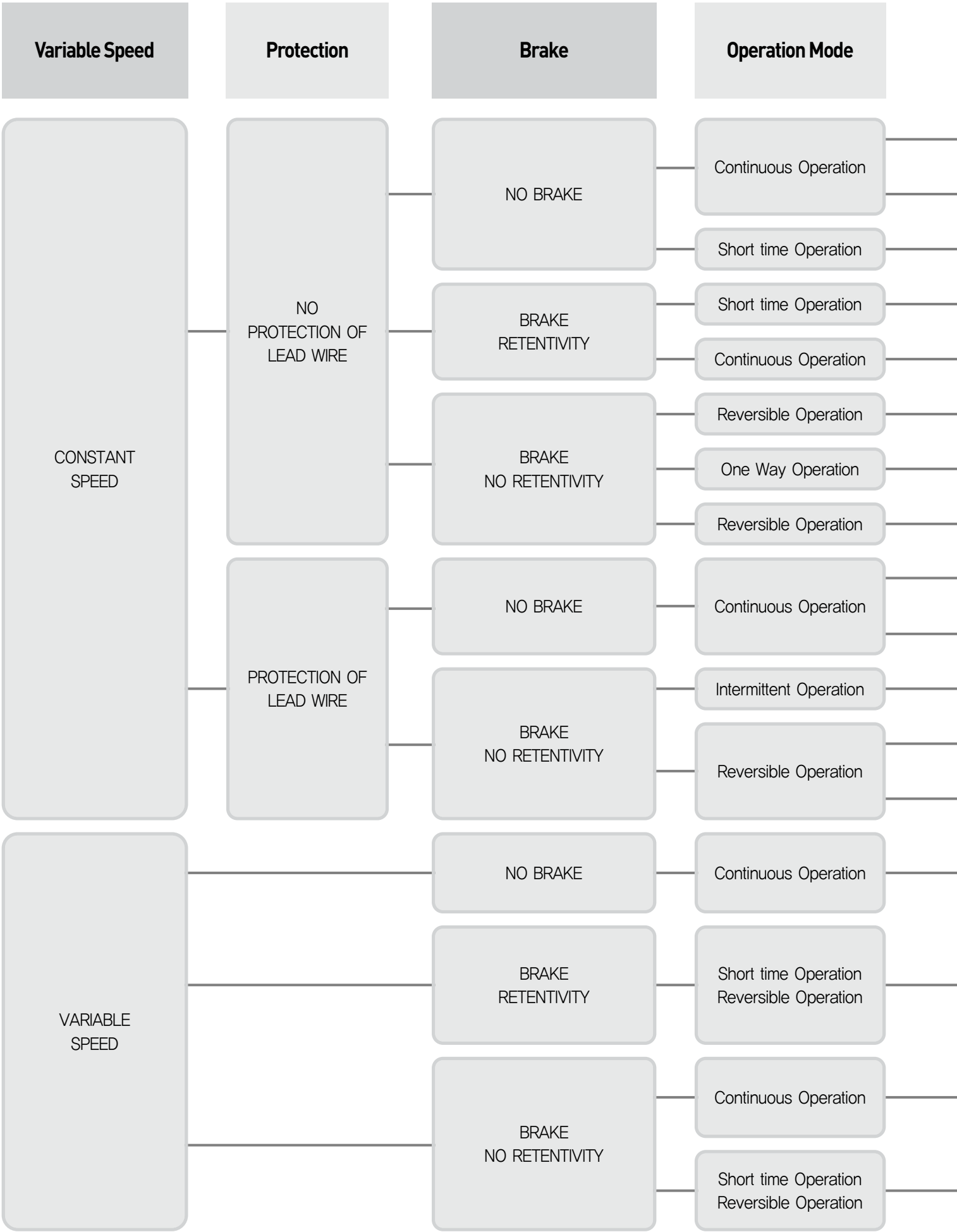
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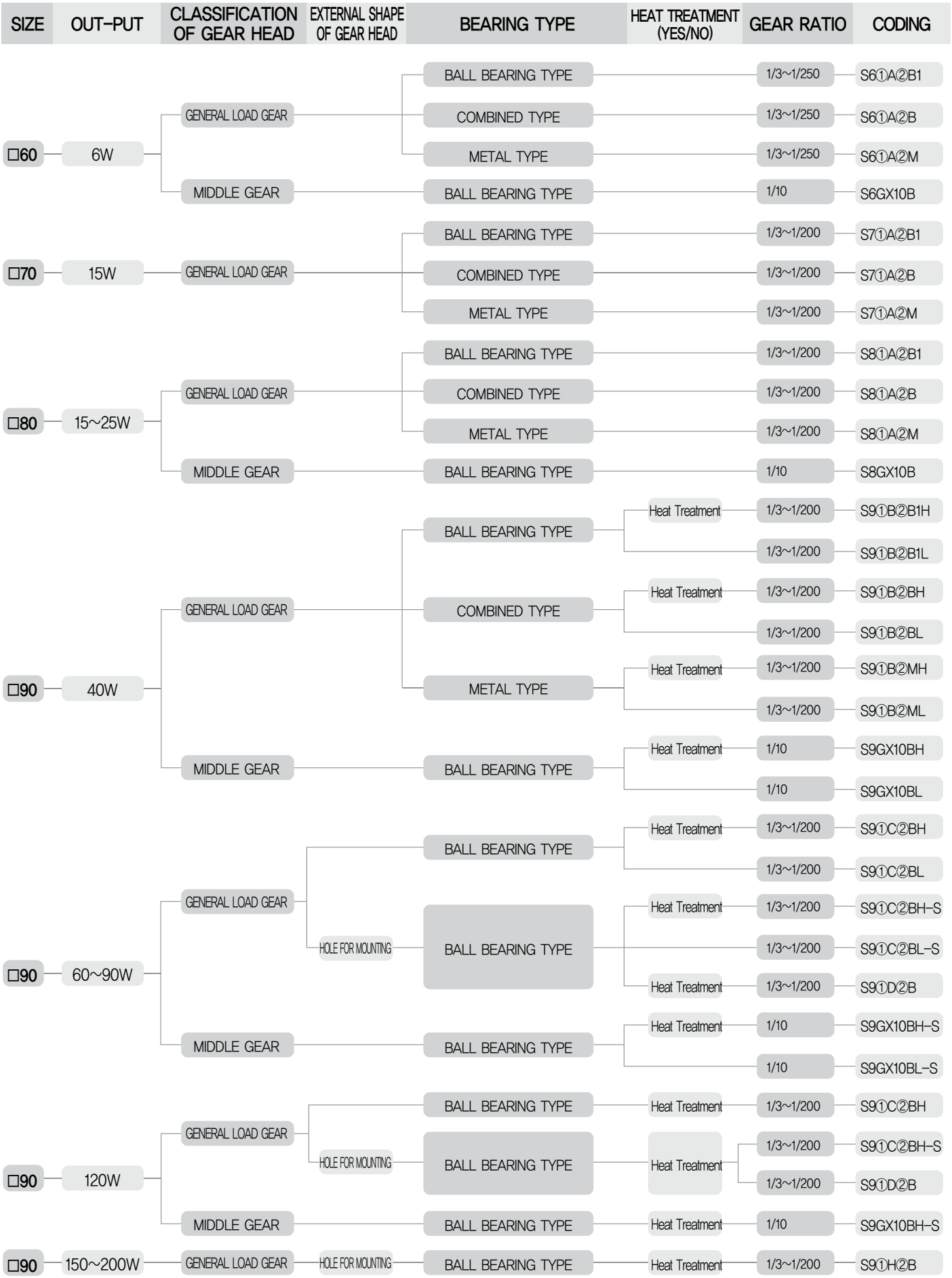

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# Selection of Motor



| Phase | Type | Output | Page |
|---|---|---|---|
| Single | INDUCTION | 3W ~ 200W | 34~58<br>274~277 |
| Three | INDUCTION | 25W ~ 200W | 42~60 |
| Single | REVERSIBLE | 6W ~ 90W | 66~81 |
| Single | ELECTROMAGNETIC BRAKE REVERSIBLE | 6W ~ 90W | 86~101 |
| Three | ELECTROMAGNETIC BRAKE INDUCTION | 25W ~ 90W | 92~101 |
| Single | REVERSIBLE | 6W ~ 90W | 66~81 |
| Single | INDUCTION + BRAKE PACK | 6W ~ 90W | 34~51<br>288~294<br>299~303 |
| Three | INDUCTION + BRAKE PACK | 25W ~ 90W | 42~51<br>295~298 |
| Single | TERMINAL BOX INDUCTION | 6W ~ 90W | 104~133 |
| Three | TERMINAL BOX INDUCTION | 25W ~ 150W | 114~137 |
| Single | TERMINAL BOX REVERSIBLE | 6W ~ 90W | 104~133 |
| Single | TERMINAL BOX REVERSIBLE | 6W ~ 90W | 104~133 |
| Three | TERMINAL BOX INDUCTION + BRAKE PACK | 25W ~ 90W | 114~133<br>295~298 |
| Single | SPEED CONTROL INDUCTION | 6W ~ 180W | 144~154<br>156~172 |
| Single | ELECTROMAGENETIC BRAKE<br>SPEED CONTROL REVERSIBLE | 6W ~ 90W | 174~209<br>252~271 |
| Single | SPEED CONTROL INDUCTION | 6W ~ 90W | 174~209<br>252~271 |
| Single | SPEED CONTROL REVERSIBLE | 6W ~ 40W | 174~209<br>236~249 |

# Selection of Gearhead




Note) 1. ① stands for a shape of an output shaft(spindle). Example) K : Key Type; S : Straight Type; D : D-Cut Type Example) K : KEY TYPE, S : STRAIGHT TYPE D : D-CUT TYPE
2. ② stands for a reduction ratio(gear Ratio). 3. NO SUBJECT – What indicates a volt hole?

# Selection of Controller & Brake pack

* : SPEED CONTROL INDUCTION MOTOR
** : SPEED CONTROL REVERSIBLE MOTOR
*** : E.S MOTOR

| SYSTEM | Division | Power Source | TYPE | | Voltage, Frequency | Product Name | APPLICABLE MOTOR * | ** | *** |
|---|---|---|---|---|---|---|---|---|---|
| VARIABLE SPEED AND BRAKE | SPEED CONTROLLER | SINGLE PHASE | PACK TYPE | SR TYPE | 110V, 60Hz | SRA□ | 6~90W | 6~40W | 6~90W |
| | | | | | 220V, 60Hz | SRB□ | 6~90W | 6~40W | 6~90W |
| | | | | | 100V, 50/60Hz | SRC□ | 6~90W | 6~40W | 6~90W |
| | | | | | 200V, 50/60Hz | SRD□ | 6~90W | 6~40W | 6~90W |
| | | | | | 115V, 60Hz | SRE□ | 6~90W | 6~40W | 6~90W |
| | | | | | 220~240V, 50Hz | SRX□ | 6~90W | 6~40W | 6~90W |
| | | | | SS STANDARD TYPE | 110V, 60Hz | SSA□-SRSS | 6~40W | 6~40W | 6~40W |
| | | | | | 220V, 60Hz | SSB□-SRSS | 6~40W | 6~40W | 6~40W |
| | | | | | 100V, 50/60Hz | SSC□-SRSS | 6~40W | 6~40W | 6~40W |
| | | | | | 200V, 50/60Hz | SSD□-SRSS | 6~40W | 6~40W | 6~40W |
| | | | | | 115V, 60Hz | SSE□-SRSS | 6~40W | 6~40W | 6~40W |
| | | | | | 220~240V, 50Hz | SSX□-SRSS | 6~40W | 6~40W | 6~40W |
| | | | | SS HIGH OUTPUT TYPE | 110V, 60Hz | SSA03-SRSS | 6~90W | 6~40W | 6~40W |
| | | | | | 220V, 60Hz | SSB03-SRSS | 6~90W | 6~40W | 6~40W |
| | | | | | 100V, 50/60Hz | SSC03-SRSS | 6~90W | 6~40W | 6~40W |
| | | | | | 200V, 50/60Hz | SSD03-SRSS | 6~90W | 6~40W | 6~40W |
| | | | | | 115V, 60Hz | SSE03-SRSS | 6~90W | 6~40W | 6~40W |
| | | | | | 220~240V, 50Hz | SSX03-SRSS | 6~90W | 6~40W | 6~40W |
| | | | UNIT TYPE | SUA TYPE | 110V, 60Hz | SUA□IA-V12 | 6~90W | – | – |
| | | | | | 220V, 60Hz | SUA□IB-V12 | 6~180W | – | – |
| | | | | | 100V, 50/60Hz | SUA□IC-V12 | 6~90W | – | – |
| | | | | | 200V, 50/60Hz | SUA□ID-V12 | 6~90W | – | – |
| | | | | | 115V, 60Hz | SUA□IE-V12 | 6~90W | – | – |
| | | | | | 220~240V, 50Hz | SUA□IX-V12 | 6~90W | – | – |
| | BRAKE PACK | SINGLE PHASE | PACK TYPE | CONTACT TYPE | 110V, 60Hz | SBA-IR | 6~90W | 6~60W | – |
| | | | | | 220V, 60Hz | SBB-IR | 6~90W | 6~60W | – |
| | | | | | 100V, 50/60Hz | SBC-IR | 6~90W | 6~60W | – |
| | | | | | 200V, 50/60Hz | SBD-IR | 6~90W | 6~60W | – |
| | | | | | 220~240V, 50Hz | SBX-IR | 6~90W | 6~60W | – |
| | | | | NON CONTACT TYPE | 110V, 60Hz | SBA-NCR | 6~90W | 6~90W | – |
| | | | | | 220V, 60Hz | SBB-NCR | 6~90W | 6~90W | – |
| | | | | | 100V, 50/60Hz | SBC-NCR | 6~90W | 6~90W | – |
| | | | | | 200V, 50/60Hz | SBD-NCR | 6~90W | 6~90W | – |
| | | | | | 220~240V, 50Hz | SBX-NCR | 6~90W | 6~90W | – |
| | | THREE PHASE | PACK TYPE | CONTACT TYPE | 200V, 50/60Hz | SBU-IR | 25~90W | – | – |
| | | | | | 220V, 50/60Hz | SBT-IR | 25~90W | – | – |
| | | | | | 380~440V, 50/60Hz | SBS-IR | 25~90W | – | – |

# CODING SYSTEM

## MOTOR




**S** : SPG Co., Ltd.

**6** : □60(㎜)
**7** : □70(㎜)
**8** : □80(㎜)
**9** : □90(㎜)

**I** : Induction Motor
**R** : Reversible Motor

**03** : 3W **90** : 90W
**06** : 6W **120** : 120W
**15** : 15W **150** : 150W
**25** : 25W **180** : 180W
**40** : 40W **200** : 200W
**60** : 60W

**G** : Gear Type
**S** : Straight Type
**D** : D-Cut Type
**K** : Key Type

**A** : 1ØAC 110V 60Hz (4Pole)
**B** : 1ØAC 220V 60Hz (4Pole)
**C** : 1ØAC 100V 50/60Hz (4Pole)
**D** : 1ØAC 200V 50/60Hz (4Pole)
**E** : 1ØAC 115V 60Hz (4Pole)
**X** : 1ØAC 220~240V 50Hz (4Pole)
**U** : 3ØAC 200V 50/60Hz (4Pole)
**T** : 3ØAC 220V 50/60Hz (4Pole)
**S** : 3ØAC 380~440V 50/60Hz (4Pole)

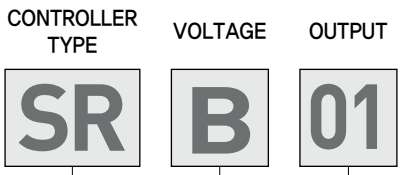
**H** : Heavy Impact
**L** : Light Impact

**E** : Electro-magnetic Brake Type
**T** : Terminal Box Type(Terminal Block Type)
**T1** : Terminal Box Type(PCB Type Terminal Block) (25~90W)
**T2** : Conduit Box Type(25~90W)
**B** : Semi-Brake Type
**S** : Variable Speed Control(Pack Type)
S12 : T.G Voltage 12V Type
S24 : T.G Voltage 24V Type
**V** : Variable Speed Control(Unit Type)
V12 : T.G Voltage 12V Type
**ES** : Electro-Magnetic Brake
Variable Speed Control(Pack Type)
ES12 : T.G Voltage 12V Type
ES24 : T.G Voltage 24V Type

※ NOTE 1) 'H' & 'L' type are applied to over 40W.
- 'H' type is the standard for over 60W.
- 'L' type is the standard for over 40W.

※ NOTE 2) Key Type are applied to over □80 15W

## SPEED CONTROLLER (SR PACK TYPE)



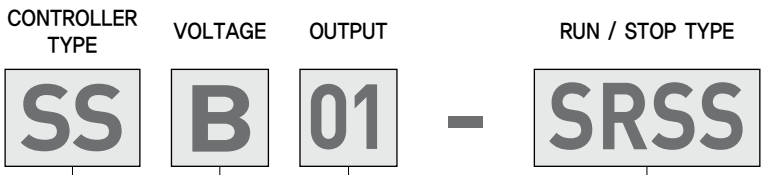

**01** : 6W
**02** : 15W~90W

**A** : 1Ø AC110V 60Hz (4Pole)
**B** : 1Ø AC220V 60Hz (4Pole)
**C** : 1Ø AC100V 50/60Hz (4Pole)
**D** : 1Ø AC200V 50/60Hz (4Pole)
**E** : 1Ø AC115V 60Hz (4Pole)
**X** : 1Ø AC220~240V 50Hz (4Pole)

SR SERIES

※ NOTE) The applicable motor is for T.G. 12V.

## SPEED CONTROLLER (SS PACK TYPE)




**01** : 6W(Standard Type)
**02** : 15W~40W(Standard Type)
**03** : 6W~90W(High Output Type)

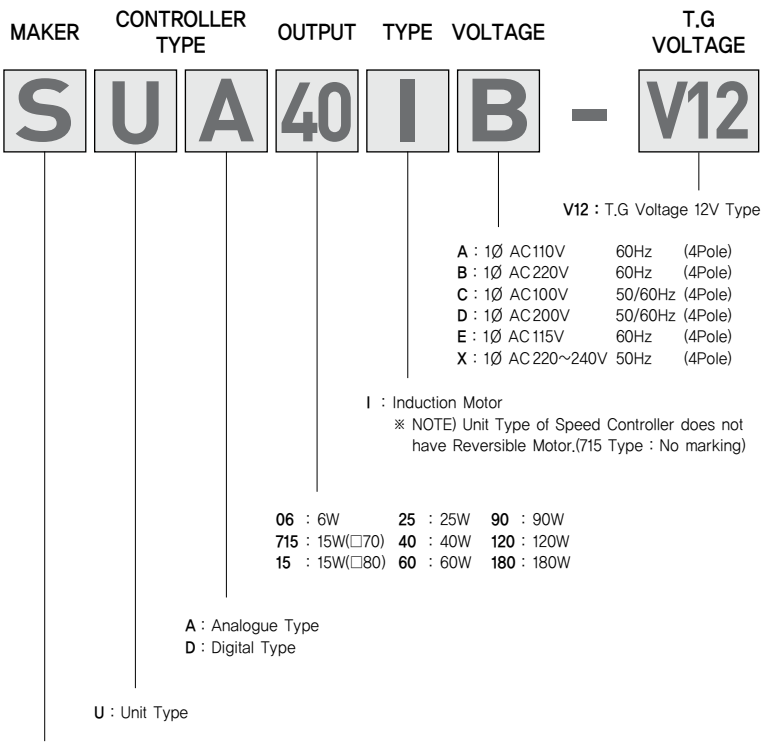
Slow Run Slow Stop

**A** : 1Ø AC110V 60Hz (4Pole)
**B** : 1Ø AC220V 60Hz (4Pole)
**C** : 1Ø AC100V 50/60Hz (4Pole)
**D** : 1Ø AC200V 50/60Hz (4Pole)
**E** : 1Ø AC115V 60Hz (4Pole)
**X** : 1Ø AC220V~240V 50Hz (4Pole)

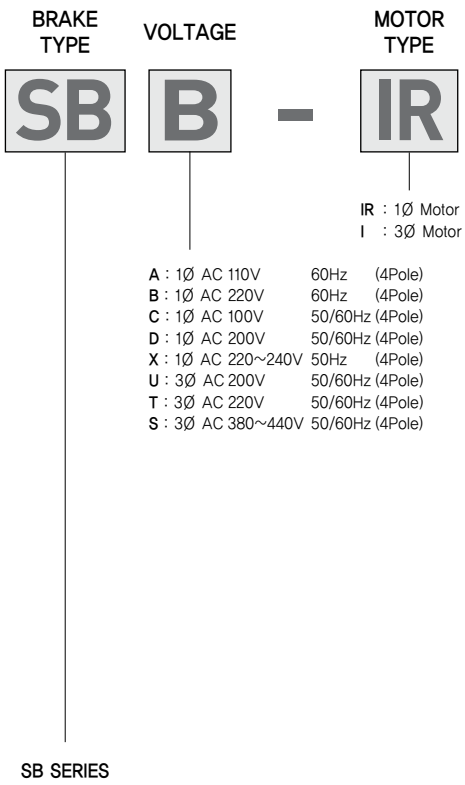
SS SERIES

※ NOTE) The applicable motor is for T.G. 24V.

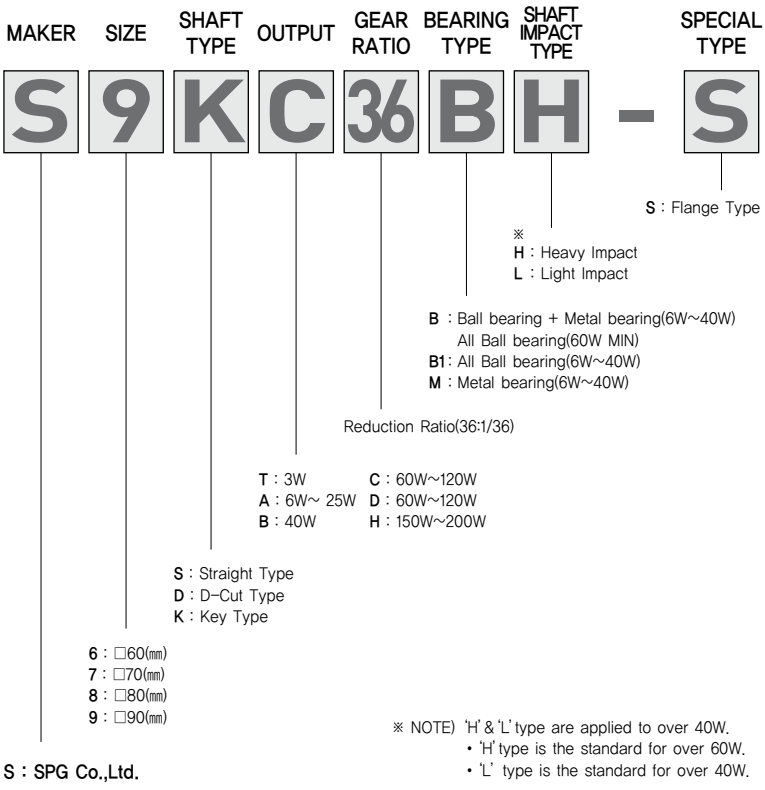
## SPEED CONTROLLER (UNIT TYPE)



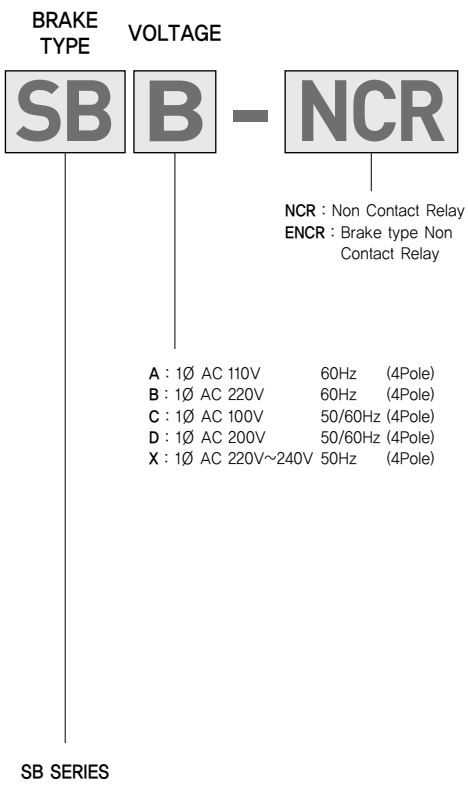

## BRAKE PACK (CONTACT TYPE)




## GEAR HEAD




## BRAKE PACK (NON CONTACT TYPE)



# Overview of the Motors

## 1. Types of Motors

(1) A motor can generally be categorized as a single-phase motor or a three-phase motor depending on the number of phases the electrical source provides.

**1) Single-phase Motor**

- The single-phase electrical source is a commercial power source for the household electricity and represents one phase.
- Since the electrical source alone can not make a motor rotate, a condenser should be connected to the auxiliary coil to operate the motor.

**2) Three-phase Motor**

- The three-phase motor stands for electrical power and it is consisted of three electrical sources with a phase offset of 120 degrees in voltage.
- When the motor is connected to the electrical source, the magnetic field is generated and the motor starts rotating easily.
- The motor efficiency is high and the torque is also relatively big.

(2) Functionally, the motor can be grossly divided into three types as follows.

**1) Constant Speed Motor**

**① INDUCTION MOTOR**

- This is a standard model for small AC motors with continuous operation.
- There are two kinds: one is an induction motor with a condenser for single-phase and the other is an induction motor for three-phase.
- There are two types: a lead-wire type and a terminal-box type.

**② REVERSIBLE MOTOR**

- This is an induction motor run by a condenser for single phase.
- The external appearance is similar to that of an induction motor, but it is suitable for operations that frequently change the direction of rotation from normal to reverse and vice versa through a temporary brake block inserted inside the motor which facilitates the reverse rotation.

**2) Motor with Brake Function**

**① Electromagnetic Brake attached Motor**

- This is a motor that has a fail-safe electromagnetic brake.
- The reliable control function guarantees the stability of the motor.
- Since the brake function is activated when malfunctioning is detected in the electrical source, this motor is suitable where a safer brake function is required.

**② BRAKE PACK SB SERIES**

- This electronic brake designed exclusively for both induction and reversible motors is suitable for the operation that has to apply a brake frequently.
- There are two kinds:a brake pack with/without a contact point.

**3) Motor with Speed Controlling Function**

**① UNIT TYPE** : This type of motor is easy to use with easy connection between a speed controller and a motor.

**② CONTROL PACK TYPE** : This type has separate speed controller and motor, so each of them can be selected based on the requirements, purpose and so on.

## 2. Characteristics of Motors

(1) Definition of Motor

- The motor is the one that serves as a power source enable equipment to work on a certain thing.
- When the motor is connected to a power source, the rotating torgue generated by electromagnetic field is transferred to other machine's belt or gear by a shaft. That is, the force is directly connected to the axis of rotation in order to operate something explicitly.
- The motor plays a critical role as a heart of a machine.
- In brief, the motor is a device that converts electrical energy to mechanical energy (rotational energy).

(2) Characteristics of Motors

- When connected to a power source, the motor starts rotating to provide a source of motive power to household electric appliances, industrial equipments, or automated production line and so forth.

**1) Wide Variety of Motors**

- The size ranges are from 60mm/6W to 90mm/200W and there are various and rich assortment of models, including induction motor, reversible motor, electromagnetic brake, terminal box, speed controller, electronic brake, etc.
- The operating voltage also covers the worldwide standards

| VOLTAGE | COUNTRY | VOLTAGE | COUNTRY |
|---|---|---|---|
| 100V 50/60Hz | Japan | 200V 50/60Hz | Japan |
| 100V 60Hz | Taipei | 220V 60Hz | Korea, Taipei |
| 115V 60Hz | North America | 230V 50Hz | Europe, Oceania |
| 220V~240V 50Hz | Southeast Asia | | |

**2) Low Noise and Vibration**

- Higher quality requirements for the motor in relation with the place and condition of use ask for low noise and low vibration.
- To meet the requirements, the precision gear processing and skiving methods are employed to reduce the noise level to a minimum and the rotor, a source of vibration, is verified with 100% balancing machine.

**3) Ease of Use**

- The design and production of the motor and the gear box can be customized to the user's specifications. So the user can use it safely and easily.
- By simply connecting a condenser to the commercial electrical source, the user can easily operate to obtain the source of motive power.
- Since the condenser is not required for a three-phase electrical source, the motor can directly be connected to a three-phase electrical source and obtain dynamic force.

# 3. Glossary

## (1) Electrical Source

### 1) Alternating Current (AC)

- Unlike the direct current, the alternating current is an electrical current that flows with alternating electrical magnitude between a positive(+) and a negative(–) electrical poles at a certain interval of time. Like a current, the direction of a voltage changes in a form of sine wave at a certain interval of time, just as a clock pendulum swings right and left at a fixed rhythm.

### 2) Direct Current (DC)

- The direct current is an electrical current that has a positive(+) and a negative(–) fixed electrical sources like a battery. Therefore the direction and magnitude of the direct current are constant.
- The direction of a voltage is also constant.
- The examples of a direct current installation include dry batteries, storage batteries, direct current generators, and various rectifiers.

### 3) Frequency

- The frequency is the number of complete alternations of an alternating current per second.
- The unit of the frequency is represented by Hertz(Hz).
- In Korea, 60Hz is adopted as a standard frequency, which means the alternating current alternates 60 times per second between positive(+) and negative(–) electrical magnitudes, with 120 times of zero electricity per second at a crossing point of positive(+) and negative(–) electricity, meaning that the light bulb has no electricity instantaneously 120 times per second. However, such stoppages of the electricity are so instantaneous that the human visions can not sense it.

## (2) Rating

- The motor should be designed as to comply with the specified requirements, and the limit of its use under such a design is called rating.
- Just as there are ratings specifying the limit as to how much output can be used, there are also rating specifications for voltage, current, number of rotations, and frequency. These are called rated output, rated voltage, rated current, rated number of rotations, and rated frequency.
- The ratings are divided into a continuous rating, an intermittent rating, and an interactive rating. The induction motor we manufacture belongs to a continuous rating. On the other hand, our reversible motor is an intermittent rating (30 minutes).

### 1) Continuous Rating

- The continuous rating means that it can guarantee the continuous operation under the specified conditions that will not result in exceeding the specified temperature and comply with the other requirements.

### 2) Intermittent Rating

- The intermittent rating means that the operation within aspecified period of time under the specified conditions will not result in exceeding the specified temperature and comply with the other requirements. There are six standards for the intermittent rating: 5 minutes, 10 minutes, 15 minutes, 30 minutes, 1 hour and 2 hours.

### 3) Interactive Rating

- The interactive rating means that the cyclic operations of stopping and running with a certain load under the specified conditions will not result in exceeding the specified temperature and comply with the other requirements.

## (3) Output

- The output is an amount of work accomplished by the motor in unit time and it is represented by the product value of the revolutions and the torque. The rated output is indicated in the motor.

Output = $1.027\times10^{-5}\times T\times N$ [WATTS]

$1.027\times10^{-5}$ : Fixed Number

T : TORQUE [g · cm]

N : Revolutions per minute [rpm]

1 Horse Power (HP) is 746 [Watts].

- **Rated Output** : The rated output is a continuously generated output under the specified voltage and frequency. These specified voltage and frequency are called a rated voltage and a rated frequency. The rated output is generally called an output of the motor.

## (4) Torque and Numbers of Rotations

- The torque of the motor is a rotatory power that makes a rotor start working and the unit is [g · ㎝] or [㎏ · ㎝]. In America, [N · m], [oz · in], and [lb · in] are in use.
- 1 kg · cm indicates that 1 kg of force added perpendicularly to 1cm–radius point.

### 1) Starting Torque(① in Fig. 1)

- This is a torque when the motor is starting. It is also referred to as a locked rotating torque.
- If a force greater than the starting torque is applied to the motor, the motor will not work.

### 2) Stalling Torque(② in Fig. 1)

- This is a maximum torque that the motor can supply.
- If a load greater than the maximum torque is applied to the motor, the motor will stop.

### 3) Rated Torque(③ in Fig. 1)

- This is a torque when the motor operates at the rated speed.
- This is also is a torque when the motor generates a rated output continuously with the rated voltage.

### 4) Synchronous Revolutions(④ in Fig. 1)

- This is the number of rotations determined by the frequency of the power source and the number of poles in the motor.

$$NS = \frac{120f}{P} \text{ [rpm]}$$

NS : Synchronous revolutions per minutes [rpm]
P : Number of poles in a motor
f : Frequency of a power source [Hz]
120 : Fixed Number
rpm : Number of revolutions per minute

Example) If the motor has 4 poles and the power source frequency is 60Hz,

$$NS = \frac{120 \times 60}{4} = 1800 \text{ [rpm]}$$

And if the motor has 4 poles and the power source frequency is 50Hz,

$$NS = \frac{120 \times 50}{4} = 1500 \text{ [rpm]}$$

#### 5) No-load Revolutions(⑤ in Fig. 1)

- This is the number of revolutions when the motor is operating while no load is imposed on the output axis. In case of an induction motor or a reversible motor, the number of revolutions is 20~80[rpm] less than the number of synchronous revolutions.

#### 6) Rated Revolutions(⑥ in Fig. 1)

- This is the number of revolutions when the motor is operating with the rated load for generating the rated output. This is an ideal number of revolutions for use.

#### 7) SLIP

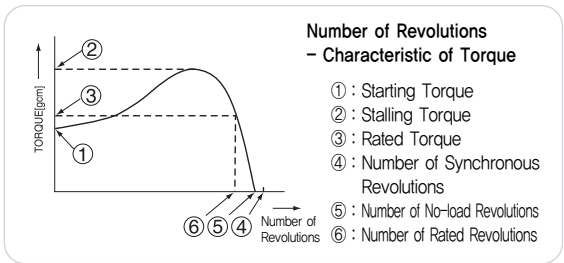
- This is another way of expressing the number of revolutions and it is represented by the following equation.

$$S = \frac{NS - N}{NS} \quad \text{or } N = NS \times (1-S)$$

NS : Synchronous revolutions per minute [rpm]
N : Revolutions per minute under an arbitrary load [rpm]
S : SLIP

For example, if an induction motor of 4 poles and 60Hz is operating with a slip S=0.1,

$$N = \frac{120 \times 60}{4}(1-S) = 1800 \times (1- 0.1) = 1620 \text{ [rpm]}$$




〈Fig.1〉 Number of Revolutions – Characteristic of Torque

### (5) Static Torque

- The static torque is a torque experienced when a load is being imposed while the electromagnetic brake and the clutch brake are stopped.

### (6) Ambient Torque

- The ambient torque is a maximum torque allowed to use when the motor is operating. This torque has a limitation by the rated torque, the temperature-rise, and the strength of the assembled gearhead.

### (7) OVER RUN

- This is an excessive number of revolutions, expressed as angular degrees, that the motor makes from the moment of power shut-off until the motor stops.

### (8) GEAR HEAD

#### 1) Gear Ratio

- This is a rate in which the gearhead decelerates the motor's rpm.
- The number of rotations of the motor at the output axis of the gearhead is 1/Gear Ratio. The gear ratio has two kinds of rates in order to make the number of rotation of gearhead's output shaft in the motor between 50Hz and 60Hz equal each other. The one set of ratios are 3, 5, 7.5, 12.5, 15 ····· and the other set ratios are 1.2 times of the former set, that is, 3.6, 6, 9, 15, 18 ·····.
- The number of rotations for the gearhead's output shaft is almost the same between the gear ratio of 3 in the area that uses 50Hz and the gear ratio of 3.6 in the area of 60Hz.
- Naturally, any gearhead is allowed to use either in 50Hz area or 60Hz area.

#### 2) Maximum Ambient Torque

- This is a torque with a maximum load imposed on the gearhead.
- Since this torque is determined by the mechanical factors such as material and size of the gear and pinion used with the gearhead, it varies depending on the type of gearhead and gear ratio.

#### 3) SERVICE FACTOR

- This is a coefficient used to estimate the lifetime of the gearhead.
- This is an empirically determined value based on the results of the lifetime test conducted under the given load and the conditions of use.

#### 4) Delivery Efficiency Rate

- This is an efficiency rate when the torque is amplified by connecting the gearhead to the motor and it is represented by percentage(%). It is determined by the resistance of the lubricant as well as the friction of pinion and gear used with the gearhead.
- The delivery efficiency rate is 90% for each gear therefore the efficiency rate is 81% for 2nd gear, 73% for 3rd gear, 66% for 4th gear, and 59% for 5th gear. If gear ratio is higher, the number of gear will increase and the efficiency rate will decrease.

#### 5) OVERHUNG Load

- This is a load received vertical to the gearhead's output shaft.
- The maximum overhung load at the gearhead is called the ambient overhung load. The value varies depending on the type of the gearhead and the distance from the end of the shaft to the gearhead.

#### 6) THRUST Load

- This is a load received horizontal to the gearhead's output shaft.
- The maximum thrust load at the gearhead is called the ambient thrust load. The value varies depending on the type of the gearhead.

## 4. Motor Temperature Rise

### (1) Motor Temperature Rise and Insulation

- The motor generates heat when current flows.
  The heat is an electrical loss generated by the copper loss of the motor's conducting section, the resistance of the core material experienced when the lines of magnetic force passes, and the core loss developed when the iron core gets magnetized.
- The heat is generated by the frictional loss and the mechanical loss caused by the air friction, etc.
- Some of the heat generated in the motor is accumulated inside the motor, and the rest is released to the outside by means of radiation, convection, and conduction.
- While the motor is running, the temperature difference between the heat loss generated inside the motor and the heat released to the outside of the motor is referred to as a temperature rise.
- The heat is generated while the motor is running, and as a result, the temperature rises, with the highest temperature measured in a winding section. Therefore, the use of the motor is restricted from the ambient temperature as well as the temperature of the motor itself.
- The limitations on use of a motor by the insulation class are shown in the NO TABLE.
- Although the temperature rises while the motor is operating, the motor is such designed that it can prevent the temperature from rising up above the maximum ambient temperature shown in the NO TABLE.
- Most of our motors belong to Class E, while the motor for UL certification is Class A.
  If the induction motor runs continuously for 2 to 3 hours, its temperature may reach a saturation point, then constantly stays below the specified maximum allowable temperature afterwards. The reversible motor is rated for 30 minutes continuous operation, but the operating time can be varied depending on the load and the operating mode (how often the operation is on and off, and so on). Therefore, if the motor is used at the temperature below the specified maximum allowable temperature, the operating hours can be extended.

### (2) Ambient Temperature

- It is advised to use the motor at the ambient temperature between –10℃ and +40℃. If the motor is operating in an environment of the temperature higher than the maximum ambient temperature or inside a house, the heat emitted by the increased temperature of the motor is added to the ambient temperature and will significantly reduce the lifetime of the winding coil and the ball bearing. The operation of the motor in a too low temperature environment also causes problems associated with starting of the motor. In addition, the decrease of the interrelative influence of the gearhead's lubricating grease and the ball bearing causes the frictional torque to increase. As a result, the motor does not get started or takes longer to start.

### (3) Method of Measuring Temperature Rise in Motor

- A thermocouple of temperature multipoint recorder is attached at the center of the housing (the motor case) in order to check the housing temperature saturation caused by the heat the motor releases. The temperature difference between the saturated temperature and the ambient temperature is called a temperature rise and the unit of the temperature is degree.
- In general, the part that has a highest temperature in the motor is a winding section. The maximum ambient temperature of the winding section is specified as K.S. standards for each type of insulation material.
- The temperature rise can be derived from the following equation.

$$\deg(\Delta t) = \frac{R_2 - R_1}{R_1} \times (K + t_1) - (t_a - t_1)$$

- $R_1$ : Resistance of winding before the temperature rise test
- $R_2$ : Resistance of winding after the temperature rise test
- $t_1$ : Ambient temperature before the temperature rise test
- $t_a$ : Ambient temperature after the temperature rise test
- K : Temperature coefficient of the copper wire

- The temperature of the motor rises further if the motor is frequently stopped and re-started, or the direction of the rotation is frequently reversed, or the instantaneous stoppage is frequent. The lower the temperature of the motor is, the longer the lifetime of the motor.
- During the operation of the motor, the temperature of the housing (motor case) surface may rise over 90°C, which is not an anomaly. Thus, to prevent accidents, do not touch the motor carelessly nor place flammable substance near the motor.

### (4) Overheat Protection Device

#### 1) Thermally Protected Type

- Some of our motors include a built-in T/P(Thermal Protection) device, which is an overheat protection device, in a winding section to protect the motor from being damaged when the motor is overheating or some other accident occurs during the operation. Especially, UL conformance products, CE marked products, and European voltage (220V-240V 50Hz) conformance products have a built-in T/P device to provide protection from overheating.
- This T/P employed a heat sensing bimetal to facilitate the opening and closing of the contact point. This is an automatic reset type, meaning that it shuts off the circuit when an abnormal temperature is detected and that it returns to the original state when the temperature returns to a normal level.
- For T/P, we use 120℃ ± 5℃ (17AM031A5-4 or 7AM031A5-4), a T.I.'s product.
- This T/P is used in our motor with frame size of □70㎜, □80㎜, □90㎜. UL conformance motors, CE marked motors, and 220V~240V(230V) 50Hz motors have a built-in T/P and "Thermally Protected" sign is indicated in the name plate.

#### 2) Impedance Protected Type

- The impedance protected motor is designed to increase the impedance of the winding to reduce the increment of (input) current in order to prevent the temperature from rising up above the maximum ambient temperature even when the motor is restrained. The maximum ambient temperature is 150℃ at the restraint for Class A UL products. (UL certification for our motors is Class A.)
- The sign "Impedance Protected" or "ZP" is shown in the name plate of the motor. Our 60mm motor, which is the UL certified model, belongs to this category.

# Safety Standards of Motor

The safety of the parts, in particular, the safety of the motor itself is a key feature in the design of industrial use automation and various kinds of equipment and devices. It takes extensive time to select safe motors and to inspect them. SPG products have been designed to ensure the safety standards of the motor and its parts. Safety standards at the design level of SPG products shall be as follows:

## 1. Outlines of Safety Standards

### (1) International Standard

The IECEE/CB Scheme is an international certification system for safety and maintenance of electromagnetic waves for electronic appliances and is an international cross certification system that can obtain international certification without the need for overlapping tests and inspections in 43 countries in the world. The CB system can principally certify cross test results for each membership organization to obtain certification. In order to get rid of any obstacles at an international distribution level, that might otherwise occur due to varying certification and approval systems in other countries, the certification organizations of many countries have agreed to certify and approve products easily in accordance with IBC standards.

- A CB certificate shall be released by attaching the test reports from national certification organizations for tests and inspections in order to notify other national certification organizations of the satisfaction of specifications for specific samples after conducting tests of representative samples of electrical products based on standards admitted by the IECEE. Upon the request of an applicant, any test results that deviate from the national standards shall also be included.
- The national certification organization that has conducted individual tests are required to report to either membership countries or users to allow them to inspect the certification and to register the CB certification in the IECEE and to inspect the contents of the certification on IECEE homepage.

### (2) UL Standard (USA)

The UL (Underwriters Laboratory) is a non-profit foundation established by the fire underwriters of the United States in 1894 in order to inspect materials, apparatus, machinery and tools, facilities, structures, technology and systems carrying risks to human beings and property.
The UL, non-compulsory certification system, can conduct safety tests and inspections for more than 1,400 items pertaining to electrical products and machinery, and is a compulsory certification system that is mandatory in accordance with the laws and regulations of each state in the United States in order to maintain a high confidence level with consumers.
Also, the UL has developed and distributed the safety standards of the United States and approximately 80% of the standards have been approved by the ANSI, which is the national standard of the United States.

#### 1) NRTL(Nationally Recognized Testing Laboratorys)

The national test and certification organization program system under the Occupational Safety and Health Administration (OSHA) of the United States has been recognized by 14 test and certification agencies including the UL, CSA, ETL and others. The products that have been certified by test and certification agencies admitted by the NRTL can be sold throughout the whole United States.

### (3) Canada Standard (Canada)

The CSA (Canadian Standards Association) is a non-profit foundation that the Canadian Government established in 1919. The CSA conducts safety tests and inspections of electrical products, electrical parts and safety apparatus to protect human life and property and is licensed to issue certificates. At the same time, the CSA sends notices of issuances of CSA certifications to the CSA Advisory Committee of electricity safety. The committee consists of clerks in charge of safety supervision agencies for each provincial government, and it is required to get approval from the provincial governments of Canada. Also, the CSA is involved in developing and distributing Canadian safety standards that are required to be approved by the Standard Council of Canada (SCC).

#### 1) PALCAN(Program for the Accreditation of Laboratories – CANada)

The national test and certification program system that is in force under the Standard Council of Canada (SCC) has been approved by approximately 100 testing and certification agencies including the CSA, UL and ETL, etc. The products that have been approved by testing and certification agencies acknowledged by PALCAN can be sold in all of the provinces of Canada.

### (4) EN Standard (Europe)

The European Committee for Electro-technical Standardization (CENELEC) of the EC has enacted an integrated safety standard for all of Europe in order to uphold EN standards that represent a uniform standard of integrated safety. Certification authorities engage in the approval of the safety tests for electrical products, machines and parts, etc according to EN standards in order to place their marks on those same products after being certified. The certification marks, non-compulsory certification system, can control the EC integrated CE markings more compulsorily as per the preference of consumers.
To certify mutually certified products and parts without special terms and conditions, the certification authorities of each country in the EC have made a mutual MRA agreement with CCA (CENELEC Certification Agreement) Scheme that possesses the same system as the IECEE CB Scheme.

### (5) CE Marking (Europe)

Suppliers who want to sell and distribute products in Europe are required to place CE marks on the products after announcing their compliance with EU guidelines or to conduct type tests with a notified body (certification authority). In other words, this means that products with CE marking can be assured of free distribution in the EU region unless those products are found to be improperly used. An EU guideline shall be as follows:

**1) Machinery Directive (98/37/EC)** : This has been compulsorily applied to industrial use machinery since January 1, 1995.

2) **Low Voltage Directive (2006/95/EC)** : This has been compulsorily applied to electrical products of AC 50–1000V (DC 75–1500V) since January 1, 1997.
3) **EMC Directive (89/336/EEC)** : has been compulsorily applied to electrical products, electronic products and other parts and a majority of other products since January 1, 1996.

### (6) CCC GB Standard (China)

In May 2002, the CCC (China Compulsory product Certification) integrated not only the CCEE of the domestic Chinese market but also the CCIB of export and import business by taking exploiting China's joining the WTO. This has been in force since August 2003.
The items under the CCC initially started from 19 classifications and 132 items, and the classifications and items have been continuously adjusted to enact new laws and regulations for other equipment and apparatus. The CCC certification does not permit either localization or type testing as certification for other countries. This is in order that the testing can be conducted at authorized Chinese laboratories.

### (7) Japan Standard (Japanese PSE)

In April 2001, the Ministry of Economy, Trade and Industry (METI) of Japan enacted the Electrical Appliance and Material Safety Law (DENAN: Denki Yohin Anzen Ho) to switch from government-directed control to private the organization's autonomous control. Thus, they have developed the Electrical Appliance Material Control Law (DENTORI) to satisfy technical development requirements as well as to establish a diversified living environment that can regulate the production and sale of electrical and electronic products for safety assurance. The Electrical Appliance and Material Safety Law (DENAN) has classified the products into two categories, that is to say, specified products into category A, requiring compulsory safety certification and non-specified products into category B.
An authorized certification authority that can satisfy the requirements of METI of Japan shall assess the appropriateness of specified products, ie; category A, and it shall affix a Diamond-shaped PSE Mark on the product and therefore satisfy the requirements of METI.
On the other hand, non – specified products, i.e.; category B, –those of non compulsory certification, will include motor products, and a round-shaped PSE mark shall be placed on the products that satisfy the requirements. The applicable standards shall follow either technical standards of METI of Japan or IEC standards.

### (8) Korea Standard (Korean KC)

In March 2009, the Korean Government revised the Electrical Appliance Safety Control Act to expedite the certification and inspection procedure ofor legal certification from 20 types to 9 types and to integrate 13 legal certification marks into KC (Korea Certification) mark that has been in force since July 2009.



The KC Mark can be added for safety (S), quality (Q), environment (E) and health (H) in each certification category. The applicable standard may follow either the existing K series standard or the KS C IEC series standard that satisfies the IEC.

## 2. Safety Standards of Motor Products

### (1) UL Standards

**1) UL50 : Enclosures for Electrical Equipment**
The standard is required to protect electrical appliances and to match the grades of the IEC.

**2) UL1692 : Polymeric Materials – Coil Forms**
The standard can assess the insulation systems of the motor and applies it to 'A' grade insulation.

**3) UL1446 : Systems of Insulating Materials – General**
This standard can assess insulation systems and materials for motor products and applies an 'E' grade or higher to the insulation.

**4) UL1004-1 : Rotating Electrical Machines – General Requirements**
In September 2008, the standard for the assessment of structure, appearance and performance of all of motors was updated to replace the UL1004 from September 2008. Therefore, motor products that were tested in accordance with the previous UL1004 need to follow UL1004-1 of the updated standard no later than September 2010.

**5) UL1004-2 : Impedance Protected Motors**
In September 2008, the standard for the assessment of the impedance protected type of motor was updated to replace the UL2111 from September 2008. Therefore, the Z,P type of motor that was tested in accordance with the previous UL2111 need to conduct additional testing in accordance with the new standard in order to meet the new UL1004-1 standard no later than December 2010.

**6) UL1004-3 : Thermally Protected Motors**
In September 2008, the standard for assessment for the thermal protected type of motor was released to replace the existing UL211. Therefore, the T.P type of motor that was tested in accordance with the previous UL2111 need to conduct additional testing in accordance with the new standard to comply with the UL1004-1 standard no later than December 2010.

