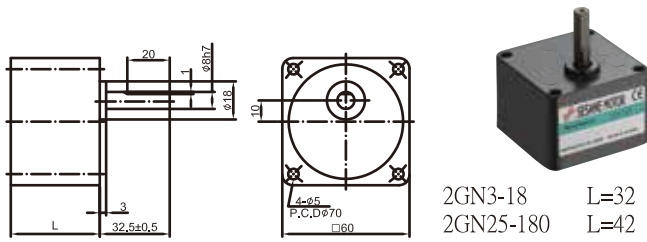
Unit : hrs

LOAD PATTERN	BEARING			BALL BEARING			Application instructions
	5 hrs/day	8 hrs/day	24 hrs/day	5 hrs/day	8 hrs/day	24 hrs/day	
FIXED LOAD	2000	1500	1000	6250	5000	3400	Operated in one direction, such as conveyors.
SLIGHT IMPACT	1500	1250	800	4200	3400	2500	Frequent start/stop, ex. cam operator.
STRONG IMPACT	800 ~1000	700 ~1000	600 ~700	2000 ~2500	1700 ~2500	1400 ~1700	Reversible motors, instant moment reversed, with brake system in an instant brake.

Products due to human error, natural disasters or other factors lead to poor or damaged, will not be covered under warranty.

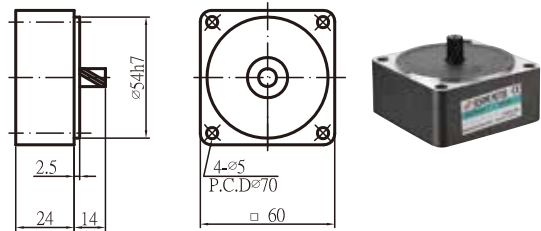


## ■ 2 GN□KE . 2 GN□ / SPEED REDUCER



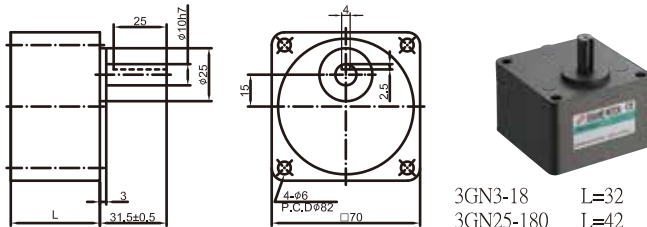
2GN3-18 L=32  
2GN25-180 L=42

## ■ 2GN10X . 2GN10XK / INTERMEDIATE SPEED REDUCER



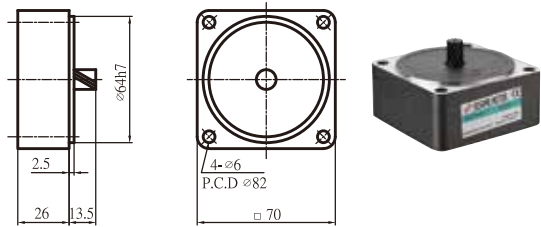
SPEED(rpm)	500	300	200	180	150	120	100	60	50	30	20	15	10
SPEED REDUCTION RATIO 50HZ	3	5	7.5	-	10	12.5	15	25	30	50	75	100	150
SPEED REDUCTION RATIO 60HZ	3.6	6	9	10	-	15	18	30	36	60	90	120	180
MAX. TORQUE (kgf.cm)	1.1	1.8	2.7	3.0	3.9	4.5	5.4	8.1	9.7	15	23	25	25