**7) Another Standards of Motor**
UL1004-4 : Electric Generator
UL1004-5 : Fire Pump Motors
UL1004-6 : Servo and Stepper Motors
UL1004-7 : Electronically Protected Motors
UL1004-8 : Inverter Duty Motors

**8) UL507 – Electric Fans**
UL507 shall conduct tests of 600V or below for fans and blowers, and the UL1004 series shall be used to conduct tests of motor products.

### (2) CSA Standard

**1) CSA C22.2 No.0-M91 : General Requirements – Canadian Electrical Code, Part II**
CSA C22.2 No.0-M91 shall be applied to insulation class B or above to conduct the testing of insulation systems and materials related to the motor products.

**2) CSA C22.2 No. 100 : Motors and Generators**
CSA C22.2 No. 100 shall be used to conduct tests of the structure, appearance and performance of all kinds of motors and generators.

**3) CSA C22.2 No. 77 : Motors with Inherent Overheating Protection**
CSA C22.2 No. 77 shall be used to conduct tests of Motor (Z.P, T.P and others) for thermal protection systems in order to comply with C22.2 No. 100.

**4) CSA C22.2 No. 113 : Fans and Ventilators**
CSA C22.2 No. 113 shall be used to conduct tests of 600V or below for fans and ventilators, and C22.2 No. 100 as well as C22.2 No. 77 shall be used to conduct tests of motors.

### (3) EN Standard (= IEC Standard)

**1) EN 60034 series : Rotating Electrical Machines**
EN 60034 series shall be used to conduct tests regarding the ratings, performances and structures of industrial use motors as well as commercial use motors, and it consists of the following standards:
- EN 60034-1 : Rating and performance
- EN 60034-5 : IP cord (dustproof and waterproof grade)
- EN 60034-6 : IC cord (cooling methods)
- EN 60034-7 : IM cord (mounting methods)
- EN 60034-8 : Terminal marking and rotation directions
- EN 60034-11 : Built-in thermal protector
- EN 60034-12 : Features of running of 3-phase induction motor
- EN 60034-30 : IE cord (energy efficiency grade)

EN 60034 does not cover any safety requirements; therefore the safety requirements of finished products need to be tested.

**2) EN 60664-1 : Insulation Coordination for Equipment within Low - Voltage Systems**
EN 60664-1 shall be used to conduct tests for clearance, creepage and the solid insulation distance of the motor based on the capacity of low voltage motors (less than AC 1000V and DC 1500V).

**3) EN 62114(EN60085) : Electrical Insulation System - Thermal Classification**
EN 62114(EN60085) shall be used to conduct tests on insulation systems and materials of the motor.

**4) EN 60204-1 : Safety of Machinery - Electrical Equipment of Machines**
EN 60204-1 shall cover the safety requirements of industrial use motors.

**5) EN 60335-1 : Household and similar Electrical Appliances - Safety**
EN 60335-1 shall cover the safety requirements of commercial use motors.

**6) EN 60950-1 : Information Technology Equipment - Safety**
EN 60950-1 shall cover the safety requirements of motors for ITE equipment and apparatus.

**7) EN 60601-1 : Medical Electrical Equipment, Safety**
EN 60601-1 shall cover safety the safety requirements of motors for medical equipment and apparatus.

### (4) GB Standard

**1) GB12350-2000 : Safety Requirements for Small - Power Motor**

**2) GB14711-2006 : Safety Requirements for Small and Medium Rotating Electrical Machines**
Not only GB12350-2000 but also GB14711-2006 shall cover the safety requirements of the motor for CCC mark certification of the Chinese certification.

## 3. Safety Standard of the Controller

### (1) UL Standards

**1) UL508 : Industrial Control Equipment**
UL508 shall cover the safety requirements for the use and protection of industrial use control equipment and motors.

**2) UL508C : Power Conversion Equipment**
UL508C shall cover the safety requirements of the equipment and apparatus that supplies power to the motor by converting input voltage and frequency.

**3) UL60730-1A : Automatic Electrical Controls for Household and Similar Use**
UL60730-1A shall cover the safety requirements of the controller that is used for the automatic power control systems for home use as well as commercial use.

### (2) CSA Standards

**1) CSA C22.2 No. 14 : Industrial Control Equipment**
CSA C22.2 No. 14 shall cover the safety requirements for the use and protection of industrial use equipment and motors.

**2) CSA · E60730-1 : Automatic Electrical Controls for Household and Similar Use**
CSA · E60730-1 shall cover the safety requirements of the controller that is applied to the automatic power control systems for home use as well as commercial use.

### (3) EN Standards

**1) EN 50178 : Electronic Equipment for Use in Power Installations**
EN 50178 shall cover the safety requirements for electronic equipment that can start and run a motor by connecting it to a power supply.

**2) EN 61800-1 : Adjustable Speed Electrical Power Drive System, D.C. Power Drive System**
Drive System EN 61800-1 shall cover the rating of low voltage and adjustable speed DC power drive systems.

**3) EN 61800-2 : Adjustable Speed Electrical Power Drive System, A.C. Power Drive System**
EN 61800-2 shall cover the rating of low voltage and adjustable speed AC power drive systems.

**4) EN 61800-3 : Adjustable Speed Electrical Power Drive System, EMC**
EN 61800-3 shall cover the EMC requirements for low voltage and adjustable speed drive systems.

**5) EN 61800-5-1 : Adjustable Speed Electrical Power Drive System, Safety, Electrical, Thermal and Energy**
EN 61800-5-1 shall cover the power; thermal and energy of low voltage and adjustable speed drive systems.

## 4. Test Method based on Standards

Various kinds of tests below may vary depending upon applicable standards and evaluation items.

### (1) Electrical Insulation System

**1) Insulation Materials**

The insulation materials of the SPG motor can satisfy the 'B' class of the insulation grade. Upon a customer's special request, material having a suitable insulation grade can be used. (IEC60085, UL1692, UL1446, CSA CSS.2 No.0-M91)
SPG motor has obtained the IEC/EN certification, and UL/CSA and CCC certified products have obtained the certification for the 'B' class of insulation grades.
The insulation grade refers to insulation and heat resistance grades (see Table below):

**Table : Insulation grades and allowable maximum temperature**

| Insulation grade | allowable maximum temperature | remarks |
|---|---|---|
| class A [A)] | 105°C(221°F) | |
| class E [A), B)] | 120°C(248°F) | |
| class B | 130°C(266°F) | SM-1, SM-4, SM-5 [C)] |
| class F | 155°C(311°F) | SM-3, SM-6, SM-7 [C)] |
| class H | 180°C(356°F) | SM-8, SM-9 [C)] |

Remarks :
A) IEC/EN 60034 series standards shall not be applied.
B) CSA standards shall not be applied.
C) The model name of the insulation system of SPG has obtained the certification of insulation systems according to UL1446. The name plate has been identified with the UL motor that has obtained the certification of the insulation system 'B' class or higher.

**2) Equipment Protection Structure**

- IEC529 and IEC34-5 standards specify the class of dustproof and waterproof in terms of the equipment protection structure.
- The class indications of dustproof and waterproof are as follows.




- The classification and test methods of dustproof and waterproof are shown in the table below.

**(1) The classification of dustproof(1st digit)**

| IP Indication | Protection Specifications for Dust-proof | |
|---|---|---|
| | Protection Level | Test Requirement |
| IP□0 | None | None |
| IP□1 | Protected from the access of a hand | A solid foreign material of diameter greater than 30㎜ should not infiltrate |
| IP□2 | Protected from the access of a finger | A solid foreign material of diameter greater than 12㎜ should not infiltrate |
| IP□3 | Protected against the tool's edge | A solid foreign material of diameter greater than 2.5㎜ should not infiltrate |
| IP□4 | Protected against the wire | A solid foreign material of diameter greater than 1.0㎜ should not infiltrate |
| IP□5 | Protected against the dust | Dust that can cause malfunction should not infiltrate |
| IP□6 | Perfect dust-proof structure | Provide perfect protection against the infiltration of dust |

**(2) The classification of waterproof(2nd digit)**

| IP Indication | Protection Specifications for Dust-proof | |
|---|---|---|
| | Protection Level | Test Requirement |
| IP□0 | None | None |
| IP□1 | Protected from the water-drop dropping vertically | Drop water-drops of 3~5ℓ /min for 10 minutes at 200㎜ height |
| IP□2 | Protected from the water-drop dropping within a range of 15° from the vertical direction | Drop water-drops of 3~5ℓ /min within a range of 15° for 10 minutes at 200㎜ height |
| IP□3 | Protected from the water spraying within a range of 60° from the vertical direction | Spray water of 10ℓ /min within a range of 60° for 10 minutes at 200㎜ height |
| IP□4 | Protected from the water splattering from all directions | Spray water of 10ℓ /min in all directions for 10 minutes at 300~500㎜ distance |
| IP□5 | Protected from the water pouring from all directions | Spray water of 12.5ℓ /min 30kPa in all directions for 3 minutes at 3m distance |
| IP□6 | Protected from strong water pouring such as sea wave | Spray water of 30ℓ /min 100kPa in all directions for 3 minutes at 3m distance |
| IP□7 | Possible to use while immersed in the water under certain conditions | 30 minutes at 1m under the water |
| IP□8 | Possible to use under the water | Subject to an agreement between user and manufacture |

Note) All of our CE marked motors are built to the equipment protection structure under the provisions of IEC529 and IEC34-5 and the motor's IP class is indicated in the name plate.

### (2) Performance Test

Conduct performance tests on all motors.

| Test Item \ Standard | UL1004-1, CSA C22.2 No. 100 | |
|---|---|---|
| Rating Test | Apply voltage and frequency in accordance with the markings on the name plate to run the motor at either output or RPM and to measure the rating current.<br>The current marked on the name plate shall not exceed ± 10% of the measurement values. | |
| Temperature Test | Continuous Duty | Apply voltage and frequency in accordance with standards to run the motor at either the rating current or rating output.<br>At the saturation temperature, the temperature of winding shall not exceed Class A-105°C / B-130°C / F-155°C / H-180°C. |
| | Intermittent Duty | Apply voltage and frequency in accordance with the standard to run the motor at either the rating current or rating output and then turn it ON/OFF repeatedly.<br>At saturation temperature, the temperature of the winding shall not exceed Class A-105°C / B-130°C / F-155°C / H-180°C. |
| Dielectric Voltage -Withstand Test | After the temperature rise test, the motor case and lead wire of the motor shall satisfy tests for their dielectric strength, in other words, two times that of 1,000V plus the rating voltage per minute. | |

### (3) Temperature tests during abnormal operations

Conduct the test for voltage and frequency in accordance with the requirements of each standard.

#### 1) Impedance Protected Motor

| Test Item \ Standard | UL1004-2, CSA C22.2 No. 77 |
|---|---|
| Locked - Rotor or No - Load Temperature test | Conduct tests for temperature increases for abnormal running of the impedance protected motor: Select the worst conditions between the temperature increase test of the rotor jam and the temperature increase test under a negative load. (The capacitor running and operation type may be under a connection with the capacitor, open or short circuit.)<br>a) The temperature of the winding wire shall not exceed Class A-150°C / B-130°C / F-155°C / H-180°C.<br>b) The fuse connected with the ground shall have no disconnection.<br>c) When the jam is released, the motor shall run normally.<br>d) No excessive smoke, fire and material damage, etc shall be produced during test. |
| Dielectric Voltage - Withstand Test | After the temperature rise test under either jam or no load conditions, the motor shall experience no failure during a test of its dielectric strength (1000V + 2 times of rating voltage per minute) of not only the motor case but also the lead wire. |
| Endurance Test | After the dielectric strength test, conduct a test of the durability of the motor fifteen days under jam (or no load).<br>a) The fuse connected with the ground shall have no disconnection.<br>b) When the jam is released, the motor shall run normally.<br>c) No excessive smoke, fire and material damage, etc shall be produced during test.<br>d) No failure of during the dielectric strength test shall occur while conducting tests at two times the rating voltage. |

#### 2) Thermally Protected Motor

Test voltage and frequency shall meet the test conditions of each standard, and the built-in, thermally protected motor shall be used.

| Test Item \ Standard | UL1004-3, CSA C22.2 No. 77 |
|---|---|
| Locked Rotor Temperature Test (Auto-Reset Protector) | Conduct the test for temperature increases of the abnormal running of the impedance protected motor: Select the worst conditions between the temperature increase test of the rotor jam and the temperature increase test under no load. (The capacitor running and operation type may be under connection with the capacitor, open or short circuit.)<br>a) The temperature of the winding wire shall be as follow (Class A/B/F/H):<br>• Maximum temperature within 1 hour after test: 200°C/225°C/250°C/275°C<br>• Maximum temperature within 1 hour after test and 72 hours before the test: 175°C/200°C/225°C/250°C<br>b) The fuse connected with the ground shall have no disconnection.<br>c) When the jam is released, the motor shall run normally.<br>d) No excessive smoke, fire and material damage, etc shall be produced during the test. |

| | | |
|---|---|---|
| Dielectric Voltage – Withstand Test | After the temperature rise test under either jam or no load, the motor shall have no failure during the test for dielectric strength (1000V + 2 times of rating voltage per minute) of not only the motor case but also the lead wire. | |
| Endurance Test | After the dielectric strength test, conduct a test for the durability of the motor fifteen days under jam (or no load).<br>a) The fuse connected with the ground shall have no disconnection.<br>b) When the jam is released, the motor shall run normally.<br>c) No excessive smoke, fire and material damage, etc shall be produced during test.<br>d) No failure during the dielectric strength test shall occur when conducting the test at two times the normal rating voltage. | |
| Running Heating Temperature Test | Continuous Duty Motor | Measure the temperature of the winding wire at the maximum load operation before the temperature protection system runs after the motor starts to run at the rating load. The temperature limit shall be less than Class A–140˚C / B–165˚C / F–190˚C / H–215˚C. |
| | Polyphase Motor | The Polyphase motor runs after a single phase and a phase failure during the running of the rating load. (Conduct a test of all of the phases.) Measure the temperature of the winding wire at the maximum load operation before the temperature protection runs. The measurement value shall not exceed Class A–140˚C / B–165˚C / F–190˚C / H–215˚C, and it shall be less than the maximum temperature limit of the winding wire of the jam temperature rise test when the protection system runs at the phase failure. |
| | Intermittent Duty Motor | When the temperature protection system runs after running at the rating load, measure the maximum temperature of winding wire at no load and by lowering the voltage before the running of the protection system. The temperature limit shall be less than Class A–140˚C / B–165˚C / F–190˚C / H–215˚C. |
| | Air – over Motor | 1) When the temperature protection system does not run at the rating load and no load, the temperature measurement value of the winding wire shall not exceed Class A–140˚C / B–165˚C / F–190˚C / H–215˚C. 2) When the temperature protection system runs at the rating load and no load, the temperature measurement value of the winding wire shall not exceed the temperature rise test limit of the jam of the winding wire. |
| | Polyphase Air – Over Motor | The Polyphase Air – Over Motor shall run at a single phase during the rating load operation after a phase failure. (Conduct tests of all of the phases). When the temperature protection system runs at an operation level of both the rating load and no load, the temperature measurement value of the winding wire shall not exceed the limit of the temperature rise test. |

## 5. Foreign Safety Standard Certification of SPG Products

### (1) Certification Mark of Foreign Safety Standards

The name plates of the certified products shall be printed with the specified certification marks below:

#### 1) UL Certification

UL certification shall be adhered to certified products of not only the UL standard but also the CSA standard certified products: SPG is currently conducting tests of a UL standard and the CSA standard at a CTDP laboratory that has been approved by a UL laboratory program procedure.

#### 2) CSA Certification

CSA certification shall be adhered to not only the CSA standard but also the UL standard certified products: SPG is currently conducting tests of UL standards and CSA standards at a CCP laboratory that has been approved by a CSA laboratory program procedure.

#### 3) European Certification

The European certification shall be adhered to either by the EN standard or by the IEC standard certified products of TUV SUD and DEMKO: SPG is currently conducting tests of either the EN standard or the IBC standard at an ACT laboratory that has been approved by a SUD laboratory program procedure.

#### 4) Chinese CCC Certification

The Chinese CCC certification shall be adhered to by the GB standard certified products of CQC in accordance with the Chinese CNCA procedures.

#### 5) Other Certification Markings

The CE markings shall be adhered to certified products in accordance with EC LVD and EMCD, and FCC shall be adhered to in accordance with FCC procedure.

※ Note

1. UL CTDP Laboratory(Client Test Data Program) : Certificate No. DA525
2. CSA CPC Laboratory(Category Program for Certification) : Certificate No. CPC-0209
3. TüV SüD ACT Laboratory(Acceptance of Client's Testing) : Certificate No. ROK0814A

### (2) Post Inspection of Certified Products

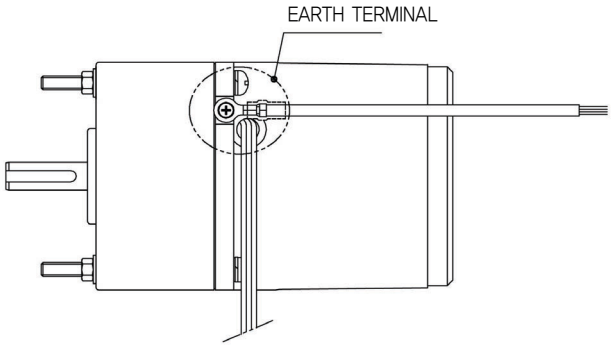
SPG regularly inspects its factories to keep the certification requirements and the appropriateness of the standards so that it can maintain a continuous quality of the products that have been certified in accordance with its standards

UL : 4 times a year
CSA : 4 times a year
TüV : one time a year
DEMKO : one time a year
CCC : one time a year

## 6. Earth Method

- Connect the earth line to where the earth mark is indicated in the CE mark conformance motors before use.
- A terminal box type motor has an earth terminal inside the box. Connect the lead wire to this location.

### (1) Example of the earth connection for CE Mark conformance general motors

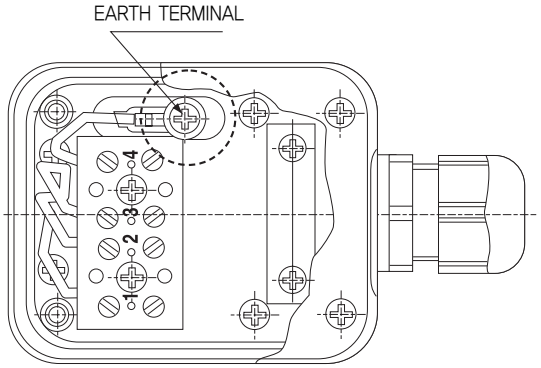



Note) Rub off the housing paint just beneath the clamping bolt shown in the circle to connect the earth terminal. If the paint is not removed and the earth is connected, the paint provides an insulation effect and the earth does not work.

### (2) Example of the earth connection for terminal box type motors

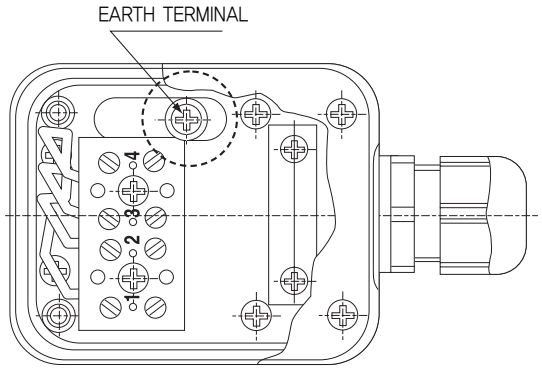
#### 1) Example of 3-wire motors

- All models destined for Europe and Southeast Asia (1Ph. 220~240V 50Hz)
- Domestic models (1Ph. 220V 60Hz) Models destined for Japan (1Ph. 100V 50/60Hz ; 1Ph. 200V 50/60Hz) UL models (1Ph. 115V 60Hz) Reversible motors
- All three-phase type models(3Ph, 200V 50/60Hz, 3Ph, 220V 50/60Hz, 3Ph, 380~440V 50/60Hz)

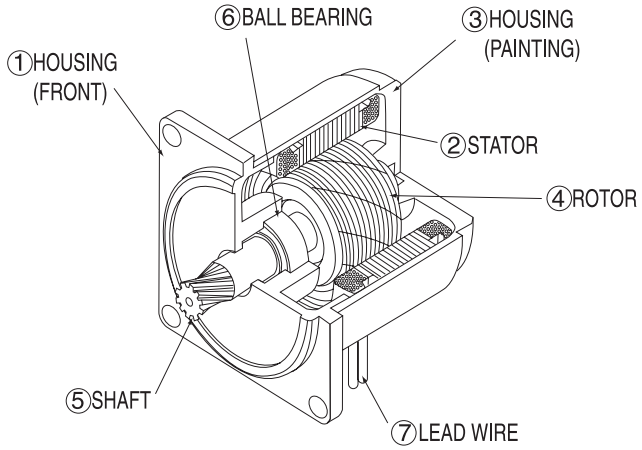



#### 2) Example of 4-wire motors

- Domestic models (1Ph. 220V 60Hz) Models destined for Japan (1Ph. 100V 50/60Hz; 1Ph. 200V 50/60Hz) UL models (1Ph. 115V 60Hz) Induction Motors



# MOTOR'S STRUCTURE




## 1. ① HOUSING(FRONT), ③ HOUSING(PAINTING)

- The housing is also referred to as a frame or a bracket and it forms motor's exterior covering. Thus its aesthetic shape, structure, and precision process should be excellent. This is an important part that allows the rotor to be positioned exactly at the center of the stator without causing the air gap being eccntric so that the motor can perform its function normally.
- The material is aluminum diecasting or press. Our standard geared motors are made of aluminum diecasting.

## 2. ② STATOR

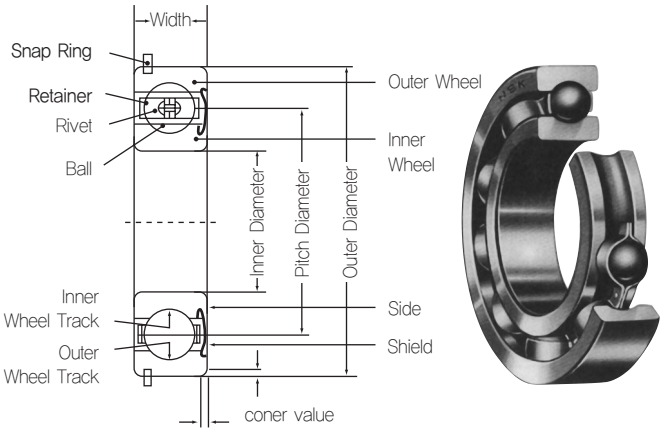
- The role of the stator is to generate magnetic field. To generate magnetic field, an iron core which the magnetic field can easily pass and a coil winding which makes an electromagnet are required.

## 3. ④ ROTOR ⑤ SHAFT

- The rotor plays an important role converting the electrical energy received from the stator to the mechanical energy, which is then transferred from the shaft to the outside.
  Therefore, the rotor should have both electrical function and mechanical strength.
- The rotor consists of an end-ring and an aluminum bar, both of which are aluminum castings.
- The shaft is made of strong steel.

## 4. ⑥ BALL BEARING

- The ball bearing ensures that the rotor remains at the right position for the reliability and fast rotational motion. The induction motor has a narrow air-gap (a gap between a stator and a rotor) so that a great care should be taken to the bearing when using it. Especially, the standard geared motors have a narrower air gap than the general induction motors.
- The ball bearing consists of inner wheels, outer wheels, vibrating bodies, and retainers. There are many types of ball bearings, but most small and medium motors use deep groove ball bearings.




Single Track Deep Groove Ball Bearing

※ Note) The single track deep groove ball bearing is a representative rolling bearing and can be used in many ways. The groove of the track established at both inner and outer wheels is shaped like an arch of a radius that is a little larger than the radius of the rolling ball. This bearing can withstand the load in any direction except for the load in the rolling and axial directions. The low frictional torque makes this bearing most suitable for the low noise and low vibration applications.
In addition to the open type bearing, there is a shielded bearing or a rubber sealed bearing, or a bearing with a snap ring attached to an outside diameter of an outer wheel. Generally, a press retainer is used.

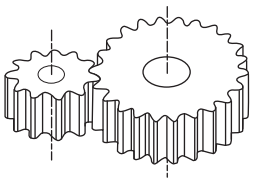
## 5. ⑦ LEAD WIRE

- The lead wire takes responsibility for supplying power source to the stator. The lead wire of all models for a single-phase induction motor and a three-phase 220V or less voltage motor are UL STYLE NO. 3266 AWG NO. 20. And three-phase 380V-440V motors use UL STYLE NO. 3271 AWG NO. 20.

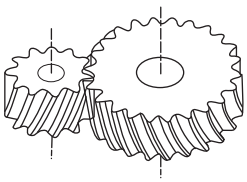
# Overview of Gearhead

## Type of Gear

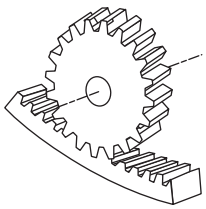
**(1) 2 spindles running parallel with each other** : Spur Gear, Helical Gear, Internal Gear, etc.
**(2) 2 spindles crossing each other at a point** : Bevel Gear, etc.
**(3) 2 spindles missing each other** : Crossed Helical Gear, Worm Gear, etc.



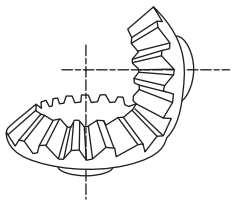
SPUR GEAR



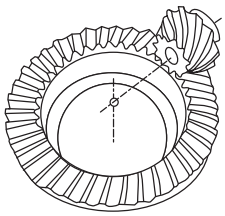
HELICAL GEAR



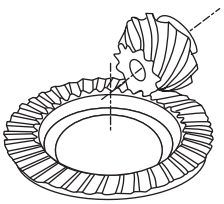
INTERNAL GEAR



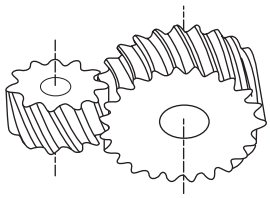
STRAIGHT BEVEL GEAR



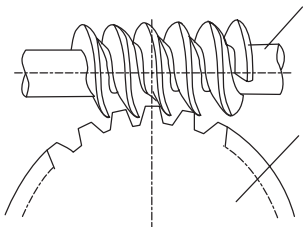
SPIRAL BEVEL GEAR



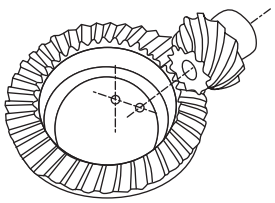
ZEROL BEVEL GEAR



CROSSED HELICAL GEAR



WORM GEAR



HYPOID BEVEL GEAR

## 2. Charicteristics of Gearhead

### (1) What is a Gearhead?

- As a speed changer uses a gear, the gearhead is an instrumental device that reduces the revolutions of the motor to its necessity and provides a greater torque.

### (2) Characteristics of Gearhead

- Small size with big delivery capability
- Fixed reduction ratio by non-slip
- Durability
- Wide spectrum of reduction ratio

### (3) Gear Ratio

- The gear ratio in the engaging gears is a value obtained by dividing the number of teeth in the driven gear by the number of teeth in the driving gear. SPG has gone through precision process for the motor shaft and the helical gear, and as a result, SPG could make a remarkable reduction in noise level to 10~15dB. SPG has various types of gearhead, including dedicated gearhead of 1/3~1/200

※ If a ratio greater than 1/200 is required, inter-decimal gearhead(1/10) can be used head(60㎜ has 1/3~1/250) which can be easily connected with the motor.
※ REPETITION OF ABOVE SENTENCE - DELETE THE SENTENCE

### (4) Types of Gearhead

- Our gearheads are grossly divided into □60㎜, □70㎜, □80㎜, □90㎜ depending on the exterior size.

#### 1) □60㎜ GEAR HEAD

- **S 6 ① A ② ③**
  ① is a type of gearhead spindle (shaft). D: D-Cut type;
  S : Straight type; K: Key type.
  A is an output measurement, corresponding to 6W motors.
  ② is a ratio. SPG has 24 ratios from 1/3 to 1/250.
  ③ is a bearing type. B1: All ball bearing types; B: Ball bearing + Metal bearing type; M: Metal bearing type.
  ※ If a ratio greater than 1/200 is required, inter-decmial gearhead S6GX10B(1/10) can be used.

#### 2) □70㎜ GEAR HEAD

- **S 7 ① A ② ③**
  ① is a type of a gear head spindle (shaft). D: D-Cut type;
  S : Straight type; K: Key type.
  A is an output measurement, corresponding to 15W motors.
  ② is a ratio. SPG has 24 ratios from 1/3 to 1/200.
  ③ is a bearing type. B: All ball bearing types; B: Ball bearing+Metal bearing type; M: Metal bearing type.
  ※ SPG does not have an appropriate inter-decimal gearhead for use in a ration greater than 1/200.

### 3) □80㎜ GEAR HEAD

• S 8 ① A ② ③
① is a type of gearhead spindle (shaft). D: D-Cut type;
S : Straight type; K: Key type.
A is an output measurement, corresponding to 6W to 25W motors. We have two kinds of output for 80㎜ gearhead : 15W and 25W.
② is a ratio. SPG has 24 ratios from 1/3 to 1/200.
③ is a bearing type. B: All ball bearing types; B: Ball bearing+Metal bearing type; M: Metal bearing type.
※ If a ratio greater than 1/200 is required, inter-decimal gearhead S8GX10B(1/10) can be used.

### 4) □90㎜ GEAR HEAD

• S 9 ① B ② ③ ④
① is a type of gearhead spindle (shaft). D: D-Cut type;
S: Straight type; K: Key type.
B is an output measurement, corresponding to 40W motors.
② is a ratio. SPG has 24 ratios from 1/3 to 1/200.
③ is a bearing type. B1: All ball bearing types; B: Ball bearing+Metal bearing type; M: Metal bearing type.
④ is whether or not the heat treatment work was done on the motor shaft and the gear section. H: Heavy impact type (Heat treatment type); L: Light impact type (Non-heat treatment type).
※ If a ratio greater than 1/200 is required, inter-decimal gearhead heat treatment type S9GX10BH(1/10) and non-heat treatment type S9GX10BL(1/10) can be used.

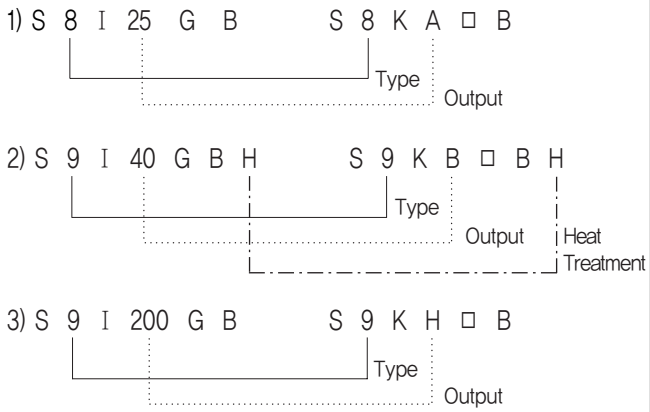
• S 9 ① C ② B ③, S 9 ① C ② B ③-S
① is a type of gearhead spindle (shaft). D : D-Cut type ;
S : Straight type ; K : Key type.
C is an output measurement, corresponding to 60W, 90W, and 120W motors.
② is a ratio. SPG has 24 ratios from 1/3 to 1/200.
B is a bearing type. The above gearhead is an 'all bearing' type for this unit, so we do not use a metal bearing type.
③ is whether or not the heat treatment work was done on the motor shaft and the gear section. For 60W and 90W motors, H: Heavy impact type (Heat treatment type); L: Light impact type (Non-heat treatment type).
For the shaft and gearhead of 120W motors, only H : Heavy impact type (Heat treatment type) is available.
※ If a ratio greater than 1/200 is required, inter-decimal gearhead heat treatment type S9GX10BH-S(1/10) and non-heat treatment type S9GX10BL-S(1/10) can be used.

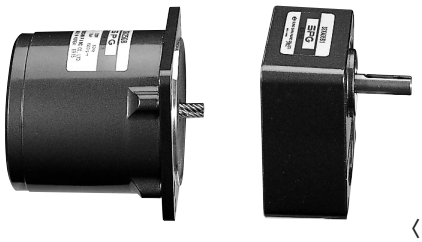
• S 9 ① (D,H) ② B
① is a type of gearhead spindle (shaft). D: D-Cut type;
S : Straight type; K: Key type.
(D) is an output measurement, corresponding to 60W, 90W, and 120W motors and (H) is an corresponding to 150W, 180W and 200W motors.
② is a gear ratio. SPG has 24 ratios from 1/3 to 1/200.
B is a bearing type. The above gearhead is an 'all bearing' type for this unit, so we do not use a metal bearing type.
※ Ⓐ There is only H:Heavy impact type above the items, gearhead so that the setting motor should be used the same type which is Heavy impact.
Ⓑ It is not available to use a gear ratio over 1/200 because there is not an inter-decimal gearhead.

## 3. Combination Method of Motor and Gearhead

• Assembly shall be done with care, for only the same letters and numbers can be combined together.

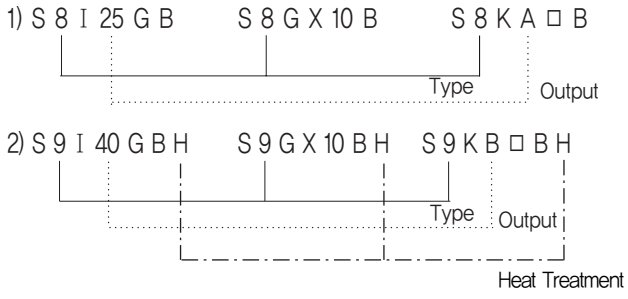
**(1) For examples, refer to (Fig. 1)**



〈Fig.1〉

**(2) When using an inter-decimal gearhead together, refer to (Fig. 2).**

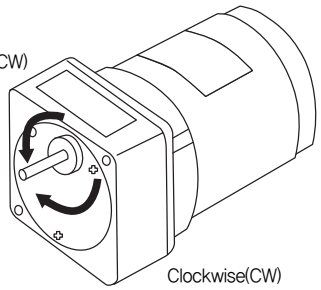





〈Fig.2〉

**(3)** WHAT ARE YOU TRYING TO SAY?
The number of rotations are reduced by 1/10 but the ambient torgue would not be increased because the ambient torgue is already fixed on gearhead.

## 4. Number and Direction of Rotations




### (1) Number of Rotations

- For the directly assembled gearhead, the number of rotations is expressed by the following equation.

$$N_G = \frac{N_M}{i}$$

NG : Revolutions of a gearhead [rpm]
NM : Revolutions of a motor [rpm]
i : gear ratio of a gearhead

### (2) Direction of Rotations

- Rotating direction of the output shaft in the gearhead is either identical or opposite to the motor's rotating direction depending on the gear ratio. Refer to 〈Fig. 1〉.
- In case of using an inter-decimal gearhead(1/10), the rotating direction is the same as the gearhead's direction.

| MODEL \ Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S6DA□B | | | | | | | | | | | | | | | | | | | | | | | | | |
| S7KA□B | | | | | | | | | | | | | | | | | | | | | | | | | |
| S8KA□B | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KB□B( ) | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KC□B( ) | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KC□B( )-S | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KD□B | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KH□B | | | | | | | | | | | | | | | | | | | | | | | | | |

〈Table1〉 The rotating direction of the output shaft in the gearhead ■ : Same direction as the motor, □ : Opppsite direction as the motor

## 5. Calculation of Output Torque When Gearhead is Combined

- When the gearhead is combined, the output torque is calculated as follows.

$$T_G = T_M \times i \times \eta$$

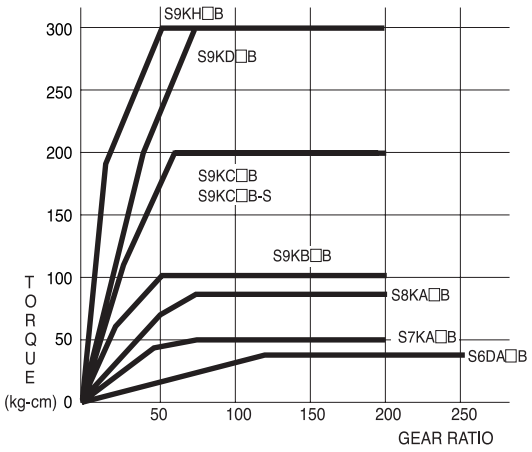
TG : Torque of a gearhead's output shaft , TM : Torque of a motor
i : Reduction ratio of a gearhead, $\eta$ : Delivery efficiency of a gearhead.
Refer to (Table 2)for delivery efficiency of a gearhead.

## 6. Maximum Permissible Torque of Gearhead

| MODEL \ Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S6DA□B | 81% | | | | | | | | | | 73% | | | | | 66% | | | | | | | | | |
| S7KA□B | | | | | | | | | | | | | | | | | | | | | | | | | |
| S8KA□B | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KB□B( ) | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KC□B( ) | 81% | | | | | | | | 73% | | | 66% | | | | | | 59% | | | | | | | |
| S9KC□B( )-S | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KD□B | | | | | | | | | | | | | | | | | | | | | | | | | |
| S9KH□B | | | | | | | | | | | | | | | | | | | | | | | | | |

〈Table2〉 Delivery Efficiency of Gearhead

- Although the output torque of the gearhead is proportional to the ratio, the torque allowable to the gearhead has a limitation depending on what materials are used and the other conditions. This is called a maximum permissible torque and determined based on the size of the gearhead and the gear ratio.
- For example, when a 40W induction motor and a gear ratio of 1/100 is combined, the rated torque of S9I40GB is 2.5kg · cm, which leads to $T_G = T_M \times i \times \eta = 2.5 \times 100 \times 0.66 = 165$kg · cm. Although the calculation turns out to be 165kg · cm, the maximum permissible torque for S9KB100B is prescribed as 100kg · cm as shown in 〈Fig. 3〉 below.




〈Fig.3〉 Maximum Ambient Torque of Gearhead

## 7. Gearhead Lifetime and Service Factor

- The lifetime of the gearhead is usually determined by how the shaft is supported. However, since the load varies in general, the lifetime of the gearhead is determined by the service factor based on the load. Refer to Table 3.
- For example, if the motor is operating with an ordinary load for 8 continuous hours a day, the service factor is 1.0. Thus, if the operation continues within the permissible torque for the gearhead and within the range of prescribed temperature (letting the gearhead case temperature stay below 50℃), the lifetime of the gearhead is 5,000 hours for the ball bearing type and 2000 hours for the metal type. Refer to Table 4.
- However, if a ball bearing type of gearhead is operating for 24 hours a day, the service factor becomes 1.5 so that the life time decreases to 1/1.5. Therefore, the service factor should be taken into account to select such a motor and a gearhead which have biggest permissible torque .

| TYPE OF LOAD | 8 HOURS A DAY | EXAMPLE OF LOAD |
|---|---|---|
| General Load | 1 | Belt conveyor ; Continuous operation in one direction |
| Light Impact Load | 1.5 | Frequent starting/operating ; Frequent CAM driving |
| Medium Impact Load | 2 | Instantaneous reversal operation; Instantaneous stopping |

〈Table 3〉 Example of Load and Service Factor

| | |
|---|---|
| BALL BEARING TYPE | 5,000 hours |
| METAL TYPE | 2,000 hours |

〈Table 4〉 Standard Lifetime

## 8. Overhung Load and Thrust Load

- The overhung is something like a cantilever. A cantilever is something fastened on the external axis, not on the shaft between two bearings or two supporting mechanisms.
- When a chain, a gear, or a belt is employed as an output delivery mechanism for the output shaft of a gearhead, the overhung load is loaded upon the shaft.
- Since the overhung load exerts a load directly on the gearhead, it affects the life span of the gear.
- The overhung load can be calculated from the following equation.

$$W = \frac{K \times T \times f}{r}$$

W : Overhung load [kg]
K : Weight coefficient by driving method
T : Delivery force [kg · cm] of a gear head output shaft
f : Service factor (Refer to Table 3)
r : Effective radius of gear, pulley, etc.

| Driving Method | K |
|---|---|
| CHAIN, SPROCKET | 1 |
| GEAR | 1.25 |
| V-BELT | 1.5 |
| PLAT-BELT | 2.5 |

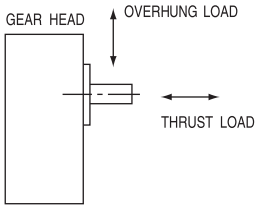
〈Table 5〉 Load Coefficient by Driving Method

- If the motor operates with the calculated overhung load greater than the maximum allowable value in Table 6, care should be taken for the damage of the bearing may shorten the lifetime, bend the output shaft and fatigue deformation due to the repeated load.
- In such a case, set up the structure of the motor as depicted in (Fig. 5) to withstand the overhung load.
- Also, if a load is directly imposed on the output shaft, place the load as close as possible to the gearhead to avoid one-sided load.
- If a helical gear or a worm gear is employed as an output delivery mechanism, make sure not to exceed both the overhung load and the thrust load simultaneously.

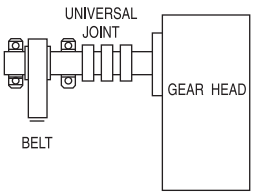
| MODEL | GEAR RATIO | MAXIUM AMBIENT TORQUE(kg · cm) | PERMISSIBLE OVERHUNG LOAD(kg) | PERMISSIBLE THRUST LOAD(kg) |
|---|---|---|---|---|
| S6DT□B | 3~18 | 0.5~3 | 5 | 3 |
| | 20~250 | 3~15 | | |
| S6DA□B | 3~18 | 1~6 | 6 | 3 |
| | 20~250 | 6~30 | 15 | |
| S7KA□B | 3~18 | 3~18 | 10 | 4 |
| | 20~200 | 20~50 | 20 | |
| S8KA□B | 3~18 | 2~25 | 12 | 5 |
| | 20~200 | 30~80 | 24 | |
| S9KB□B( ) | 3~18 | 4~40 | 30 | 10 |
| | 20~200 | 40~100 | 37 | |
| S9KC□B( ) S9KC□B( )-S | 3~10 | 8~40 | 45 | 15 |
| | 12.5~20 | 40~80 | 52 | |
| | 25~60 75~200 | 50~200 | 60 | |
| S9KD□B( ) S9KH□B( ) | 3~200 | 18-300 | 55 | |

〈Table 6〉 Permissible Overhung Load and Permissible Thrust Load

※ Note 1 : The maximum permissible torque varies depending on the ratio. Use a range of permissible torque for each ratio.
※ Note 2 : For Metal Bearing Type(marked as "M" in product code), shall be used below 80% of listed permissible overhung load.




〈Fig.4〉



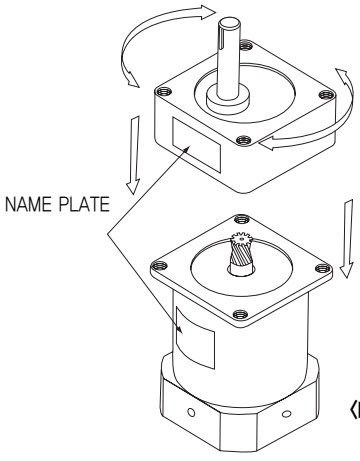

〈Fig.5〉

## 9. List of Gearhead Type

| GEAR HEAD SIZE | APPLICABLE MOTOR | Heat Treatment (Yes/No) | BEARING TYPE | | | REMARKS |
|---|---|---|---|---|---|---|
| | | | ALL BALL BEARING | BALL BEARING + METAL BEARING | METAL BEARING | |
| □60㎜ | 6W | NO | S6DA□B1 | S6DA□B | S6DA□M | |
| □70㎜ | 15W | NO | S7KA□B1 | S7KA□B | S7KA□M | |
| □80㎜ | 15W~25W | NO | S8KA□B1 | S8KA□B | S8KA□M | |
| □90㎜ | 40W | NO | S9KB□B1L | S9KB□BL | S9KB□ML | |
| | | YES | S9KB□B1H | S9KB□BH | S9KB□MH | |
| | 60W~90W | NO | S9KC□BL | – | – | |
| | | | S9KC□BL-S | – | – | FLANGE TYPE |
| | 60W~120W | YES | S9KC□BH | – | – | |
| | | | S9KC□BH-S | – | – | FLANGE TYPE |
| | | | S9KD□B | – | – | HIGH TORQUE |
| | 150W~200W | YES | S9KH□B | – | – | HIGH TORQUE |

## 10. Assembly Method of Motor and Gearhead

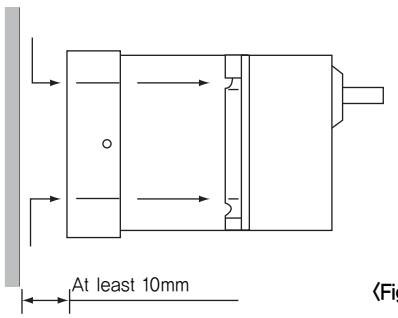
- To assemble the motor and the gearhead, adjust the assembling faces together as shown in 〈Fig. 6〉 and turn slowly to complete the assembly. Special care shall be taken while assembling not to exert excessive force on the motor shaft nor to hit inside the gearhead to prevent the damage to gearhead which can result in an abnormal noise and a shortening of the lifetime of the motor.
- When assembling the motor's gearhead, use a specified bolt of that motor to avoid a gap between the assembling faces. Refer to 〈Table 7〉.
- For a motor equipped with a cooling fan, leave a space of at least 10mm from the fan cover to prevent the motor's intake hole from being clogged. Refer to 〈Fig. 7〉.




〈Fig.6〉

| SIZE | GEAR HEAD MODEL | LENGTH | INTER-DECIMAL + GEARHEAD |
|---|---|---|---|
| □60㎜ | S6DA3B~S6DA18B | M4×L50 | M4×L80 |
| | S6DA20B~S6DA250B | M4×L60 | M4×L90 |
| □70㎜ | S7KA3B~S7KA18B | M5×L55 | M5×L90 |
| | S7KA20B~S7KA200B | M5×L65 | M5×L100 |
| □80㎜ | S8KA3B~S8KA18B | M5×L55 | M5×L90 |
| | S8KA20B~S8KA200B | M5×L65 | M5×100 |
| □90㎜ | S9KB3B()~S9KB18B() | M6×L75 | M6×L112 |
| | S9KB20B()~S9KB200B() | M6×L85 | M6×L122 |
| | S9KC3B()~S9C200B() | M6×L95 | M6×L130 |
| | S9KC3B()-S~S9KC200B()-S | M6×L25 | M6×L65 |
| | S9KD3B~S9KD200B | M6×L20 | M6×L65 |
| | S9KH3B~S9KH200B | M6×L20 | – |

〈Table7〉 FASTENING SCREWS




〈Fig.7〉

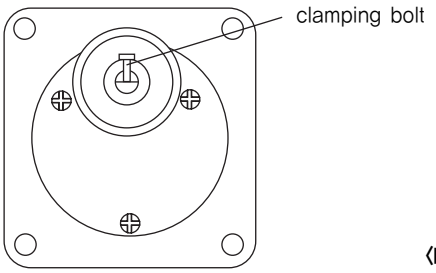
## 11. Fastening of Load

- To facilitate fastening of a load to the gearhead output shaft, there is a groove in the key and D-Cut in the smaller gearhead. Refer to 〈Fig. 8〉.



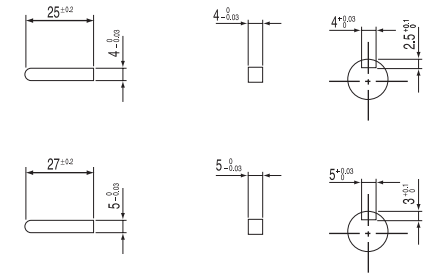

〈Fig.8〉

- In case of D-Cut processing, use a clamping bolt to the D-Cut processing area in order to prevent the load from making racing. Refer to 〈Fig. 9〉.

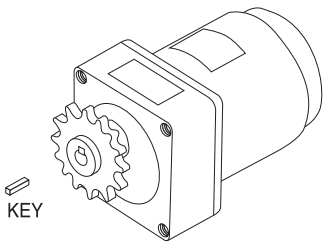



〈Fig.9〉

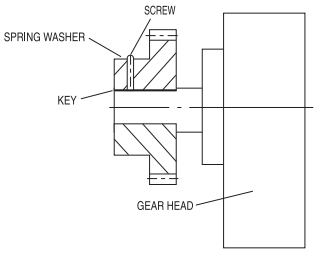
- In case of key groove processing, make a key groove in a delivery device such as a chain, a pulley, or sprocket and use a key (Fig. 10), a part, to the key groove in order to fasten the load.
- It should not give impact when fastening the gearhead on delivery device. Otherwise, it will cause a damage and shortening of the lifetime.




〈Fig. 10〉




〈Fig. 11〉




〈Fig. 12〉

# Overview of $GD^2$

## 1. Motor and Inertia Load

- The equation to calculate the toque that is required for the motor to make the inertia load start rotating is as follows.

$$T = J\alpha = J \cdot \frac{d\omega}{dt} = \frac{GD^2}{4g} \cdot \frac{d\omega}{dt} = \frac{2\pi}{60} \cdot \frac{GD^2}{4g} \cdot \frac{dn}{dt}$$

T : TORQUE
J : Inertia moment
$\omega$ : Angular velocity, t : Time
n : Rotational velocity
$GD^2$ : FLYWHEEL effect [$GD^2 = 4gJ$]
g : Gravitational acceleration (g = 9.8[m/sec2])
$\alpha$ : Angular acceleration

- In case of an induction motor, the starting torque will be changed by rotating speed.
- The average value from the starting speed to the normal constant speed is called an average acceleration torque, a value commonly used in practice.
- The average acceleration torque TA required for the inertia load $GD^2$ to be accelerated up to the speed n[r/min] within t[sec] is represented by the following equation.