## ■ 3 GN□KE . 3 GN□ / SPEED REDUCER



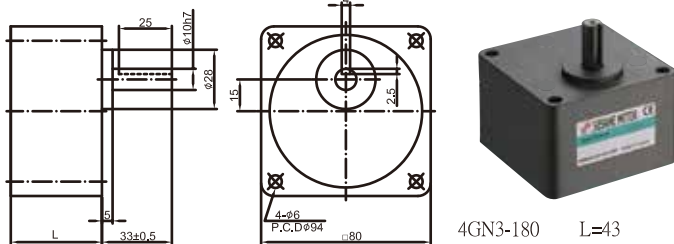
3GN3-18 L=32  
3GN25-180 L=42

## ■ 3GN10X . 3GN10XK / INTERMEDIATE SPEED REDUCER



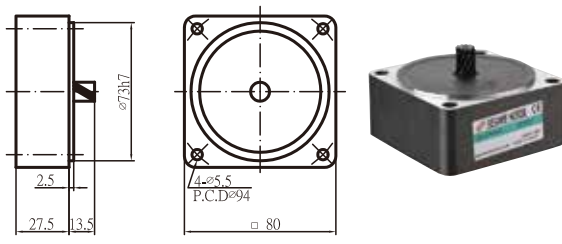
SPEED(rpm)	500	300	200	180	150	120	100	60	50	45	37.5	30	20	15	10
SPEED REDUCTION RATIO 50HZ	3	5	7.5	-	10	12.5	15	25	30	-	40	50	75	100	150
SPEED REDUCTION RATIO 60HZ	3.6	6	9	10	-	15	18	30	36	40	-	60	90	120	180
MAX. TORQUE (kgf.cm)	2.6	4.4	6.6	7.4	9.8	11	13	20	24	24	32	36	50	50	50

## ■ 4 GN□KE . 4 GN□ / SPEED REDUCER



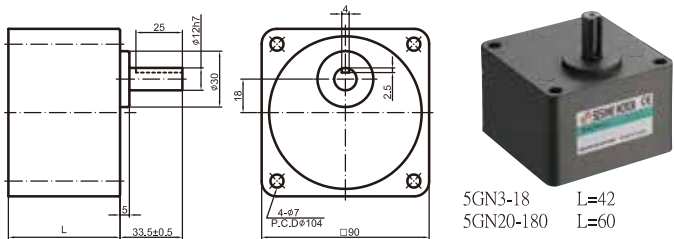
4GN3-180 L=43

## ■ 4GN10X . 4GN10XK / INTERMEDIATE SPEED REDUCER



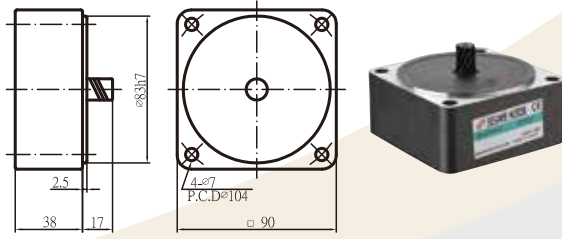
SPEED(rpm)	500	300	200	180	150	120	100	60	50	45	37.5	30	20	15	10
SPEED REDUCTION RATIO 50HZ	3	5	7.5	-	10	12.5	15	25	30	-	40	50	75	100	150
SPEED REDUCTION RATIO 60HZ	3.6	6	9	10	-	15	18	30	36	40	-	60	90	120	180
MAX. TORQUE (kgf.cm)	4.4	7.4	11	12	15	11	22	33	40	40	50	60	80	80	80

## ■ 5 GN□KE . 5 GN□ / SPEED REDUCER



5GN3-18 L=42  
5GN20-180 L=60

## ■ 5GN10X . 5GN10XK / INTERMEDIATE SPEED REDUCER



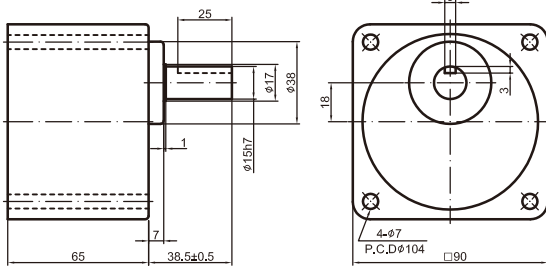
SPEED(rpm)	500	300	200	180	150	120	100	90	75	60	50	45	37.5	30	20	15	10
SPEED REDUCTION RATIO 50HZ	3	5	7.5	-	10	12.5	15	-	20	25	30	-	40	50	75	100	150
SPEED REDUCTION RATIO 60HZ	3.6	6	9	10	-	15	18	20	-	30	36	40	-	60	90	120	180
MAX. TORQUE (kgf.cm)	10	17	26	29	36	43	52	52	65	78	93	93	100	100	100	100	100