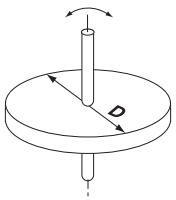
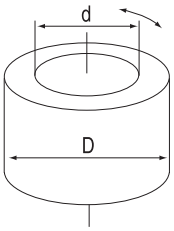
$$TA = \frac{GD^2}{37500} \times \frac{n}{t} \ [kgf \cdot cm]$$

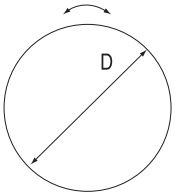
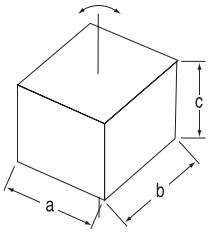
## 2. Calculation of Flywheel Effect [$GD^2$]

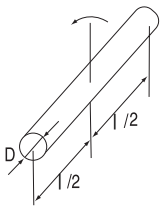
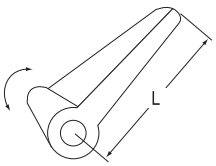
- In case that a load is acquired through the connection of a gearhead, the motor shaft component of the load inertia should be calculated to select the motor.
- Also, the calculation method of $GD^2$ differs depending on the type of a load, and the following equation provides $GD^2$ calculation method for each shape.

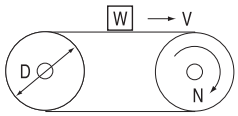
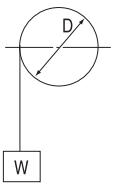
$$GD^2 = 4J \ [kgf \cdot cm^2]$$

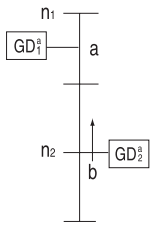
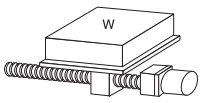
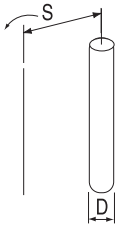
$GD^2$ : FLYWHEEL effect
J : Inertia moment

| | Circular Disk | Hollow |
|---|---|---|
| Shape |   |   |
| $GD^2$ Equation | $GD^2 = \frac{1}{2} WD^2$ [kgf · cm²]<br>W : Mass [kgf]<br>D : Outer Diameter [cm] | $GD^2 = \frac{1}{2} W(D^2+d^2)$ [kgf · cm²]<br>W : Mass [kgf] d : Inner Diameter [cm]<br>D : Outer Diameter [cm] |

| | Sphere | Hexahedron |
|---|---|---|
| Shape |   |   |
| $GD^2$ Equation | $GD^2 = \frac{2}{5} WD^2$ [kgf · cm²]<br>W : Mass [kgf]<br>D : Diameter [cm] | $GD^2 = \frac{1}{3} W(a^2+b^2)$ [kgf · cm²]<br>W : Mass [kgf]<br>a, b : Length of Side [cm] |

| | POLE | POLE |
|---|---|---|
| Shape |   |   |
| $GD^2$ Equation | $GD^2 = W(\frac{D^2}{4} + \frac{l^2}{3})$ [kgf · cm²]<br>W : Mass [kg]<br>D : Outer Diameter [cm]<br>l : Length [cm] | $GD^2 = \frac{4}{3} WL^2$ [kgf · cm²]<br>W : Mass [kg]<br>l : Length [cm] |

| | Linear Motion(Horizontal) | Linear Motion(Vertical) |
|---|---|---|
| Shape |   |   |
| $GD^2$ Equation | $GD^2 = WD^2$ [kgf · cm²] $= \frac{WV^2}{\pi^2 N^2}$<br>V : CONVEYOR SPEED [cm/min]<br>N : DRUM ROTATIONAL SPEED [rpm]<br>W : WEIGHT OVER CONVEYOR [kgf]<br>D : DRUM OUTSIDE Diameter[cm]<br>(Not included $GD^2$ for belt and drum) | $GD^2 = WD^2$ [kgf · cm²]<br>W : Mass[kgf]<br>D : Diameter[cm] |

| | Gearhead | Operation of ball screw | $GD^2$ of arbitrary shaft |
|---|---|---|---|
| Shape |   |   |   |
| $GD^2$ Equation | a axis component of total $GD^2$<br>$GD^2a = GD^2_1 + (\frac{n_2}{n_1})^2$<br>× GD22 [kgf · cm²]<br>n1 : Rotational speed of a-axis<br>n2 : Rotational speed of b-axis<br>Reduction ratio is $\frac{n_1}{n_2}$ (i>1) | $GD^2 = GD^2_1 + \frac{WP^2}{\pi}$<br>$GD^2_1$ : $GD^2$ of BALL SCREW<br>$GD^2$[kgf · cm²]<br>P : PITCH of BALL SCREW[cm]<br>W : Total weight of table and work | $GD^2 = GD^2 + 4WS^2$<br>[kgf · cm]<br>D : Diameter [cm]<br>W : Mass [kgf]<br>S : Radius of Rotation [cm] |

- The table below shows the permissible inertia load per motor축. Do not use to exceed the figure shown.

- Permissible Inertia Load per Motor Axis

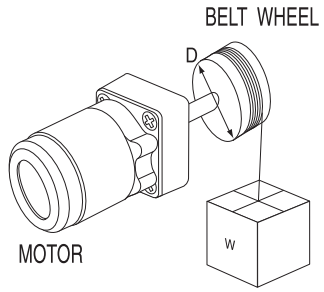
| SIZE | Output | Permissible Inertia Load per Motor Axis $GD^2$(kgf-cm²) |
|---|---|---|
| □60 | 3W | 0.19 |
| □60 | 6W | 0.25 |
| □70 | 15W | 0.57 |
| □80 | 15W, 25W | 1.20 |
| □90 | 40W | 3.00 |
| □90 | 60W | 4.60 |
| □90 | 90W, 120W, 150W | 4.60 |
| □90 | 180W, 200W | 6.00 |

Gear ratio between 1/3 ~ 1/50 : $GD^2_G = GD^2_M \times i^2$
Gear ratio over 1/60 : $GD^2_G = GD^2_M \times 2500$
$GD^2_G$ : Permissible inertia per gearhead output
$GD^2_M$ : Permissible inertia per motor Axis
i : Gear ratio

# Explicit Calculation Method of Motor Capacity

- The following explanations describe how the required capacity for a motor can be calculated. These are basic equations in a general circumstance.
- Hence, when selecting a motor, the following points should be taken into consideration. The acceleration at starting time, the power required for a large load imposed instantaneously,, or the safety measures implemented at design and manufacturing levels, and the impact of changing voltage.

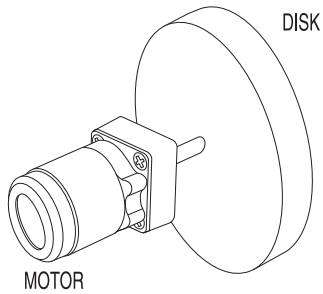
### (1) In case of rolling up a load




$$T = \frac{1}{2} D \cdot W \ [kgf \cdot m]$$

D : Drum Diameter [m]
W : Weight [kgf]

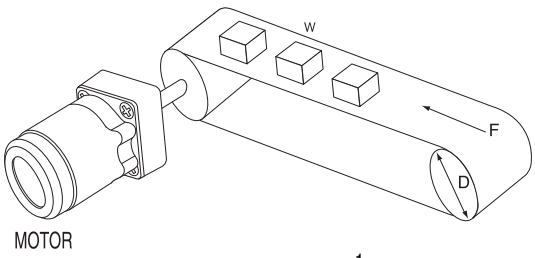
### (2) In case of opration inertia mass




$$T = \frac{GD^2}{37500} \times \frac{N}{t} \ [kgf \cdot m]$$

N : Revolutions per minute [rpm]
$GD^2$ : Disk wheel effect [kgf · $cm^2$]
t : Time [sec]

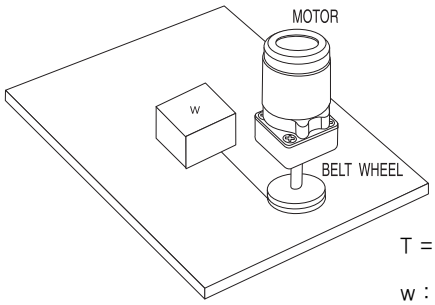
### (3) In case of belt conveyor




$$T = \frac{1}{2} D(F + \mu W) \ [kgf \cdot m]$$

D : Drum의 Diameter [m]
w : Mass of belt in unit length [kgf]
$\mu$ : Coefficient of friction
F : Cutting force [kgf]

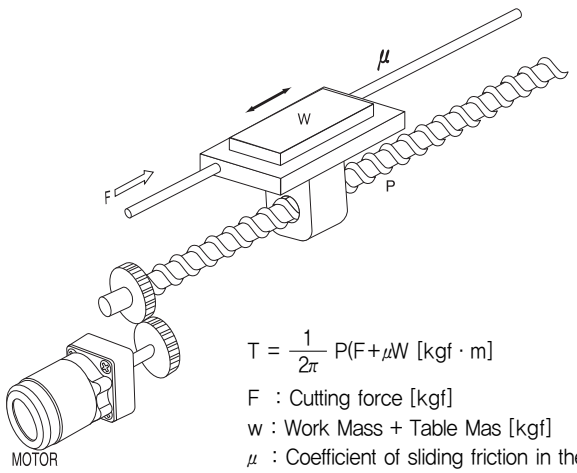
### (4) A case of moving an object horizontally on the surface




$$T = \frac{1}{2} D \cdot \mu W \ [kgf \cdot m]$$

w : Weight [kgf]
$\mu$ : Coefficient of friction
D : WHEEL Diameter

### (5) In case of driving a ball screw




$$T = \frac{1}{2\pi} P(F + \mu W \ [kgf \cdot m]$$

F : Cutting force [kgf]
w : Work Mass + Table Mas [kgf]
$\mu$ : Coefficient of sliding friction in the slide guide surface [0.05~0.2]
P : Lead of Ball Screw [m]

# CAUTION FOR USING

**Read the Instruction Manual thoroughly before using.**
**For the suggestions on using, they are classified as caution and warning.**



**CAUTION**

- Use per speed controller specifications. Otherwise, an unexpected fire, electric shock, injury and/or damage of the unit may occur.
- Do not put fingers or other objects into the outlet of the unit to prevent electric shock, injury and/or fire.
- Do not operate with the wet hands. The electric shock may occur.
- In case of moving, do not hold the output shaft, connecting part or the lead wire. It might slip off your hand and result in an injury.
- Check the products received with the products ordered. Installing incorrect product may result in injury and/or fire.
- The motor should be used after tightly attached to prevent injury and/or damage of the unit.
- If the cover installed touches the rotator part, injury may occur.
- Make sure to check the rotatory direction before connecting the machine. If not, an injury and/or damage of the unit may occur.
- Touching the side of the motor output shaft (key way, cutting part) with bare hands may cause injury.
- Make sure to install the overload device, for the protection device is not attached to the motor.
  It is encouraged to install other protection devices other than overload protection device to prevent fire.
- In case of pulling out power plug, do not draw with grasping the plug for the electric shock and fire may occur.
- The motor and the controlling unit should be used only by the designated compounding. If not, the fire may occur.
- Install the parameter for the machine before connecting with the machine and begin operating. Otherwise, damage of the unit may occur.
- Emergency stop may be required at anytime while connecting with the machine and begin operating.
- Turn off the power at once if any sign of abnormality is detected. If not, it may result in electric shock, injury and/or damage of the unit.
- Do not touch the rotor (output shaft) while operating. An injury and/or damage may occur due to the winding.
- While and after operating, touching the controlling device with hands or body may cause fire.



**WARNING**

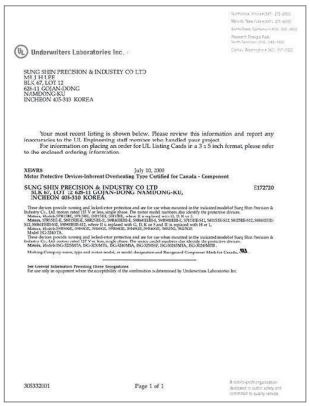
- Never expose the motors in explosive atmosphere. They should be kept away from explosive gas, corrosive air, combustibles or wet surroundings to prevent electric shock and/or fire.
- Turn off the electric power before moving, connecting or checking the motor.
- Make sure to connect motor and speed controller based on the specification. If not, electric shock and/or fire may occur.
- The power cable and the lead wire should not be forcefully bent, pulled or inserted. It may cause electric shock and/or fire.
- In case the motor and controlling unit are attached to the machine, never touch with hands or connect with the earth. If not, the electric shock may take place.
- Never operate in the state of exposing the flowing current. If not, the electric shock may take place.
- Turn off the power in case of interruption of electric power and/or protection of overheat. If not, injury and/or damage of the unit may occur.
- Do not touch the output terminal of the controlling unit for 30 seconds after shutting down the power. If not, residual volts may cause electric shock.


UNDERWRITERS LABORATORIES INC.
ENVIRONMENTAL MANAGEMENT SYSTEM REGISTRATION
ISO 14001
SPG Co., Ltd.
BLK 67 Lot 4,
628-11 Gojan-Dong,
Namdong-Gu
Incheon 405-310 Korea
ISO 14001:2004
ENVIRONMENTAL MANAGEMENT SYSTEM
KS A 14001:2004
John H. Schmidt
Vice President and Chief Development Officer
REGISTERED FIRM

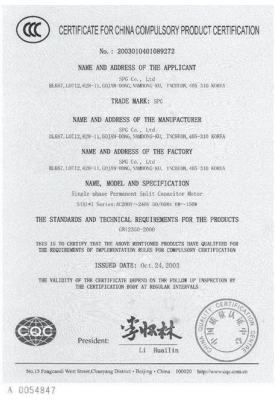
ISO 14001 Certification


UNDERWRITERS LABORATORIES INC.
CERTIFICATE OF REGISTRATION
ISO 9000
SPG Co., Ltd.
BLK 67 Lot 4,
628-11 Gojan-Dong,
Namdong-Gu
Incheon 405-310 Korea
ISO 9001:2000
EN ISO 9001:2000; BS EN ISO 9001:2000; ANSI/ASQ Q9001:2000; KS A 9001:2001
John H. Schmidt
Vice President and Chief Development Officer
REGISTERED FIRM

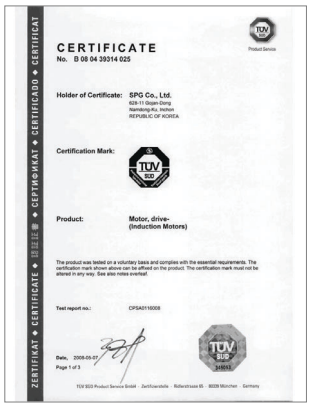
ISO 9001 Certification


Underwriters Laboratories Inc.
SUNG SHIN PRECISION & INDUSTRY CO LTD
Your most recent listing is shown below. Please review this information and report any inaccuracies to the UL Engineering staff nearest you before you purchase.
Motor Protective Device-Inherent Overheating Type Certified for Canada - Component
SUNG SHIN PRECISION & INDUSTRY CO LTD
E172720
Page 1 of 1

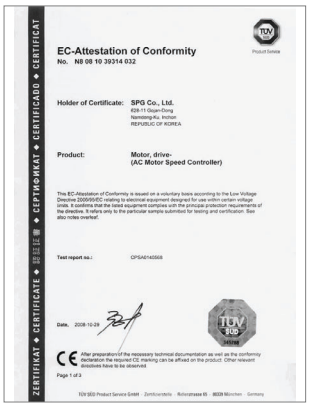
UL Certification


CERTIFICATE FOR CHINA COMPULSORY PRODUCT CERTIFICATION
No. : 2003010401089272
NAME AND ADDRESS OF THE APPLICANT
TRADE MARK: SPG
NAME AND ADDRESS OF THE MANUFACTURER
NAME AND ADDRESS OF THE FACTORY
NAME, MODEL AND SPECIFICATION
Single-phase Permanent Split Capacitor Motor
THE STANDARDS AND TECHNICAL REQUIREMENTS FOR THE PRODUCTS
ISSUED DATE: Oct. 24, 2003
THE VALIDITY OF THE CERTIFICATE DEPEND ON THE FOLLOW UP INSPECTION BY THE CERTIFICATION BODY AT REGULAR INTERVALS
President:
A 0054847

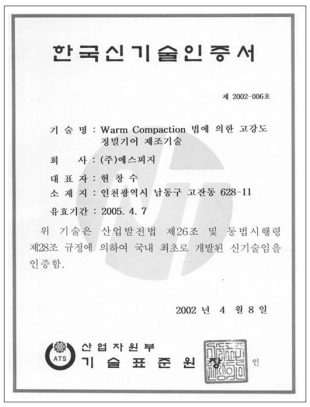
CCC Certification


CERTIFICATE
No. B 08 04 39314 025
Holder of Certificate: SPG Co., Ltd.
628-11 Gojan-Dong
Namdong-Ku, Inchon
REPUBLIC OF KOREA
Certification Mark:
Product: Motor, drive-
(Induction Motors)
Test report no.: CPSA01160D8
Date, 2008-05-07
Page 1 of 3
ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ CEPTIФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

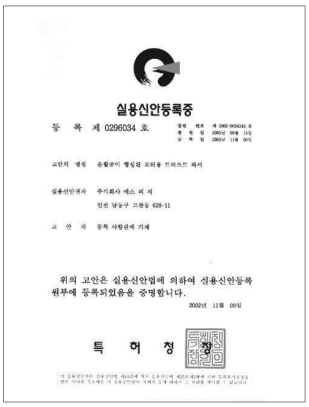
CE(TUV) Certification
(AC Motor)


EC-Attestation of Conformity
No. N8 08 10 39314 032
Holder of Certificate: SPG Co., Ltd.
628-11 Gojan-Dong
Namdong-Ku, Inchon
REPUBLIC OF KOREA
Product: Motor, drive-
(AC Motor Speed Controller)
Test report no.: CPSA01405E8
Date, 2008-10-29
Page 1 of 3
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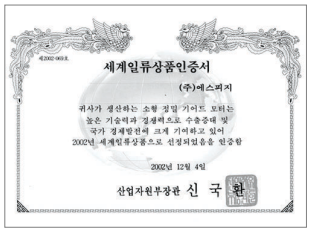
CE(TUV) Certification
(Speed Controller)


한국신기술인증서
제 2002-006호
기 술 명 : Warm Compaction 법에 의한 고강도 정밀기어 제조기술
회 사 : (주)에스피지
대 표 자 : 현 창 수
소 재 지 : 인천광역시 남동구 고잔동 628-11
유효기간 : 2005. 4. 7
위 기술은 산업발전법 제26조 및 동법시행령 제28조 규정에 의하여 국내 최초로 개발된 신기술임을 인증함.
2002 년 4 월 8 일
산업자원부
기 술 표 준 원

NT Certification


실용신안등록증
등 록 제 0296034 호
고안자 명칭 운동분야 형상된 모터용 트러스트 와셔
실용신안권자 주식회사 에스 피 지
인천 남동구 고잔동 628-11
고 안 자 동록 사항란에 기재
위의 고안은 실용신안법에 의하여 실용신안등록 원부에 등록되었음을 증명합니다.
2002년 11월 09일
특 허 청 장

Certificate of Utility Model Registration


세계일류상품인증서
(주)에스피지
귀사가 생산하는 소형 정밀 기어드 모터는
높은 기술력과 경쟁력으로 수출증대 및
국가 경제발전에 크게 기여하고 있어
2002년 세계일류상품으로 선정되었음을 인증함
2002년 12월 4일
산업자원부장관 신 국 환

Korean World-Class Product Award


MAYTAG
Preferred Supplier Award
In Recognition of Attaining Preferred Supplier Status
SPG MOTOR
Sungshin
Small
Motors
2002
SPG MOTOR
MAYTAG SERVICE MAYTAG Amana Dixie-Narco

MAYTAG


SPG
MOTOR

# INDUCTION MOTORS

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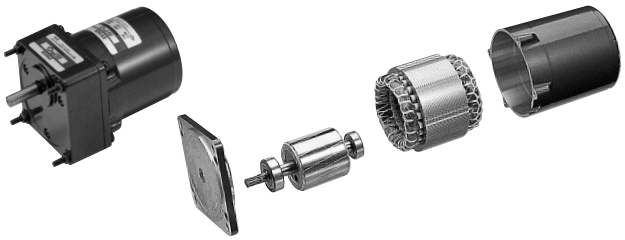
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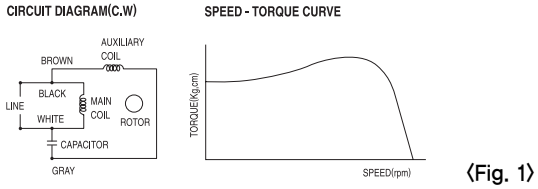



# Characteristics of INDUCTION MOTOR

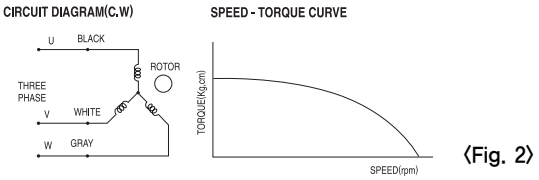


## 1. Characteristics of INDUCTION MOTOR

- A small induction motor usually means the condenser – run induction motor. This motor always uses both auxiliary winding and condenser not only when starting but also during operation. Generally, its starting torque isn't great, but its structure is simple reliable and efficient. Refer to 〈Fig. 1〉.
- The motor can be used in continuous rated operations.
- The number of rated rotation of the motor varies depending on the load imposed on it.
- It is suitable for operations that do not require the speed control.
- Its insulation class is E. SPG's UL conformance motor is class A.
- There are two types. One is a condenser-run single-phase induction motor and the other is a three-phase induction motor.
- Since the single-phase motor is a condenser-run induction motor, it provides high efficiency and low noise.
- The power source for a single motor includes A(110V 60Hz), B(220V 60Hz), C(100V 50/60Hz), D(200V 50/60Hz), E(115V 60Hz), and X(220-240V 50Hz).
- For a single-phase induction motor, make sure that the condenser complies with the capacity of the motor.
- For a single-phase induction motor, reversing the direction of the rotation within a short time during operation is not possible due to adverse exerting of the inertia torque against reversing. Thus, stop the motor first and change the rotational direction next.
- As an induction motor is driven by a three-phase power source, the three-phase motor provides high efficiency, relatively great starting torque, and high reliability. The three-phase motor is popular as a general-purpose motor.
- The power source for a three-phase motor, an induction motor, includes U(200V 50/60Hz), T(220V 50/60Hz), and S(380-440V 50/60Hz). Refer to 〈Fig. 2〉.



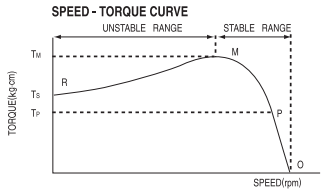

〈Fig. 1〉




〈Fig. 2〉

## 2. Characteristics of Rotation and TORQUE

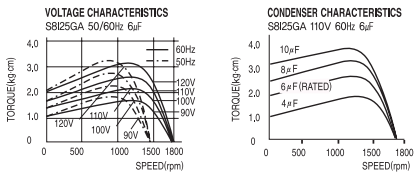
- Under a constant voltage, the relationship between the number of rotation and the torque is as shown in 〈Fig. 3〉. With no-load, the number of rotation roughly approximates the number of synchronous rotation, but as the load increases, the number of rotation decreases and approaches to the speed(rpm) indicated by the point P where the torque Tp horizontally meets the load curve.
- When the load is further increased and reaches the point M, the motor stops at the point R because the motor no longer generates further torque. Therefore, the leg R-M is referred to as an unstable zone and the leg M-O is a stable zone for operation.




〈Fig. 3〉

## 3. Characteristics of Voltage and CONDENSOR

- The Characteristics of voltage can be represented by the torque's Characteristics about the applied voltage. The torque of induction motor changes proportionate to twice the voltage.
- The characteristics of torque also change according the capacity of the condenser.
- As the capacity of the condenser boost, the starting torque and stalling torque increase. But if the capacity increases by 2.5-3.0 folds, the operating torque decreases and the starting torque do not increase.
- As a simple method to increase the torque when the induction motor is short on torque, either the voltage or the condenser capacity can be increased to continue the operation. In this case, the loss input of the motor increases and the temperature rises rapidly.
- However, if the motor must be run with insufficient torque, take measures to let the motor release heat as much as possible and operate the motor while keeping the temperature of the motor's housing below 90℃. Refer to (Fig. 4).




〈Fig. 4〉

GENERAL SPECIFICATION OF INDUCTION MOTORS

| ITEM | SPECIFICATION |
|---|---|
| Insulation Resistance | 100MΩ or more when 500V megger is applied between the windings and the housing after rated motor operation under normal ambient temperature and humidity. |
| Dielectric Strength | Sufficient to withstand 1.5kVat 50/60Hz applied between the windings and the case after rated motor operation under normal ambient temperature and humidity. |
| Temperature Rise | 80℃ or less increase measured by thermometer after rated operation. |
| Insulation Class | Class B(130℃) |
| Overheat Protection Device | Built-in THERMAL PROTECTOR (automatic return type)<br>: Open 120℃±5℃ Close 76℃±15℃ |
| Ambient Temperature | -10℃ ~ 40℃ |
| Ambient Humidity | 85% maximum(non condensing) |



# 3W

## INDUCTION MOTOR □60㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 60 | S6I03GA<br>S6I03GACE | 4 | 3 | 1Ø 110 | 60 | Cont. | 0.15 | 1500 | 0.21 | 0.021 | 0.25 | 0.025 | 2.0 |
| | S6I03GC<br>S6I03GCCE | 4 | 3 | 1Ø 100 | 50 | Cont. | 0.15 | 1200 | 0.25 | 0.025 | 0.25 | 0.025 | 2.0 |
| | | | | | 60 | | | 1450 | 0.21 | 0.021 | | | |
| | S6I03GE<br>S6I06GECE | 4 | 3 | 1Ø 100 | 50 | Cont. | 0.15 | 1200 | 0.25 | 0.025 | 0.25 | 0.025 | 2.0 |
| | | | | | 60 | | | 1450 | 0.21 | 0.021 | | | |
| | | | | 1Ø 115 | 60 | | 0.15 | 1450 | 0.21 | 0.021 | | | 1.5 |

❖ Appropriate capacitors shall be used according to the voltage for S6I03GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is impedance protected type which has received CE. S6I03GECE is available only for 115V specification.
❖ "L"or "H"type does not apply to motors under 40W.

## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DT□B | kg-cm | 0.6 | 0.7 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 | 2.5 | 3.0 | 3.6 | 3.6 | 4.6 | 5.5 | 6.6 | 7.3 | 8.2 | 9.8 | 12.3 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 |
| | N·m | 0.06 | 0.07 | 0.10 | 0.12 | 0.15 | 0.18 | 0.20 | 0.25 | 0.30 | 0.36 | 0.36 | 0.46 | 0.55 | 0.66 | 0.73 | 0.82 | 0.98 | 1.23 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |

## 60Hz

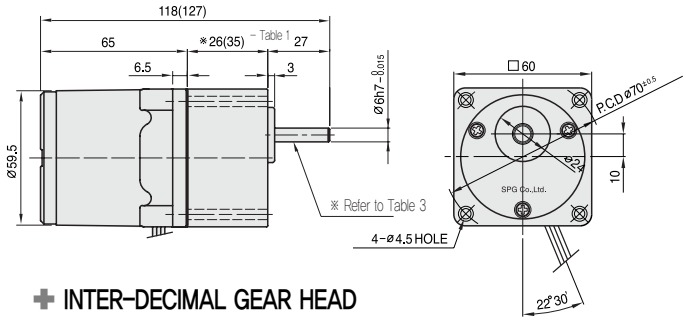
| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DT□B | kg-cm | 0.5 | 0.6 | 0.8 | 1.0 | 1.3 | 1.5 | 1.7 | 2.1 | 2.6 | 3.1 | 3.4 | 3.8 | 4.6 | 5.5 | 6.8 | 6.9 | 8.3 | 10.0 | 12.0 | 14.0 | 15.0 | 15.0 | 15.0 | 15.0 | 15.0 |
| | N·m | 0.05 | 0.06 | 0.08 | 0.10 | 0.13 | 0.15 | 0.17 | 0.21 | 0.26 | 0.31 | 0.34 | 0.38 | 0.46 | 0.55 | 0.68 | 0.69 | 0.83 | 1.0 | 1.2 | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |

❖ The code in□of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 5 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L"or "H"type does not apply to motors under 40W.

# DIMENSIONS

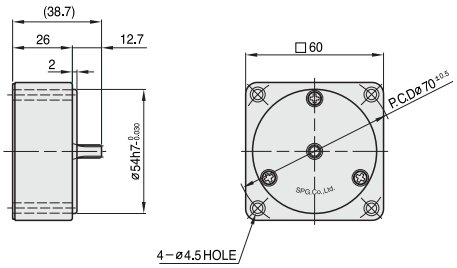
## ✚ GEARED MOTOR

※MOTOR MODEL : S6I03G□
※HEAD MODEL : S6□T3□~S6□T250□



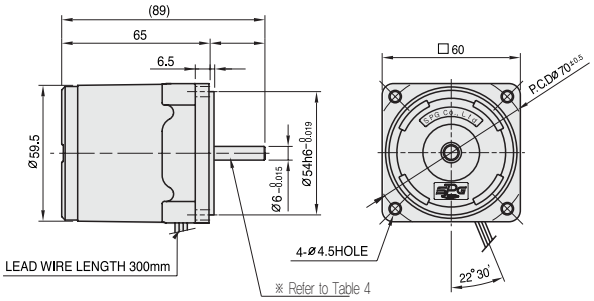

## ✚ INTER-DECIMAL GEAR HEAD

※ MODEL : S6GX10B




## ✚ MOTOR

※MOTOR MODEL : S6I03□□



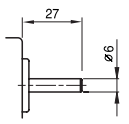
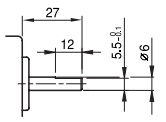

## ✚ ※26(35) - (Table 1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S6□T3□ ~ S6□T18□ | 26 |
| S6□T20□ ~ S6□T250□ | 35 |

## ✚ WEIGHT - (Table 2)

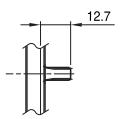
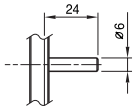
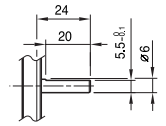
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 0.60 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□T3□ ~S6□T18□ | 0.21 |
| | S6□T20□ ~S6□T40□ | 0.27 |
| | S6□T50□ ~S6□T250□ | 0.30 |

## ✚ SPEC for output shaft of gearhead - (Table 3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S6ST3□ ~S6ST250□ | |
| D-CUT TYPE |  |
| S6DT3□ ~S6DT250□ | |



## ✚ SPEC for output shaft of motor - (Table 4)

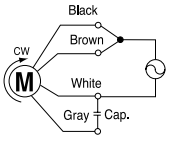
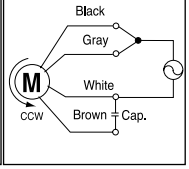
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE |  |
| S6I03G□ | |
| STRAIGHT TYPE |  |
| S6I03S□ | |
| D-CUT TYPE |  |
| S6I03D□ | |



# SCHEMATIC DIAGRAMS

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

S6I03GA S6I03GACE
S6I03GC S6I03GACE
S6I03GE S6I03GECE

| CW | CCW |
|---|---|
|  |  |



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



# 6W

## INDUCTION MOTOR □60㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 60 | S6I06GA<br>S6I06GACE | 4 | 6 | 1Ø 110 | 60 | Cont. | 0.20 | 1550 | 0.40 | 0.040 | 0.55 | 0.055 | 2.5 |
| | S6I06GB<br>S6I06GBCE | 4 | 6 | 1Ø 220 | 60 | Cont. | 0.10 | 1550 | 0.40 | 0.040 | 0.55 | 0.055 | 0.7 |
| | S6I06GC | 4 | 6 | 1Ø 100 | 50 | Cont. | 0.21 | 1200 | 0.50 | 0.050 | 0.45 | 0.045 | 2.5 |
| | S6I06GCCE | | | | 60 | | 0.19 | 1500 | 0.42 | 0.042 | | | |
| | S6I06GD | 4 | 6 | 1Ø 200 | 50 | Cont. | 0.10 | 1200 | 0.50 | 0.050 | 0.45 | 0.045 | 0.7 |
| | S6I06GDCE | | | | 60 | | | 1500 | 0.42 | 0.042 | | | |
| | S6I06GE | 4 | 6 | 1Ø 100 | 50 | Cont. | 0.18 | 1200 | 0.50 | 0.050 | 0.52 | 0.052 | 2.5 |
| | S6I06GECE | | | | 60 | | 0.19 | 1500 | 0.42 | 0.042 | | | |
| | | | | 1Ø 115 | 60 | | 0.19 | 1500 | 0.42 | 0.042 | 0.55 | 0.055 | 2.0 |
| | S6I06GX | 4 | 6 | 1Ø 220 | 50 | Cont. | 0.08 | 1200 | 0.50 | 0.050 | 0.50 | 0.050 | 0.6 |
| | S6I06GXCE | | | 1Ø 240 | | | 0.09 | | 0.53 | 0.053 | 0.55 | 0.055 | |

❖ S6I06GE is UL approved (UL FILE No. E172722) impedance protected type.
❖ Appropriate capacitors shall be used according to the voltage for S6I06GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise informed of the required voltage.
❖ CE marked at the end of model name indicates that it is impedance protected type which has received CE. S6I06GECE is available only for 115V specification.
❖ "L"or "H"type does not apply to motors under 40W.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DA□B | kg-cm | 1.3 | 1.5 | 2.1 | 2.6 | 3.2 | 3.9 | 4.3 | 5.4 | 6.4 | 7.7 | 7.7 | 9.7 | 11.6 | 13.9 | 15.5 | 17.5 | 21.0 | 26.2 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.127 | 0.147 | 0.206 | 0.255 | 0.314 | 0.382 | 0.421 | 0.529 | 0.627 | 0.755 | 0.755 | 0.951 | 1.137 | 1.362 | 1.519 | 1.715 | 2.058 | 2.568 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DA□B | kg.-cm | 1.0 | 1.3 | 1.7 | 2.1 | 2.6 | 3.1 | 3.5 | 4.4 | 5.2 | 6.3 | 6.3 | 7.8 | 9.4 | 11.3 | 12.6 | 14.2 | 17.0 | 21.3 | 25.5 | 28.4 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.098 | 0.127 | 0.167 | 0.206 | 0.255 | 0.304 | 0.343 | 0.431 | 0.510 | 0.617 | 0.617 | 0.764 | 0.921 | 1.107 | 1.235 | 1.392 | 1.666 | 2.087 | 2.499 | 2.783 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

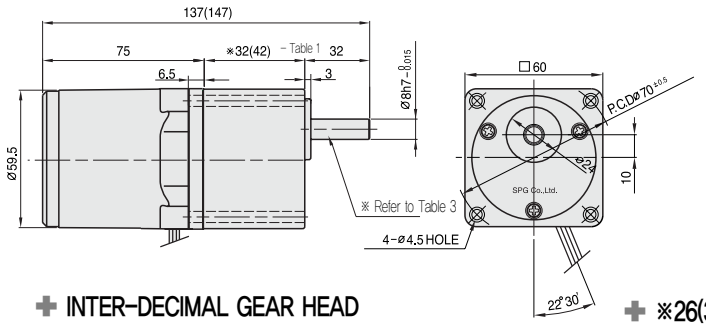
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 30 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L"or "H"type does not apply to motors under 40W.

# DIMENSIONS

## GEARED MOTOR

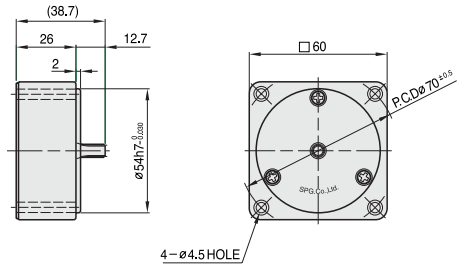
※MOTOR MODEL : S6I06G□

※HEAD MODEL : S6□A3□~S6□A250□



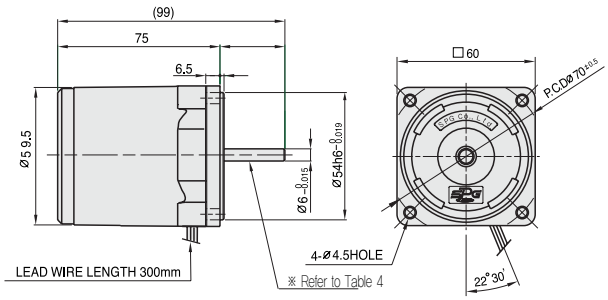

## INTER-DECIMAL GEAR HEAD

※ MODEL : S6GX10B




## MOTOR

※MOTOR MODEL : S6I06□□



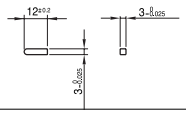

## ※26(35) - (Table 1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S6□A3□ ~ S6□A18□ | 30 |
| S6□A20□ ~ S6□A250□ | 40 |

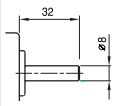
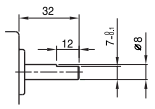
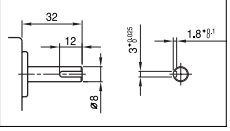
## WEIGHT - (Table 2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 0.70 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□A3□ ~S6□A18□ | 0.24 |
| | S6□A20□ ~S6□A40□ | 0.30 |
| | S6□A50□ ~S6□A250□ | 0.33 |

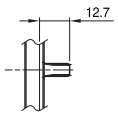
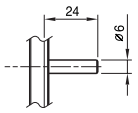
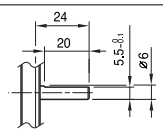
## KEY SPEC

| GEAR HEAD |
|---|
|  |

## SPEC for output shaft of gearhead - (Table 3)

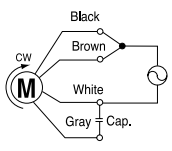
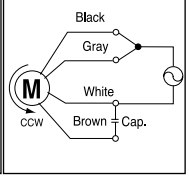
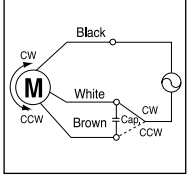
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE | |
| S6SA3□ ~S6SA250□ |  |
| D-CUT TYPE | |
| S6DA3□ ~S6DA250□ |  |
| KEY TYPE | |
| S6KA3□ ~S6KA250□ |  |

## SPEC for output shaft of motor - (Table 4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE | |
| S6I06G□ |  |
| STRAIGHT TYPE | |
| S6I06S□ |  |
| D-CUT TYPE | |
| S6I06D□ |  |

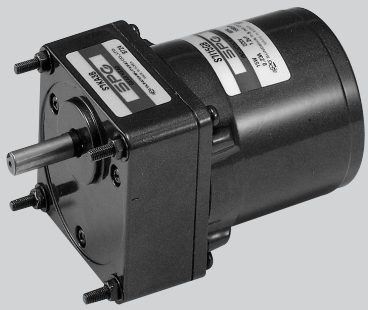
# SCHEMATIC DIAGRAMS

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

| S6I06GA S6I06GB<br>S6I06GC S6I06GD<br>S6I06GACE S6I06GBCE S6I06GE<br>S6I06GCCE S6I06GDCE S6I06GECE | | S6I06GX<br>S6I06GXCE |
|---|---|---|
| **CW** | **CCW** | **CW,CCW** |
|  |  |  |



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



# 15W

## INDUCTION MOTOR □70㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 70 | S7I15GA<br>S7I15GA(TP)<br>S7I15GACE | 4 | 15 | 1Ø 110 | 60 | Cont. | 0.34 | 1600 | 1.00 | 0.100 | 1.10 | 0.110 | 5.0 |
| | S7I15GB<br>S7I15GB(TP)<br>S7I15GBCE | 4 | 15 | 1Ø 220 | 60 | Cont. | 0.19 | 1550 | 1.10 | 0.110 | 1.10 | 0.110 | 1.2 |
| | S7I15GC<br>S7I15GC(TP)<br>S7I15GCCE | 4 | 15 | 1Ø 100 | 50 | Cont. | 0.35 | 1250 | 1.20 | 0.120 | 0.90 | 0.090 | 5.0 |
| | | | | | 60 | | 0.34 | 1550 | 1.00 | 0.100 | | | |
| | S7I15GD<br>S7I15GD(TP)<br>S7I15GDCE | 4 | 15 | 1Ø 200 | 50 | Cont. | 0.19 | 1200 | 1.25 | 0.125 | 0.90 | 0.090 | 1.2 |
| | | | | | 60 | | 0.18 | 1500 | 1.20 | 0.120 | | | |
| | S7I15GE<br>S7I15GECE | 4 | 15 | 1Ø 100 | 50 | Cont. | 0.35 | 1200 | 1.25 | 0.125 | 0.90 | 0.090 | 5.0 |
| | | | | | 60 | | 0.33 | 1550 | 1.00 | 0.100 | | | |
| | | | | 1Ø 115 | 60 | | 0.30 | 1600 | 1.00 | 0.100 | | | 4.0 |
| | S7I15GX<br>S7I15GXCE | 4 | 15 | 1Ø 220 | 50 | Cont. | 0.16 | 1200 | 1.25 | 0.125 | 0.75 | 0.075 | 0.9 |
| | | | | 1Ø 240 | | | 0.18 | | 1.35 | 0.135 | 0.90 | 0.090 | |

❖ S7I15GE is UL approved (UL FILE No.E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S7I15GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S7I15GECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S7I15GE, S7I15GX is thermally protected type with TP mounted.
❖ "L"or "H"type does not apply to motors under 40W.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S7KA□B | kg-cm | 3.2 | 3.9 | 5.4 | 6.5 | 8.1 | 9.7 | 10.8 | 13.5 | 16.2 | 19.4 | 19.4 | 24.2 | 29.1 | 34.9 | 38.8 | 43.6 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.314 | 0.382 | 0.530 | 0.637 | 0.794 | 0.951 | 1.059 | 1.324 | 1.587 | 1.902 | 1.902 | 2.373 | 2.854 | 3.423 | 3.805 | 4.276 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

## 60Hz

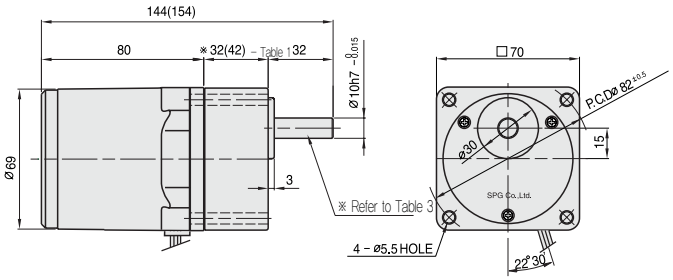
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S7KA□B | kg-cm | 3.0 | 3.6 | 5.1 | 6.1 | 7.6 | 9.1 | 10.1 | 12.7 | 15.2 | 18.2 | 18.2 | 22.8 | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.294 | 0.353 | 0.500 | 0.598 | 0.745 | 0.892 | 0.990 | 1.245 | 1.491 | 1.785 | 1.785 | 2.236 | 2.677 | 3.217 | 3.579 | 4.021 | 4.825 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 50 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L"or "H"type does not apply to motors under 40W.

# DIMENSIONS

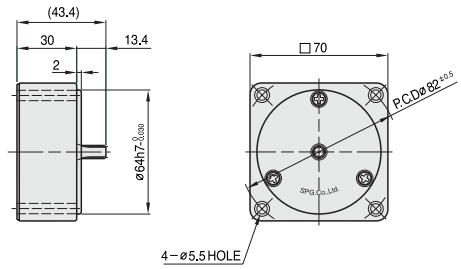
## ✚ GEARED MOTOR

※MOTOR MODEL : S7I15G□
※HEAD MODEL : S7□A3□~S7□A200□



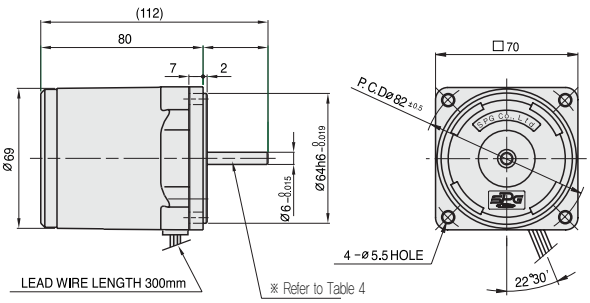

## ✚ INTER-DECIMAL GEAR HEAD

※ MODEL : S7GX10B




## ✚ MOTOR

※MOTOR MODEL : S7I15□□



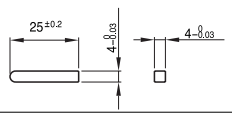

## ✚ ※26(35) – (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S7□A3□ ~ S7□A18□ | 32 |
| S7□A20□ ~ S7□A200□ | 42 |

## ✚ WEIGHT – (Table2)

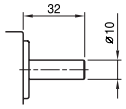
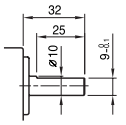
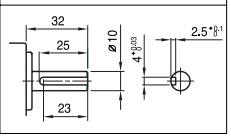
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.04 |
| DECIMAL GEAR HEAD | | 0.32 |
| GEAR HEAD | S7□A3□ ~S7□A18□ | 0.38 |
| | S7□A20□ ~S7□A40□ | 0.47 |
| | S7□A50□ ~S7□A250□ | 0.52 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |

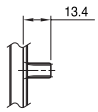
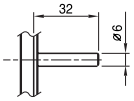
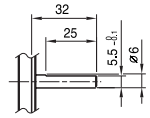


## ✚ SPEC for output shaft of gearhead – (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S7SA3□ ~S7SA200□ |  |
| D-CUT TYPE<br>S7DA3□ ~S7DA200□ |  |
| KEY TYPE<br>S7KA3□ ~S7KA200□ |  |



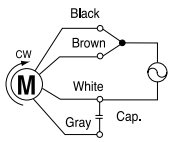
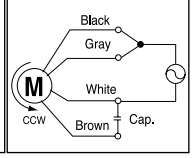
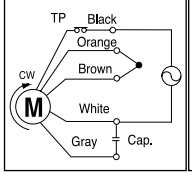
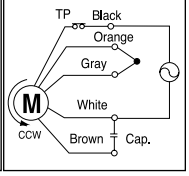
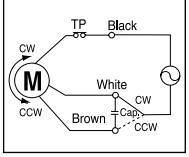
## ✚ SPEC for output shaft of motor – (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S7I15G□ |  |
| STRAIGHT TYPE<br>S7I15S□ |  |
| D-CUT TYPE<br>S7I15D□ |  |



# SCHEMATIC DIAGRAMS

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

| S7I15GA S7I15GB<br>S7I15GC S7I15GD | | S7I15GA(TP) S7I15GB(TP)<br>S7I15GC(TP) S7I15GD(TP)<br>S7I15GACE S7I15GBCE S7I15GE<br>S7I15GCCE S7I15GDCE S7I15GECE | | S7I15GX<br>S7I15GXCE |
|---|---|---|---|---|
| **CW** | **CCW** | **CW** | **CCW** | **CW,CCW** |
|  |  |  |  |  |



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



# 15W

## INDUCTION MOTOR □80㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8I15GA<br>S8I15GA(TP)<br>S8I15GACE | 4 | 15 | 1Ø 110 | 60 | Cont. | 0.43 | 1600 | 1.00 | 0.100 | 1.20 | 0.120 | 4.0 |
| | S8I15GB<br>S8I15GB(TP)<br>S8I15GBCE | 4 | 15 | 1Ø 220 | 60 | Cont. | 0.22 | 1600 | 1.00 | 0.100 | 1.20 | 0.120 | 1.0 |
| | S8I15GC<br>S8I15GC(TP)<br>S8I15GCCE | 4 | 15 | 1Ø 100 | 50 | Cont. | 0.51 | 1300 | 1.20 | 0.120 | 0.95 | 0.095 | 4.0 |
| | | | | | 60 | | 0.43 | 1550 | 1.00 | 0.100 | | | |
| | S8I15GD<br>S8I15GD(TP)<br>S8I15GDCE | 4 | 15 | 1Ø 200 | 50 | Cont. | 0.25 | 1300 | 1.20 | 0.120 | 0.95 | 0.095 | 1.0 |
| | | | | | 60 | | 0.22 | 1550 | 1.00 | 0.100 | | | |
| | S8I15GE<br>S8I15GECE | 4 | 15 | 1Ø 100 | 50 | Cont. | 0.51 | 1250 | 1.20 | 0.120 | 0.95 | 0.095 | 4.0 |
| | | | | | 60 | | 0.42 | 1550 | 1.00 | 0.100 | | | |
| | | | | 1Ø 115 | 60 | | 0.46 | 1600 | 1.00 | 0.100 | | | 3.0 |
| | S8I15GX<br>S8I15GXCE | 4 | 15 | 1Ø 220 | 50 | Cont. | 0.16 | 1200 | 1.30 | 0.130 | 0.95 | 0.095 | 1.0 |
| | | | | 1Ø 240 | | | 0.17 | | 1.40 | 0.140 | 1.10 | 0.110 | |

❖ S8I15GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S8I15GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S8I15GECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8I15GE, S8I15GX is thermally protected type with TP mounted.
❖ "L"or "H"type does not apply to motors under 40W.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 3.4 | 4.1 | 5.7 | 6.8 | 8.5 | 10.2 | 11.3 | 14.2 | 17.0 | 20.4 | 20.4 | 25.6 | 30.7 | 36.8 | 40.9 | 46.2 | 55.4 | 69.2 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N·m | 0.333 | 0.402 | 0.559 | 0.666 | 0.833 | 1.000 | 1.107 | 1.392 | 1.666 | 1.999 | 1.999 | 2.509 | 3.009 | 3.606 | 4.008 | 4.530 | 5.433 | 6.786 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

## 60Hz

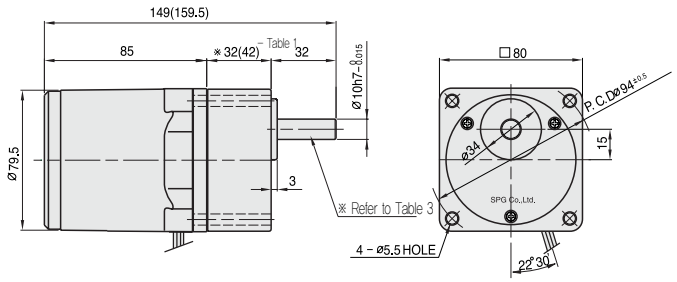
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 2.9 | 3.5 | 4.9 | 5.8 | 7.3 | 8.7 | 9.7 | 12.2 | 14.6 | 17.5 | 17.5 | 21.9 | 26.3 | 31.5 | 35.0 | 39.6 | 47.5 | 59.4 | 71.3 | 79.2 | 80 | 80 | 80 | 80 |
| | N·m | 0.284 | 0.343 | 0.481 | 0.568 | 0.715 | 0.853 | 0.951 | 1.196 | 1.432 | 1.715 | 1.715 | 2.146 | 2.577 | 3.087 | 3.430 | 3.881 | 4.658 | 5.825 | 6.992 | 7.767 | 7.840 | 7.840 | 7.840 | 7.840 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L"or "H"type does not apply to motors under 40W.

# DIMENSIONS

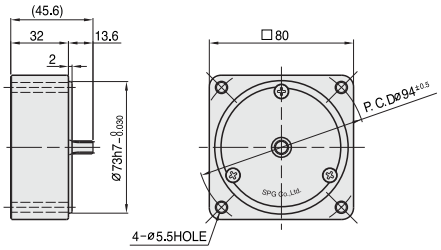
## GEARED MOTOR

※MOTOR MODEL : S8I15G□
※HEAD MODEL : S8□A3□~S8□A200□



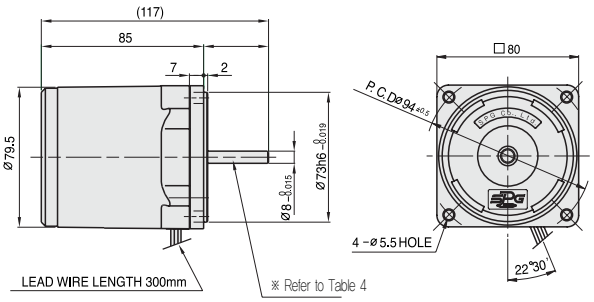

## INTER-DECIMAL GEAR HEAD

※ MODEL : S8GX10B




## MOTOR

※MOTOR MODEL : S7I15□□



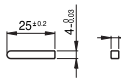
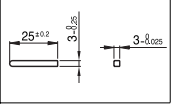

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

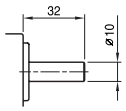
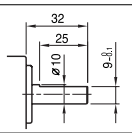
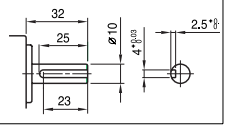
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.14 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

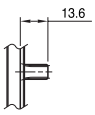
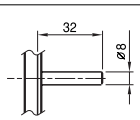
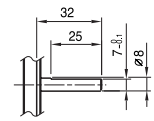
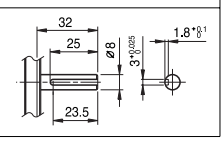
## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of gearhead - (Table3)

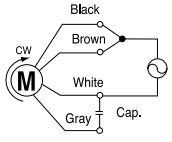
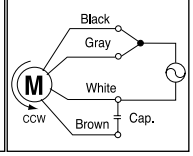
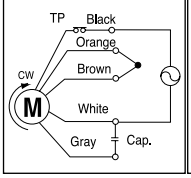
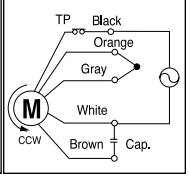
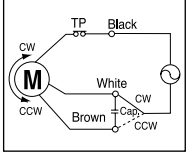
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□ ~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□ ~S8DA200□ |  |
| KEY TYPE<br>S8KA3□ ~S8KA200□ |  |

## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8I15G□ |  |
| STRAIGHT TYPE<br>S8I15S□ |  |
| D-CUT TYPE<br>S8I15D□ |  |
| KEY TYPE<br>S8I15K□ |  |

# SCHEMATIC DIAGRAMS

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

| S8I15GA S8I15GB<br>S8I15GC S8I15GD | | S8I15GA(TP) S8I15GB(TP)<br>S8I15GC(TP) S8I15GD(TP)<br>S8I15GACE S8I15GBCE S8I15GE<br>S8I15GCCE S8I15GDCE S8I15GECE | | S8I15GX<br>S8I15GXCE |
|---|---|---|---|---|
| **CW** | **CCW** | **CW** | **CCW** | **CW,CCW** |
|  |  |  |  |  |

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



# 25W

## INDUCTION MOTOR □80㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8I25GA<br>S8I25GA(TP)<br>S8I25GACE | 4 | 25 | 1Ø 110 | 60 | Cont. | 0.51 | 1600 | 1.60 | 0.160 | 1.80 | 0.180 | 6.0 |
| | S8I25GB<br>S8I25GB(TP)<br>S8I25GBCE | 4 | 25 | 1Ø 220 | 60 | Cont. | 0.23 | 1550 | 1.65 | 0.165 | 1.80 | 0.180 | 1.5 |
| | S8I25GC<br>S8I25GC(TP)<br>S8I25GCCE | 4 | 25 | 1Ø 100 | 50 | Cont. | 0.57 | 1250 | 2.00 | 0.200 | 1.45 | 0.145 | 6.0 |
| | | | | | 60 | | 0.52 | 1550 | 1.65 | 0.165 | | | |
| | S8I25GD<br>S8I25GD(TP)<br>S8I25GDCE | 4 | 25 | 1Ø 200 | 50 | Cont. | 0.30 | 1250 | 2.00 | 0.200 | 1.45 | 0.145 | 1.5 |
| | | | | | 60 | | 0.29 | 1500 | 1.70 | 0.170 | | | |
| | S8I25GE<br>S8I25GECE | 4 | 25 | 1Ø 100 | 50 | Cont. | 0.54 | 1250 | 2.00 | 0.200 | 1.20 | 0.120 | 6.0 |
| | | | | | 60 | | 0.55 | 1500 | 1.70 | 0.170 | | | |
| | | | | 1Ø 115 | 60 | | 0.59 | 1500 | 1.70 | 0.170 | | | 4.5 |
| | S8I25GX<br>S8I25GXCE | 4 | 25 | 1Ø 220 | 50 | Cont. | 0.23 | 1200 | 2.10 | 0.210 | 1.10 | 0.110 | 1.3 |
| | | | | 1Ø 240 | | | 0.25 | | 2.20 | 0.220 | 1.30 | 0.130 | |
| | S8I25GU<br>S8I25GUCE | 4 | 25 | 3Ø 200 | 50 | Cont. | 0.26 | 1300 | 1.95 | 0.195 | 3.50 | 0.350 | — |
| | | | | | 60 | | 0.24 | 1550 | 1.65 | 0.165 | 2.90 | 0.290 | |
| | S8I25GT<br>S8I25GTCE | 4 | 25 | 3Ø 220 | 50 | Cont. | 0.28 | 1350 | 1.90 | 0.190 | 4.20 | 0.420 | — |
| | | | | | 60 | | 0.24 | 1600 | 1.60 | 0.160 | 3.50 | 0.350 | |
| | S8I25GS<br>S8I25GSCE | 4 | 25 | 3Ø 380 | 50 | Cont. | 0.14 | 1250 | 2.00 | 0.200 | 3.15 | 0.315 | — |
| | | | | | 60 | | 0.12 | 1500 | 1.70 | 0.170 | 2.50 | 0.250 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.14 | 1250 | 2.10 | 0.210 | 3.50 | 0.350 | |
| | | | | | 60 | | 0.12 | 1500 | 1.80 | 0.180 | 2.75 | 0.275 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.15 | 1300 | 1.95 | 0.195 | 3.75 | 0.375 | |
| | | | | | 60 | | 0.13 | 1550 | 1.65 | 0.165 | 3.00 | 0.300 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.15 | 1300 | 2.10 | 0.210 | 4.40 | 0.440 | |
| | | | | | 60 | | 0.13 | 1550 | 1.80 | 0.180 | 3.40 | 0.340 | |

❖ S8I25GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S8I25GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP. S8I25GECE is availableonly for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8I25GE,S8I25GX, S8I25GS is thermally protected type with TP mounted.
❖ Be cautious when using a three-phase 380V motor controlled with inverter.
❖ "L"or "H"type does not apply to motors under 40W.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 5.3 | 6.4 | 8.9 | 10.7 | 13.4 | 16.0 | 17.8 | 22.3 | 26.7 | 32.1 | 32.1 | 40.2 | 48.2 | 57.8 | 64.2 | 72.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.519 | 0.627 | 0.872 | 1.049 | 1.313 | 1.568 | 1.744 | 2.185 | 2.617 | 3.146 | 3.146 | 3.940 | 4.724 | 5.664 | 6.292 | 7.115 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

## 60Hz

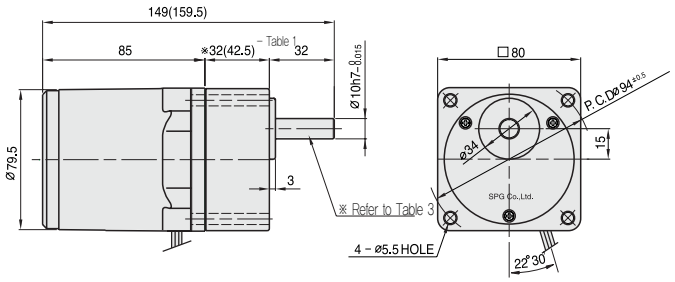
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 4.4 | 5.2 | 7.3 | 8.7 | 10.9 | 13.1 | 14.6 | 18.2 | 21.9 | 26.2 | 26.3 | 32.9 | 39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.431 | 0.510 | 0.715 | 0.853 | 1.068 | 1.284 | 1.431 | 1.784 | 2.146 | 2.568 | 2.577 | 3.224 | 3.861 | 4.635 | 5.155 | 5.821 | 6.987 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L"or "H"type does not apply to motors under 40W.

# DIMENSIONS

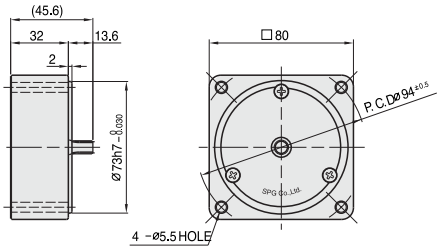
## GEARED MOTOR

※MOTOR MODEL : S8I25G□
※HEAD MODEL : S8□A3□~S8□A200□



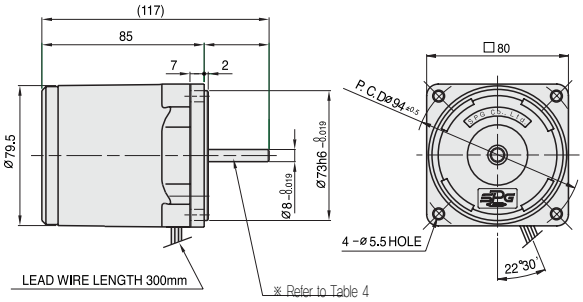

## INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B




## MOTOR

※MOTOR MODEL : S8I25□□



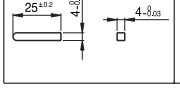
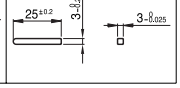

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

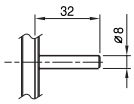
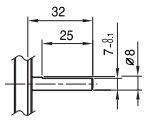
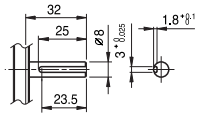
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.46 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

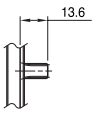
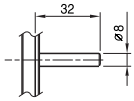
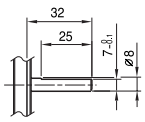
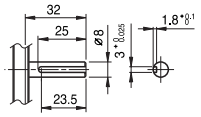
## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of gearhead - (Table3)

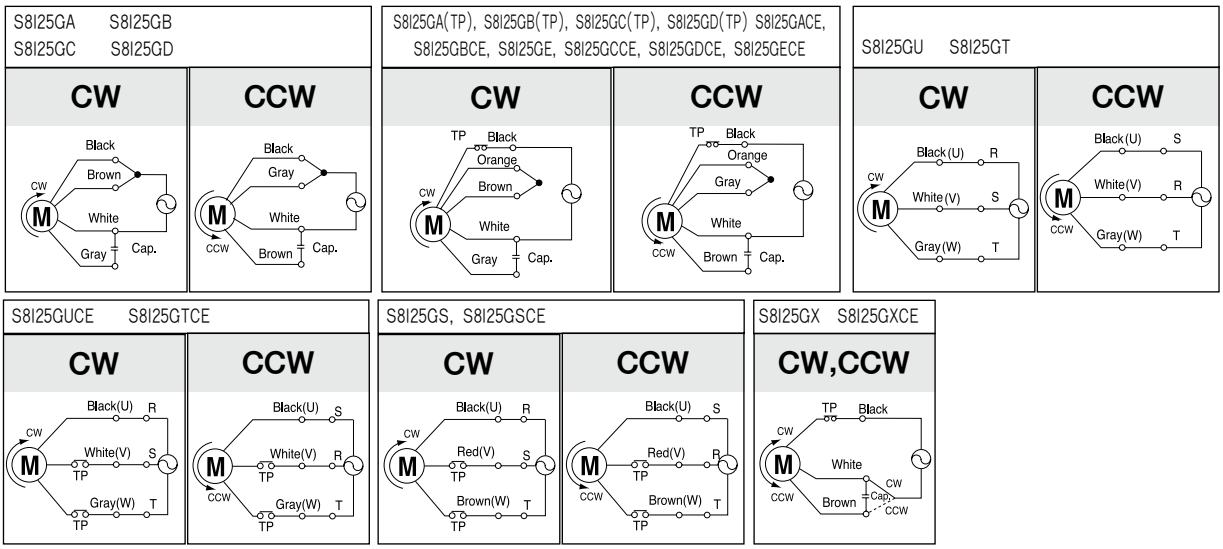
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□ ~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□ ~S8DA200□ |  |
| KEY TYPE<br>S8KA3□ ~S8KA200□ |  |

## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8I25G□ |  |
| STRAIGHT TYPE<br>S8I25S□ |  |
| D-CUT TYPE<br>S8I25D□ |  |
| KEY TYPE<br>S8I25K□ |  |

# SCHEMATIC DIAGRAMS

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




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



# 40W

## INDUCTION MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I40GA( )<br>S9I40GA( )(TP)<br>S9I40GA( )CE | 4 | 40 | 1Ø110 | 60 | Cont. | 0.82 | 1600 | 2.50 | 0.250 | 2.90 | 0.290 | 10.0 |
| | S9I40GB( )<br>S9I40GB( )(TP)<br>S9I40GB( )CE | 4 | 40 | 1Ø220 | 60 | Cont. | 0.41 | 1600 | 2.50 | 0.250 | 2.90 | 0.290 | 2.5 |
| | S9I40GC( )<br>S9I40GC( )(TP)<br>S9I40GC( )CE | 4 | 40 | 1Ø100 | 50 | Cont. | 0.80 | 1300 | 3.10 | 0.310 | 2.40 | 0.240 | 10.0 |
| | | | | | 60 | | 0.85 | 1550 | 2.60 | 0.260 | | | |
| | S9I40GD( )<br>S9I40GD( )(TP)<br>S9I40GD( )CE | 4 | 40 | 1Ø200 | 50 | Cont. | 0.41 | 1300 | 3.10 | 0.310 | 2.40 | 0.240 | 2.5 |
| | | | | | 60 | | 0.43 | 1550 | 2.60 | 0.260 | | | |
| | S9I40GE( )<br>S9I40GE( )CE | 4 | 40 | 1Ø100 | 50 | Cont. | 0.82 | 1300 | 3.10 | 0.310 | 2.40 | 0.240 | 10.0 |
| | | | | | 60 | | 0.85 | 1550 | 2.60 | 0.260 | | | |
| | | | | 1Ø115 | 60 | | 0.91 | 1550 | 2.60 | 0.260 | | | 8.0 |
| | S9I40GX( )<br>S9I40GX( )CE | 4 | 40 | 1Ø220 | 50 | Cont. | 0.34 | 1250 | 3.15 | 0.315 | 1.80 | 0.180 | 2.0 |
| | | | | 1Ø240 | | | 0.37 | | 3.35 | 0.335 | 2.10 | 0.210 | |
| | S9I40GU( )<br>S9I40GU( )CE | 4 | 40 | 3Ø200 | 50 | Cont. | 0.36 | 1300 | 3.10 | 0.310 | 6.30 | 0.630 | — |
| | | | | | 60 | | 0.33 | 1550 | 2.60 | 0.260 | 5.20 | 0.520 | |
| | S9I40GT( )<br>S9I40GT( )CE | 4 | 40 | 3Ø220 | 50 | Cont. | 0.39 | 1350 | 3.00 | 0.300 | 7.60 | 0.760 | — |
| | | | | | 60 | | 0.33 | 1600 | 2.50 | 0.250 | 6.10 | 0.610 | |
| | S9I40GS( )<br>S9I40GS( )CE | 4 | 40 | 3Ø380 | 50 | Cont. | 0.21 | 1300 | 3.20 | 0.320 | 6.30 | 0.630 | — |
| | | | | | 60 | | 0.19 | 1550 | 2.70 | 0.270 | 4.85 | 0.485 | |
| | | | | 3Ø400 | 50 | Cont. | 0.21 | 1300 | 3.30 | 0.330 | 6.90 | 0.690 | |
| | | | | | 60 | | 0.19 | 1550 | 2.80 | 0.280 | 5.25 | 0.525 | |
| | | | | 3Ø415 | 50 | Cont. | 0.21 | 1350 | 3.10 | 0.310 | 7.30 | 0.730 | |
| | | | | | 60 | | 0.19 | 1600 | 2.60 | 0.260 | 5.70 | 0.570 | |
| | | | | 3Ø440 | 50 | Cont. | 0.21 | 1350 | 3.20 | 0.320 | 8.20 | 0.820 | |
| | | | | | 60 | | 0.19 | 1600 | 2.70 | 0.270 | 6.30 | 0.630 | |

❖ S9I40GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S9I40GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S9I40GE( )CE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9I40GE, S9I40GX, S9I40GS is thermally protected type with TP mounted.
❖ Be cautious when using a three-phase 380V motor controlled with inverter.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KB□B( ) | kg-Cm | 8.3 | 9.9 | 13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4 | 41.3 | 49.6 | 49.6 | 62.1 | 74.5 | 89.4 | 99.3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.813 | 0.970 | 1.352 | 1.617 | 2.029 | 2.430 | 2.695 | 3.371 | 4.047 | 4.861 | 4.861 | 6.086 | 7.301 | 8.761 | 9.731 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

## 60Hz

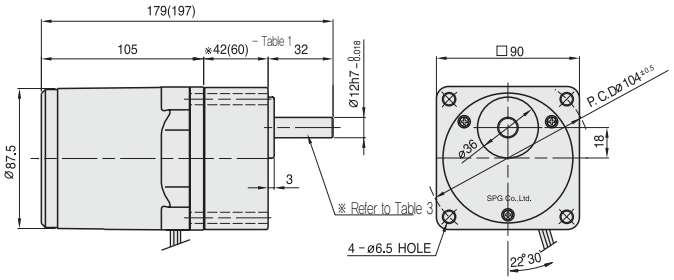
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KB□B( ) | kg-cm | 6.8 | 8.2 | 11.3 | 13.6 | 17.0 | 20.4 | 22.7 | 28.4 | 34.0 | 40.8 | 40.9 | 51.1 | 61.3 | 73.6 | 81.8 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.666 | 0.804 | 1.107 | 1.333 | 1.666 | 1.999 | 2.225 | 2.783 | 3.332 | 3.998 | 4.008 | 5.008 | 6.007 | 7.213 | 8.016 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

# DIMENSIONS

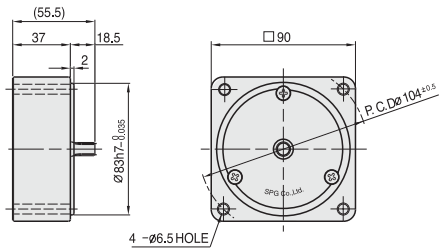
## GEARED MOTOR

※MOTOR MODEL : S9I40G□□
※HEAD MODEL : S9□B3□□~S9□B200□□



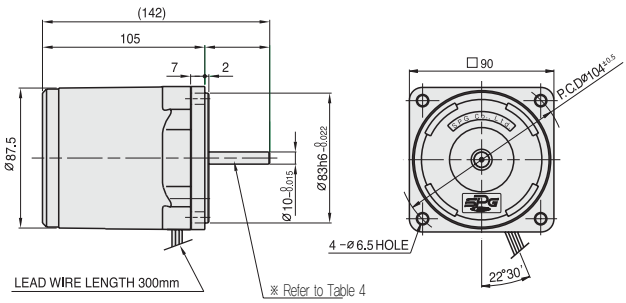

## INTER-DECIMAL GEAR HEAD

※MODEL : S9GX10B(H,L)




## MOTOR

※MOTOR MODEL : S9I40□□□



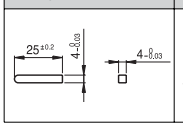
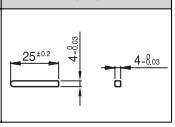

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S9□B3□□ ~ S9□B18□□ | 42 |
| S9□B20□□ ~ S9□B200□□ | 60 |

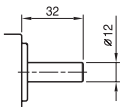
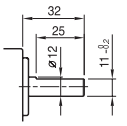
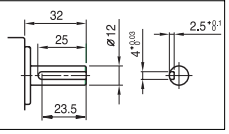
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.30 |
| DECIMAL GEAR HEAD | | 0.60 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□□ ~S9□B40□□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

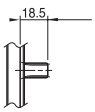
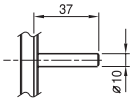
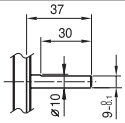
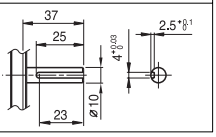
## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SB3□□<br>~S9SB200□□ |  |
| D-CUT TYPE<br>S9DB3□□<br>~S9DB200□□ |  |
| KEY TYPE<br>S9KB3□□<br>~S9KB200□□ |  |

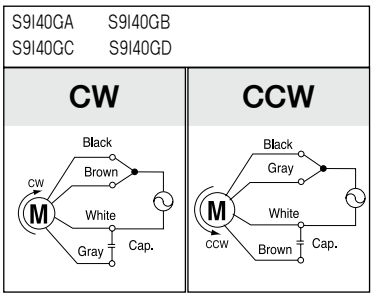
## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I40G□□ |  |
| STRAIGHT TYPE<br>S9I40S□ |  |
| D-CUT TYPE<br>S9I40D□ |  |
| KEY TYPE<br>S9I40K□ |  |

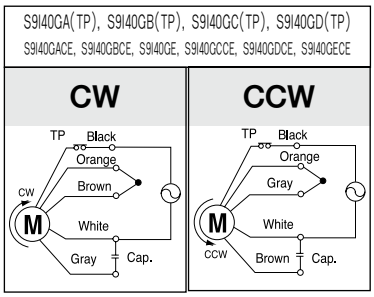
# SCHEMATIC DIAGRAMS

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

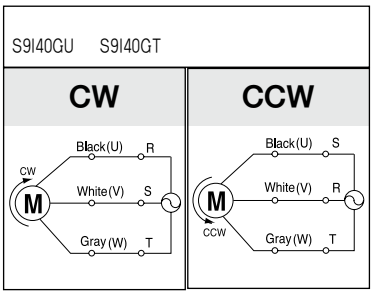
S9I40GA S9I40GB S9I40GC S9I40GD



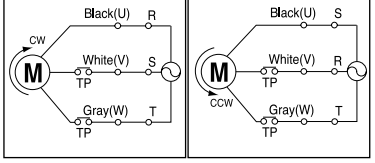

S9I40GA(TP), S9I40GB(TP), S9I40GC(TP), S9I40GD(TP)
S9I40GACE, S9I40GBCE, S9I40GE, S9I40GCCE, S9I40GDCE, S9I40GECE



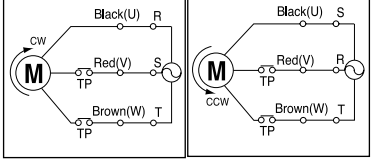

S9I40GU S9I40GT



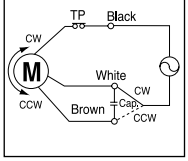

S9I40GUCE S9I40GTCE




S9I40GS, S9I40GSCE




S9I40GX S9I40GXCE




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



# 60W

## INDUCTION MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I60GA( )<br>S9I60GA( )(TP)<br>S9I60GA( )CE | 4 | 60 | 1Ø 110 | 60 | Cont. | 1.35 | 1600 | 3.80 | 0.380 | 4.80 | 0.480 | 15.0 |
| | S9I60GB( )<br>S9I60GB( )(TP)<br>S9I60GB( )CE | 4 | 60 | 1Ø 220 | 60 | Cont. | 0.68 | 1600 | 3.90 | 0.390 | 4.80 | 0.480 | 4.0 |
| | S9I60GC( )<br>S9I60GC( )(TP)<br>S9I60GC( )CE | 4 | 60 | 1Ø 100 | 50 | Cont. | 1.26 | 1300 | 4.60 | 0.460 | 3.40 | 0.340 | 15.0 |
| | | | | | 60 | | 1.37 | 1550 | 3.90 | 0.390 | | | |
| | S9I60GD( )<br>S9I60GD( )(TP)<br>S9I60GD( )CE | 4 | 60 | 1Ø 200 | 50 | Cont. | 0.65 | 1300 | 4.70 | 0.470 | 3.85 | 0.385 | 4.0 |
| | | | | | 60 | | 0.70 | 1550 | 4.00 | 0.400 | | | |
| | S9I60GE( )<br>S9I60GE( )CE | 4 | 60 | 1Ø 100 | 50 | Cont. | 1.10 | 1300 | 4.60 | 0.460 | 3.20 | 0.320 | 15.0 |
| | | | | | 60 | | 1.20 | 1550 | 3.90 | 0.390 | | | |
| | | | | 1Ø 115 | 60 | | 1.20 | 1550 | 4.00 | 0.400 | | | 12.0 |
| | S9I60GX( )<br>S9I60GX( )CE | 4 | 60 | 1Ø 220 | 50 | Cont. | 0.47 | 1300 | 4.60 | 0.460 | 3.20 | 0.320 | 3.5 |
| | | | | 1Ø 240 | | | 0.50 | | 4.90 | 0.490 | 3.90 | 0.390 | |
| | S9I60GU( )<br>S9I60GU( )CE | 4 | 60 | 3Ø 200 | 50 | Cont. | 0.60 | 1300 | 4.60 | 0.460 | 9.30 | 0.930 | — |
| | | | | | 60 | | 0.50 | 1550 | 3.90 | 0.390 | 8.00 | 0.800 | |
| | S9I60GT( )<br>S9I60GT( )CE | 4 | 60 | 3Ø 220 | 50 | Cont. | 0.80 | 1350 | 4.40 | 0.440 | 11.35 | 1.135 | — |
| | | | | | 60 | | 0.57 | 1600 | 3.90 | 0.390 | 9.30 | 0.930 | |
| | S9I60GS( )<br>S9I60GS( )CE | 4 | 60 | 3Ø 380 | 50 | Cont. | 0.27 | 1300 | 4.60 | 0.460 | 8.25 | 0.825 | — |
| | | | | | 60 | | 0.24 | 1550 | 3.90 | 0.390 | 6.50 | 0.650 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.29 | 1300 | 4.70 | 0.470 | 9.30 | 0.930 | |
| | | | | | 60 | | 0.25 | 1550 | 4.00 | 0.400 | 7.35 | 0.735 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.27 | 1350 | 4.60 | 0.460 | 9.95 | 0.995 | |
| | | | | | 60 | | 0.23 | 1600 | 3.80 | 0.380 | 7.50 | 0.750 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.31 | 1350 | 4.70 | 0.470 | 10.75 | 1.075 | |
| | | | | | 60 | | 0.25 | 1600 | 3.90 | 0.390 | 8.40 | 0.840 | |

❖ S9I60GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S9I60GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S9I60GE( )CE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9I60GE, S9I60GX, S9I60GS is thermally protected type with TP mounted.
❖ Be cautious when using a three-phase 380V motor controlled with inverter.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

## 60Hz

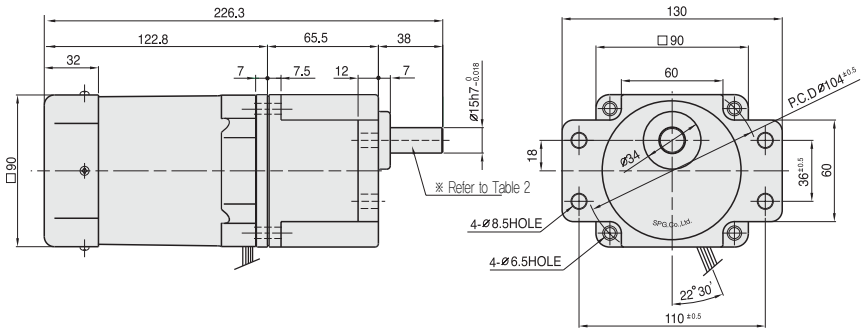
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

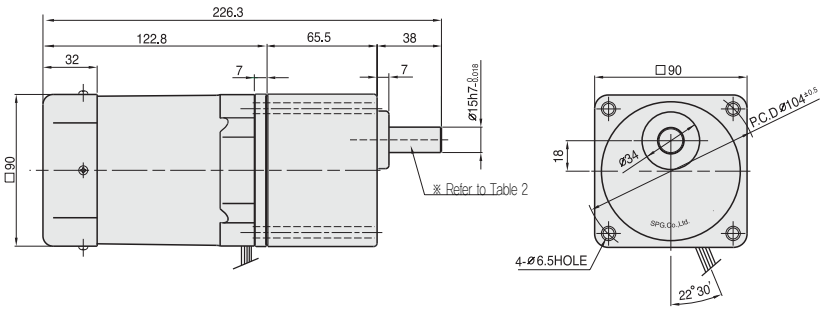
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9I60G□□
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

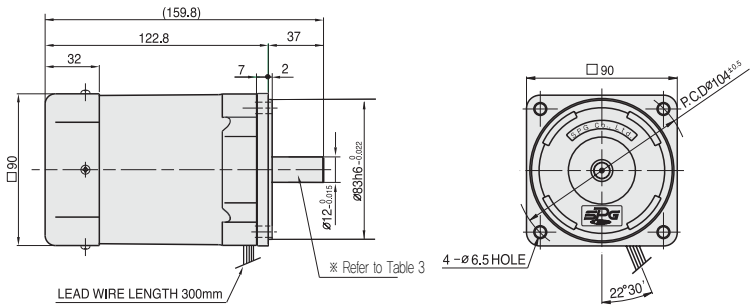



※MOTOR MODEL : S9I60G□□
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S



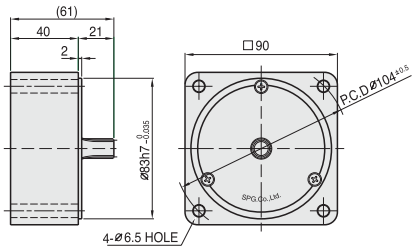

## ✚ MOTOR

※MOTOR MODEL : S9I60□□□




## ✚ INTER-DECIMAL GEAR HEAD

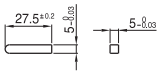
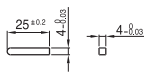
※MODEL : S9GX10B(H,L)-S




## ✚ WEIGHT - (Table1)

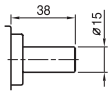
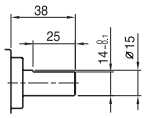
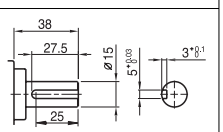
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.44 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

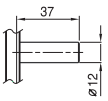
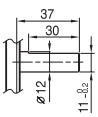
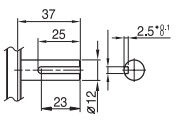


## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |



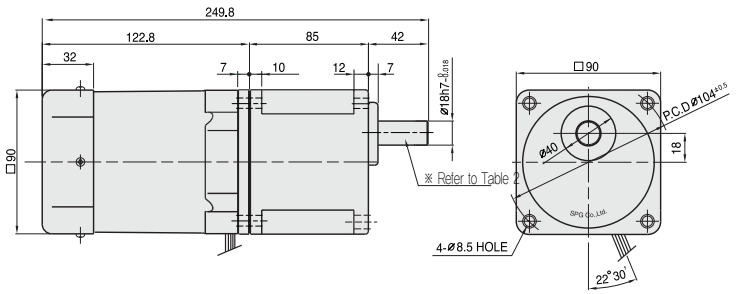
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I60G□□ |  |
| STRAIGHT TYPE<br>S9I60S□ |  |
| D-CUT TYPE<br>S9I60D□ |  |
| KEY TYPE<br>S9I60K□ |  |

# DIMENSIONS

## ✚ GEARED MOTOR

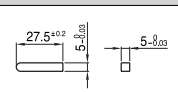
※MOTOR MODEL : S9I60G□H
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table1)

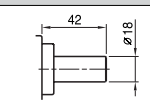
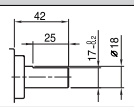
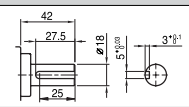
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.44 |
| GEAR HEAD | S9□D3B ~S9□D10B□ | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DD3B ~S9DD200B | | S9KD3B ~S9KD200B | |



## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 221 | 266 | 295 | 300 | 300 | 300 | 300 |
| | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 21.67 | 26.09 | 28.93 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

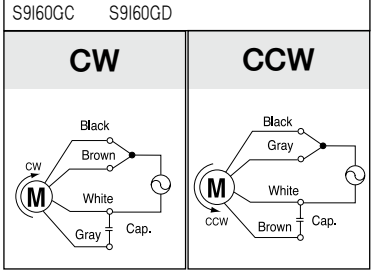
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 212 | 236 | 283 | 300 | 300 | 300 |
| | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 20.79 | 23.14 | 27.75 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use 'H' type motor.

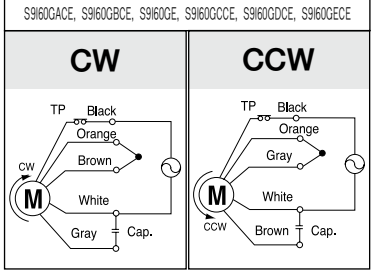
# SCHEMATIC DIAGRAMS

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

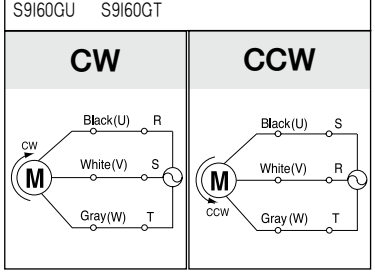
S9I60GA S9I60GB
S9I60GC S9I60GD



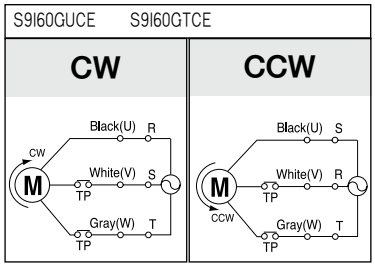

S9I60GA(TP), S9I60GB(TP), S9I60GC(TP), S9I60GD(TP)
S9I60GACE, S9I60GBCE, S9I60GE, S9I60GCCE, S9I60GDCE, S9I60GECE



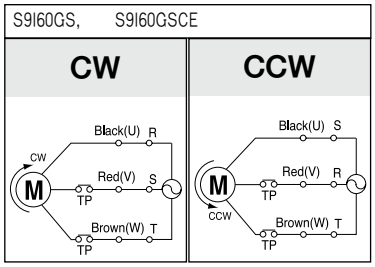

S9I60GU S9I60GT



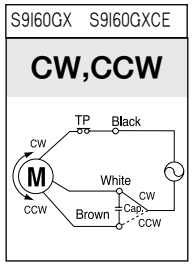

S9I60GUCE S9I60GTCE




S9I60GS, S9I60GSCE




S9I60GX S9I60GXCE




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



# 90W

## INDUCTION MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I90GA( )<br>S9I90GA( )(TP)<br>S9I90GA( )CE | 4 | 90 | 1Ø 110 | 60 | Cont. | 2.00 | 1600 | 5.60 | 0.560 | 5.70 | 0.570 | 25.0 |
| | S9I90GB( )<br>S9I90GB( )(TP)<br>S9I90GB( )CE | 4 | 90 | 1Ø 220 | 60 | Cont. | 1.00 | 1600 | 5.60 | 0.560 | 5.70 | 0.570 | 6.0 |
| | S9I90GC( )<br>S9I90GC( )(TP)<br>S9I90GC( )CE | 4 | 90 | 1Ø 100 | 50 | Cont. | 1.80 | 1300 | 6.90 | 0.690 | 5.00 | 0.500 | 25.0 |
| | | | | | 60 | | 2.00 | 1550 | 5.80 | 0.580 | | | |
| | S9I90GD( )<br>S9I90GD( )(TP)<br>S9I90GD( )CE | 4 | 90 | 1Ø 200 | 50 | Cont. | 0.90 | 1300 | 6.90 | 0.690 | 5.00 | 0.500 | 6.0 |
| | | | | | 60 | | 1.00 | 1550 | 5.80 | 0.580 | | | |
| | S9I90GE( )<br>S9I90GE( )CE | 4 | 90 | 1Ø 100 | 50 | Cont. | 1.50 | 1300 | 6.90 | 0.690 | 5.00 | 0.500 | 25.0 |
| | | | | | 60 | | 1.80 | 1550 | 5.80 | 0.580 | | | |
| | | | | 1Ø 115 | 60 | | 1.80 | 1550 | 6.00 | 0.600 | | | 20.0 |
| | S9I90GX( )<br>S9I90GX( )CE | 4 | 90 | 1Ø 220 | 50 | Cont. | 0.68 | 1300 | 6.90 | 0.690 | 4.80 | 0.480 | 5.0 |
| | | | | 1Ø 240 | | | 0.72 | | 7.20 | 0.720 | 5.20 | 0.520 | |
| | S9I90GU( )<br>S9I90GU( )CE | 4 | 90 | 3Ø 200 | 50 | Cont. | 0.63 | 1300 | 6.90 | 0.690 | 10.60 | 1.060 | — |
| | | | | | 60 | | 0.60 | 1550 | 6.00 | 0.600 | 8.90 | 0.890 | |
| | S9I90GT( )<br>S9I90GT( )CE | 4 | 90 | 3Ø 220 | 50 | Cont. | 0.68 | 1350 | 6.80 | 0.680 | 13.00 | 1.300 | — |
| | | | | | 60 | | 0.55 | 1600 | 5.70 | 0.570 | 10.50 | 1.050 | |
| | S9I90GS( )<br>S9I90GS( )CE | 4 | 90 | 3Ø 380 | 50 | Cont. | 0.32 | 1300 | 6.80 | 0.680 | 10.55 | 1.055 | — |
| | | | | | 60 | | 0.30 | 1550 | 5.70 | 0.570 | 8.20 | 0.820 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.35 | 1300 | 6.90 | 0.690 | 11.70 | 1.170 | |
| | | | | | 60 | | 0.32 | 1550 | 5.80 | 0.580 | 8.90 | 0.890 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.33 | 1350 | 6.80 | 0.680 | 12.00 | 1.200 | |
| | | | | | 60 | | 0.29 | 1600 | 5.70 | 0.570 | 9.50 | 0.950 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.35 | 1350 | 6.90 | 0.690 | 13.30 | 1.330 | |
| | | | | | 60 | | 0.31 | 1600 | 5.80 | 0.580 | 10.50 | 1.050 | |

❖ S9I90GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S9I60GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S9I90GE( )CE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9I90GE, S9I90GX, S9I90GS is thermally protected type with TP mounted.
❖ Be cautious when using a three-phase 380V motor controlled with inverter.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

## 60Hz

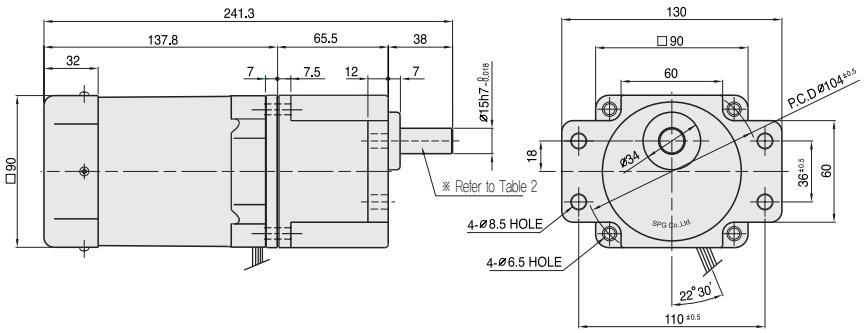
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible toque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

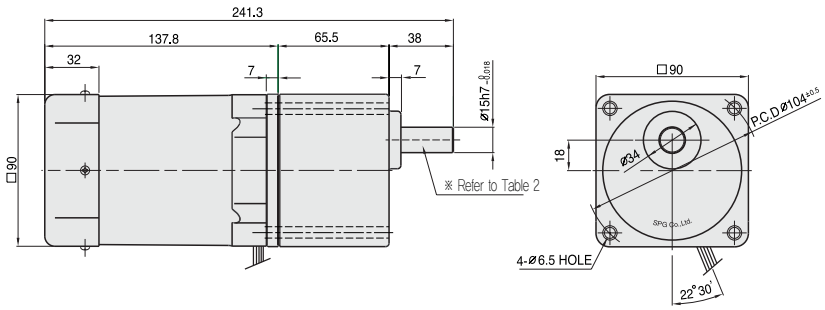
# DIMENSIONS

## GEARED MOTOR

※MOTOR MODEL : S9I90G□□
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

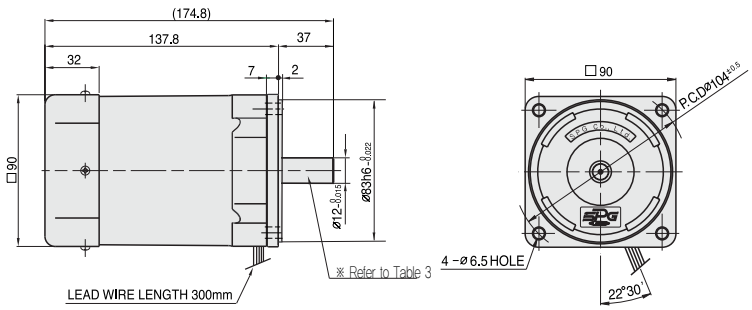



※HEAD MODEL : S9□C3B□~S9□C200B□



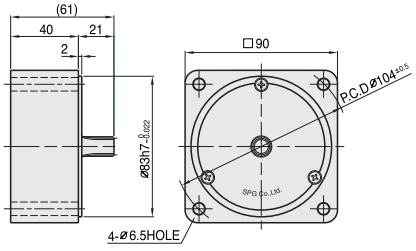

## MOTOR

※MOTOR MODEL : S9I90□□□




## INTER-DECIMAL GEAR HEAD

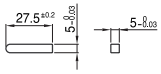
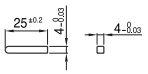
※MOTOR MODEL : S9GX10B(H,L)-S




## WEIGHT - (Table1)

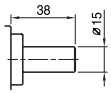
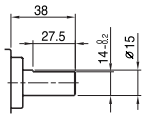
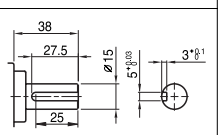
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

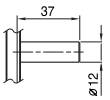
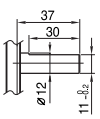
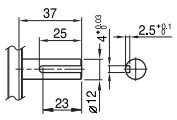


## SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DCB3□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |



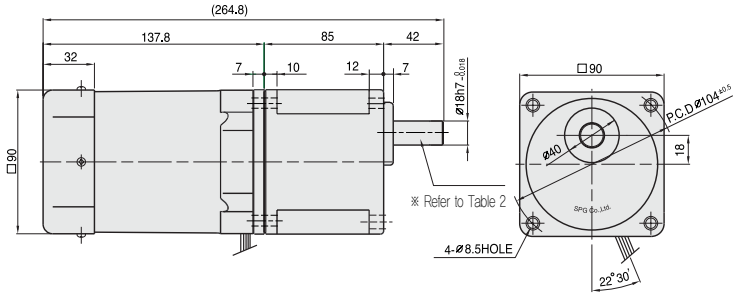
## SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I90G□□ |  |
| STRAIGHT TYPE<br>S9I90S□ |  |
| D-CUT TYPE<br>S9I90D□ |  |
| KEY TYPE<br>S9I90K□ |  |

# DIMENSIONS

## ✚ GEARED MOTOR

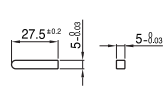
※MOTOR MODEL : S9I90G□H
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table1)

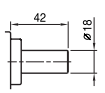
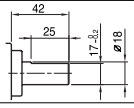
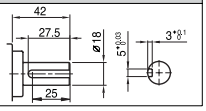
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DDB3B ~S9DD200B | | S9KD3B ~S9KD200B | |



## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 248 | 297 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 24.32 | 29.13 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

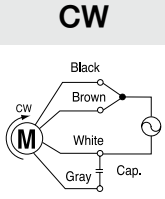
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 238 | 266 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 23.34 | 26.09 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

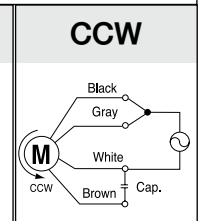
❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use 'H' type motor.

# SCHEMATIC DIAGRAMS

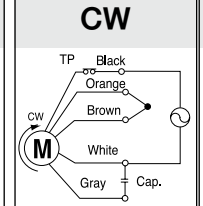
The direction of motor rotation is as viewed from the front shaft end of the motor.

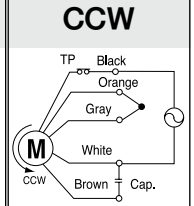
S9I90GA S9I90GB
S9I90GC S9I90GD



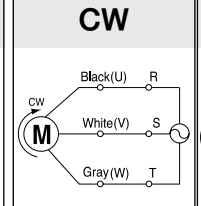



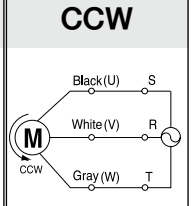

S9I90GA(TP), S9I90GB(TP), S9I90GC(TP), S9I90GD(TP)
S9I90GACE, S9I90GBCE, S9I90GE, S9I90GCCE, S9I90GDCE, S9I90GECE



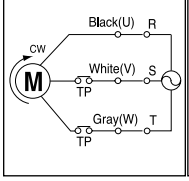



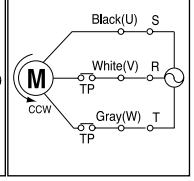

S9I90GU S9I90GT



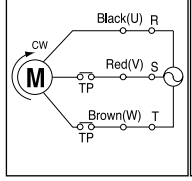



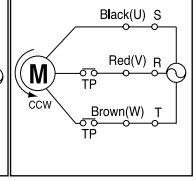

S9I90GUCE S9I90GTCE



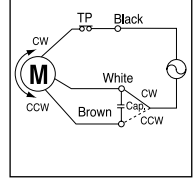




S9I90GS, S9I90GSCE




S9I90GX S9I90GXCE




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



# 120W

## INDUCTION MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I120GA<br>S9I120GA(TP)<br>S9I120GACE | 4 | 120 | 1 Ø 110 | 60 | Cont. | 2.10 | 1600 | 7.60 | 0.760 | 6.20 | 0.620 | 25.0 |
| | S9I120GB<br>S9I120GB(TP)<br>S9I120GBCE | 4 | 120 | 1 Ø 220 | 60 | Cont. | 1.00 | 1600 | 7.50 | 0.750 | 6.00 | 0.600 | 6.0 |
| | S9I120GC<br>S9I120GC(TP)<br>S9I120GCCE | 4 | 120 | 1 Ø 100 | 50 | Cont. | 2.00 | 1250 | 9.60 | 0.960 | 5.70 | 0.570 | 25.0 |
| | | | | | 60 | | | 1550 | 7.90 | 0.790 | | | |
| | S9I120GD<br>S9I120GD(TP)<br>S9I120GDCE | 4 | 120 | 1 Ø 200 | 50 | Cont. | 1.00 | 1250 | 9.50 | 0.950 | 5.50 | 0.550 | 6.0 |
| | | | | | 60 | | | 1550 | 7.80 | 0.780 | | | |

❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
❖ Only "H" type is applicable.

## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□BH | kg-cm | 23.2 | 27.8 | 38.7 | 46.4 | 58.0 | 69.6 | 77.4 | 87.0 | 104 | 125 | 139 | 156 | 188 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□BH-S | N·m | 2.276 | 2.731 | 3.793 | 4.552 | 5.689 | 6.827 | 7.586 | 8.534 | 10.24 | 12.29 | 13.65 | 15.36 | 18.43 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 |

## 60Hz

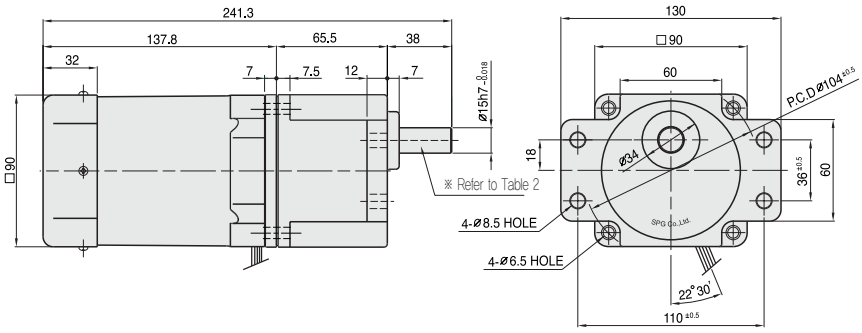
| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□BH | kg-cm | 18.7 | 22.5 | 31.2 | 37.4 | 46.8 | 56.1 | 62.4 | 70.2 | 84.2 | 101 | 112 | 126 | 152 | 182 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□BH-S | N·m | 1.835 | 2.202 | 3.058 | 3.670 | 4.587 | 5.505 | 6.116 | 6.881 | 8.257 | 9.909 | 11.01 | 12.39 | 14.86 | 17.84 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 | 19.61 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable.

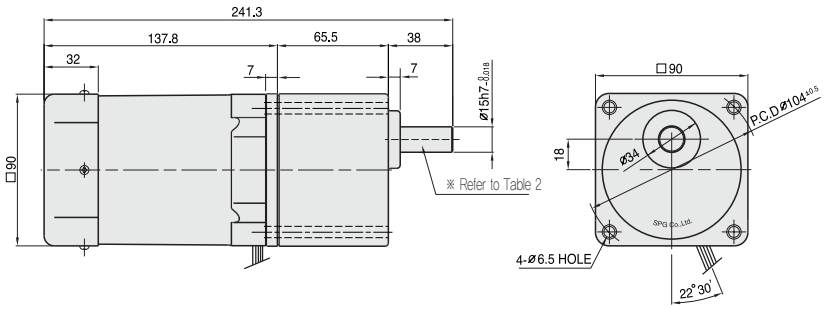
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9I120G□
※HEAD MODEL : S9□C3BH-S~S9□C200BH-S

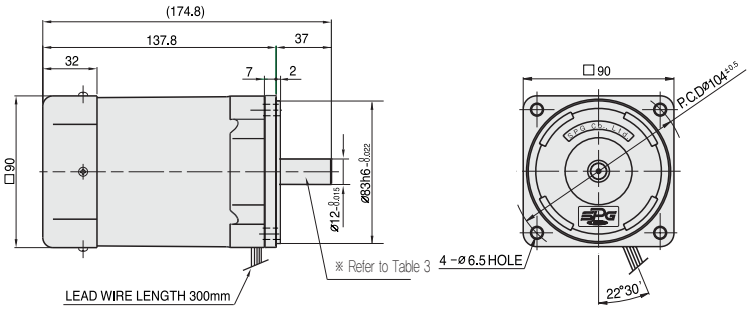



※HEAD MODEL □ : S9□C3BH~S9□C200BH



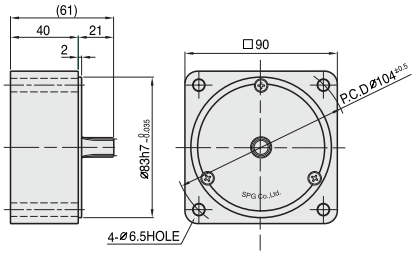

## ✚ MOTOR

※MOTOR MODEL : S9I120□□




## ✚ INTER-DECIMAL GEAR HEAD

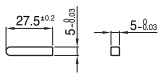
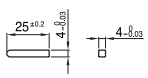
※ MODEL : S9GX10BH-S




## ✚ WEIGHT - (Table1)

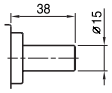
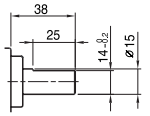
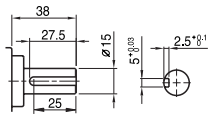
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3BH ~S9□C10BH | 1.21 |
| | S9□C12.5BH ~S9□C20BH | 1.30 |
| | S9□C25BH ~S9□C60BH | 1.40 |
| | S9□C75BH ~S9□C200BH | 1.45 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

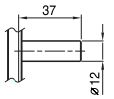
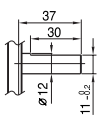
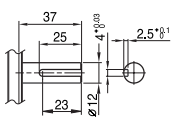


## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3BH ~S9SC200BH |  |
| D-CUT TYPE<br>S9DC3BH ~S9DC200BH |  |
| KEY TYPE<br>S9KC3BH ~S9KC200BH |  |



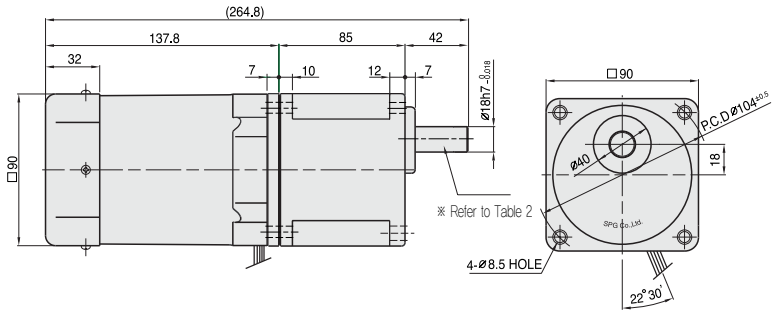
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I120G□ |  |
| STRAIGHT TYPE<br>S9I120S□ |  |
| D-CUT TYPE<br>S9I120D□ |  |
| KEY TYPE<br>S9I120□ |  |

# DIMENSIONS

## ✚ GEARED MOTOR

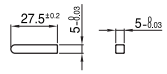
※MOTOR MODEL : S9I120G□
※HEAD MODEL □ : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table1)

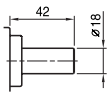
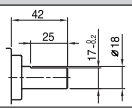
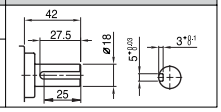
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DD3B ~S9DD200B | | S9KD3B ~S9KD200B | |



## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 23.2 | 27.8 | 38.7 | 46.4 | 58.0 | 69.6 | 77.4 | 87.0 | 104 | 125 | 139 | 156 | 188 | 225 | 250 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 2.276 | 2.731 | 3.793 | 4.552 | 5.689 | 6.827 | 7.586 | 8.534 | 10.24 | 12.29 | 13.65 | 15.36 | 18.43 | 22.12 | 24.58 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

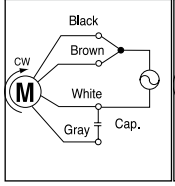
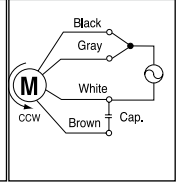
| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 18.7 | 22.5 | 31.2 | 37.4 | 46.8 | 56.1 | 62.4 | 70.2 | 84.2 | 101 | 112 | 126 | 152 | 182 | 202 | 252 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.835 | 2.202 | 3.058 | 3.670 | 4.587 | 5.505 | 6.116 | 6.881 | 8.757 | 9.909 | 11.01 | 12.39 | 14.86 | 17.84 | 19.82 | 24.77 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 5 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable.

# SCHEMATIC DIAGRAMS

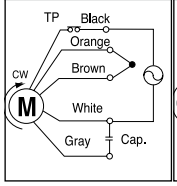
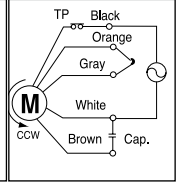
The direction of motor rotation is as viewed from the front shaft end of the motor.

S9I120GA S9I120GB
S9I120GC S9I120GD

| CW | CCW |
|---|---|
|  |  |



S9I120GA(TP) S9I120GB(TP)
S9I120GC(TP) S9I120GD(TP)
S9I120GACE S9I120GBCE
S9I120GCCE S9I120GDCE

| CW | CCW |
|---|---|
|  |  |



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



# 150W

## INDUCTION MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I150GU<br>S9I150GUCE | 4 | 150 | 3 Ø 200 | 50 | Cont. | 1.0 | 1250 | 11.70 | 1.170 | 18.0 | 1.800 | — |
| | | | | | 60 | | 0.9 | 1500 | 9.70 | 0.970 | 15.0 | 1.500 | |
| | S9I150GT<br>S9I150GTCE | 4 | 150 | 3 Ø 220 | 50 | Cont. | 1.0 | 1300 | 11.30 | 1.130 | 22.0 | 2.200 | — |
| | | | | | 60 | | 0.9 | 1550 | 9.40 | 0.940 | 19.0 | 1.900 | |
| | S9I150GS<br>S9I150GSCE | 4 | 150 | 3 Ø 380 | 50 | Cont. | 0.46 | 1250 | 11.70 | 1.170 | 18.00 | 1.800 | — |
| | | | | | 60 | | 0.42 | 1500 | 9.70 | 0.970 | 15.00 | 1.500 | |
| | | | | 3 Ø 400 | 50 | Cont. | 0.49 | 1250 | 11.70 | 1.170 | 19.00 | 1.900 | |
| | | | | | 60 | | 0.43 | 1500 | 9.70 | 0.970 | 16.00 | 1.600 | |

❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
❖ Only "H" type is applicable.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KH□B | kg-cm | 23.1 | 27.7 | 38.5 | 46.2 | 57.7 | 69.3 | 77.0 | 86.6 | 104 | 125 | 139 | 156 | 187 | 224 | 249 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 2.264 | 2.717 | 3.773 | 4.528 | 5.660 | 6.792 | 7.546 | 8.489 | 10.24 | 12.29 | 13.65 | 15.36 | 18.34 | 21.97 | 24.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

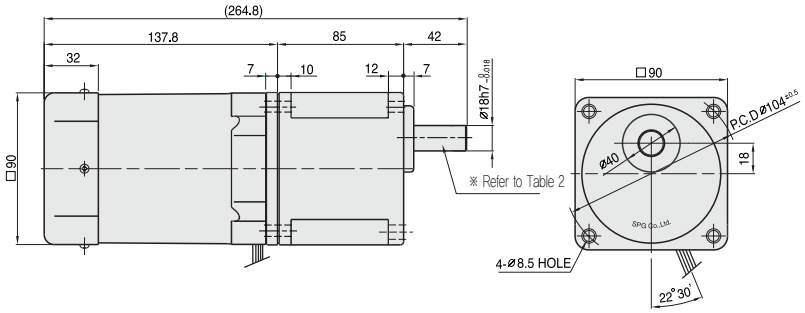
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KH□B | kg-cm | 23.2 | 27.8 | 38.7 | 46.4 | 58.0 | 69.6 | 77.4 | 87.0 | 104 | 125 | 139 | 156 | 188 | 225 | 250 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 2.276 | 2.731 | 3.793 | 4.552 | 5.689 | 6.827 | 7.586 | 8.534 | 10.24 | 12.29 | 13.65 | 15.36 | 18.43 | 22.06 | 24.52 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible TORQUE of the assembled motor and gearhead.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable.

# DIMENSIONS

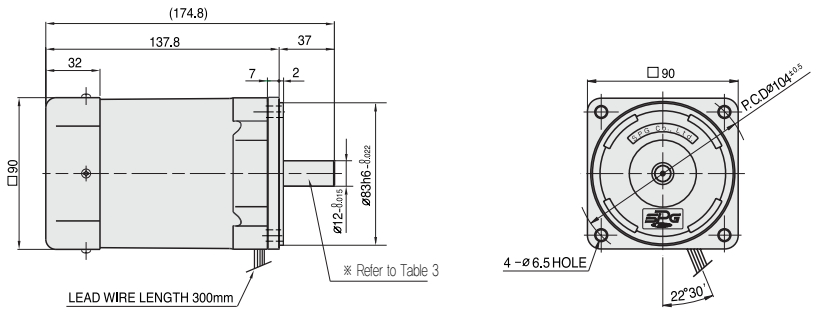
## ✚ GEARED MOTOR

※MOTOR MODEL : S9I150G□
※HEAD MODEL : S9□H3B~S9□H200B




## ✚ MOTOR

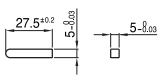
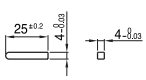
※MODEL : S9I150□□




## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| GEAR HEAD | S9□H3B ~S9□H10B | 1.65 |
| | S9□H12.5B ~S9□H20B | 1.80 |
| | S9□H25B ~S9□H60B | 1.90 |
| | S9□H75B ~S9□H200B | 1.95 |

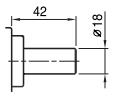
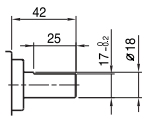
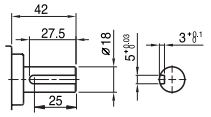
## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |





## ✚ SPEC for output shaft of gearhead - (Table2)

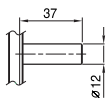
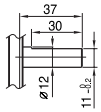
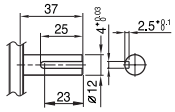
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SH3B ~S9SH200B |  |
| D-CUT TYPE<br>S9DH3B ~S9DH200B |  |
| KEY TYPE<br>S9KH3B ~S9KH200B |  |







## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I150G□ |  |
| STRAIGHT TYPE<br>S9I150S□ |  |
| D-CUT TYPE<br>S9I150D□ |  |
| KEY TYPE<br>S9I150K□ |  |



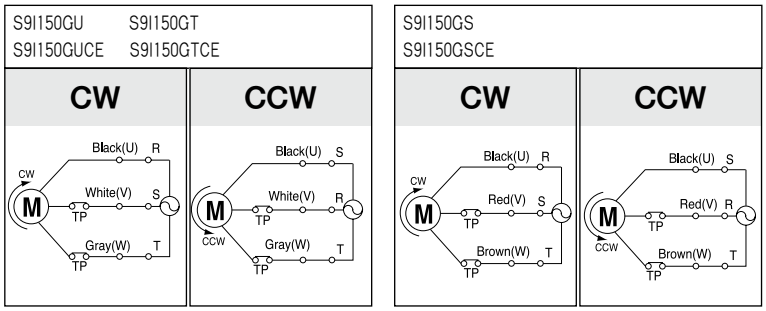






# SCHEMATIC DIAGRAMS

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




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



# 180W

## INDUCTION MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I180GA<br>S9I180GA(TP)<br>S9I180GACE | 4 | 180 | 1 Ø 110 | 60 | Cont. | 2.60 | 1600 | 11.50 | 1.150 | 8.00 | 0.800 | 25.0 |
| | S9I180GB<br>S9I180GB(TP)<br>S9I180GBCE | 4 | 180 | 1 Ø 220 | 60 | Cont. | 1.32 | 1600 | 11.50 | 1.150 | 8.00 | 0.800 | 6.5 |
| | S9I180GC<br>S9I180GC(TP)<br>S9I180GCCE | 4 | 180 | 1 Ø 100 | 50 | Cont. | 3.20 | 1250 | 14.00 | 1.400 | 7.00 | 0.700 | 25.0 |
| | | | | | 60 | | 2.90 | 1550 | 11.60 | 1.160 | | | |
| | S9I180GD<br>S9I180GD(TP)<br>S9I180GDCE | 4 | 180 | 1 Ø 200 | 50 | Cont. | 1.60 | 1250 | 14.00 | 1.400 | 7.00 | 0.700 | 6.5 |
| | | | | | 60 | | 1.45 | 1550 | 11.60 | 1.160 | | | |

❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
❖ Only "H" type is applicable.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KH□B | kg-cm | 34.0 | 41.0 | 57.0 | 68.0 | 85.1 | 102 | 113 | 128 | 153 | 184 | 204 | 230 | 278 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 3.336 | 4.021 | 5.590 | 6.672 | 8.341 | 10.01 | 11.12 | 12.55 | 15.01 | 18.04 | 20.02 | 22.56 | 27.26 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

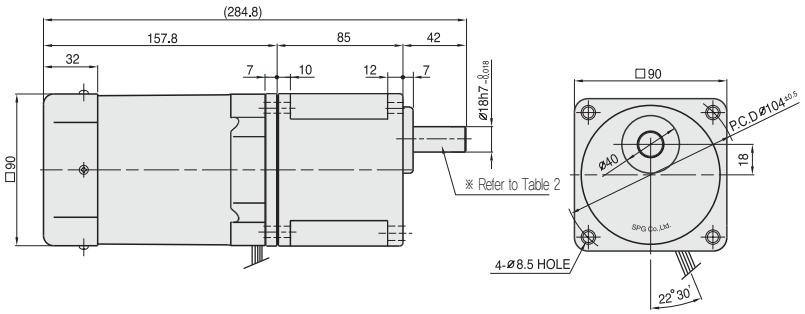
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KH□B | kg-cm | 28.1 | 34.0 | 47.0 | 57.0 | 71.0 | 84.2 | 94.0 | 105 | 126 | 152 | 168 | 189 | 227 | 273 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 2.756 | 3.334 | 4.609 | 5.590 | 6.963 | 8.257 | 9.218 | 10.30 | 12.39 | 14.91 | 16.51 | 18.58 | 22.29 | 26.75 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable.

# DIMENSIONS

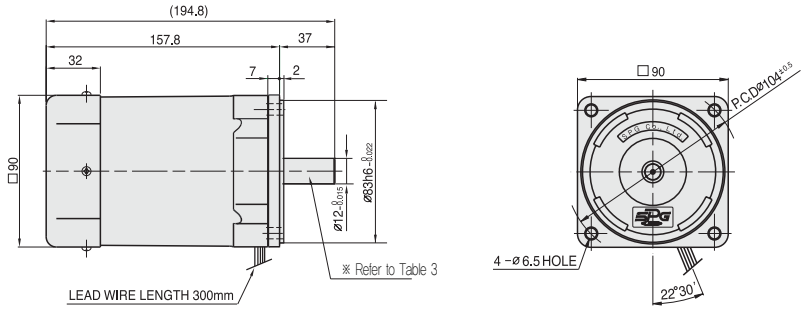
## ✚ GEARED MOTOR

※MOTOR MODEL : S9I180G□
※HEAD MODEL : S9□H3B~S9□H200B




## ✚ MOTOR

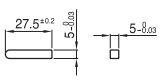
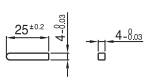
※MOTOR MODEL : S9I180□□




## ✚ WEIGHT - (Table1)

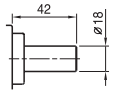
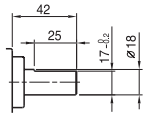
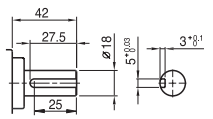
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.70 |
| GEAR HEAD | S9□H3B ~S9□H10B | 1.65 |
| | S9□H12.5B ~S9□H20B | 1.80 |
| | S9□H25B ~S9□H60B | 1.90 |
| | S9□H75B ~S9□H200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

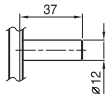
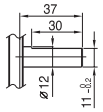
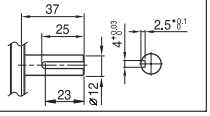


## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S9SH3B ~S9SH200B | |
| D-CUT TYPE |  |
| S9DH3B ~S9DH200B | |
| KEY TYPE |  |
| S9KH3B ~S9KH200B | |



## ✚ SPEC for output shaft of motor - (Table3)

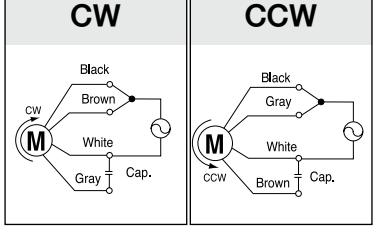
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE |  |
| S9I180G□ | |
| STRAIGHT TYPE |  |
| S9I180S□ | |
| D-CUT TYPE |  |
| S9I180D□ | |
| KEY TYPE |  |
| S9I180K□ | |



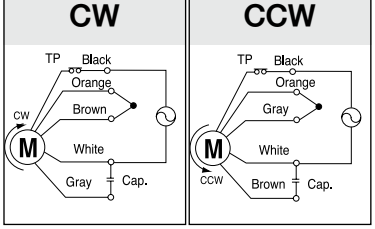
# SCHEMATIC DIAGRAMS

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

S9I180GA S9I180GB S9I180GC S9I180GD




S9I180GA(TP) S9I180GB(TP) S9I180GC(TP)
S9I180GD(TP) S9I180GACE S9I180GBCE
S9I180GCCE S9I180GDCE




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



# 200W

## INDUCTION MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I200GU<br>S9I200GUCE | 4 | 200 | 3 Ø 200 | 50 | Cont. | 1.3 | 1250 | 16.00 | 1.600 | 24.00 | 2.400 | — |
| | | | | | 60 | | 1.2 | 1500 | 13.40 | 1.340 | 20.00 | 2.000 | |
| | S9I200GT<br>S9I200GTCE | 4 | 200 | 3 Ø 220 | 50 | Cont. | 1.3 | 1300 | 15.00 | 1.500 | 30.00 | 3.000 | — |
| | | | | | 60 | | 1.2 | 1550 | 12.90 | 1.290 | 25.00 | 2.500 | |
| | S9I200GS<br>S9I200GSCE | 4 | 200 | 3 Ø 380 | 50 | Cont. | 0.62 | 1250 | 16.00 | 1.600 | 26.00 | 2.600 | — |
| | | | | | 60 | | 0.55 | 1500 | 13.40 | 1.340 | 22.00 | 2.200 | |
| | | | | 3 Ø 400 | 50 | Cont. | 0.64 | 1250 | 16.00 | 1.600 | 30.00 | 3.000 | — |
| | | | | | 60 | | 0.55 | 1500 | 13.40 | 1.340 | 25.00 | 2.500 | |

❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
❖ Only "H" type is applicable.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KH□B | kg-cm | 39.0 | 47.0 | 64.8 | 77.8 | 97.2 | 117 | 130 | 146 | 175 | 210 | 233 | 262 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 3.813 | 4.609 | 6.355 | 7.626 | 9.532 | 11.47 | 12.75 | 14.32 | 17.16 | 20.59 | 22.88 | 25.74 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

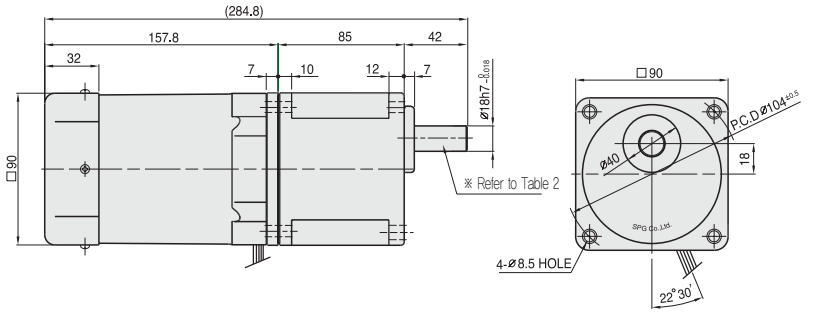
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KH□B | kg-cm | 32.0 | 38.3 | 53.3 | 64.0 | 79.9 | 96.0 | 107 | 120 | 144 | 173 | 192 | 216 | 259 | 300 | 300 | 300 | 300 | 300 | 300 | 3000 | 300 | 300 | 300 | 300 |
| | N·m | 3.134 | 3.760 | 5.223 | 6.267 | 7.384 | 9.414 | 10.49 | 11.75 | 14.10 | 16.97 | 18.83 | 21.18 | 25.40 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable.

# DIMENSIONS

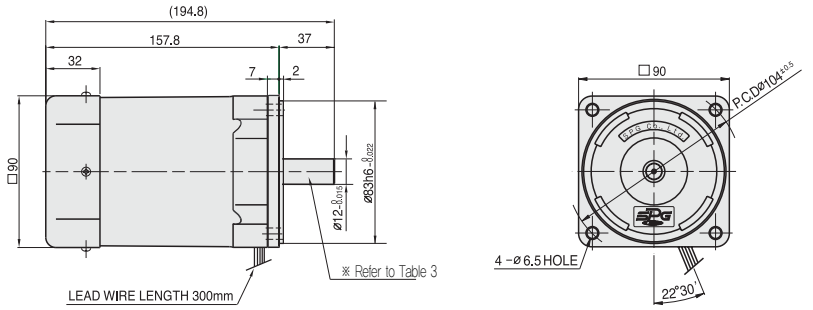
## ✚ GEARED MOTOR

※MOTOR MODEL : S9I200G□
※HEAD MODEL : S9□H3B~S9□H200B




## ✚ MOTOR

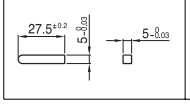
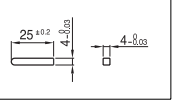
※MOTOR MODEL : S9I200□□




## ✚ WEIGHT - (Table1)

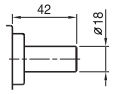
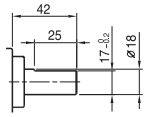
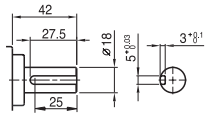
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.70 |
| GEAR HEAD | S9□H3B ~S9□H10B | 1.65 |
| | S9□H12.5B ~S9□H20B | 1.80 |
| | S9□H25B ~S9□H60B | 1.90 |
| | S9□H75B ~S9□H200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

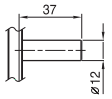
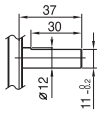
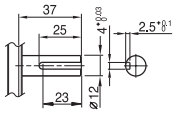


## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SH3B ~S9SH200B |  |
| D-CUT TYPE<br>S9DH3B ~S9DH200B |  |
| KEY TYPE<br>S9KH3B ~S9KH200B |  |



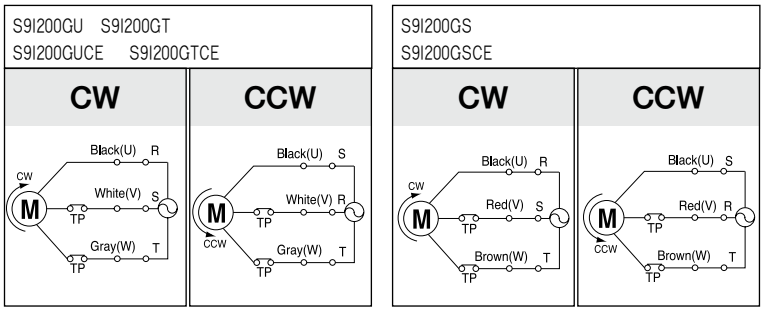
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I200G□ |  |
| STRAIGHT TYPE<br>S9I200S□ |  |
| D-CUT TYPE<br>S9I200D□ |  |
| KEY TYPE<br>S9I200K□ |  |



# SCHEMATIC DIAGRAMS

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




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


SPG
MOTOR

# REVERSIBLE MOTORS

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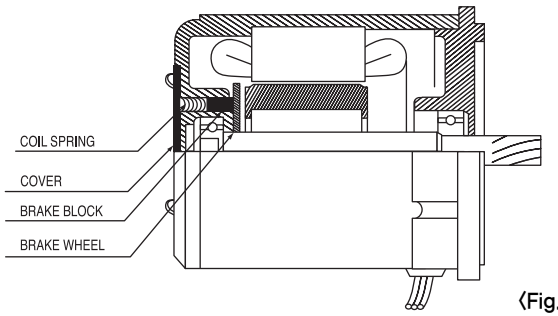
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# Characteristics of REVERSIBLE MOTOR






〈Fig. 1〉

## 1. Characteristics of REVERSIBE MOTOR

- The reversible motor is a condenser type single phase induction motor. Thus, its general characteristics are the same as those of the induction motor.
- Frequent reverse operation is possible. The reversible motor has a temporary brake device built inside the motor to facilitate the operation In normal direction as well as reverse. Also, the main and sub coils of the stator have their windings manufactured with the same method to guarantee the identical characteristics between them (Refer to 〈Fig. 2〉).
- Also, it has a higher starting torque to facilitate frequent changes in rotational direction from normal direction to reverse direction, and vice versa, within a short time (Refer to 〈Fig. 3〉).
- The temporary brake is employed to prevent overrun. The temporary brake has a little retaining force to provide excellent instantaneous stop by preventing overrun when stopping (Refer to 〈Fig. 1〉).
- The changeover switch can help the motor reverse its rotational direction easily within a short time so that it is suitable for such operation that changes the rotational direction frequently from normal to reverse, and vice versa. Therefore, this motor is called a reversible motor.
- The rated operating time is 30 minutes.
  Since the reversible motor is designed to be capable of controlling the directional changes in rotation, the loss input is larger and the temperature can rise higher compared with the induction motor. Hence, the rated operating time is limited to 30 minutes.
- Thus, 30 minutes of rated operating time means that the motor can have at least 30 minutes of non-stop operation within the safe upper limit of the temperature rise.
- In general, the reversible motor has the same characteristics as the induction motor in terms of number of rotations, characteristics of torque, voltage and condenser.

| PHASE | SIZE | OUTPUT (W) | MODEL | HOLDING TORQUE | | OVER RUN |
|---|---|---|---|---|---|---|
| | | | | (g · cm) | (N · cm) | |
| Single phase | □60㎜ | 6 | S6R06G□ | 50 | 0.5 | 4 |
| | □70㎜ | 15 | S7R15G□ | 130 | 1.3 | 5 |
| | □80㎜ | 15 | S8R15G□ | 150 | 1.5 | 5 |
| | | 25 | S8R25G□ | 150 | 1.5 | 5 |
| | □90㎜ | 40 | S9R40G□( ) | 400 | 4.0 | 6 |
| | | 60 | S9R60G□( ) | 400 | 4.0 | 6 |
| | | 90 | S9R90G□( ) | 400 | 4.0 | 6 |

〈Table 1〉 HOLDING TORQUE and OVER RUN of REVERSIBLE MOTOR

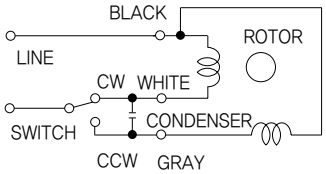
## 2. BRAKE Structure

- The temporary brake of the reversible motor has characteristics as follows.

  ① A frictional load applied to improve frequent reversal operation.
  ② Reduces overrun.
  ③ Provides a little holding torque.

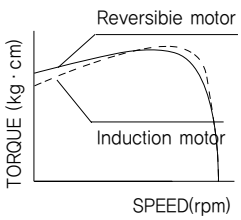
- The reversible motor has characteristics described above due to its general use for remote controlling purpose.
  Thus, structurally, as shown in (Fig. 1), the brake rod is forced towards the brake wheel by a spring to make them contact each other.
- Since the brake structure described above has a limitation in terms of a frictional load, SPG adjusted the brake power to be about 10% of the motor output torque.
- The figures representing the holding torque and the overrun in 〈Table 1〉 may have more or less deviations for each motor. They may also have some discrepancies depending on the operating duration and the ambient temperature. It is advised therefore that the table figures should be used only for reference purpose.
- The rated torque, starting torque, and electric current of the reversible motor were measured in the Circumstances where the temporary brake rod is installed in the motor.
  Therefore, there will be no problem even if the corresponding table figures are used when selecting a motor.
  The conservative selection of a motor is recommended, however, because the figures may have some deviation depending on the brake rod employed to the motor.
- Attention is required for a case has shown that the holding torque may fall below the figures in 〈Table 1〉 in the initial phase of operation.

CIRCUIT DIAGRAM (C.W)

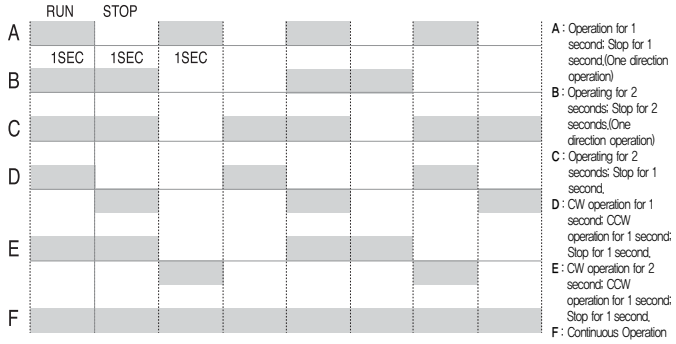



〈Fig. 2〉

SPEED- TORQUE CURVE



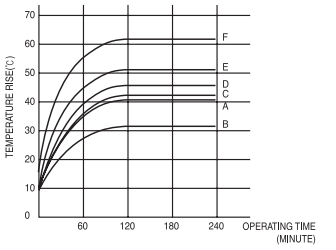

〈Fig. 3〉



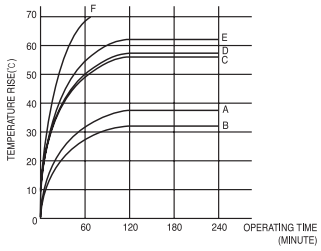

〈Fig. 4〉 OPERATING CYCLE

## 3. Operating Time and Temperature Rise

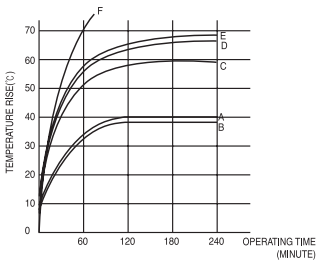
- Although 30 minutes of rated operating time is specified for the reversible motor, the rated operating time may change depending on the operation conditions if the operation frequently repeats stop and run (On–Off) within a short period of time.
- If the reversible motor frequently repeats stop and run(On–Off) within a short time, the starting current increases and cause the motor temperature to rise. However, longer rated operating time may be obtained by allowing the motor to remain stop longer, because the stoppage can provide a chance of natural cooling for the motor and decrease its temperature.
- The conditions of the intermittent(On–Off) operation are determined as shown in A – F of 〈Fig. 4〉. F stands for continuous operation.
- The characteristics shown in 〈Fig. 5〉 through 〈Fig. 8〉 represent the measurements of the motor for 200V 50/60Hz. Naturally, the characteristics of the motor for 220V 60Hz will have better characteristic values than 200V 60W due to the increase of the voltage by 10%. Therefore, it is encouraged to operate the motor at a temperature below the ambient temperature.
- The temperature rise measurement is performed when the motor, under no–load, is prevented from transferring its internal heat to the outside through the motor's external contact points using thermograph. This method of measurement can provide the highest possible temperature rise.
- Especially, if either a load or an inertia load is greater than the motor's rated torque, it requires longer time to start or reverse the direction, resulting in a greater temperature rise, which requires a user's attention.
- The specified temperature rise of the reversible motor is 60℃ (⊿T value) in general, and be careful not to exceed the temperature. Also, the greater the output of the motor is, the shorter the operating time becomes.
- There is a case that the motor alone is used, but mostly the motor is used in combination with the gearhead. Hence, when the motor of S8R25GD is used with no–load in combination with the gearhead of S8KA50B, the temperature rise draws an L curve as shown in 〈Fig. 9〉 and the temperature rise becomes lower and the operating time becomes longer by about 30 minutes as compared with the motor shown in 〈Fig. 7〉.
- 〈Table 2〉 shows various heat radiation plates for mounting surface. The table indicates that the temperature decreases by about 6℃ when the diameter of the heat radiation plate is doubled, and greater heat conductivity of aluminum decelerates the temperature rise compared to that of the steel. Painting the aluminum will additionally lower the temperature by about 3℃.
- Although the principle is to keep the coil temperature below the specified temperature for the insulation class, it is possible to continue the operation if the motor housing surface temperature remains lower than 90℃. The temperature of the motor varies depending on the load, operating cycle, motor's mounting method, and ambient temperature.



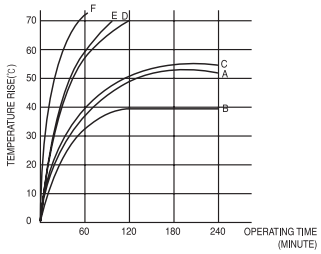

〈Fig. 5〉 INTERMITTENT OPERATION OF S6R06GD(WITHOUT GEAR HEAD)




〈Fig. 6〉 INTERMITTENT OPERATION OF S7R15GD(WITHOUT GEAR HEAD)



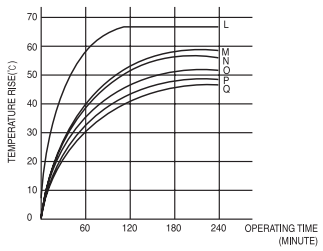

〈Fig. 7〉 INTERMITTENT OPERATION OF S8R25GD(WITHOUT GEAR HEAD)




〈Fig. 8〉 INTERMITTENT OPERATION OF S9R40GD(WITHOUT GEAR HEAD)

| TEMPERATURE CURVE | TYPE OF HEAT RADIATION PLATE | | |
|---|---|---|---|
| | DIAMETER(㎜) | MATERIAL | PAINTING |
| L | — | — | — |
| M | 200 | IRON | NO PAINTING |
| N | 200 | ALUMINUM | NO PAINTING |
| O | 400 | IRON | NO PAINTING |
| P | 400 | ALUMINUM | NO PAINTING |
| Q | 400 | ALUMINUM | BLACK |

〈Table 2〉 TYPE OF HEAT RADIATION PLATE (THICK 1.5㎜)

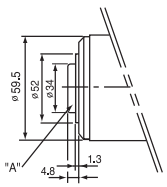



〈Fig. 9〉 INTERMITTENT OPERATION OF S8R25GD + S8KA50B + HEAT RADITION PLATE

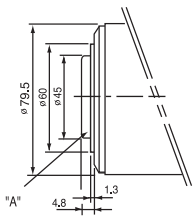
## 4. External Structure

- The CE marked reversible motor has a cover 'A' assembled to the back side of the motor to improve dust-proof and water-proof. (Refer to the figure below)
- As a result, the motor is 4.0mm longer than induction motor lengthwise, which requires the user's attention.

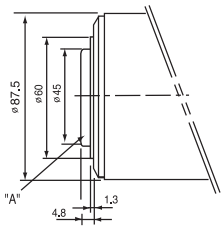
□60 6W




□70 15W, □ 80 25W, 25W




□90 40W




**GENERAL SPECIFICATION OF REVERSIBLE MOTORS**

| ITEM | Specification |
|---|---|
| Insulation Resistance | 100MΩ or more when 500V megger is applied between the windings and the housing after rated motor operation under normal ambient temperature and humidity |
| Dielectric Strength | Sufficient to withstand 1500V at 50/60Hz applied between the windings and the case after rated motor operation under normal ambient temperature and humidity for 1min. |
| Temperature Rise | 80℃ or less increase measured by thermometer after rated operation. |
| Insulation Class | Class B(130℃) |
| Overheat Protection Device | Built-in thermal protector (automatic return type)<br>: Open 120℃±5℃ Close 76℃±15℃ |
| Ambient Temperature | -10℃ ~ 40℃ |
| Ambient Humidity | 85% maximum(non condensing) |



# 6W

## REVERSIBLE MOTOR □60㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 60 | S6R06GA<br>S6R06GACE | 4 | 6 | 1Ø 110 | 60 | 30min. | 0.22 | 1550 | 0.40 | 0.040 | 0.60 | 0.060 | 3.0 |
| | S6R06GB<br>S6R06GBCE | 4 | 6 | 1Ø 220 | 60 | 30min. | 0.11 | 1550 | 0.40 | 0.040 | 0.60 | 0.060 | 0.8 |
| | S6R06GC<br>S6R06GCCE | 4 | 6 | 1Ø 100 | 50 | 30min. | 0.21 | 1200 | 0.50 | 0.050 | 0.45 | 0.045 | 3.0 |
| | | | | | 60 | | | 1500 | 0.42 | 0.042 | | | |
| | S6R06GD<br>S6R06GDCE | 4 | 6 | 1Ø 200 | 50 | 30min. | 0.10 | 1200 | 0.45 | 0.045 | 0.53 | 0.053 | 0.8 |
| | | | | | 60 | | | 1500 | 0.42 | 0.042 | | | |
| | S6R06GE<br>S6R06GECE | 4 | 5.5 | 1Ø 100 | 50 | 30min. | 0.19 | 1200 | 0.50 | 0.050 | 0.52 | 0.052 | 3.5 |
| | | | 5.4 | | 60 | | 0.22 | 1500 | 0.30 | 0.030 | | | |
| | | | 6 | 1Ø 115 | 60 | | 0.18 | 1500 | 0.42 | 0.042 | 0.50 | 0.050 | 2.3 |
| | S6R06GX<br>S6R06GXCE | 4 | 5.8 | 1Ø 220 | 50 | 30min. | 0.09 | 1200 | 0.47 | 0.047 | 0.50 | 0.050 | 0.7 |
| | | | 6 | 1Ø 240 | | | 0.10 | | 0.50 | 0.050 | 0.55 | 0.055 | |

❖ S6R06GE is UL approved (UL FILE No. E172722) impedance protected type.
❖ Appropriate capacitors shall be used according to the voltage for S6R06GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is impedance protected type which has received CE. S6R06GECE is available only for 115V specification.
❖ Data is measured with friction brake mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DA□B | kg-Cm | 1.3 | 1.5 | 2.1 | 2.6 | 3.2 | 3.9 | 4.3 | 5.4 | 6.4 | 7.7 | 7.7 | 9.7 | 11.6 | 13.9 | 15.5 | 17.5 | 21.0 | 26.2 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.127 | 0.147 | 0.206 | 0.255 | 0.314 | 0.382 | 0.421 | 0.529 | 0.627 | 0.755 | 0.755 | 0.951 | 1.137 | 1.362 | 1.519 | 1.715 | 2.058 | 2.568 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

## 60Hz

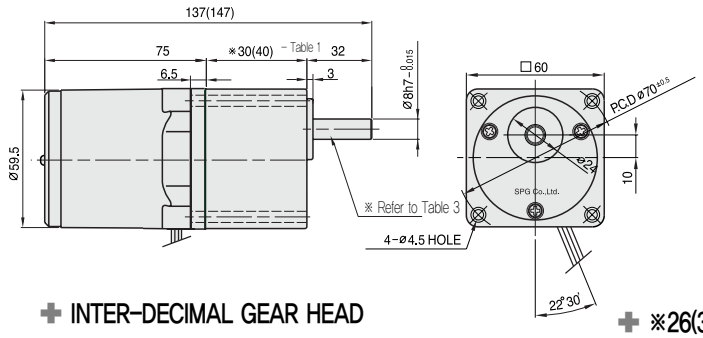
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DA□B | kg-Cm | 1.0 | 1.3 | 1.7 | 2.1 | 2.6 | 3.1 | 3.5 | 4.4 | 5.2 | 6.3 | 6.3 | 7.8 | 9.4 | 11.3 | 12.6 | 14.2 | 17.0 | 21.3 | 25.5 | 28.4 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.098 | 0.127 | 0.167 | 0.206 | 0.255 | 0.304 | 0.343 | 0.431 | 0.510 | 0.617 | 0.617 | 0.764 | 0.921 | 1.107 | 1.235 | 1.392 | 1.666 | 2.087 | 2.499 | 2.783 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 30 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

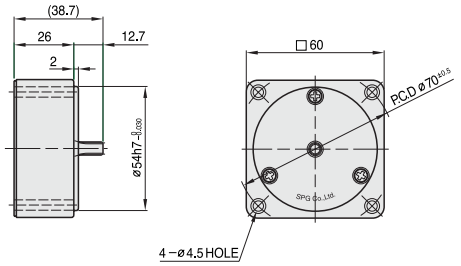
## GEARED MOTOR

※MOTOR MODEL : S6R06G□
※HEAD MODEL : S6□A3□~S6□A250□



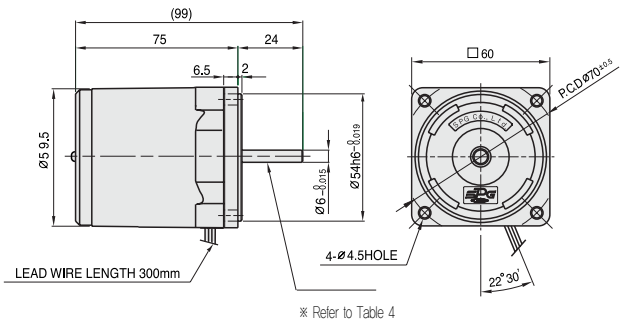

## INTER-DECIMAL GEAR HEAD

※MODEL : S6GX10B




## MOTOR

※MOTOR MODEL : S6R06□□



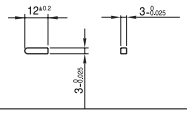

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S6□A3□ ~ S6□A18□ | 30 |
| S6□A20□ ~ S6□A250□ | 40 |

## WEIGHT - (Table2)

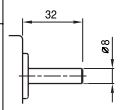
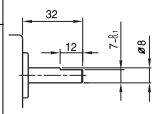
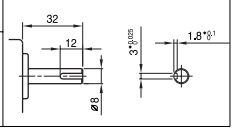
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 0.70 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□A3□ ~S6□A18□ | 0.24 |
| | S6□A20□ ~S6□A40□ | 0.30 |
| | S6□A50□ ~S6□A250□ | 0.33 |

## KEY SPEC

| GEAR HEAD |
|---|
|  |

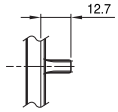
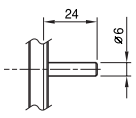
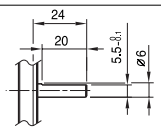


## SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S6SA3□ ~S6SA250□ |  |
| D-CUT TYPE<br>S6DA3□ ~S6DA250□ |  |
| KEY TYPE<br>S6KA3□ ~S6KA250□ |  |



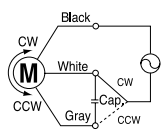
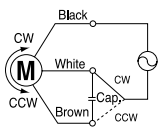
## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S6R06G□ |  |
| STRAIGHT TYPE<br>S6R06S□ |  |
| D-CUT TYPE<br>S6R06D□ |  |



# SCHEMATIC DIAGRAMS

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

| | |
|---|---|
| S6R06GA S6R06GB<br>S6R06GC S6R06GD<br>S6R06GACE S6R06GBCE S6R06GE<br>S6R06GCCE S6R06GDCE S6R06GECE | S6R06GX<br>S6R06GXCE |
| **CW,CCW** | **CW,CCW** |
|  |  |



# 15W

## REVERSIBLE MOTOR □70㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 70 | S7R15GA<br>S7R15GA(TP)<br>S7R15GACE | 4 | 15 | 1Ø 110 | 60 | 30min. | 0.44 | 1550 | 1.00 | 0.100 | 1.10 | 0.110 | 6.0 |
| | S7R15GB<br>S7R15GB(TP)<br>S7R15GBCE | 4 | 15 | 1Ø 220 | 60 | 30min. | 0.22 | 1550 | 1.00 | 0.100 | 1.10 | 0.110 | 1.5 |
| | S7R15GC<br>S7R15GC(TP)<br>S7R15GCCE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.42 | 1200 | 1.25 | 0.125 | 0.90 | 0.090 | 6.0 |
| | | | | | 60 | | 0.42 | 1500 | 1.00 | 0.100 | 0.90 | 0.090 | |
| | S7R15GD<br>S7R15GD(TP)<br>S7R15GDCE | 4 | 15 | 1Ø 200 | 50 | 30min. | 0.21 | 1200 | 1.25 | 0.125 | 0.90 | 0.090 | 1.5 |
| | | | | | 60 | | 0.21 | 1500 | 1.00 | 0.100 | 0.90 | 0.090 | |
| | S7R15GE<br>S7R15GECE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.37 | 1200 | 1.25 | 0.125 | 0.95 | 0.095 | 6.0 |
| | | | | | 60 | | 0.41 | 1500 | 1.00 | 0.100 | | | |
| | | | | 1Ø 115 | 60 | | 0.35 | 1550 | 1.00 | 0.100 | | | 4.5 |
| | S7R15GX<br>S7R15GXCE | 4 | 15 | 1Ø 220 | 50 | 30min. | 0.17 | 1200 | 1.25 | 0.125 | 0.90 | 0.090 | 1.2 |
| | | | | 1Ø 240 | | | 0.18 | | 1.45 | 0.145 | 1.10 | 0.110 | |

❖ S7R15GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S7R15GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S7R15GECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S7R15GE, S7R15GX is thermally protected type with TP mounted.
❖ Data is measured with friction brake mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S7KA□B | kg-cm | 3.2 | 3.9 | 5.4 | 6.5 | 8.1 | 9.7 | 10.8 | 13.5 | 16.2 | 19.4 | 19.4 | 24.2 | 29.1 | 34.9 | 38.8 | 43.6 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.314 | 0.382 | 0.530 | 0.637 | 0.794 | 0.951 | 1.059 | 1.324 | 1.587 | 1.902 | 1.902 | 2.373 | 2.854 | 3.423 | 3.805 | 4.276 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

## 60Hz

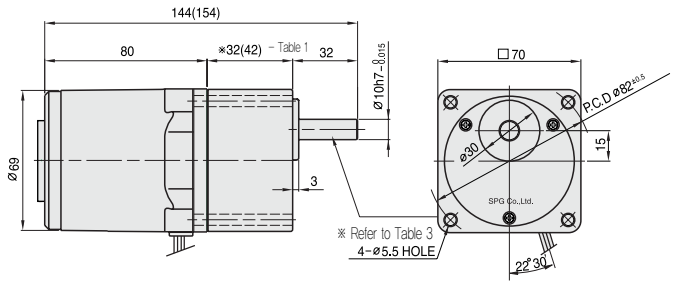
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S7KA□B | kg-cm | 3.0 | 3.6 | 5.1 | 6.1 | 7.6 | 9.1 | 10.1 | 12.7 | 15.2 | 18.2 | 18.2 | 22.8 | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.294 | 0.353 | 0.500 | 0.598 | 0.745 | 0.892 | 0.990 | 1.245 | 1.491 | 1.785 | 1.785 | 2.236 | 2.677 | 3.217 | 3.579 | 4.021 | 4.825 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 50 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