# SPEED REDUCER

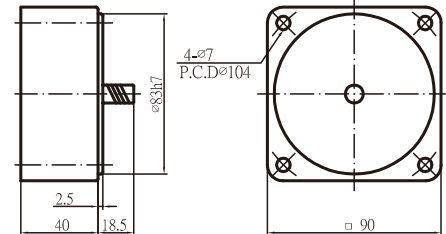
■ OUTLINE & SPECIFICATION  
 ■ UNIT : mm



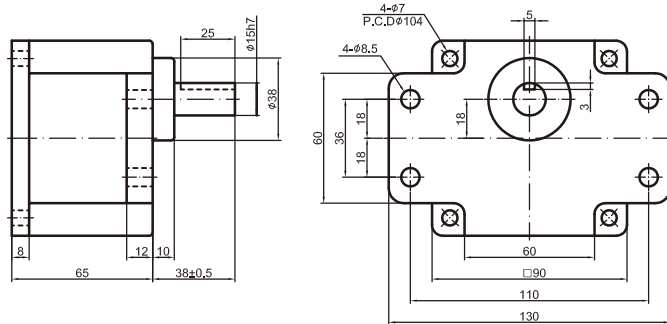
## ■ 5 GX□KB / SPEED REDUCER



## ■ 5GX10XK / INTERMEDIATE SPEED REDUCER

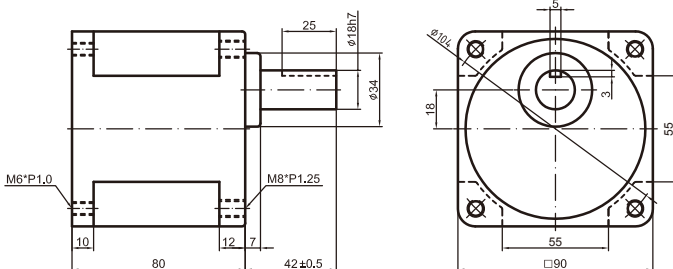


## ■ 5 GX□K / SPEED REDUCER



SPEED(rpm)	500	300	200	120	100	90	75	60	50	30	20	15	10	9	7.5
SPEED REDUCTION RATIO 50HZ	3	5	7.5	12.5	15	-	20	25	30	50	75	100	150	-	200
SPEED REDUCTION RATIO 60HZ	3.6	6	9	15	18	20	-	30	36	60	90	120	180	200	-
MAX. TORQUE(kgf.cm)	15	26	38	57	69	69	86	103	124	200	200	200	200	200	200

## ■ 5 GX□KBH / GRAVITY FORCE TYPE REDUCER



SPEED(rpm)	30	20	15	10	9	7.5
SPEED REDUCTION RATIO 50HZ	50	75	150	150	-	200
SPEED REDUCTION RATIO 60HZ	60	90	180	120	200	-
MAX. TORQUE(kgf.cm)	350	350	350	350	350	350

### NOTES :

1. Please fill in the required speed reduction ratio in the □ (square) after the speed reducer model no.
2. Rotational speed is calculated by dividing the synchronous speed of the motor (50Hz: 1500rpm; 60Hz: 1800rpm) with the reduction ratio. Depending on total load, actual rotational speed is 2%~20% less.
3. Speed reducers marked in the highlighted areas have opposite rotational direction to the motor. Others unmarked have the same rotational direction as the motor.
4. Attention: metal chips or objects in speed reducer will result in gear damage, noise and shorten service-life when assembling with motor.
5. Please make sure that the shaft size of the motor matches to that of the accompanying reducer model before assembly, otherwise inconformity will occur.



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## MOTOR AND SPEED REDUCER

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