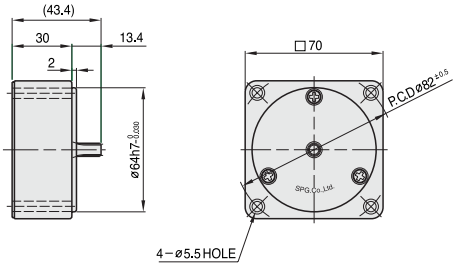
## GEARED MOTOR

※MOTOR MODEL : S7R15G□
※HEAD MODEL : S7□A3□~S7□A200□



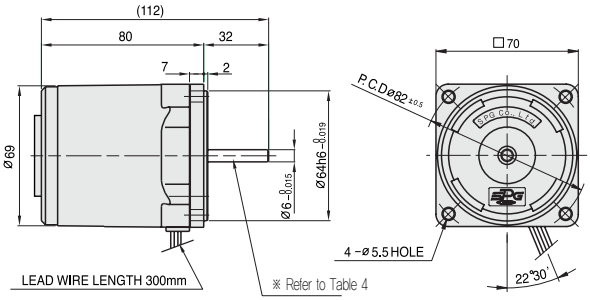

## INTER-DECIMAL GEAR HEAD

※ MODEL : S7GX10B




## MOTOR

※MOTOR MODEL : S7R15□□



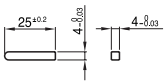

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S7□A3□ ~ S7□A18□ | 32 |
| S7□A20□ ~ S7□A200□ | 42 |

## WEIGHT - (Table2)

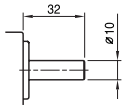
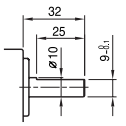
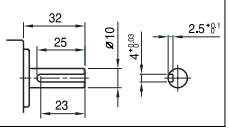
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.04 |
| DECIMAL GEAR HEAD | | 0.32 |
| GEAR HEAD | S7□A3□ ~S7□A18□ | 0.38 |
| | S7□A20□ ~S7□A40□ | 0.47 |
| | S7□A50□ ~S7□A200□ | 0.52 |

## KEY SPEC

| GEAR HEAD |
|---|
|  |

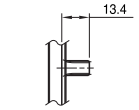
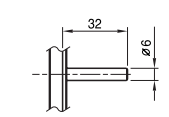
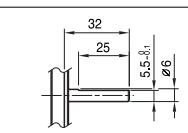


## SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S7SA3□ ~S7SA200□ |  |
| D-CUT TYPE<br>S7DA3□ ~S7DA200□ |  |
| KEY TYPE<br>S7KA3□ ~S7KA200□ |  |



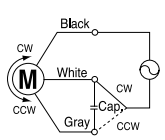
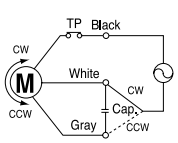
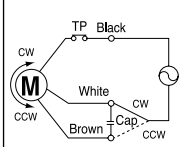
## SPEC for output shaft of motor - (Table4)

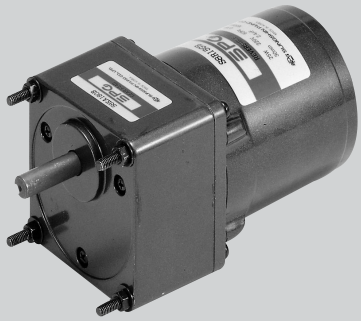
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S7R15G□ |  |
| STRAIGHT TYPE<br>S7R15S□ |  |
| D-CUT TYPE<br>S7R15D□ |  |



# SCHEMATIC DIAGRAMS

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

| | | |
|---|---|---|
| S7R15GA S7R15GB<br>S7R15GC S7R15GD | S7R15GA(TP) S7R15GB(TP)<br>S7R15GC(TP) S7R15GD(TP)<br>S7R15GACE S7R15GBCE S7R15GE<br>S7R15GCCE S7R15GDCE S7R15GECE | S7R15GX<br>S7R15GXCE |
| **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |



# 15W

## REVERSIBLE MOTOR □80㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8R15GA<br>S8R15GA(TP)<br>S8R15GACE | 4 | 15 | 1Ø 110 | 60 | 30min. | 0.49 | 1550 | 1.00 | 0.100 | 1.20 | 0.120 | 6.0 |
| | S8R15GB<br>S8R15GB(TP)<br>S8R15GBCE | 4 | 15 | 1Ø 220 | 60 | 30min. | 0.25 | 1550 | 1.00 | 0.100 | 1.20 | 0.120 | 1.5 |
| | S8R15GC<br>S8R15GC(TP)<br>S8R15GCCE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.58 | 1200 | 1.30 | 0.130 | 0.95 | 0.095 | 6.0 |
| | | | | | 60 | | 0.48 | 1500 | 1.10 | 0.110 | | | |
| | S8R15GD<br>S8R15GD(TP)<br>S8R15GDCE | 4 | 15 | 1Ø 200 | 50 | 30min. | 0.29 | 1200 | 1.30 | 0.130 | 0.95 | 0.095 | 1.5 |
| | | | | | 60 | | 0.25 | 1500 | 1.10 | 0.110 | | | |
| | S8R15GE<br>S8R15GECE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.59 | 1250 | 1.30 | 0.130 | 0.95 | 0.095 | 6.0 |
| | | | | | 60 | | 0.48 | 1550 | 1.20 | 0.120 | | | |
| | | | | 1Ø 115 | 60 | | 0.52 | 1600 | 1.10 | 0.110 | | | 4.5 |
| | S8R15GX<br>S8R15GXCE | 4 | 15 | 1Ø 220 | 50 | 30min. | 0.16 | 1200 | 1.30 | 0.130 | 1.10 | 0.110 | 1.2 |
| | | | | 1Ø 240 | | | 0.18 | | 1.40 | 0.140 | 1.30 | 0.130 | |

❖ S8R15GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S8R15GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S8R15GECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8R15GE, S8R15GX is thermally protected type with TP mounted.
❖ Data is measured with friction brake mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 3.4 | 4.1 | 5.7 | 6.8 | 8.5 | 10.2 | 11.3 | 14.2 | 17.0 | 20.4 | 20.4 | 25.6 | 30.7 | 36.8 | 40.9 | 46.2 | 55.4 | 69.2 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N·m | 0.333 | 0.402 | 0.559 | 0.666 | 0.833 | 1.000 | 1.107 | 1.392 | 1.666 | 1.999 | 1.999 | 2.509 | 3.009 | 3.606 | 4.008 | 4.530 | 5.433 | 6.786 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

## 60Hz

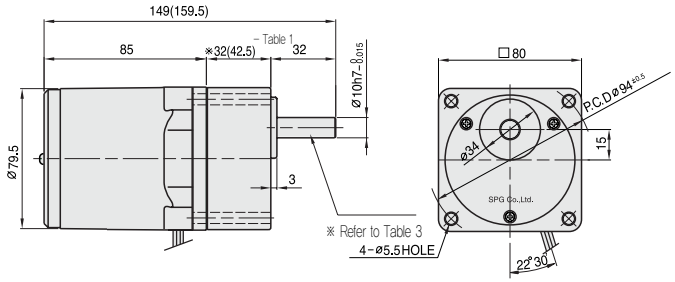
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 2.9 | 3.5 | 4.9 | 5.8 | 7.3 | 8.7 | 9.7 | 12.2 | 14.6 | 17.5 | 17.5 | 21.9 | 26.3 | 31.5 | 35.0 | 39.6 | 47.5 | 59.4 | 71.3 | 79.2 | 80 | 80 | 80 | 80 |
| | N·m | 0.284 | 0.343 | 0.481 | 0.568 | 0.715 | 0.853 | 0.951 | 1.196 | 1.432 | 1.715 | 1.715 | 2.146 | 2.577 | 3.087 | 3.430 | 3.881 | 4.658 | 5.825 | 6.992 | 7.767 | 7.840 | 7.840 | 7.840 | 7.840 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

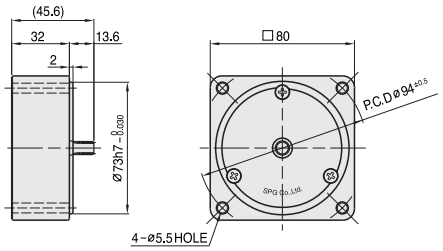
## ✚ GEARED MOTOR

※MOTOR MODEL : S8R15G□
※HEAD MODEL : S8□A3□~S8□A200□



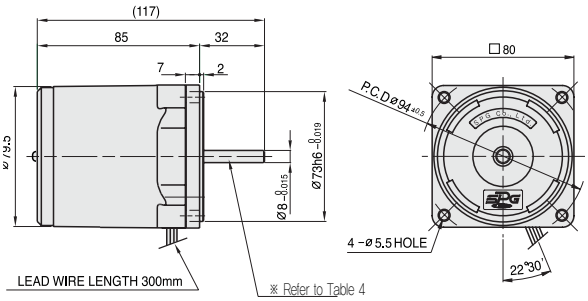

## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B




## ✚ MOTOR

※MOTOR MODEL : S8R15□□



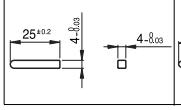
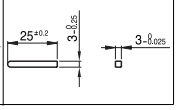

## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

## ✚ WEIGHT - (Table2)

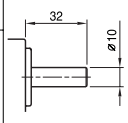
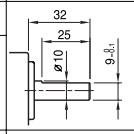
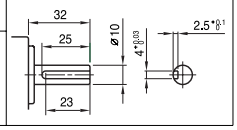
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.46 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

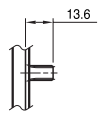
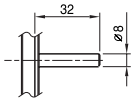
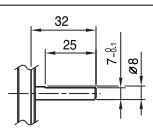
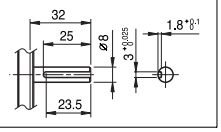


## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□ ~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□ ~S8DA200□ |  |
| KEY TYPE<br>S8KA3□ ~S8KA200□ |  |



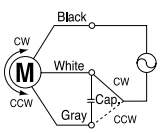
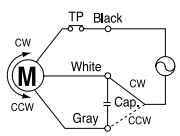
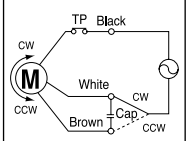
## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8R15G□ |  |
| STRAIGHT TYPE<br>S8R15S□ |  |
| D-CUT TYPE<br>S8R15D□ |  |
| KEY TYPE<br>S6R15K□ |  |



# SCHEMATIC DIAGRAMS

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

| | | |
|---|---|---|
| S8R15GA S8R15GB<br>S8R15GC S8R15GD | S8R15GA(TP) S8R15GB(TP)<br>S8R15GC(TP) S8R15GD(TP)<br>S8R15GACE S8R15GBCE S8R15GE<br>S8R15GCCE S8R15GDCE S8R15GECE | S8R15GX<br>S8R15GXCE |
| **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |



# 25W

## REVERSIBLE MOTOR □80㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8R25GA<br>S8R25GA(TP)<br>S8R25GACE | 4 | 25 | 1Ø 110 | 60 | 30min. | 0.71 | 1550 | 1.70 | 0.170 | 2.30 | 0.230 | 10.0 |
| | S8R25GB<br>S8R25GB(TP)<br>S8R25GBCE | 4 | 25 | 1Ø 220 | 60 | 30min. | 0.35 | 1600 | 1.65 | 0.165 | 2.30 | 0.230 | 2.5 |
| | S8R25GC<br>S8R25GC(TP)<br>S8R25GCCE | 4 | 25 | 1Ø 100 | 50 | 30min. | 0.63 | 1250 | 2.10 | 0.210 | 1.80 | 0.180 | 10.0 |
| | | | | | 60 | | 0.70 | 1500 | 1.70 | 0.170 | | | |
| | S8R25GD<br>S8R25GD(TP)<br>S8R25GDCE | 4 | 25 | 1Ø 200 | 50 | 30min. | 0.33 | 1250 | 2.10 | 0.210 | 1.80 | 0.180 | 2.5 |
| | | | | | 60 | | | 1550 | 1.70 | 0.170 | | | |
| | S8R25GE<br>S8R25GECE | 4 | 25 | 1Ø 100 | 50 | 30min. | 0.60 | 1250 | 2.10 | 0.210 | 1.30 | 0.130 | 8.0 |
| | | | | | 60 | | 0.65 | 1450 | 1.80 | 0.180 | | | |
| | | | | 1Ø 115 | 60 | | 0.63 | 1550 | 1.70 | 0.170 | | | 7.0 |
| | S8R25GX<br>S8R25GXCE | 4 | 25 | 1Ø 220 | 50 | 30min. | 0.26 | 1200 | 2.00 | 0.200 | 1.70 | 0.170 | 2.0 |
| | | | | 1Ø 240 | | | 0.28 | | 2.20 | 0.220 | 2.20 | 0.220 | |

❖ S8R25GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S8R25GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S8R25GECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8R25GE, S8R25GX is thermally protected type with TP mounted.
❖ Data is measured with friction brake mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 5.3 | 6.4 | 8.9 | 10.7 | 13.4 | 16.0 | 17.8 | 22.3 | 26.7 | 32.1 | 32.1 | 40.2 | 48.2 | 57.8 | 64.2 | 72.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.519 | 0.627 | 0.872 | 1.049 | 1.313 | 1.568 | 1.744 | 2.185 | 2.617 | 3.146 | 3.146 | 3.940 | 4.724 | 5.664 | 6.292 | 7.115 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

## 60Hz

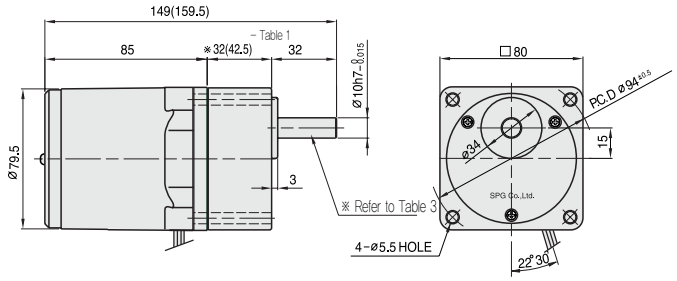
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 4.4 | 5.2 | 7.3 | 8.7 | 10.9 | 13.1 | 14.6 | 18.2 | 21.9 | 26.2 | 26.3 | 32.9 | 39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.431 | 0.510 | 0.715 | 0.853 | 1.068 | 1.284 | 1.431 | 1.784 | 2.146 | 2.568 | 2.577 | 3.224 | 3.861 | 4.635 | 5.155 | 5.821 | 6.987 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

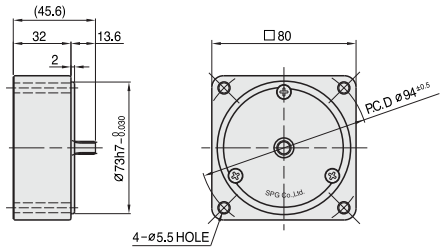
## GEARED MOTOR

※MOTOR MODEL : S8R25G□
※HEAD MODEL : S8□A3□~S8□A200□



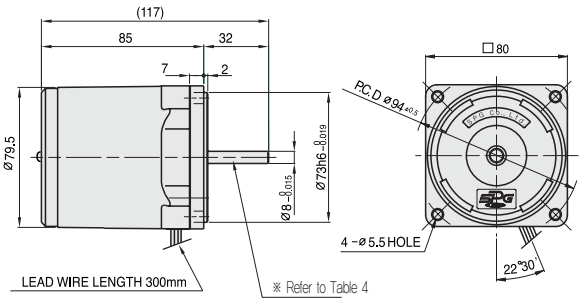

## INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B




## MOTOR

※MOTOR MODEL : S8R25□□



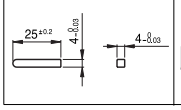
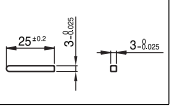

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

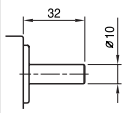
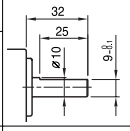
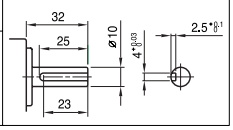
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.46 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

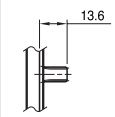
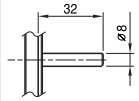
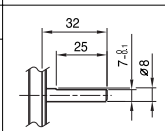
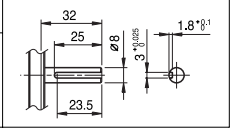
## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of gearhead - (Table3)

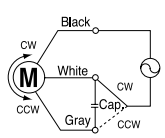
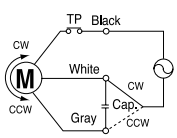
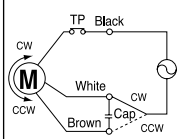
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□<br>~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□<br>~S8DA200□ |  |
| KEY TYPE<br>S8KA3□<br>~S8KA200□ |  |

## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8R25G□ |  |
| STRAIGHT TYPE<br>S8R25S□ |  |
| D-CUT TYPE<br>S8R25D□ |  |
| KEY TYPE<br>S8R25K□ |  |

# SCHEMATIC DIAGRAMS

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

| | | |
|---|---|---|
| S8R25GA S8R25GB<br>S8R25GC S8R25GD | S8R25GA(TP) S8R25GB(TP)<br>S8R25GC(TP) S8R25GD(TP)<br>S8R25GACE S8R25GBCE S8R25GE<br>S8R25GCCE S8R25GDCE S8R25GECE | S8R25GX<br>S8R25GXCE |
| **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |



# 40W

## REVERSIBLE MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R40GA( )<br>S9R40GA( )(TP)<br>S9R40GA( )CE | 4 | 40 | 1Ø 110 | 60 | 30min. | 1.00 | 1600 | 2.50 | 0.250 | 3.50 | 0.350 | 15.0 |
| | S9R40GB( )<br>S9R40GB( )(TP)<br>S9R40GB( )CE | 4 | 40 | 1Ø 220 | 60 | 30min. | 0.46 | 1600 | 2.50 | 0.250 | 3.50 | 0.350 | 3.5 |
| | S9R40GC( )<br>S9R40GC( )(TP)<br>S9R40GC( )CE | 4 | 40 | 1Ø 100 | 50 | 30min. | 0.84 | 1300 | 3.00 | 0.300 | 2.80 | 0.280 | 15.0 |
| | | | | | 60 | | 1.00 | 1550 | 2.60 | 0.260 | | | |
| | S9R40GD( )<br>S9R40GD( )(TP)<br>S9R40GD( )CE | 4 | 40 | 1Ø 200 | 50 | 30min. | 0.39 | 1300 | 3.10 | 0.310 | 2.80 | 0.280 | 3.5 |
| | | | | | 60 | | 0.47 | 1550 | 2.60 | 0.260 | | | |
| | S9R40GE( )<br>S9R40GE( )CE | 4 | 40 | 1Ø 100 | 50 | 30min. | 0.86 | 1300 | 3.10 | 0.310 | 2.90 | 0.290 | 15.0 |
| | | | | | 60 | | 1.00 | 1550 | 2.60 | 0.260 | | | |
| | | | | 1Ø 115 | 60 | | 1.00 | 1550 | 2.70 | 0.270 | | | 12.0 |
| | S9R40GX( )<br>S9R40GX( )CE | 4 | 40 | 1Ø 220 | 50 | 30min. | 0.40 | 1250 | 3.20 | 0.320 | 3.00 | 0.300 | 3.0 |
| | | | | 1Ø 240 | | | 0.42 | | 3.40 | 0.340 | 3.20 | 0.320 | |

❖ S9R40GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S9R40GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S9R40GE( )CE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9R40GE, S9R40GX is thermally protected type with TP mounted.
❖ Data is measured with friction brake mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KB□B( ) | kg-cm | 8.3 | 9.9 | 13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4 | 41.3 | 49.6 | 49.6 | 62.1 | 74.5 | 89.4 | 99.3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.813 | 0.970 | 1.352 | 1.617 | 2.029 | 2.430 | 2.695 | 3.371 | 4.047 | 4.861 | 4.861 | 6.086 | 7.301 | 8.761 | 9.731 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

## 60Hz

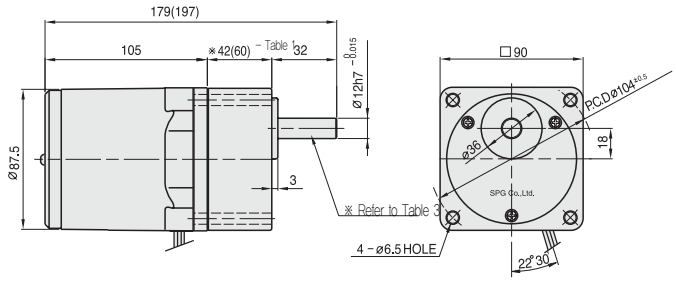
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KB□B( ) | kg-cm | 6.8 | 8.2 | 11.3 | 13.6 | 17.0 | 20.4 | 22.7 | 28.4 | 34.0 | 40.8 | 40.9 | 51.1 | 61.3 | 73.6 | 81.8 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.666 | 0.804 | 1.107 | 1.333 | 1.666 | 1.999 | 2.225 | 2.783 | 3.332 | 3.998 | 4.008 | 5.008 | 6.007 | 7.213 | 8.016 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

# DIMENSIONS

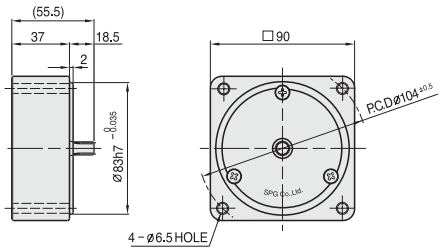
## GEARED MOTOR

※MOTOR MODEL : S9R40G□□
※HEAD MODEL : S9□B3□□~S9□B200□□



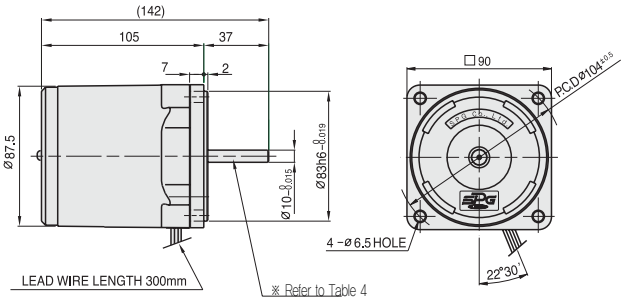

## INTER-DECIMAL GEAR HEAD

※MODEL : S9GX10B(H,L)




## MOTOR

※MOTOR MODEL : S9R40□□□



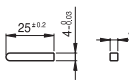
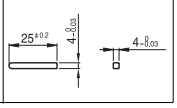

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S9□B3□□ ~ S9□B18□□ | 42 |
| S9□B20□□ ~ S9□B200□□ | 60 |

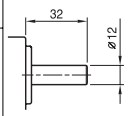
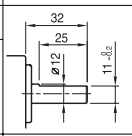
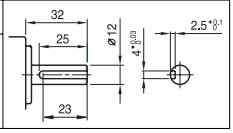
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.34 |
| DECIMAL GEAR HEAD | | 0.59 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□□ ~S9□B40□□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

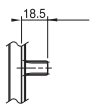
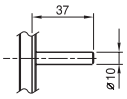
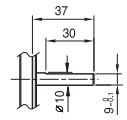
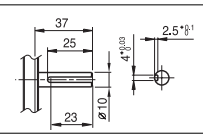
## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of gearhead - (Table3)

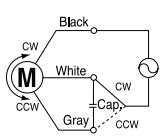
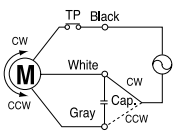
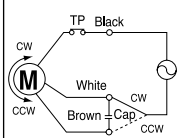
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S9SB3□□ ~S9SB200□□ | |
| D-CUT TYPE |  |
| S9DB3□□ ~S9DB200□□ | |
| KEY TYPE |  |
| S9KB3□□ ~S9KB200□□ | |

## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE |  |
| S9R40G□□ | |
| STRAIGHT TYPE |  |
| S9R40S□ | |
| D-CUT TYPE |  |
| S9R40D□ | |
| KEY TYPE |  |
| S9R40K□ | |

# SCHEMATIC DIAGRAMS

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

| S9R40GA S9R40GB S9R40GC S9R40GD | S9R40GA(TP) S9R40GB(TP) S9R40GC(TP) S9R40GD(TP) S9R40GACE S9R40GBCE S9R40GE S9R40GCCE S9R40GDCE S9R40GECE | S9R40GX S9R40GXCE |
|---|---|---|
| **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |



# 60W

## REVERSIBLE MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R60GA( )<br>S9R60GA( )(TP)<br>S9R60GA( )CE | 4 | 60 | 1Ø 110 | 60 | 30min. | 1.60 | 1600 | 3.80 | 0.380 | 7.00 | 0.700 | 25.0 |
| | S9R60GB( )<br>S9R60GB( )(TP)<br>S9R60GB( )CE | 4 | 60 | 1Ø 220 | 60 | 30min. | 0.75 | 1600 | 3.80 | 0.380 | 7.00 | 0.700 | 6.0 |
| | S9R60GC( )<br>S9R60GC( )(TP)<br>S9R60GC( )CE | 4 | 60 | 1Ø 100 | 50 | 30min. | 1.40 | 1250 | 4.80 | 0.480 | 6.00 | 0.600 | 25.0 |
| | | | | | 60 | | 1.60 | 1550 | 3.90 | 0.390 | | | |
| | S9R60GD( )<br>S9R60GD( )(TP)<br>S9R60GD( )CE | 4 | 60 | 1Ø 200 | 50 | 30min. | 0.70 | 1250 | 4.80 | 0.480 | 5.50 | 0.550 | 6.0 |
| | | | | | 60 | | 0.76 | 1550 | 3.90 | 0.390 | | | |
| | S9R60GE( )<br>S9R60GE( )CE | 4 | 60 | 1Ø 100 | 50 | 30min. | 1.40 | 1250 | 4.80 | 0.480 | 5.90 | 0.590 | 25.0 |
| | | | | | 60 | | 1.60 | 1550 | 3.90 | 0.390 | | | |
| | | | | 1Ø 115 | 60 | | 1.30 | 1600 | 3.90 | 0.390 | 6.00 | 0.600 | 20.0 |
| | S9R60GX( )<br>S9R60GX( )CE | 4 | 60 | 1Ø 220 | 50 | 30min. | 0.63 | 1250 | 4.80 | 0.480 | 5.90 | 0.590 | 5.0 |
| | | | | 1Ø 240 | | | 0.67 | | 5.00 | 0.500 | 6.30 | 0.630 | |

❖ S9R60GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S9R60GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S9R60GE( )CE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9R60GE, S9R60GX is thermally protected type with TP mounted.
❖ Data is measured with friction brake mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## 50Hz

| GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

## 60Hz

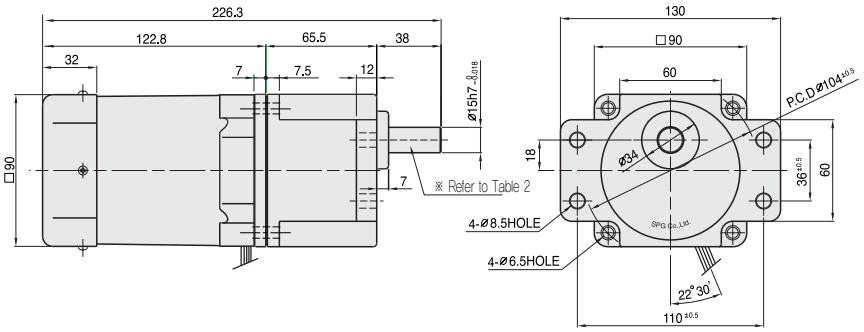
| GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

❖ The code in□ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

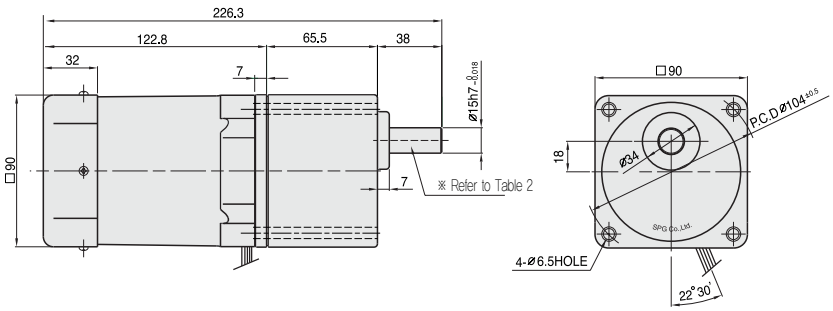
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9R60G□□
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

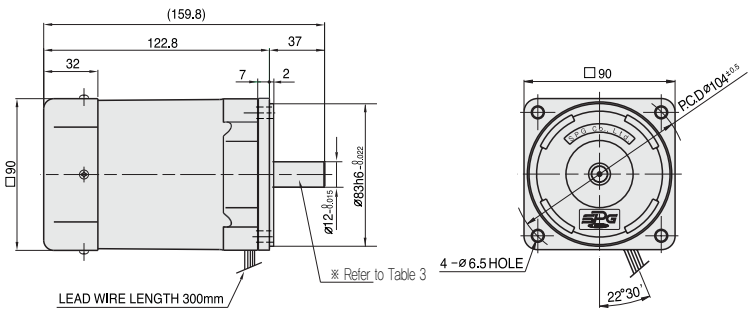



※HEAD MODEL : S9□C3B□~S9□C200B□



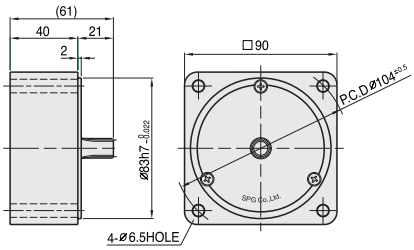

## ✚ MOTOR

※MOTOR MODEL : S9R60□□□




## ✚ INTER-DECIMAL GEAR HEAD

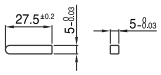
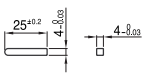
※MODEL : S9GX10B(H,L)-S




## ✚ WEIGHT - (Table1)

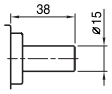
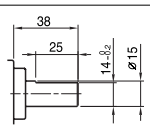
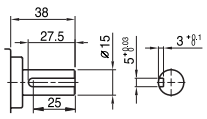
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.48 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

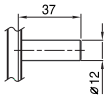
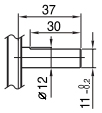
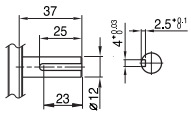


## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |



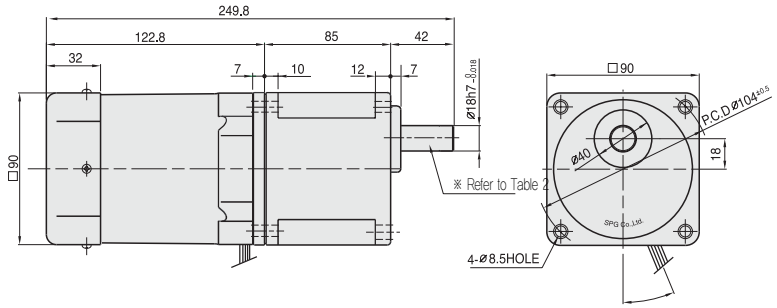
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R60G□□ |  |
| STRAIGHT TYPE<br>S9R60S□ |  |
| D-CUT TYPE<br>S9R60D□ |  |
| KEY TYPE<br>S9R60□ |  |

# DIMENSIONS

## ✚ GEARED MOTOR

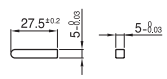
※MOTOR MODEL : S9R60G□H
※HEAD MODEL: S9□D3B~S9□D200B




## ✚ WEIGHT - (Table1)

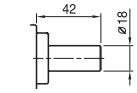
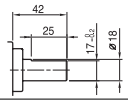
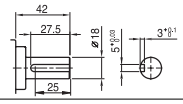
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.48 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DD3B ~S9DD200B | | S9KD3B ~S9KD200B | |



## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 221 | 266 | 295 | 300 | 300 | 300 | 300 |
| | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 21.67 | 26.09 | 28.93 | 29.42 | 29.42 | 29.42 | 29.42 |

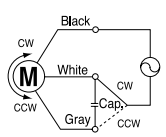
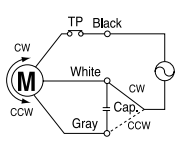
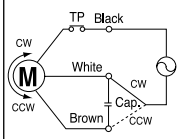
## 60Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 212 | 236 | 283 | 300 | 300 | 300 |
| | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 20.79 | 23.14 | 27.75 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.

# SCHEMATIC DIAGRAMS

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

| S9R60GA S9R60GB S9R60GC S9R60GD | S9R60GA(TP) S9R60GB(TP) S9R60GC(TP) S9R60GD(TP) S9R60GACE S9R60GBCE S9R60GE S9R60GCCE S9R60GDCE S9R60GECE | S9R60GX S9R60GXCE |
|---|---|---|
| **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |



# 90W

## REVERSIBLE MOTOR □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R90GA( )<br>S9R90GA( )(TP)<br>S9R90GA( )CE | 4 | 90 | 1Ø 110 | 60 | 30min. | 2.25 | 1550 | 5.80 | 0.580 | 8.50 | 0.850 | 30.0 |
| | S9R90GB( )<br>S9R90GB( )(TP)<br>S9R90GB( )CE | 4 | 90 | 1Ø 220 | 60 | 30min. | 1.00 | 1550 | 5.80 | 0.580 | 8.50 | 0.850 | 7.0 |
| | S9R90GC( )<br>S9R90GC( )(TP)<br>S9R90GC( )CE | 4 | 90 | 1Ø 100 | 50 | 30min. | 2.10 | 1200 | 7.50 | 0.750 | 6.50 | 0.650 | 30.0 |
| | | | | | 60 | | 2.25 | 1500 | 6.00 | 0.600 | | | |
| | S9R90GD( )<br>S9R90GD( )(TP)<br>S9R90GD( )CE | 4 | 90 | 1Ø 200 | 50 | 30min. | 0.90 | 1200 | 7.50 | 0.750 | 6.50 | 0.650 | 7.0 |
| | | | | | 60 | | 1.00 | 1500 | 6.00 | 0.600 | | | |
| | S9R90GE( )<br>S9R90GE( )CE | 4 | 90 | 1Ø 100 | 50 | 30min. | 1.80 | 1200 | 7.50 | 0.750 | 6.50 | 0.650 | 30.0 |
| | | | | | 60 | | 1.90 | 1500 | 6.00 | 0.600 | | | |
| | | | | 1Ø 115 | 60 | | 1.80 | 1550 | 6.00 | 0.600 | 8.00 | 0.800 | 25.0 |
| | S9R90GX( )<br>S9R90GX( )CE | 4 | 90 | 1Ø 220 | 50 | 30min. | 0.82 | 1250 | 7.20 | 0.720 | 6.50 | 0.650 | 6.0 |
| | | | | 1Ø 240 | | | 0.86 | | 7.40 | 0.740 | 8.00 | 0.800 | |

❖ S9R90GE is UL approved (UL FILE No. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S9R90GE type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S9R90GE( )CE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9R90GE, S9R90GX is thermally protected type with TP mounted.
❖ Data is measured with friction brake mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

## 60Hz

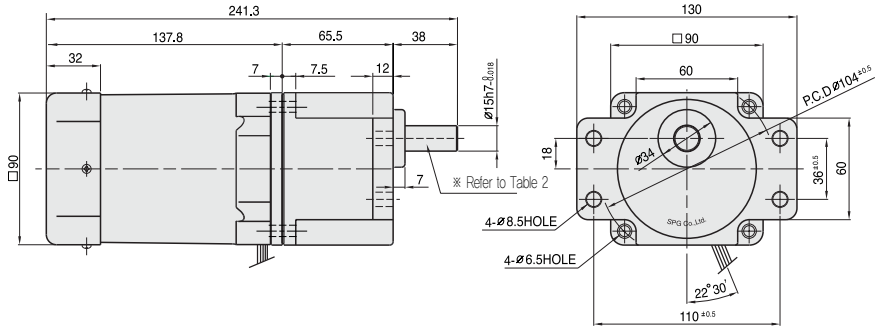
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

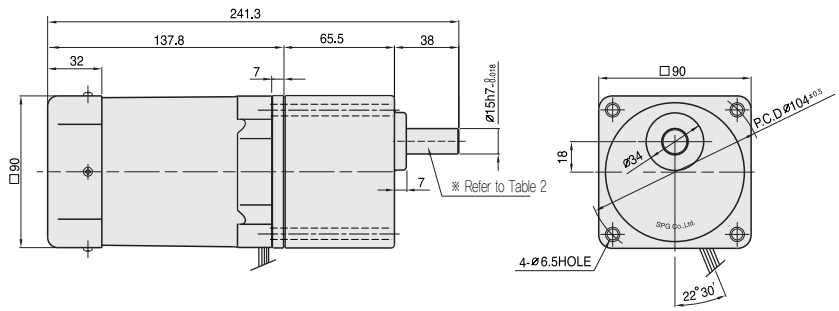
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9R90G□□
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

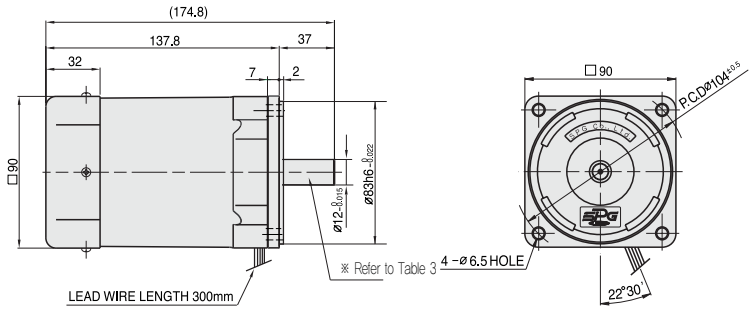



※HEAD MODEL : S9□C3B□~S9□C200B□



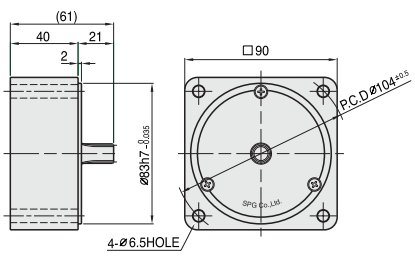

## ✚ MOTOR

※MOTOR MODEL : S9R90□□□




## ✚ INTER-DECIMAL GEAR HEAD

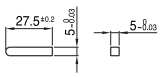
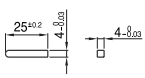
※MODEL : S9GX10B(H,L)-S




## ✚ WEIGHT - (Table1)

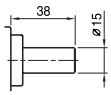
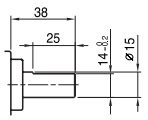
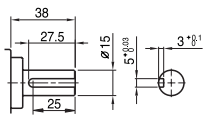
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

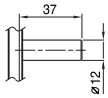
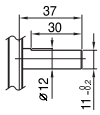
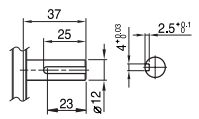


## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |



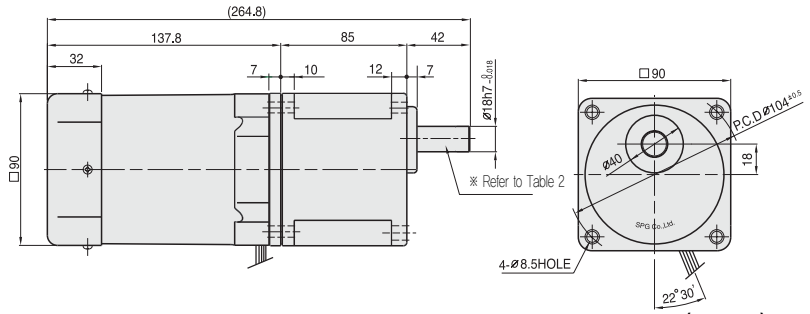
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R90G□□ |  |
| STRAIGHT TYPE<br>S9R90S□ |  |
| D-CUT TYPE<br>S9R90D□ |  |
| KEY TYPE<br>S9R90K□ |  |

# DIMENSIONS

## ✚ GEARED MOTOR

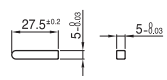
※MOTOR MODEL : S9I90G□H
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table1)

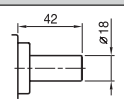
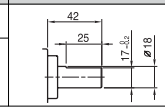
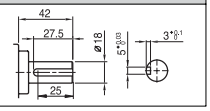
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.99 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DD3B ~S9DD200B | | S9KD3B ~S9KD200B | |



## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 248 | 297 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 24.32 | 29.13 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

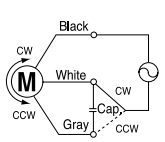
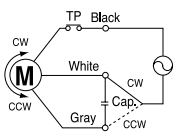
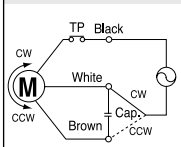
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 238 | 266 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 23.34 | 26.09 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.

# SCHEMATIC DIAGRAMS

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

| S9R90GA S9R90GB S9R90GC S9R90GD | S9R90GA(TP) S9R90GB(TP) S9R90GC(TP) S9R90GD(TP) S9R90GACE S9R90GBCE S9R90GE S9R90GCCE S9R90GDCE S9R90GECE | S9R90GX S9R90GXCE |
|---|---|---|
| **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |


SPG
MOTOR

# ELECTROMAGNETIC BRAKE MOTORS

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# Characteristics of ELECTROMAGNETIC BRAKE MOTOR



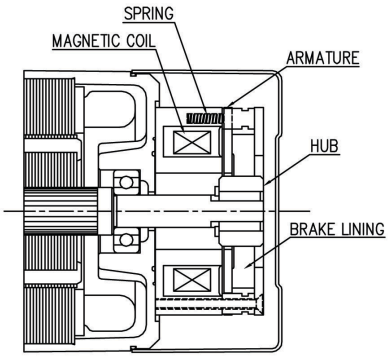
## Overview of Electromagnetic Brake Motor

- The electromagnetic brake of AC non-excitation run type is mounted at the back of the motor to enable the motor to stop instantly when the power is turned off, and the load maintained.
- The induction motor cannot stop instantaneously even when the power is turned off while being used as a source of dynamic force.
  Instead, it runs further by 30-40 rotations. The reversible motor also makes 5-6 additional rotations(provided no-load). Therefore, brake pack shall be used to make an instantaneous stop. Although an electric brake brake pack can make an instantaneous stop, it cannot hold torque.(The over run is less than one rotation on no-load)
- Therefore, the electromagnetic brake motor is employed if the load should be maintained.
- The electromagnetic brake of AC non-excitation run type is mounted at the back of the motor for operation.
- The electromagnetic motor makes 1-4 times of over run rotation at the time the power is turned off if the electromagnetic brake motor unit is loaded.
- The frequent instantaneous directional changes are possible from normal to reverse, and vice versa.
  With a simple control, it is possible to make 6 stops per minute. (However, more than 3 seconds of stoppage is required.)
- The motor and the brake can use the same power source. The rectifying circuit is embedded in the brake and so the brake can use the same AC source as the motor uses.

## 2. Electromagnetic Brake of Non-excitation Run Type

### (1) Structure and Operation Principle

- 〈Fig.1〉 shows a structural diagram of the electromagnetic brake motor. SPG's electromagnetic brake motor is a non-excitation run type. When the voltage is applied to the coil, the armature that is suppressed by the spring is pulled to thrust the spring to make a gap between the armature and the brake to release the braking force and then, the motor shaft can start turning freely.
  Also, when the voltage to the coil turns off (opens), the brake lining is put under the pressure created by the armature in conjunction with the elasticity of the spring, exerting the braking force to stop the motor shaft.



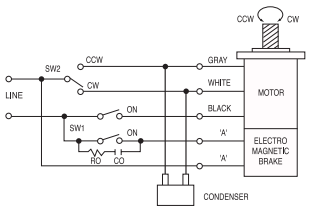

〈Fig.2〉 STRUCTURAL DIAGRAM OF THE ELECTROMAGNETIC BRAKE

### (2) Characteristic of Electromagnetic Brake

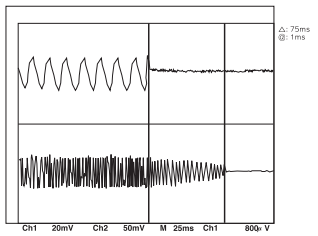
- The electromagnetic brake of AC non-excitation run type can be connected directly to the motor. When the power source is turned off, the motor stops instantaneously and the load is maintained. The retention force is 0.5 kgf · cm~ 10kgf · cm. This type of brake is best suited if a safer brake is required when the power is turned off, because the retention force is maintained when the power turns off.

### (3) Braking Time Difference by Connection Method

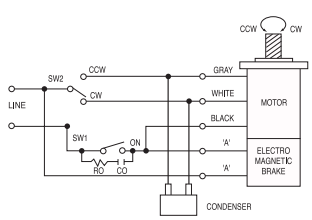
- The connection can be made as shown in 〈Fig. 2〉. However, the method shown in 〈Fig. 3〉 is also possible if a simpler connection method is sought for. In case of 〈Fig. 3〉, the braking time takes longer roughly by 50msec than that of 〈Fig. 2〉, resulting in the increased overrun.
  This is because the braking action lags about 50msec by the magnet even after the brake's excitation is vanished, because the magnetic energy of the motor can act on the excitation winding of the electronic brake's magnet when the braking takes place.



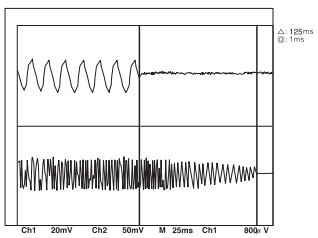

〈Fig.2〉 NORMAL CONNECTION




(Stop time is about 75msec.
SLIP is about 1.2revolutions.
Model S8R25GA-E is used for measurement.)




〈Fig.3〉 SIMPLIFIED CONNECTION



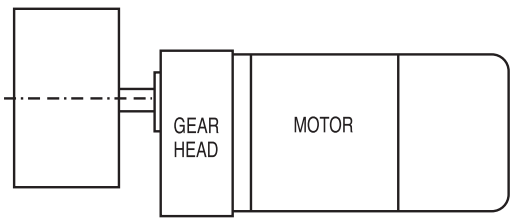

(Stop time is about 124.5msec.
SLIP is about 2.1 revolutions.
Model S8R25GA-E is used for measurement.

※ Note) The colors of the electromagnetic brake lead wire shown in 〈Fig. 2〉, 〈Fig. 3〉 : single-phase AC110V is blue, single-phase AC220V is orange and three-phase 380~440V is yellow.

| SIZE (㎜) | Output (W) | Voltage (V) | Frequency (Hz) | Ampere (A) | Input (W) | BRAKE TORQUE (kg · cm) | BRAKE TORQUE (N · m) |
|---|---|---|---|---|---|---|---|
| □60 | 6 | Single-phase 100(V) Single-phase 200(V) Three-phase 200(V) | 50/60 | 0.06 | 3.0 | 0.5 | 0.05 |
| □70 | 15 | | | 0.07 | 3.0 | 1.0 | 0.1 |
| □80 | 15 | | | 0.10 | 4.5 | 2.0 | 0.2 |
| | 25 | | | 0.10 | 4.5 | 2.0 | 0.2 |
| □90 | 40 | | | 0.15 | 7.0 | 3.0 | 0.3 |
| | 60 | | | 0.15 | 7.0 | 5.0 | 0.5 |
| | 90 | | | 0.15 | 7.0 | 5.0 | 0.5 |
| □80 | 25 | Three-phase 400(V) | 50/60 | 0.03 | 6.3 | 4.0 | 0.4 |
| | 40 | | | 0.04 | 8.5 | 5.0 | 0.5 |
| □90 | 60 | | | 0.04 | 8.5 | 5.0 | 0.5 |
| | 90 | | | 0.04 | 8.5 | 10.0 | 1.0 |

〈Table1〉 BRAKE SPECIFICATION
(FAIL-SAFE ELECTRO MAGNETIC BRAKE TYPE)

## 3. Operating time, Braking Characteristics



〈Fig.4〉

**(1) Take S8R25GB-E as an example** and let it be combined with S8KA30B to drive the inertia body($GDL^2$=1000kgf · $cm^2$). To calculate the operating time, braking time, and overrun under the power source frequency of 60Hz, convert the load's inertia moment to the motor shaft as follows.

$$GDM^2 = \frac{GDL^2}{i^2}\ [kgf \cdot cm^2] = \frac{1000}{30^2} = 1.1\ [kgf \cdot cm^2]$$

$GDL^2$ : Fly wheel effect of load [kgf · $cm^2$]
$GDM^2$ : Fly wheel effect at motor shaft [kgf · $cm^2$]
i : Ratio of gearhead

- The inertia moment expressed in SI unit can be calculated by the following expression.

$$i = \frac{GD^2}{4g}\ [kgf \cdot cm^2] \qquad g : 9.80665\ [m/s^2]$$

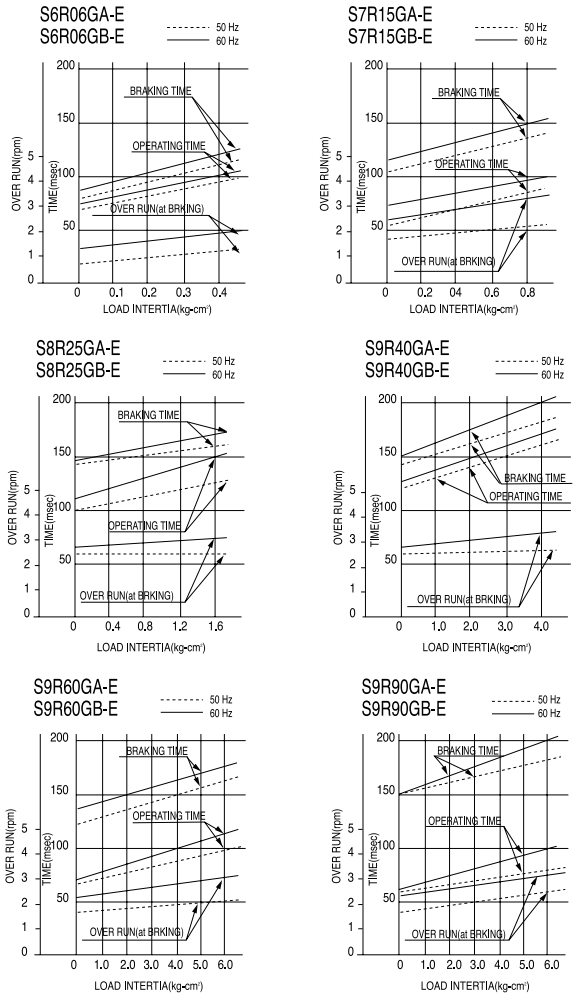
**(2) OVER RUN**

- As shown in 〈Fig. 5〉, the overrun of the motor shaft is NM ≒ 2.5 revolutions. Hence, the gearhead's output shaft has the overrun as follows.

$$N_G = \frac{N_M}{i^2} = \frac{2.5}{30} = 0.08\ revolutions(28.8^\circ)$$

**(3) Operating Time and Braking Time**

- As shown in 〈Fig.5〉, the operating time t1 ≒ 130 [msec], and the braking time t2 ≒ 170 [msec].
- The operating time of the brake motor is a sum of the motor's operating time and the electronic brake's open time. Thus, if the electronic brake is left open in advance, the motor can be started quickly.
- It is advised that the brake should be open at least 10msec before the motor starts operating.



〈Fig.5〉 Operating Time and Breaking Time

**GENERAL SPECIFICATION OF ELECTROMAGNETIC BRAKE MOTORS**

| ITEM | Specification |
|---|---|
| Insulation Resistance | 100MΩ or more when 500V megger is applied between the windings and the housing after rated motor operation under normal ambient temperature and humidity |
| Dielectric Strength | Sufficient to withstand 1500V at 50/60Hz applied between the windings and the case after rated motor operation under normal ambient temperature and humidity for 1min. |
| Temperature Rise | 80℃ or less increase measured by thermometer after rated operation. |
| Insulation Class | Class B(130℃) |
| Overheat Protection Device | Built-in thermal protector (automatic return type) : Open 120℃±5℃ Close 76℃±15℃ |
| Ambient Temperature | -10℃ ~ 40℃ |
| Ambient Humidity | 85% maximum(non condensing) |



# 6W

## ELECTROMAGNETIC BRAKE MOTOR
## □60㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 60 | S6R06GA-E<br>S6R06GA-ECE | 4 | 6 | 1Ø 110 | 60 | 30min. | 0.23 | 1500 | 0.40 | 0.040 | 0.65 | 0.065 | 3.0 |
| | S6R06GB-E<br>S6R06GB-ECE | 4 | 6 | 1Ø 220 | 60 | 30min. | 0.12 | 1550 | 0.40 | 0.040 | 0.70 | 0.070 | 0.8 |
| | S6R06GC-E | 4 | 6 | 1Ø 100 | 50 | 30min. | 0.21 | 1200 | 0.50 | 0.050 | 0.50 | 0.050 | 3.0 |
| | S6R06GC-ECE | | | | 60 | | | 1450 | 0.42 | 0.042 | | | |
| | S6R06GD-E | 4 | 6 | 1Ø 200 | 50 | 30min. | 0.11 | 1200 | 0.50 | 0.050 | 0.55 | 0.055 | 0.8 |
| | S6R06GD-ECE | | | | 60 | | | 1500 | 0.42 | 0.042 | | | |
| | S6R06GE-E | 4 | 6 | 1Ø 100 | 50 | 30min. | 0.20 | 1200 | 0.52 | 0.052 | 0.60 | 0.060 | 3.5 |
| | S6R06GE-ECE | | | | 60 | | 0.23 | 1500 | 0.43 | 0.043 | | | |
| | | | | 1Ø 115 | 60 | | 0.17 | 1550 | 0.40 | 0.040 | 0.58 | 0.058 | 2.3 |
| | S6R06GX-E | 4 | 6 | 1Ø 220 | 50 | 30min. | 0.09 | 1200 | 0.50 | 0.050 | 0.55 | 0.055 | 0.7 |
| | S6R06GX-ECE | | | 1Ø 240 | | | 0.10 | | 0.52 | 0.052 | 0.65 | 0.065 | |

❖ S6R06GE-E is UL approved(UL FILE NO. E172722) impedance protected.
❖ Appropriate capacitors shall be used according to the voltage for S6R06GE-E type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is impedance protected type which has received CE. S6R06GE-ECE is available only for 115V specification.
❖ Above data is measured with brake removed from electromagnetic brake motor.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DA□B | kg-cm | 1.3 | 1.5 | 2.1 | 2.6 | 3.2 | 3.9 | 4.3 | 5.4 | 6.4 | 7.7 | 7.7 | 9.7 | 11.6 | 13.9 | 15.5 | 17.5 | 21.0 | 26.2 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.127 | 0.147 | 0.206 | 0.255 | 0.314 | 0.382 | 0.421 | 0.529 | 0.627 | 0.755 | 0.755 | 0.951 | 1.137 | 1.362 | 1.519 | 1.715 | 2.058 | 2.568 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

## 60Hz

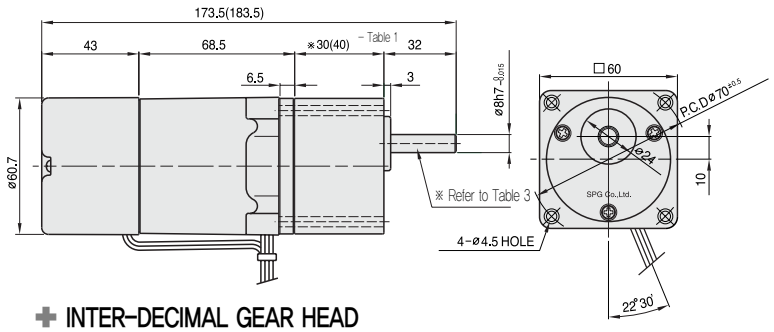
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DA□B | kg.-cm | 1.0 | 1.3 | 1.7 | 2.1 | 2.6 | 3.1 | 3.5 | 4.4 | 5.2 | 6.3 | 6.3 | 7.8 | 9.4 | 11.3 | 12.6 | 14.2 | 17.0 | 21.3 | 25.5 | 28.4 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.098 | 0.127 | 0.167 | 0.206 | 0.255 | 0.304 | 0.343 | 0.431 | 0.510 | 0.617 | 0.617 | 0.764 | 0.921 | 1.107 | 1.235 | 1.392 | 1.666 | 2.087 | 2.499 | 2.783 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 30 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

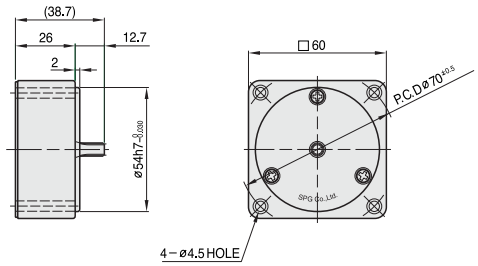
## ✚ GEARED MOTOR

※MOTOR MODEL : S6R06G□-E
※HEAD MODEL : S6□A3□~S6□A250□



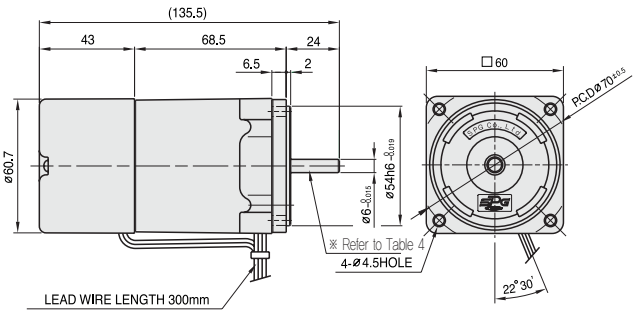

## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S6GX10B




## ✚ MOTOR

※MOTOR MODEL : S6R06□□-E



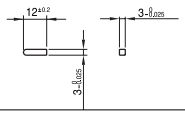

## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S6□A3□ ~ S6□A18□ | 30 |
| S6□A20□ ~ S6□A250□ | 40 |

## ✚ WEIGHT - (Table2)

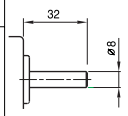
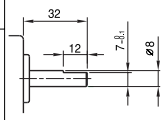
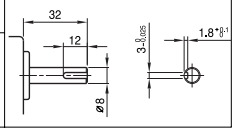
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 0.95 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□A3□ ~S6□A18□ | 0.24 |
| | S6□A20□ ~S6□A40□ | 0.30 |
| | S6□A50□ ~S6□A250□ | 0.33 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |

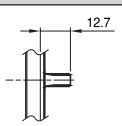
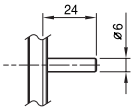
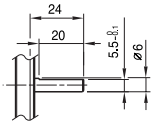


## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S6SA3□ ~S6SA250□ |  |
| D-CUT TYPE<br>S6DA3□ ~S6DA250□ |  |
| KEY TYPE<br>S6KA3□ ~S6KA250□ |  |



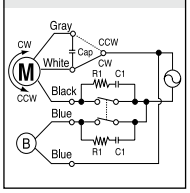
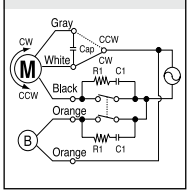
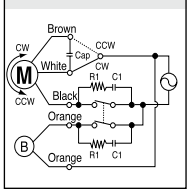
## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S6R06G□-E |  |
| STRAIGHT TYPE<br>S6R06S□-E |  |
| D-CUT TYPE<br>S6R06D□-E |  |



# SCHEMATIC DIAGRAMS

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

| S6R06GA-E<br>S6R06GA-ECE<br>S6R06GC-E S6R06GE-E<br>S6R06GC-ECE S6R06GE-ECE | S6R06GB-E<br>S6R06GB-ECE<br>S6R06GD-E<br>S6R06GD-ECE | S6R06GX-E<br>S6R06GX-ECE |
|---|---|---|
| **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |



$R_1$ = 10 ~ 200 Ω (Min.1/4W)
$C_1$ = 0.1 ~ 0.33㎌(AC125WV or AC250WV)



# 15W

## ELECTROMAGNETIC BRAKE MOTOR
## □70㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 70 | S7R15GA-E<br>S7R15GA-E(TP)<br>S7R15GA-ECE | 4 | 15 | 1Ø 110 | 60 | 30min. | 0.46 | 1550 | 1.00 | 0.100 | 1.25 | 0.125 | 6.0 |
| | S7R15GB-E<br>S7R15GB-E(TP)<br>S7R15GB-ECE | 4 | 15 | 1Ø 220 | 60 | 30min. | 0.23 | 1600 | 1.00 | 0.100 | 1.20 | 0.120 | 1.5 |
| | S7R15GC-E<br>S7R15GC-E(TP)<br>S7R15GC-ECE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.44 | 1200 | 1.25 | 0.125 | 1.00 | 0.100 | 6.0 |
| | | | | | 60 | | 0.44 | 1500 | 1.00 | 0.100 | 1.00 | 0.100 | |
| | S7R15GD-E<br>S7R15GD-E(TP)<br>S7R15GD-ECE | 4 | 15 | 1Ø 200 | 50 | 30min. | 0.22 | 1250 | 1.25 | 0.125 | 1.00 | 0.100 | 1.5 |
| | | | | | 60 | | 0.22 | 1550 | 1.00 | 0.100 | 1.00 | 0.100 | |
| | S7R15GE-E<br>S7R15GE-ECE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.38 | 1250 | 1.25 | 0.125 | 1.00 | 0.100 | 6.0 |
| | | | | | 60 | | 0.41 | 1550 | 1.00 | 0.100 | | | |
| | | | | 1Ø 115 | 60 | | 0.34 | 1600 | 1.00 | 0.100 | | | 4.5 |
| | S7R15GX-E<br>S7R15GX-ECE | 4 | 15 | 1Ø 220 | 50 | 30min. | 0.17 | 1200 | 1.25 | 0.125 | 1.00 | 0.100 | 1.2 |
| | | | | 1Ø 240 | | | 0.18 | | 1.45 | 0.145 | 1.20 | 0.120 | |

❖ S7R15GE-E is UL approved(UL FILE NO. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S7R15GE-E type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE. S7R15GE-ECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S7R15GE-E, S7R15GX-E is thermally protected type with TP mounted.
❖ Above data is measured with brake removed from electromagnetic brake motor.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S7KA□B | kg-cm | 3.2 | 3.9 | 5.4 | 6.5 | 8.1 | 9.7 | 10.8 | 13.5 | 16.2 | 19.4 | 19.4 | 24.2 | 29.1 | 34.9 | 38.8 | 43.6 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.314 | 0.382 | 0.530 | 0.637 | 0.794 | 0.951 | 1.059 | 1.324 | 1.587 | 1.902 | 1.902 | 2.373 | 2.854 | 3.423 | 3.805 | 4.276 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

## 60Hz

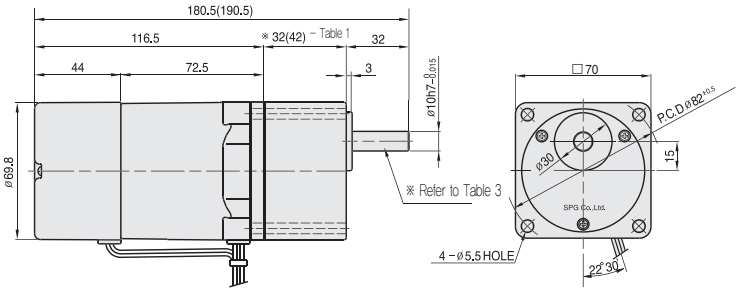
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S7KA□B | kg-cm | 3.0 | 3.6 | 5.1 | 6.1 | 7.6 | 9.1 | 10.1 | 12.7 | 15.2 | 18.2 | 18.2 | 22.8 | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.294 | 0.353 | 0.500 | 0.598 | 0.745 | 0.892 | 0.990 | 1.245 | 1.491 | 1.785 | 1.785 | 2.236 | 2.677 | 3.217 | 3.579 | 4.021 | 4.825 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 50 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

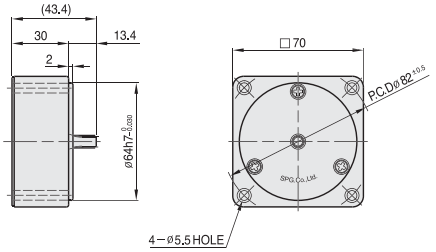
## ✚ GEARED MOTOR

※MOTOR MODEL : S7156G□-E
※HEAD MODEL : S7□A3□~S7□A200□



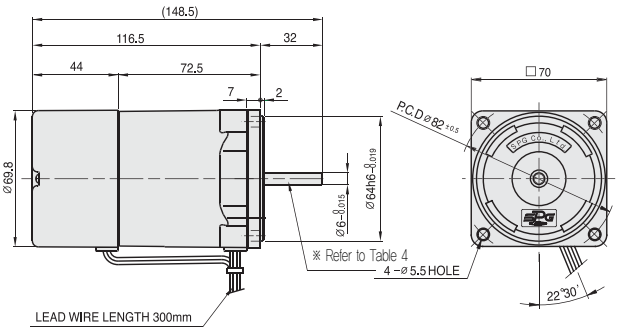

## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S7GX10B




## ✚ MOTOR

※ MOTOR MODEL : S7R15□□-E



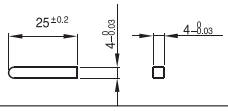

## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S7□A3□ ~ S7□A18□ | 32 |
| S7□A20□ ~ S7□A200□ | 42 |

## ✚ WEIGHT - (Table2)

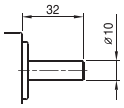
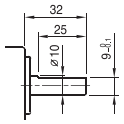
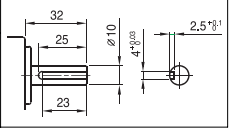
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.04 |
| DECIMAL GEAR HEAD | | 0.32 |
| GEAR HEAD | S7□A3□ ~S7□A18□ | 0.38 |
| | S7□A20□ ~S7□A40□ | 0.47 |
| | S7□A50□ ~S7□A200□ | 0.52 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |

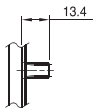
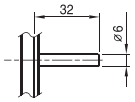
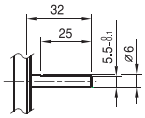


## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S7SA3□ ~S7SA200□ |  |
| D-CUT TYPE<br>S7DA3□ ~S7DA200□ |  |
| KEY TYPE<br>S7KA3□ ~S7KA200□ |  |



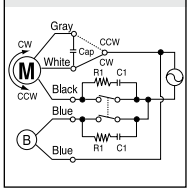
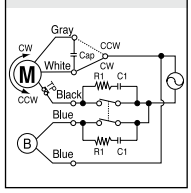
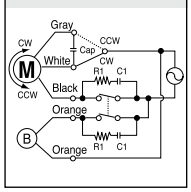
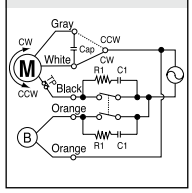
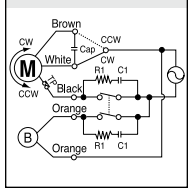
## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S7R15G□-E |  |
| STRAIGHT TYPE<br>S7R15S□-E |  |
| D-CUT TYPE<br>S7R15D□-E |  |



# SCHEMATIC DIAGRAMS

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

| S7R15GA-E<br>S7R15GC-E | S7R15GA-ECE<br>S7R15GC-ECE<br>S7R15GE-E<br>S7R15GE-ECE | S7R15GB-E<br>S7R15GD-E | S7R15GB-ECE<br>S7R15GD-ECE | S7R15GX-E<br>S7R15GX-ECE |
|---|---|---|---|---|
| **CW,CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |  |  |



$R_1$ = 10 ~ 200 Ω (Min.1/4W)
$C_1$ = 0.1 ~ 0.33㎌ (AC125WV or AC250WV)



# 15W

## ELECTROMAGNETIC BRAKE MOTOR
## □80㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8R15GA-E<br>S8R15GA-E(TP)<br>S8R15GA-ECE | 4 | 15 | 1Ø 110 | 60 | 30min. | 0.44 | 1550 | 1.00 | 0.100 | 1.50 | 0.150 | 6.0 |
| | S8R15GB-E<br>S8R15GB-E(TP)<br>S8R15GB-ECE | 4 | 15 | 1Ø 220 | 60 | 30min. | 0.25 | 1600 | 1.00 | 0.100 | 1.50 | 0.150 | 1.5 |
| | S8R15GC-E<br>S8R15GC-E(TP)<br>S8R15GC-ECE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.50 | 1200 | 1.30 | 0.130 | 1.25 | 0.125 | 6.0 |
| | | | | | 60 | | 0.43 | 1500 | 1.10 | 0.110 | | | |
| | S8R15GD-E<br>S8R15GD-E(TP)<br>S8R15GD-ECE | 4 | 15 | 1Ø 200 | 50 | 30min. | 0.28 | 1250 | 1.30 | 0.130 | 1.25 | 0.125 | 1.5 |
| | | | | | 60 | | 0.24 | 1550 | 1.00 | 0.100 | | | |
| | S8R15GE-E<br>S8R15GE-ECE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.48 | 1300 | 1.30 | 0.130 | 1.25 | 0.125 | 6.0 |
| | | | | | 60 | | 0.39 | 1600 | 1.10 | 0.110 | | | |
| | | | | 1Ø 115 | 60 | | 0.45 | 1600 | 1.00 | 0.100 | 1.15 | 0.115 | 4.5 |
| | S8R15GX-E<br>S8R15GX-ECE | 4 | 15 | 1Ø 220 | 50 | 30min. | 0.16 | 1200 | 1.30 | 0.130 | 1.25 | 0.125 | 1.0 |
| | | | | 1Ø 240 | | | 0.17 | | 1.40 | 0.140 | 1.45 | 0.145 | |

❖ S8R15GE-E is UL approved(UL FILE NO. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S8R15GE-E type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE. S8R15GE-ECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8R15GE-E, S8R15GX-E is thermally protected type with TP mounted.
❖ Above data is measured with brake removed from electromagnetic brake motor.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 3.4 | 4.1 | 5.7 | 6.8 | 8.5 | 10.2 | 11.3 | 14.2 | 17.0 | 20.4 | 20.4 | 25.6 | 30.7 | 36.8 | 40.9 | 46.2 | 55.4 | 69.2 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N·m | 0.333 | 0.402 | 0.559 | 0.666 | 0.833 | 1.000 | 1.107 | 1.392 | 1.666 | 1.999 | 1.999 | 2.509 | 3.009 | 3.606 | 4.008 | 4.530 | 5.433 | 6.786 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

## 60Hz

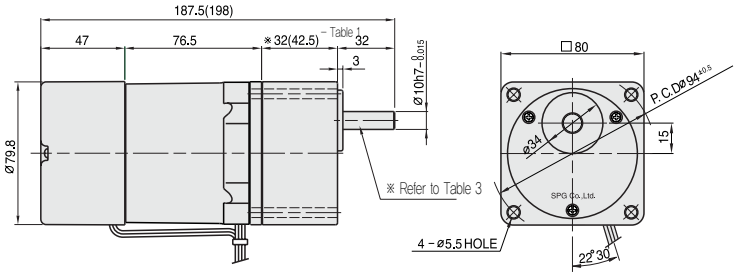
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 2.9 | 3.5 | 4.9 | 5.8 | 7.3 | 8.7 | 9.7 | 12.2 | 14.6 | 17.5 | 17.5 | 21.9 | 26.3 | 31.5 | 35.0 | 39.6 | 47.5 | 59.4 | 71.3 | 79.2 | 80 | 80 | 80 | 80 |
| | N·m | 0.284 | 0.343 | 0.481 | 0.568 | 0.715 | 0.853 | 0.951 | 1.196 | 1.432 | 1.715 | 1.715 | 2.146 | 2.577 | 3.087 | 3.430 | 3.881 | 4.658 | 5.825 | 6.992 | 7.767 | 7.840 | 7.840 | 7.840 | 7.840 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

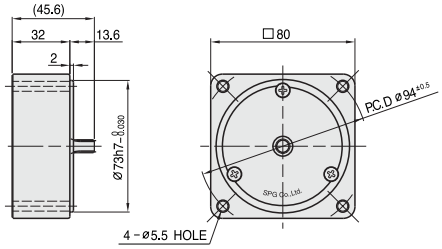
## ✚ GEARED MOTOR

※MOTOR MODEL : S8R15G□-E
※HEAD MODEL : S8□A3□~S8□A200□



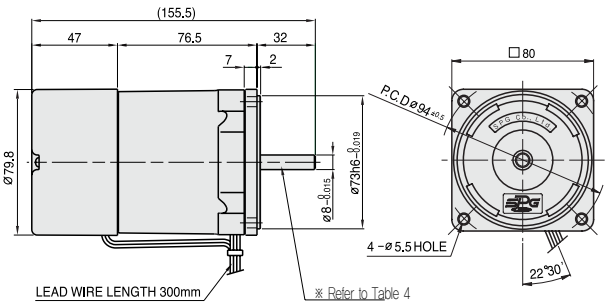

## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B




## ✚ MOTOR

※MOTOR MODEL : S8R15□□-E



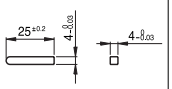
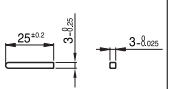

## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

## ✚ WEIGHT - (Table2)

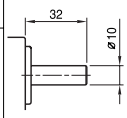
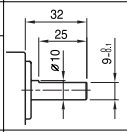
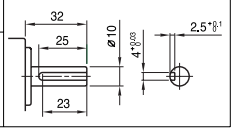
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.86 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A250□ | 0.61 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

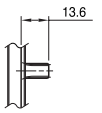
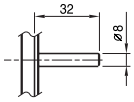
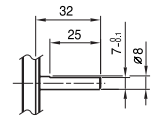
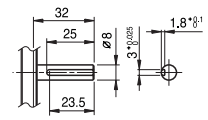


## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□ ~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□ ~S8DA200□ |  |
| KEY TYPE<br>S8KA3□ ~S8KA200□ |  |



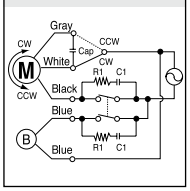
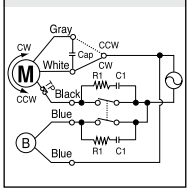
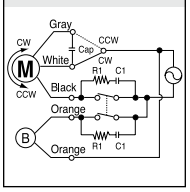
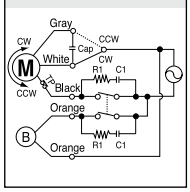
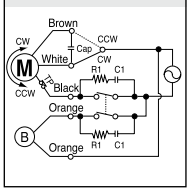
## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8R15G□-E |  |
| STRAIGHT TYPE<br>S8R15S□-E |  |
| D-CUT TYPE<br>S8R15S□-E |  |
| KEY TYPE<br>S8R15K□-E |  |



# SCHEMATIC DIAGRAMS

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

| S8R15GA-E<br>S8R15GC-E | S8R15GA-ECE<br>S8R15GC-ECE<br>S8R15GE-E<br>S8R15GE-ECE | S8R15GB-E<br>S8R15GD-E | S8R15GB-ECE<br>S8R15GD-ECE | S8R15GX-E<br>S8R15GX-ECE |
|---|---|---|---|---|
| **CW,CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |  |  |



$R_1 = 10 \sim 200\,\Omega$ (Min.1/4W)
$C_1 = 0.1 \sim 0.33\,\mu F$ (AC125WV or AC250WV)



# 25W

## ELECTROMAGNETIC BRAKE MOTOR
## □80㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8R25GA-E<br>S8R25GA-E(TP)<br>S8R25GA-ECE | 4 | 25 | 1Ø 110 | 60 | 30min. | 0.73 | 1550 | 1.62 | 0.162 | 2.40 | 0.240 | 10.0 |
| | S8R25GB-E<br>S8R25GB-E(TP)<br>S8R25GB-ECE | 4 | 25 | 1Ø 220 | 60 | 30min. | 0.36 | 1550 | 1.62 | 0.162 | 2.40 | 0.240 | 2.5 |
| | S8R25GC-E<br>S8R25GC-E(TP)<br>S8R25GC-ECE | 4 | 25 | 1Ø 100 | 50 | 30min. | 0.60 | 1250 | 2.00 | 0.200 | 2.20 | 0.220 | 10.0 |
| | | | | | 60 | | 0.70 | 1500 | 1.70 | 0.170 | | | |
| | S8R25GD-E<br>S8R25GD-E(TP)<br>S8R25GD-ECE | 4 | 25 | 1Ø 200 | 50 | 30min. | 0.30 | 1250 | 2.00 | 0.200 | 2.00 | 0.200 | 2.5 |
| | | | | | 60 | | 0.35 | 1500 | 1.70 | 0.170 | | | |
| | S8R25GE-E<br>S8R25GE-ECE | 4 | 25 | 1Ø 100 | 50 | 30min. | 0.58 | 1250 | 2.00 | 0.200 | 1.60 | 0.160 | 8.0 |
| | | | | | 60 | | 0.54 | 1550 | 1.70 | 0.170 | | | |
| | | | | 1Ø 115 | 60 | | 0.52 | 1600 | 1.65 | 0.165 | 1.90 | 0.190 | 7.0 |
| | S8R25GX-E<br>S8R25GX-ECE | 4 | 25 | 1Ø 220 | 50 | 30min. | 0.25 | 1250 | 2.00 | 0.200 | 2.10 | 0.210 | 2.0 |
| | | | | 1Ø 240 | | | 0.27 | | 2.10 | 0.210 | 2.50 | 0.250 | |
| | S8I25GU-E<br>S8I25GU-ECE | 4 | 25 | 3Ø 200 | 50 | Cont. | 0.26 | 1300 | 1.95 | 0.195 | 3.50 | 0.350 | — |
| | | | | | 60 | | 0.24 | 1550 | 1.65 | 0.165 | 2.90 | 0.290 | |
| | S8I25GT-E<br>S8I25GT-ECE | 4 | 25 | 3Ø 220 | 50 | Cont. | 0.28 | 1350 | 1.90 | 0.190 | 4.20 | 0.420 | — |
| | | | | | 60 | | 0.24 | 1600 | 1.60 | 0.160 | 3.50 | 0.350 | |
| | S8I25GS-E<br>S8I25GS-ECE | 4 | 25 | 3Ø 380 | 50 | Cont. | 0.14 | 1250 | 2.00 | 0.200 | 3.15 | 0.315 | — |
| | | | | | 60 | | 0.12 | 1500 | 1.70 | 0.170 | 2.50 | 0.250 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.14 | 1250 | 2.10 | 0.210 | 3.50 | 0.350 | |
| | | | | | 60 | | 0.12 | 1500 | 1.80 | 0.180 | 2.75 | 0.275 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.15 | 1300 | 1.95 | 0.195 | 3.75 | 0.375 | |
| | | | | | 60 | | 0.13 | 1550 | 1.65 | 0.165 | 3.00 | 0.300 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.15 | 1300 | 2.10 | 0.210 | 4.40 | 0.440 | |
| | | | | | 60 | | 0.13 | 1600 | 1.60 | 0.160 | 3.40 | 0.340 | |

❖ S8R25GE-E is UL approved(UL FILE NO. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S8R25GE-E type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE. S8R25GE-ECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8R25GE-E, S8R25GX-E is thermally protected type with TP mounted.
❖ Above data is measured with brake removed from electromagnetic brake motor.
❖ "L" or "H" type does not apply to motors under 40W.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 5.3 | 6.4 | 8.9 | 10.7 | 13.4 | 16.0 | 17.8 | 22.3 | 26.7 | 32.1 | 32.1 | 40.2 | 48.2 | 57.8 | 64.2 | 72.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.519 | 0.627 | 0.872 | 1.049 | 1.313 | 1.568 | 1.744 | 2.185 | 2.617 | 3.146 | 3.146 | 3.940 | 4.724 | 5.664 | 6.292 | 7.115 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

## 60Hz

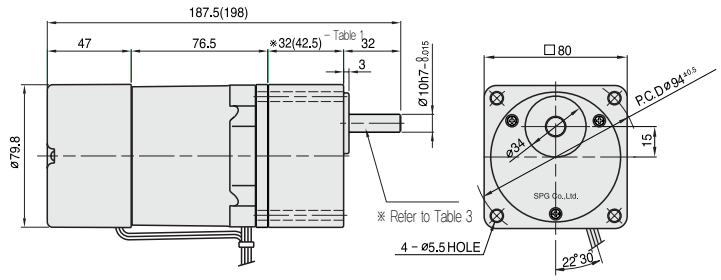
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 4.4 | 5.2 | 7.3 | 8.7 | 10.9 | 13.1 | 14.6 | 18.2 | 21.9 | 26.2 | 26.3 | 32.9 | 39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.431 | 0.510 | 0.715 | 0.853 | 1.068 | 1.284 | 1.431 | 1.784 | 2.146 | 2.568 | 2.577 | 3.224 | 3.861 | 4.635 | 5.155 | 5.821 | 6.987 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

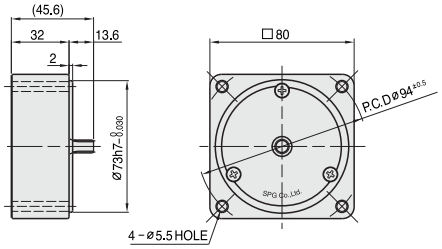
## GEARED MOTOR

※MOTOR MODEL : S8R25G□-E
※HEAD MODEL : S8□A3□~S8□A200□



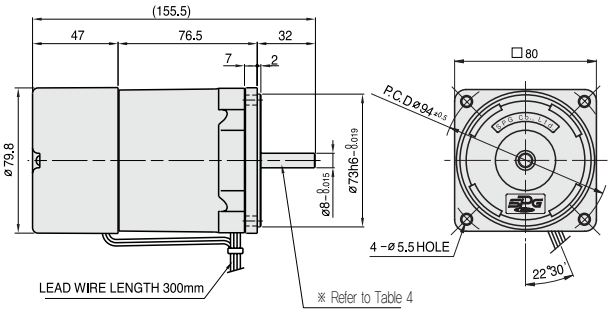

## INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B




## MOTOR

※MOTOR MODEL : S8R25□□-E



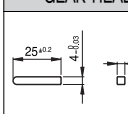
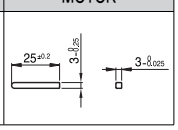

## ※26(35) - (Table 1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

## WEIGHT - (Table 2)

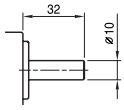
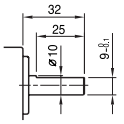
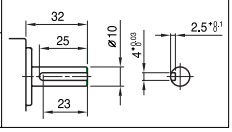
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.86 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

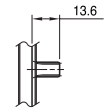
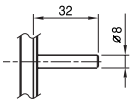
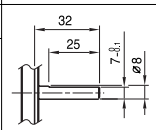
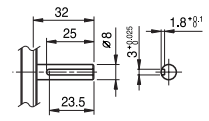


## SPEC for output shaft of gearhead - (Table 3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S8SA3□ ~S8SA200□ | |
| D-CUT TYPE |  |
| S8DA3□ ~S8DA200□ | |
| KEY TYPE |  |
| S8KA3□ ~S8KA200□ | |



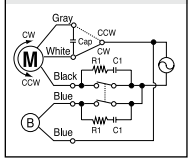
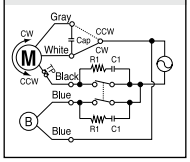
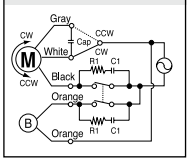
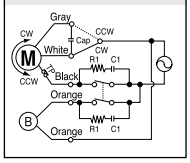
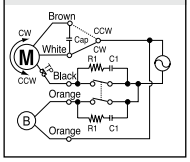
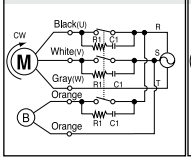
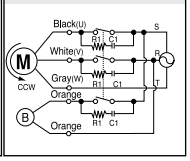
## SPEC for output shaft of motor - (Table 4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE |  |
| S8R25G□-E | |
| STRAIGHT TYPE |  |
| S8R25S□-E | |
| D-CUT TYPE |  |
| S8R25D□-E | |
| KEY TYPE |  |
| S8R25K□-E | |

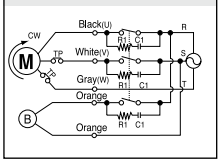
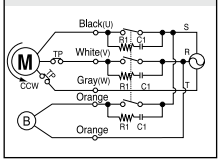
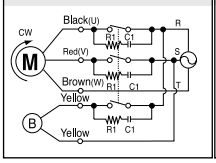
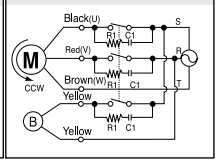


# SCHEMATIC DIAGRAMS

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

| S8R25GA-E<br>S8R25GC-E | S8R25GA-ECE<br>S8R25GC-ECE<br>S8R25GE-E<br>S8R25GE-ECE | S8R25GB-E<br>S8R25GD-E | S8R25GB-ECE<br>S8R25GD-ECE | S8R25GX-E<br>S8R25GX-ECE | S8I25GU-E<br>S8I25GT-E | |
|---|---|---|---|---|---|---|
| **CW,CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** | **CW** | **CCW** |
|  |  |  |  |  |  |  |



| S8I25GU-ECE S8I25GT-ECE | | S8I25GS-E S8I25GS-ECE | |
|---|---|---|---|
| **CW** | **CCW** | **CW** | **CCW** |
|  |  |  |  |

$R_1 = 10 \sim 200\,\Omega$ (Min1/4W)  $C_1 = 0.1 \sim 0.33\,\mu F$ (AC125WV or AC250WV)



# 40W

## ELECTROMAGNETIC BRAKE MOTOR
## □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R40GA( )-E<br>S9R40GA( )-E(TP)<br>S9R40GA( )-ECE | 4 | 40 | 1Ø 110 | 60 | 30min. | 1.00 | 1600 | 2.50 | 0.250 | 4.00 | 0.400 | 15.0 |
| | S9R40GB( )-E<br>S9R40GB( )-E(TP)<br>S9R40GB( )-ECE | 4 | 40 | 1Ø 220 | 60 | 30min. | 0.48 | 1600 | 2.50 | 0.250 | 4.00 | 0.400 | 3.5 |
| | S9R40GC( )-E<br>S9R40GC( )-E(TP)<br>S9R40GC( )-ECE | 4 | 40 | 1Ø 100 | 50 | 30min. | 0.85 | 1300 | 3.10 | 0.310 | 3.50 | 0.350 | 15.0 |
| | | | | | 60 | | 1.00 | 1550 | 2.60 | 0.260 | | | |
| | S9R40GD( )-E<br>S9R40GD( )-E(TP)<br>S9R40GD( )-ECE | 4 | 40 | 1Ø 200 | 50 | 30min. | 0.40 | 1300 | 3.10 | 0.310 | 3.35 | 0.335 | 3.5 |
| | | | | | 60 | | 0.48 | 1550 | 2.60 | 0.260 | | | |
| | S9R40GE( )-E<br>S9R40GE( )-ECE | 4 | 40 | 1Ø 100 | 50 | 30min. | 0.85 | 1300 | 3.10 | 0.310 | 3.45 | 0.345 | 15.0 |
| | | | | | 60 | | 1.00 | 1550 | 2.60 | 0.260 | | | |
| | | | | 1Ø 115 | 60 | | 0.86 | 1600 | 2.60 | 0.260 | | | 12.0 |
| | S9R40GX( )-E<br>S9R40GX( )-ECE | 4 | 40 | 1Ø 220 | 50 | 30min. | 0.40 | 1250 | 3.20 | 0.320 | 3.30 | 0.330 | 3.0 |
| | | | | 1Ø 240 | | | 0.43 | | 3.40 | 0.340 | 4.00 | 0.400 | |
| | S9I40GU( )-E<br>S9I40GU( )-ECE | 4 | 40 | 3Ø 200 | 50 | Cont. | 0.36 | 1300 | 3.10 | 0.310 | 6.30 | 0.630 | — |
| | | | | | 60 | | 0.33 | 1550 | 2.60 | 0.260 | 5.20 | 0.520 | |
| | S9I40GT( )-E<br>S9I40GT( )-ECE | 4 | 40 | 3Ø 220 | 50 | Cont. | 0.39 | 1350 | 3.00 | 0.300 | 7.60 | 0.760 | — |
| | | | | | 60 | | 0.33 | 1600 | 2.50 | 0.250 | 6.10 | 0.610 | |
| | S9I40GS( )-E<br>S9I40GS( )-ECE | 4 | 40 | 3Ø 380 | 50 | Cont. | 0.21 | 1300 | 3.20 | 0.320 | 6.30 | 0.630 | — |
| | | | | | 60 | | 0.19 | 1550 | 2.70 | 0.270 | 4.85 | 0.485 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.21 | 1300 | 3.30 | 0.330 | 6.90 | 0.690 | |
| | | | | | 60 | | 0.19 | 1550 | 2.80 | 0.280 | 5.25 | 0.525 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.21 | 1350 | 3.10 | 0.310 | 7.30 | 0.730 | |
| | | | | | 60 | | 0.19 | 1600 | 2.60 | 0.260 | 5.70 | 0.570 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.21 | 1350 | 3.20 | 0.320 | 8.20 | 0.820 | |
| | | | | | 60 | | 0.19 | 1600 | 2.70 | 0.270 | 6.30 | 0.630 | |

❖ S9R40GE-E is UL approved(UL FILE NO. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S9R40GE-E type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S9R40GE( )-ECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9R40GE-E, S9R40GX-E is thermally protected type with TP mounted.
❖ Above data is measured with brake removed from electromagnetic brake motor.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KB□B( ) | kg-cm | 8.3 | 9.9 | 13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4 | 41.3 | 49.6 | 49.6 | 62.1 | 74.5 | 89.4 | 99.3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.813 | 0.970 | 1.352 | 1.617 | 2.029 | 2.430 | 2.695 | 3.371 | 4.047 | 4.861 | 4.861 | 6.086 | 7.301 | 8.761 | 9.731 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

## 60Hz

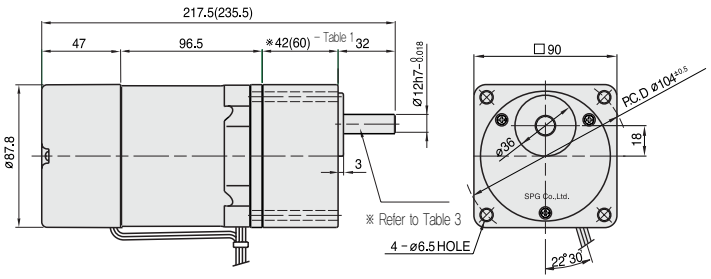
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KB□B( ) | kg-cm | 6.8 | 8.2 | 11.3 | 13.6 | 17.0 | 20.4 | 22.7 | 28.4 | 34.0 | 40.8 | 40.9 | 51.1 | 61.3 | 73.6 | 81.8 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.666 | 0.804 | 1.107 | 1.333 | 1.666 | 1.999 | 2.225 | 2.783 | 3.332 | 3.998 | 4.008 | 5.008 | 6.007 | 7.213 | 8.016 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

# DIMENSIONS

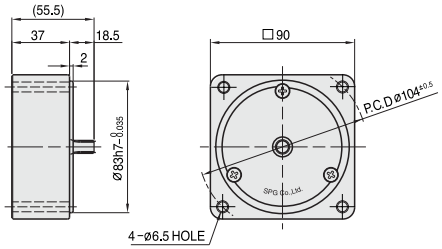
## GEARED MOTOR

※MOTOR MODEL : S9R40G□□-E
※HEAD MODEL : S9□B3□□~S9□B200□□



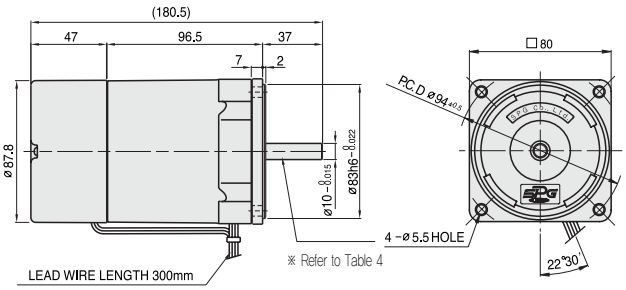

## INTER-DECIMAL GEAR HEAD

※ MODEL : S9GX10B(H,L)




## MOTOR

※MOTOR MODEL : S9R40□□□-E



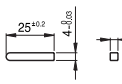
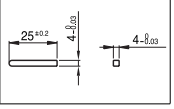

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S9□B3□□ ~ S9□B18□□ | 42 |
| S9□B20□□ ~ S9□B200□□ | 60 |

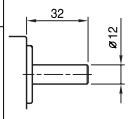
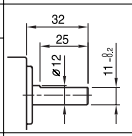
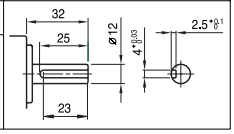
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.74 |
| DECIMAL GEAR HEAD | | 0.59 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□□ ~S9□B40□□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

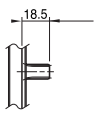
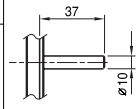
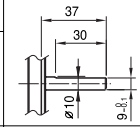
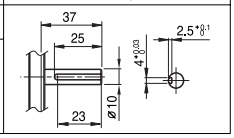
## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of gearhead - (Table3)

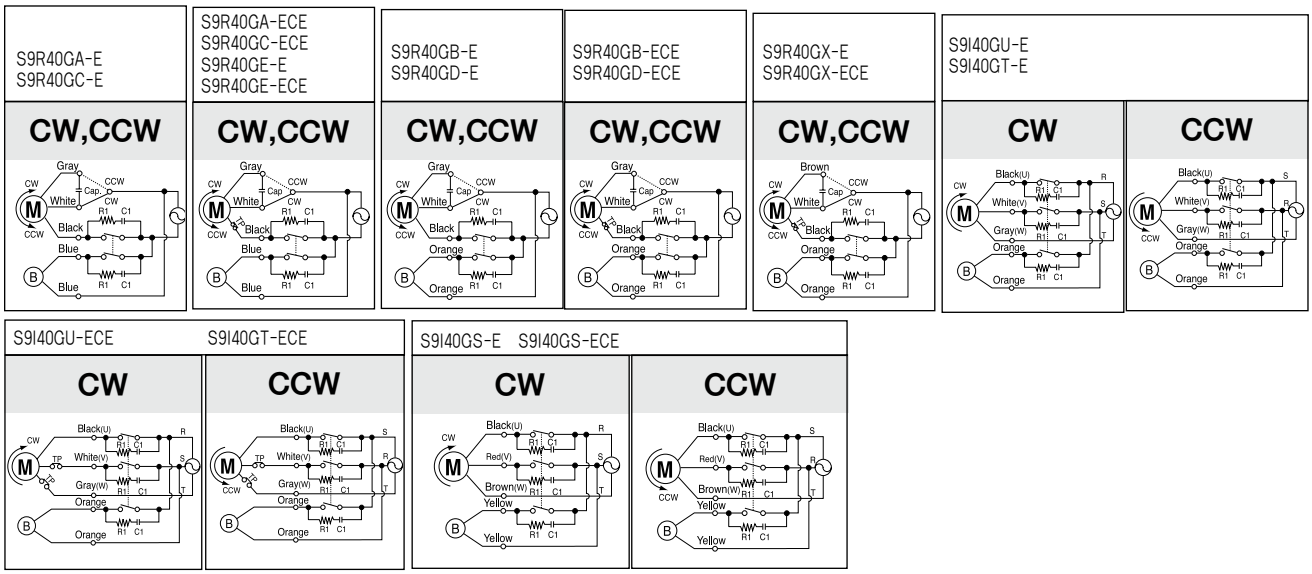
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SB3□□ ~S9SB200□□ |  |
| D-CUT TYPE<br>S9DB3□□ ~S9DB200□□ |  |
| KEY TYPE<br>S9KB3□□ ~S9KB200□□ |  |

## SPEC for output shaft of motor - (Table4)

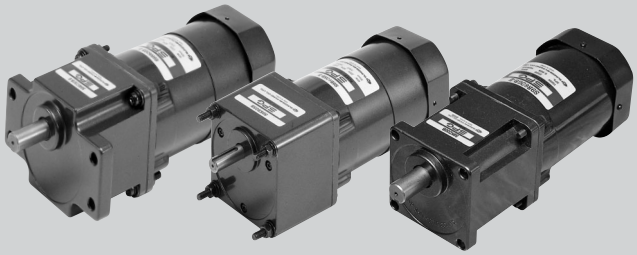
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R40G□□-E |  |
| STRAIGHT TYPE<br>S9R40S□-E |  |
| D-CUT TYPE<br>S9R40D□-E |  |
| KEY TYPE<br>S9R40K□-E |  |

# SCHEMATIC DIAGRAMS

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




$R_1$ = 10 ~ 200 Ω (Min.1/4W)  $C_1$ = 0.1 ~ 0.33㎌(AC125WV or AC250WV)



# 60W

## ELECTROMAGNETIC BRAKE MOTOR
## □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R60GA( )-E<br>S9R60GA( )-E(TP)<br>S9R60GA( )-ECE | 4 | 60 | 1Ø 110 | 60 | 30min. | 1.70 | 1550 | 3.90 | 0.390 | 7.00 | 0.700 | 25.0 |
| | S9R60GB( )-E<br>S9R60GB( )-E(TP)<br>S9R60GB( )-ECE | 4 | 60 | 1Ø 220 | 60 | 30min. | 0.90 | 1550 | 3.90 | 0.390 | 7.00 | 0.700 | 6.5 |
| | S9R60GC( )-E<br>S9R60GC( )-E(TP)<br>S9R60GC( )-ECE | 4 | 60 | 1Ø 100 | 50 | 30min. | 1.50 | 1250 | 4.80 | 0.480 | 6.20 | 0.620 | 25.0 |
| | | | | | 60 | | 1.75 | 1500 | 4.00 | 0.400 | | | |
| | S9R60GD( )-E<br>S9R60GD( )-E(TP)<br>S9R60GD( )-ECE | 4 | 60 | 1Ø 200 | 50 | 30min. | 0.75 | 1250 | 4.80 | 0.480 | 6.20 | 0.620 | 6.5 |
| | | | | | 60 | | 0.90 | 1500 | 4.00 | 0.400 | | | |
| | S9R60GE( )-E<br>S9R60GE( )-ECE | 4 | 60 | 1Ø 100 | 50 | 30min. | 1.30 | 1300 | 4.80 | 0.480 | 5.80 | 0.580 | 25.0 |
| | | | | | 60 | | 1.70 | 1550 | 4.00 | 0.400 | | | |
| | | | | 1Ø 115 | 60 | | 1.40 | 1600 | 3.90 | 0.390 | | | 20.0 |
| | S9R60GX( )-E<br>S9R60GX( )-ECE | 4 | 60 | 1Ø 220 | 50 | 30min. | 0.58 | 1300 | 4.60 | 0.460 | 6.00 | 0.600 | 5.0 |
| | | | | 1Ø 240 | | | 0.61 | | 4.90 | 0.490 | 7.00 | 0.700 | |
| | S9I60GU( )-E<br>S9I60GU( )-ECE | 4 | 60 | 3Ø 200 | 50 | Cont. | 0.60 | 1300 | 4.60 | 0.460 | 9.30 | 0.930 | — |
| | | | | | 60 | | 0.50 | 1550 | 3.90 | 0.390 | 8.00 | 0.800 | |
| | S9I60GT( )-E<br>S9I60GT( )-ECE | 4 | 60 | 3Ø 220 | 50 | Cont. | 0.80 | 1350 | 4.40 | 0.440 | 11.35 | 1.135 | — |
| | | | | | 60 | | 0.57 | 1600 | 3.90 | 0.390 | 9.30 | 0.930 | |
| | S9I60GS( )-E<br>S9I60GS( )-ECE | 4 | 60 | 3Ø 380 | 50 | Cont. | 0.27 | 1300 | 4.60 | 0.460 | 8.25 | 0.825 | — |
| | | | | | 60 | | 0.24 | 1550 | 3.90 | 0.390 | 6.50 | 0.650 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.29 | 1300 | 4.70 | 0.470 | 9.30 | 0.930 | |
| | | | | | 60 | | 0.25 | 1550 | 4.00 | 0.400 | 7.35 | 0.735 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.27 | 1350 | 4.60 | 0.460 | 9.95 | 0.995 | |
| | | | | | 60 | | 0.23 | 1600 | 3.80 | 0.380 | 7.50 | 0.750 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.31 | 1350 | 4.70 | 0.470 | 10.75 | 1.075 | |
| | | | | | 60 | | 0.25 | 1600 | 3.90 | 0.390 | 8.40 | 0.840 | |

❖ S9R60GE-E is UL approved (UL FILE NO. E172720) thermally protected type.
❖ Appropriate capacitors shall be used according to the voltage for S9R60GE-E type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP.
S9R60GE( )-ECE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9R60GE-E, S9R60GX-E is thermally protected type with TP mounted.
❖ Above data is measured with brake removed from eletromagnetic brake motor.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

## 60Hz

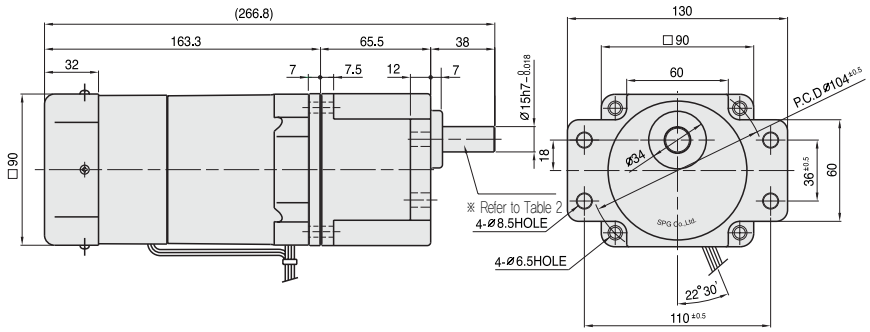
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

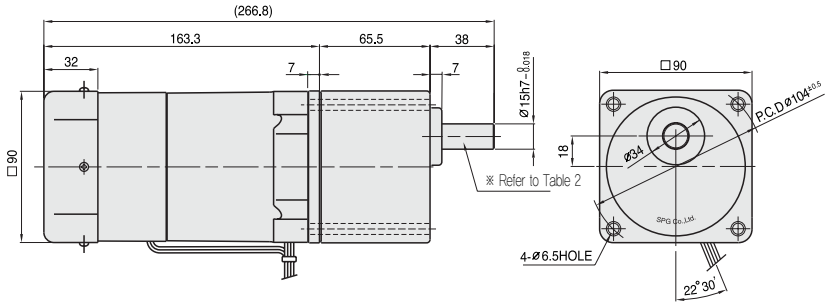
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9R60G□□-E
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

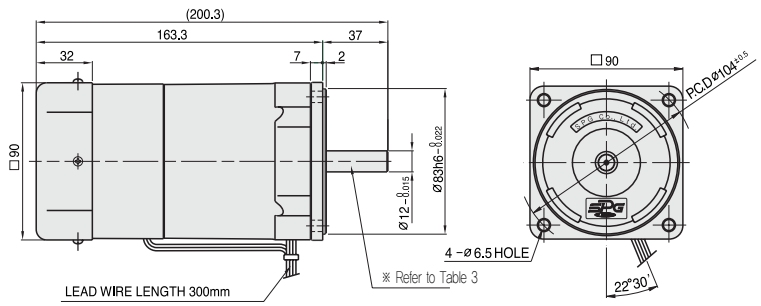



※HEAD MODEL : S9□C3B□-S~S9□C200B□



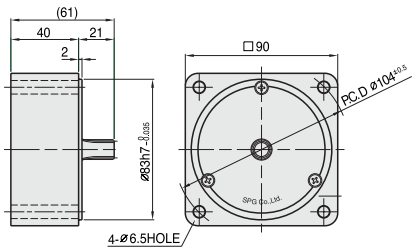

## ✚ MOTOR

※MOTOR MODEL : S9R60□□□-E




## ✚ INTER-DECIMAL GEAR HEAD

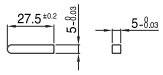
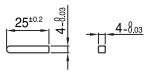
※MODEL : S9GX10B(H,L)-S




## ✚ WEIGHT - (Table1)

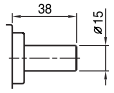
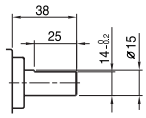
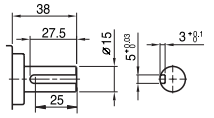
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.90 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

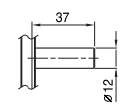
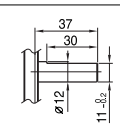
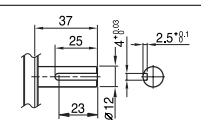


## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |



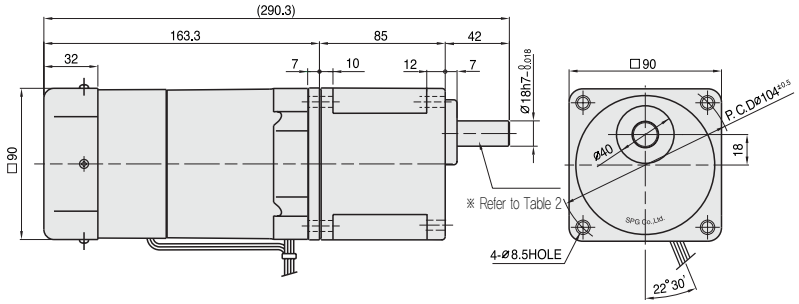
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R60G□□-E |  |
| STRAIGHT TYPE<br>S9R60S□-E |  |
| D-CUT TYPE<br>S9R60D□-E |  |
| KEY TYPE<br>S9R60K□-E |  |

# DIMENSIONS

## ✚ GEARED MOTOR

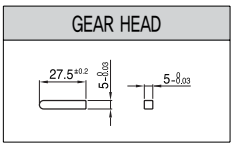
※MOTOR MODEL : S9R60G□H-E
※HEAD MODEL □ : S9□D3B~S9□D200B



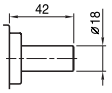
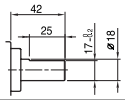
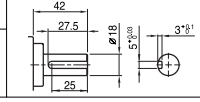

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.90 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC




## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DD3B ~S9DD200B | | S9KD3B ~S9KD200B | |



## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 221 | 266 | 295 | 300 | 300 | 300 | 300 |
| | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 21.67 | 26.09 | 28.93 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg- | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 212 | 236 | 283 | 300 | 300 | 300 |
| | cmN·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 20.79 | 23.14 | 27.75 | 29.42 | 29.42 | 29.42 |

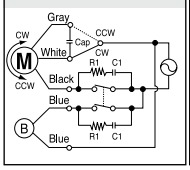
❖ The code in □ of gearhead model is for gear ratio. ❖ It is the ambient torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.

# SCHEMATIC DIAGRAMS

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

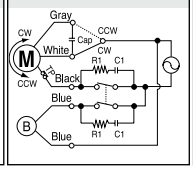
S9R60GA-E
S9R60GC-E

**CW,CCW**



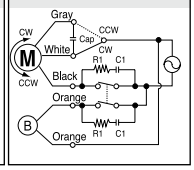

S9R60GA-ECE
S9R60GC-ECE
S9R60GE-E
S9R60GE-ECE

**CW,CCW**



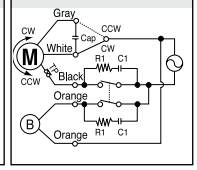

S9R60GB-E
S9R60GD-E

**CW,CCW**



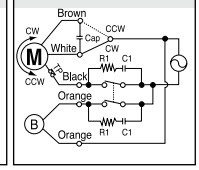

S9R60GB-ECE
S9R60GD-ECE

**CW,CCW**



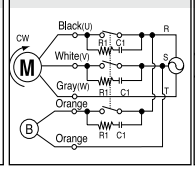

S9R60GX-E
S9R60GX-ECE

**CW,CCW**

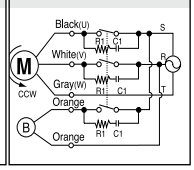



S9I60GU-E
S9I60GT-E

**CW**

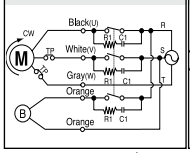



**CCW**

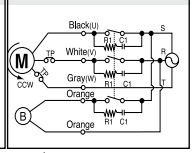



S9I60GU-ECE
S9I60GT-ECE

**CW**

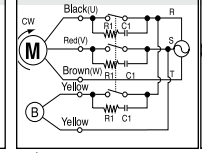



**CCW**

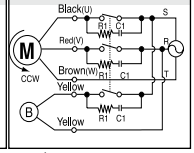



S9I60GS-E
S9I60GS-ECE

**CW**




**CCW**




$R_1$ = 10~200 Ω (Min.1/4W) $C_1$ = 0.1~0.33 μF (AC125WV or AC250WV)



# 90W

## ELECTROMAGNETIC BRAKE MOTOR
## □90㎜ LEAD WIRE TYPE

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R90GA( )-E<br>S9R90GA( )-E(TP)<br>S9R90GA( )-ECE | 4 | 90 | 1Ø 110 | 60 | 30min. | 2.20 | 1550 | 5.80 | 0.580 | 8.90 | 0.890 | 30.0 |
| | S9R90GB( )-E<br>S9R90GB( )-E(TP)<br>S9R90GB( )-ECE | 4 | 90 | 1Ø 220 | 60 | 30min. | 1.10 | 1550 | 5.80 | 0.580 | 8.90 | 0.890 | 7.5 |
| | S9R90GC( )-E<br>S9R90GC( )-E(TP)<br>S9R90GC( )-ECE | 4 | 90 | 1Ø 100 | 50 | 30min. | 2.00 | 1250 | 7.20 | 0.720 | 7.00 | 0.700 | 30.0 |
| | | | | | 60 | | 2.25 | 1500 | 6.00 | 0.600 | | | |
| | S9R90GD( )-E<br>S9R90GD( )-E(TP)<br>S9R90GD( )-ECE | 4 | 90 | 1Ø 200 | 50 | 30min. | 0.90 | 1250 | 7.20 | 0.720 | 7.00 | 0.700 | 7.5 |
| | | | | | 60 | | 1.10 | 1500 | 6.00 | 0.600 | | | |
| | S9R90GE( )-E<br>S9R90GE( )-ECE | 4 | 90 | 1Ø 100 | 50 | 30min. | 1.80 | 1300 | 7.20 | 0.720 | 6.30 | 0.630 | 30.0 |
| | | | | | 60 | | 2.10 | 1550 | 6.00 | 0.600 | | | |
| | | | | 1Ø 115 | 60 | | 1.90 | 1600 | 5.80 | 0.580 | 6.90 | 0.690 | 25.0 |
| | S9R90GX( )-E<br>S9R90GX( )-ECE | 4 | 90 | 1Ø 220 | 50 | 30min. | 0.71 | 1300 | 6.90 | 0.690 | 6.80 | 0.680 | 6.0 |
| | | | | 1Ø 240 | | | 0.75 | | 7.20 | 0.720 | 8.60 | 0.860 | |
| | S9I90GU( )-E<br>S9I90GU( )-ECE | 4 | 90 | 3Ø 200 | 50 | Cont. | 0.63 | 1300 | 6.90 | 0.690 | 10.60 | 1.060 | — |
| | | | | | 60 | | 0.60 | 1550 | 6.00 | 0.600 | 8.90 | 0.890 | |
| | S9I90GT( )-E<br>S9I90GT( )-ECE | 4 | 90 | 3Ø 220 | 50 | Cont. | 0.68 | 1350 | 6.80 | 0.680 | 13.00 | 1.300 | — |
| | | | | | 60 | | 0.55 | 1600 | 5.70 | 0.570 | 10.50 | 1.050 | |
| | S9I90GS( )-E<br>S9I90GS( )-ECE | 4 | 90 | 3Ø 380 | 50 | Cont. | 0.32 | 1300 | 6.80 | 0.680 | 10.55 | 1.055 | — |
| | | | | | 60 | | 0.30 | 1550 | 5.70 | 0.570 | 8.20 | 0.820 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.35 | 1300 | 6.90 | 0.690 | 11.70 | 1.170 | |
| | | | | | 60 | | 0.32 | 1550 | 5.80 | 0.580 | 8.90 | 0.890 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.33 | 1350 | 6.80 | 0.680 | 12.00 | 1.200 | |
| | | | | | 60 | | 0.29 | 1600 | 5.70 | 0.570 | 9.50 | 0.950 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.35 | 1350 | 6.90 | 0.690 | 13.30 | 1.330 | |
| | | | | | 60 | | 0.31 | 1600 | 5.80 | 0.580 | 10.50 | 1.050 | |

- S9R90GE-E is UL approved(UL FILE NO. E172720) thermally protected type.
- Appropriate capacitors shall be used according to the voltage for S9R90GE-E type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
- CE marked at the end of model name indicates that it is thermally protected type which has received CE with built-in TP. S9R90GE( )-ECE is available only for 115V specification.
- TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted. S9R90GE-E, S9R90GX-E is thermally protected type with TP mounted.
- Above data is measured with brake removed from electromagnetic brake motor.
- ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.
- For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

## 60Hz

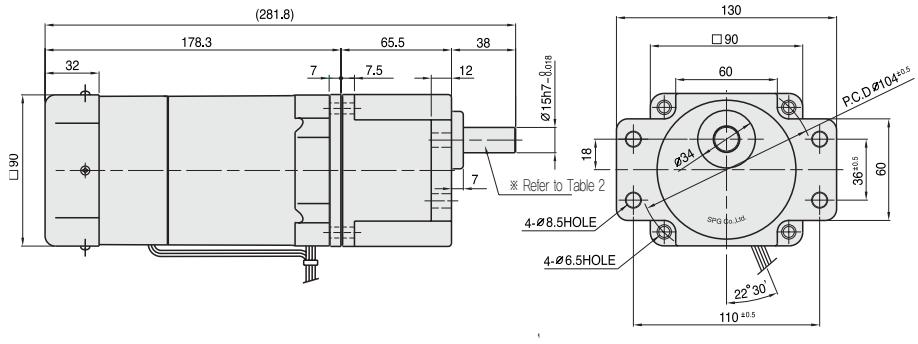
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

- The code in □ of gearhead model is for gear ratio.
- It is the permissible torque of the assembled motor and gearhead.
- The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
- ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
- Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
- ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

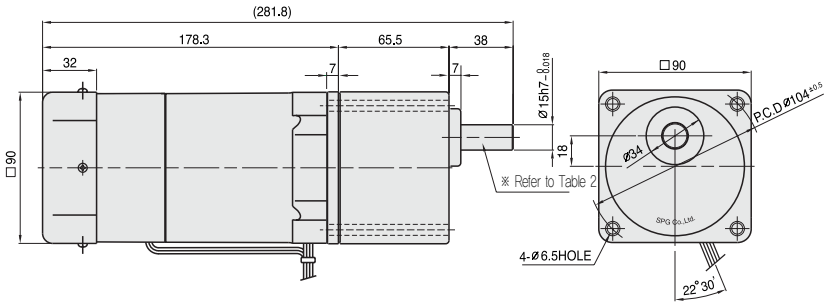
# DIMENSIONS

## GEARED MOTOR

※MOTOR MODEL : S9R90G□□-E
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

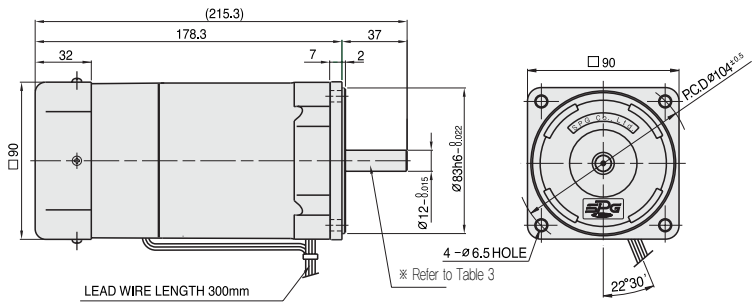



※HEAD MODEL : S9□C3B□~S9□C200B□



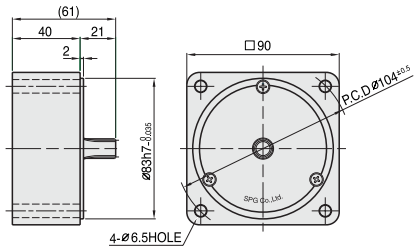

## MOTOR

※MOTOR MODEL : S9R90□□□-E




## INTER-DECIMAL GEAR HEAD

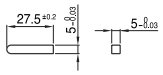
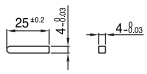
※MODEL : S9GX10B(H,L)-S




## WEIGHT - (Table1)

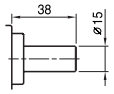
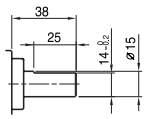
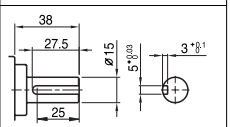
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.41 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

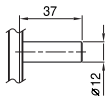
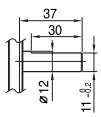
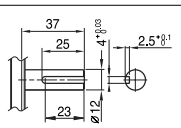


## SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |



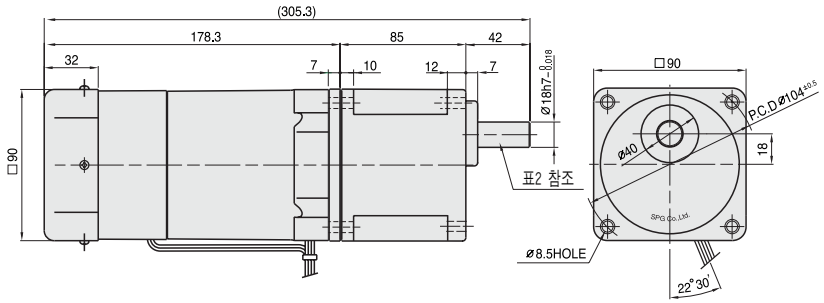
## SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R90G□□-E |  |
| STRAIGHT TYPE<br>S9R90S□-E |  |
| D-CUT TYPE<br>S9R90D□-E |  |
| KEY TYPE<br>S9R90K□-E |  |

# DIMENSIONS

## ✚ GEARED MOTOR

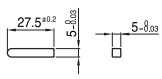
※MOTOR MODEL : S9R90G□H
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table1)

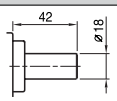
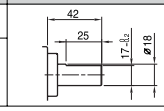
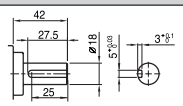
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.41 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DD3B ~S9DD200B | | S9KD3B ~S9KD200B | |



## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 248 | 297 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 24.32 | 29.13 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 238 | 266 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 23.34 | 26.09 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

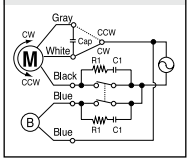
❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.

# SCHEMATIC DIAGRAMS

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

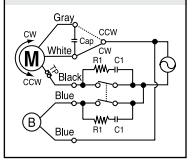
S9R90GA-E
S9R90GC-E

**CW,CCW**



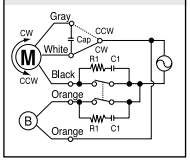

S9R90GA-ECE
S9R90GC-ECE
S9R90GE-E
S9R90GE-ECE

**CW,CCW**



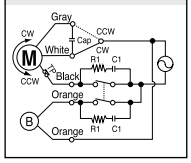

S9R90GB-E
S9R90GD-E

**CW,CCW**



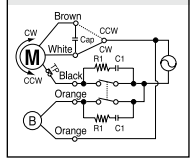

S9R90GB-ECE
S9R90GD-ECE

**CW,CCW**



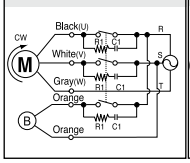

S9R90GX-E
S9R90GX-ECE

**CW,CCW**

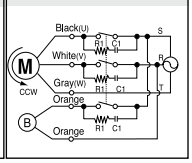



S9I90GU-E
S9I90GT-E

**CW**

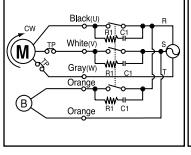



**CCW**

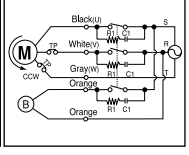



S9I90GU-ECE
S9I90GT-ECE

**CW**

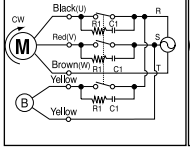



**CCW**

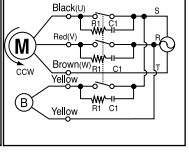



S9I90GS-E
S9I90GS-ECE

**CW**




**CCW**




$R_1$ = 10 ~ 200 Ω (Min.1/4 W)
$C_1$ = 0.1 ~ 0.33 μF (AC125WV or AC250WV)

# TERMINAL BOX TYPE MOTORS

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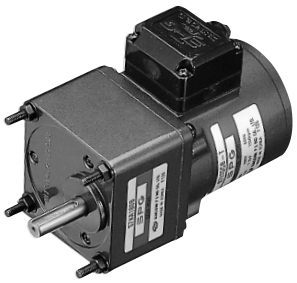
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TERMINAL BOX TYPE INDUCTION, REVERSIBLE MOTOR 150W(□90㎜) ..... 134




# CHARACTERISTICS OF TERMINAL BOX TYPE INDUCTION, REVERSIBLE MOTORS



## 1. Characteristics of Terminal Box Type Motors

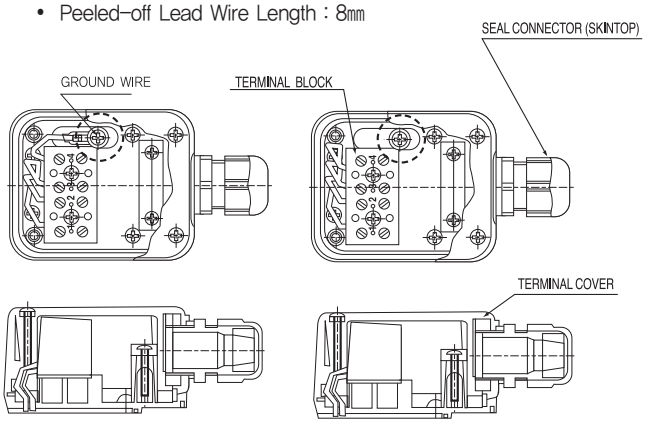
- The motor's charging section including leadwire is made airtight by the terminal box to provide the protection from dust and moisture.
- Therefore, the motor can be used in harsh environment.
- And the motor is made completely airtight with a gasket.
- The classification of the device protection structure for the skintop terminal box type motor is IP54.
- SPG has two terminal box types; Skintop terminal box type and cord bush terminal box type
- The motor features a compact design.
- The ground terminal is attached to the motor. However, the cord bush terminal box type of the single-phase induction motor does not have a built-in ground inside the terminal box. Before use, install the ground at the outside of the motor.
- Since the motor is structured to make piping work easier, it is excellent in connection work. The cable is firmly fixed to provide strong tension when wiring the cable. When using a cap tire cable, it is recommended to use a cable having an outside diameter of Ø6~Ø12.
- The terminal box cover is made of PC resin which is excellent in insulation and stiffness.
- The terminal block uses a VDE certified product that provides high reliability.
- AWG NO. 24~AWG No.10(0.25㎟ ~4.0㎟) shall be used for the lead wire, and the peeled-off lead wire shall be about 8㎜.

## 2. Diagram of Terminal Box Structure

### (1) TERMINAL BLOCK BOX TYPE (T TYPE)

#### 1) □80 15W ~ □90 90W

- Material of Terminal Box : Aluminum
- Applicable Cable Diameter : Ø6~Ø12
- Applicable Lead Wire : AWG 24~12(0.2~4.0㎟)
- Peeled-off Lead Wire Length : 8㎜

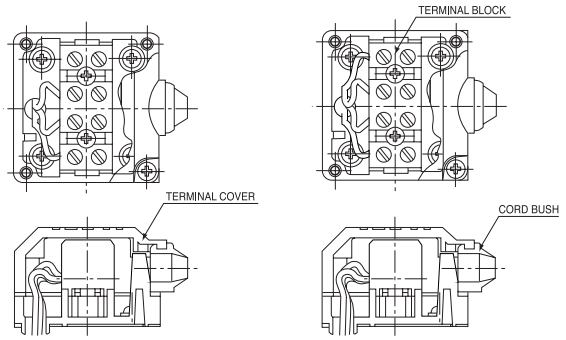



In case of Single-phase Reversible Motor
In case of Three-phase Reversible Motor

In case of Single-phase Induction Motor

#### 2) □60 6W ~ □70 15W

- Material of Terminal Box : Plastic
- Applicable Cable Diameter : Ø6.8 ~ Ø8.6

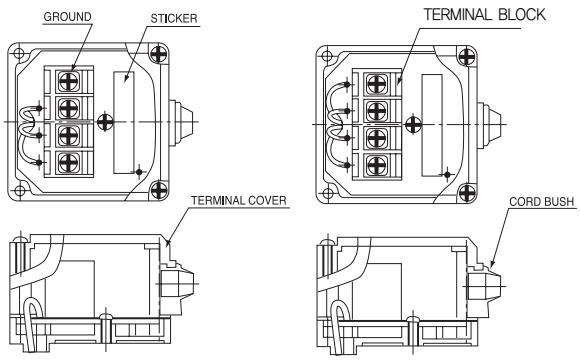



In case of Single-phase Reversible Motor

In case of Single-phase Induction Motor

### (2) PCB TERMINAL BOX TYPE (T1 TYPE) : □80 25W ~ □90 90W

- Material of Terminal Box : Plastic
- Applicable Cable Diameter: : Ø6.8 ~ Ø8.6




In case of Single-phase Reversible Motor
In case of Three-phase Induction Motor

In case of Single-phase Induction Motor

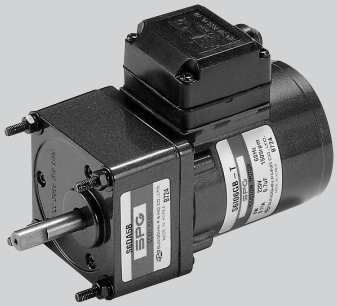
### (3) CONDUIT BOX TYPE (T2 TYPE) : □80 25W ~ □90 90W

## 3. External Structure of Motor

- The reversible motor for CE mark has a cover 'A' assembled to the back side of the motor to improve dust-proof and water-proof. (Refer to the figure in page 65)
- As a result, the motor is 4.0mm longer than induction motor lengthwise, which requires the user's attention.

**GENERAL SPECIFICATION OF TERMINAL BOX TYPE MOTORS**

| ITEM | Specification |
|---|---|
| Insulation Resistance | 100㏁ or more when 500V megger is applied between the windings and the housing after rated motor operation under normal ambient temperature and humidity |
| Dielectric Strength | Sufficient to withstand 1500V at 50/60㎐ applied between the windings and the case after rated motor operation under normal ambient temperature and humidity for 1min. |
| Temperature Rise | 80℃ or less increase measured by thermometer after rated operation. |
| Insulation Class | Class B(130℃) |
| Overheat Protection Device | Built-in thermal protector (automatic return type)<br>: Open 120℃±5℃ Close 76℃±15℃ |
| Ambient Temperature | -10℃ ~ 40℃ |
| Ambient Humidity | 85% maximum(non condensing) |



# 6W

## INDUCTION MOTOR, REVERSIBLE MOTOR
## □60㎜ TERMINAL BOX TYPE

### INDUCTION MOTOR - CONTINUOUS RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 60 | S6I06GA-T | 4 | 6 | 1Ø 110 | 60 | Cont. | 0.20 | 1550 | 0.40 | 0.040 | 0.55 | 0.055 | 2.5 |
| | S6I06GB-T | 4 | 6 | 1Ø 220 | 60 | Cont. | 0.10 | 1550 | 0.40 | 0.040 | 0.55 | 0.055 | 0.7 |
| | S6I06GC-T | 4 | 6 | 1Ø 100 | 50 | Cont. | 0.21 | 1200 | 0.50 | 0.050 | 0.45 | 0.045 | 2.5 |
| | | | | | 60 | | 0.19 | 1500 | 0.42 | 0.042 | | | |
| | S6I06GD-T | 4 | 6 | 1Ø 200 | 50 | Cont. | 0.10 | 1200 | 0.50 | 0.050 | 0.45 | 0.045 | 0.7 |
| | | | | | 60 | | | 1500 | 0.42 | 0.042 | | | |
| | S6I06GE-T | 4 | 6 | 1Ø 100 | 50 | Cont. | 0.18 | 1200 | 0.50 | 0.050 | 0.52 | 0.052 | 2.5 |
| | | | | | 60 | | 0.19 | 1500 | 0.42 | 0.042 | | | |
| | | | | 1Ø 115 | 60 | | 0.19 | 1500 | 0.42 | 0.042 | 0.55 | 0.055 | 2.0 |
| | S6I06GX-T<br>S6I06GX-TCE | 4 | 6 | 1Ø 220 | 50 | Cont. | 0.08 | 1200 | 0.50 | 0.050 | 0.50 | 0.050 | 0.6 |
| | | | | 1Ø 240 | | | 0.09 | | 0.53 | 0.053 | 0.55 | 0.055 | |

❖ Appropriate capacitors shall be used according to the voltage for S6I06GE-T type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of the model name indicates that it is impedance protected type which has received CE.
❖ "L" or "H" type does not apply to motors under 40W.

### REVERSIBLE MOTOR - 30MINUTES RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 60 | S6R06GA-T<br>S6R06GA-TCE | 4 | 6 | 1Ø 110 | 60 | 30min. | 0.22 | 1550 | 0.40 | 0.040 | 0.60 | 0.060 | 3.0 |
| | S6R06GB-T<br>S6R06GB-TCE | 4 | 6 | 1Ø 220 | 60 | 30min. | 0.11 | 1550 | 0.40 | 0.040 | 0.60 | 0.060 | 0.8 |
| | S6R06GC-T | 4 | 6 | 1Ø 100 | 50 | 30min. | 0.21 | 1200 | 0.50 | 0.050 | 0.45 | 0.045 | 3.0 |
| | S6R06GC-TCE | | | | 60 | | | 1500 | 0.42 | 0.042 | | | |
| | S6R06GD-T | 4 | 6 | 1Ø 200 | 50 | 30min. | 0.10 | 1200 | 0.45 | 0.045 | 0.53 | 0.053 | 0.8 |
| | S6R06GD-TCE | | | | 60 | | | 1500 | 0.42 | 0.042 | | | |
| | S6R06GE-T | 4 | 6 | 1Ø 100 | 50 | 30min. | 0.19 | 1200 | 0.50 | 0.050 | 0.52 | 0.052 | 3.5 |
| | S6R06GE-TCE | | | | 60 | | 0.22 | 1500 | 0.30 | 0.030 | | | |
| | | | | 1Ø 115 | 60 | | 0.18 | 1500 | 0.42 | 0.042 | 0.50 | 0.050 | 2.3 |
| | S6R06GX-T | 4 | 6 | 1Ø 220 | 50 | 30min. | 0.09 | 1200 | 0.47 | 0.047 | 0.50 | 0.050 | 0.7 |
| | S6R06GX-TCE | | | 1Ø 240 | | | 0.10 | | 0.50 | 0.050 | 0.55 | 0.055 | |

❖ Appropriate capacitors shall be used according to the voltage for S6R06GE-T type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of the model name indicates that it is impedance protected type which has received CE.
S6R06GE-TCE is available only for 115V specification.
❖ Above data is measured with friction brake mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DA□B | kg-cm | 1.3 | 1.5 | 2.1 | 2.6 | 3.2 | 3.9 | 4.3 | 5.4 | 6.4 | 7.7 | 7.7 | 9.7 | 11.6 | 13.9 | 15.5 | 17.5 | 21.0 | 26.2 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.127 | 0.147 | 0.206 | 0.255 | 0.314 | 0.382 | 0.421 | 0.529 | 0.627 | 0.755 | 0.755 | 0.951 | 1.137 | 1.362 | 1.519 | 1.715 | 2.058 | 2.568 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

## 60Hz

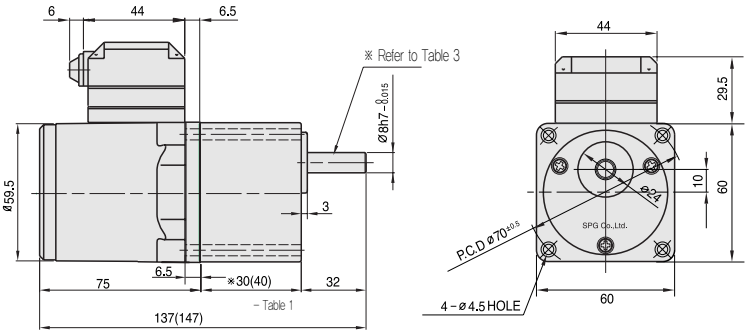
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DA□B | kg-cm | 1.0 | 1.3 | 1.7 | 2.1 | 2.6 | 3.1 | 3.5 | 4.4 | 5.2 | 6.3 | 6.3 | 7.8 | 9.4 | 11.3 | 12.6 | 14.2 | 17.0 | 21.3 | 25.5 | 28.4 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.098 | 0.127 | 0.167 | 0.206 | 0.255 | 0.304 | 0.343 | 0.431 | 0.510 | 0.617 | 0.617 | 0.764 | 0.921 | 1.107 | 1.235 | 1.392 | 1.666 | 2.087 | 2.499 | 2.783 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 30 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

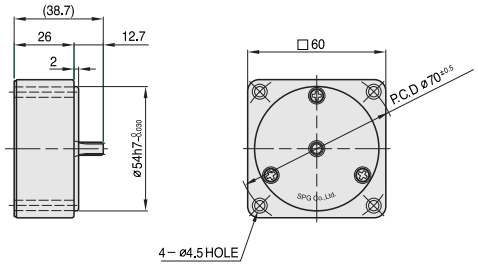
## GEARED MOTOR

※MOTOR MODEL : S6(I,R)06G□-T
※HEAD MODEL : S6□A3□~S6□A250□



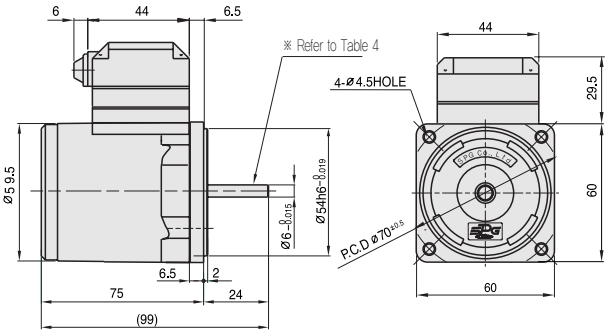

## INTER-DECIMAL GEAR HEAD

※MODEL : S6GX10B




## MOTOR

※MOTOR MODEL : S6(I,R)06□□-T



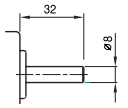
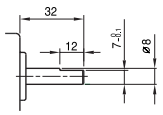
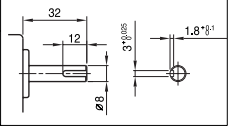

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S6□A3□ ~ S6□A18□ | 30 |
| S6□A20□ ~ S6□A250□ | 40 |

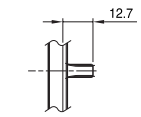
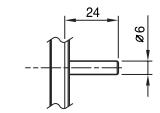
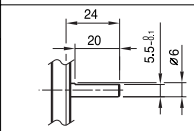
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 0.76 |
| REVERSIBLE MOTOR | | 0.77 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□A3□ ~S6□A18□ | 0.24 |
| | S6□A20□ ~S6□A40□ | 0.30 |
| | S6□A50□ ~S6□A250□ | 0.33 |

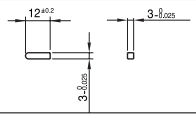
## SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S6SA3□ ~S6SA250□ |  |
| D-CUT TYPE<br>S6DA3□ ~S6DA250□ |  |
| KEY TYPE<br>S6KA3□ ~S6KA250□ |  |

## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S6(I,R)06G□-T |  |
| STRAIGHT TYPE<br>S6(I,R)06S□-T |  |
| D-CUT TYPE<br>S6(I,R)06S□-T |  |

## KEY SPEC

| GEAR HEAD |
|---|
|  |

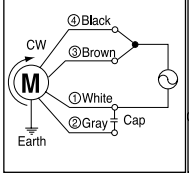
# SCHEMATIC DIAGRAMS

The direction of motor rotation is as viewed from the front shaft end of the motor.
Circled number is the terminal number inside terminal box.

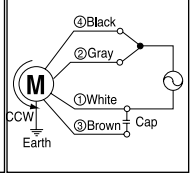
■INDUCTION MOTOR

S6I06GA-T S6I06GB-T
S6I06GC-T S6I06GD-T
S6I06GE-T

**CW**

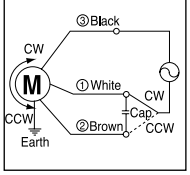



**CCW**




S6I06GX-TCE
S6I06GX-T

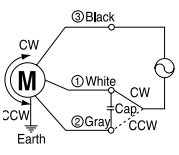
**CW,CCW**




■REVERSIBLE MOTOR

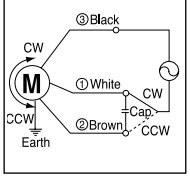
S6R06GA-T S6R06GB-T
S6R06GC-T S6R06GD-T
S6R06GA-TCE S6R06GB-TCE S6R06GC-TCE
S6R06GD-TCE S6R06GE-T S6R06GE-TCE

**CW,CCW**

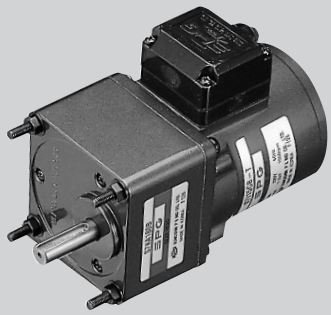



S6R06GX-TCE
S6R06GX-T

**CW,CCW**




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



# 15W

## INDUCTION MOTOR, REVERSIBLE MOTOR
## □70㎜ TERMINAL BOX TYPE

### INDUCTION MOTOR - CONTINUOUS RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 70 | S7I15GA-T | 4 | 15 | 1Ø 110 | 60 | Cont. | 0.34 | 1600 | 1.00 | 0.100 | 1.10 | 0.110 | 5.0 |
| | S7I15GB-T | 4 | 15 | 1Ø 220 | 60 | Cont. | 0.19 | 1550 | 1.10 | 0.110 | 1.10 | 0.110 | 1.2 |
| | S7I15GC-T | 4 | 15 | 1Ø 100 | 50 | Cont. | 0.35 | 1250 | 1.20 | 0.120 | 0.90 | 0.090 | 5.0 |
| | | | | | 60 | | 0.34 | 1550 | 1.00 | 0.100 | | | |
| | S7I15GD-T | 4 | 15 | 1Ø 200 | 50 | Cont. | 0.19 | 1200 | 1.25 | 0.125 | 0.90 | 0.090 | 1.2 |
| | | | | | 60 | | 0.18 | 1500 | 1.20 | 0.120 | | | |
| | S7I15GX-T | 4 | 15 | 1Ø 220 | 50 | Cont. | 0.16 | 1200 | 1.25 | 0.125 | 0.75 | 0.075 | 0.9 |
| | S7I15GX-TCE | | | 1Ø 240 | | | 0.18 | | 1.35 | 0.135 | 0.90 | 0.090 | |

❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE with built-in TP.
❖ TP marked at the end of the modelname indicates that it is standard motor with Thermal Protector mounted.
S7I15GX-T is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

### REVERSIBLE MOTOR - 30MINUTES RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 70 | S7R15GA-T<br>S7R15GA-T(TP)<br>S7R15GA-TCE | 4 | 15 | 1Ø 110 | 60 | 30min. | 0.44 | 1550 | 1.0 | 0.100 | 1.10 | 0.110 | 6.0 |
| | S7R15GB-T<br>S7R15GB-T(TP)<br>S7R15GB-TCE | 4 | 15 | 1Ø 220 | 60 | 30min. | 0.22 | 1550 | 1.0 | 0.100 | 1.10 | 0.110 | 1.5 |
| | S7R15GC-T<br>S7R15GC-T(TP)<br>S7R15GC-TCE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.42 | 1200 | 1.25 | 0.125 | 0.90 | 0.090 | 6.0 |
| | | | | | 60 | | | 1500 | 1.0 | 0.100 | | | |
| | S7R15GD-T<br>S7R15GD-T(TP)<br>S7R15GD-TCE | 4 | 15 | 1Ø 200 | 50 | 30min. | 0.21 | 1200 | 1.25 | 0.125 | 0.90 | 0.090 | 1.5 |
| | | | | | 60 | | | 1500 | 1.0 | 0.100 | | | |
| | S7R15GE-T<br>S7R15GE-TCE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.37 | 1200 | 1.25 | 0.125 | 0.95 | 0.095 | 6.0 |
| | | | | | 60 | | 0.41 | 1500 | 1.0 | 0.100 | | | |
| | | | | 1Ø 115 | 60 | | 0.35 | 1550 | 1.0 | 0.100 | | | 4.5 |
| | S7R15GX-T<br>S7R15GX-TCE | 4 | 15 | 1Ø 220 | 50 | 30min. | 0.17 | 1200 | 1.25 | 0.125 | 0.9 | 0.090 | 1.2 |
| | | | | 1Ø 240 | | | 0.18 | | 1.45 | 0.145 | 1.1 | 0.110 | |

❖ Appropriate capacitors shall be used according to the voltage for S7R15GE-T type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE. S7R15GE-TCE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S7R15GE-T, S7R15GX-T is thermally protected type with TP mounted.
❖ Above data is measured with friction brake mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S7KA□B | kg-cm | 3.2 | 3.9 | 5.4 | 6.5 | 8.1 | 9.7 | 10.8 | 13.5 | 16.2 | 19.4 | 19.4 | 24.2 | 29.1 | 34.9 | 38.8 | 43.6 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.314 | 0.382 | 0.530 | 0.637 | 0.794 | 0.951 | 1.059 | 1.324 | 1.587 | 1.902 | 1.902 | 2.373 | 2.854 | 3.423 | 3.805 | 4.276 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

## 60Hz

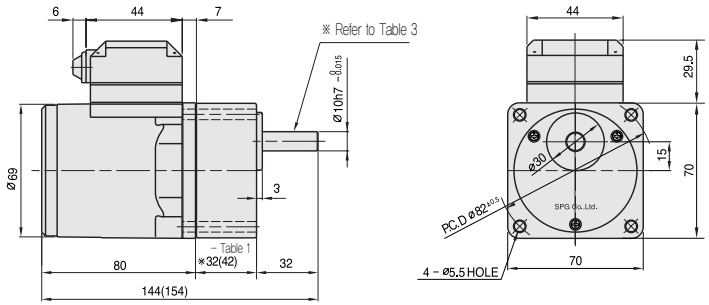
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S7KA□B | kg-cm | 3.0 | 3.6 | 5.1 | 6.1 | 7.6 | 9.1 | 10.1 | 12.7 | 15.2 | 18.2 | 18.2 | 22.8 | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.294 | 0.353 | 0.500 | 0.598 | 0.745 | 0.892 | 0.990 | 1.245 | 1.491 | 1.785 | 1.785 | 2.236 | 2.677 | 3.217 | 3.579 | 4.021 | 4.825 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 50 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

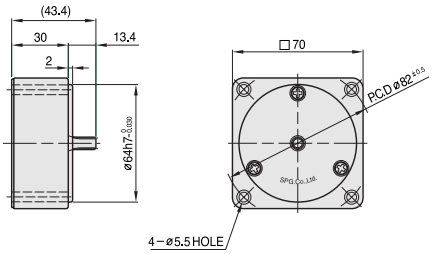
## GEARED MOTOR

※MOTOR MODEL : S7(I,R)15G□-T
※HEAD MODEL : S7□A3□~S7□A200□



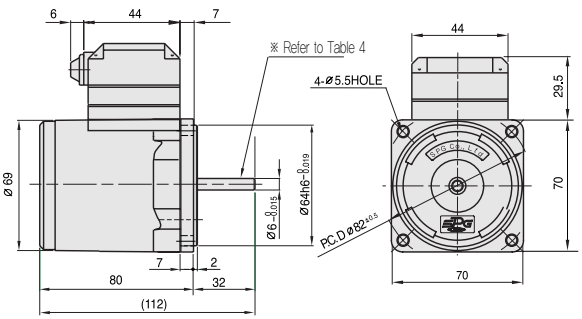

## NTER-DECIMAL GEAR HEAD

※MODEL : S7GX10B




## MOTOR

※MOTOR MODEL : S7(I,R)15□□-T



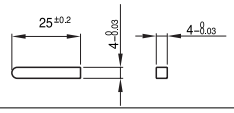

## ※26(35) – (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S7□A3□ ~ S7□A18□ | 32 |
| S7□A20□ ~ S7□A200□ | 42 |

## WEIGHT – (Table2)

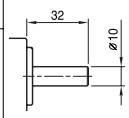
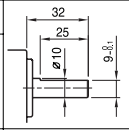
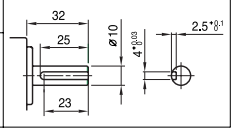
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.10 |
| DECIMAL GEAR HEAD | | 1.11 |
| GEAR HEAD | S7□A3□ ~S7□A18□ | 0.38 |
| | S7□A20□ ~S7□A40□ | 0.47 |
| | S7□A50□ ~S7□A250□ | 0.52 |

## KEY SPEC

| GEAR HEAD |
|---|
|  |

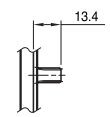
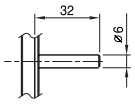
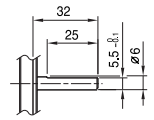


## SPEC for output shaft of gearhead – (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S7SA3□<br>~S7SA200□ |  |
| D-CUT TYPE<br>S7DA3□<br>~S7DA200□ |  |
| KEY TYPE<br>S7KA3□<br>~S7KA200□ |  |



## SPEC for output shaft of motor – (Table4)

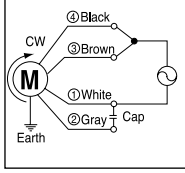
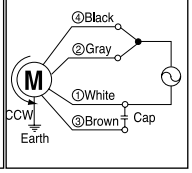
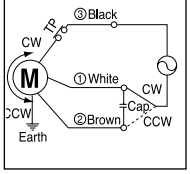
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S7(I,R)15G□-T |  |
| STRAIGHT TYPE<br>S7(I,R)15S□-T |  |
| D-CUT TYPE<br>S7(I,R)15D□-T |  |



# SCHEMATIC DIAGRAMS

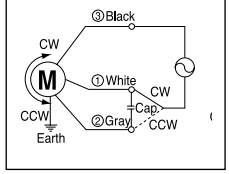
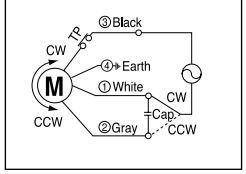
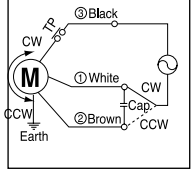
The direction of motor rotation is as viewed from the front shaft end of the motor.
Circled number is the terminal number inside terminal box.

■ INDUCTION MOTOR

| S7I15GA-T S7I15GB-T<br>S7I15GC-T S7I15GD-T | | S7I15GX-TCE<br>S7I15GX-T |
|---|---|---|
| **CW** | **CCW** | **CW,CCW** |
|  |  |  |



■ REVERSIBLE MOTOR

| S7R15GA-T S7R15GB-T<br>S7R15GC-T S7R15GD-T | S7R15GA-TCE S7R15GB-TCE<br>S7R15GC-TCE S7R15GD-TCE<br>S7R15GE-T S7R15GE-TCE | S7R15GX-TCE<br>S7R15GX-T |
|---|---|---|
| **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |



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



# 15W

## INDUCTION MOTOR, REVERSIBLE MOTOR
## □80㎜ TERMINAL BOX TYPE

## INDUCTION MOTOR - CONTINUOUS RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8I15GA-T<br>S8I15GA-T1 | 4 | 15 | 1Ø 110 | 60 | Cont. | 0.43 | 1600 | 1.00 | 0.100 | 1.20 | 0.120 | 4.0 |
| | S8I15GB-T<br>S8I15GB-T1 | 4 | 15 | 1Ø 220 | 60 | Cont. | 0.22 | 1600 | 1.00 | 0.100 | 1.20 | 0.120 | 1.0 |
| | S8I15GC-T<br>S8I15GC-T1 | 4 | 15 | 1Ø 100 | 50 | Cont. | 0.51 | 1300 | 1.20 | 0.120 | 0.95 | 0.095 | 4.0 |
| | | | | | 60 | | 0.43 | 1550 | 1.00 | 0.100 | | | |
| | S8I15GD-T<br>S8I15GD-T1 | 4 | 15 | 1Ø 200 | 50 | Cont. | 0.25 | 1300 | 1.20 | 0.120 | 0.95 | 0.095 | 1.0 |
| | | | | | 60 | | 0.22 | 1550 | 1.00 | 0.100 | | | |
| | S8I15GX-T<br>S8I15GX-T<br>S8I15GX-TCE<br>S8I15GX-T1CE | 4 | 15 | 1Ø 220 | 50 | Cont. | 0.16 | 1200 | 1.30 | 0.130 | 0.95 | 0.095 | 1.0 |
| | | | | 1Ø 240 | | | 0.17 | | 1.40 | 0.140 | 1.10 | 0.110 | |

❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE with built-in TP.
❖ TP marked at the end of the modelname indicates that it is standard motor with Thermal Protector mounted.
S8I15GX-T is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## REVERSIBLE MOTOR - 30MINUTES RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8R15GA-T<br>S8R15GA-T1<br>S8R15GA-T(TP)<br>S8R15GA-T1(TP)<br>S8R15GA-TCE<br>S8R15GA-T1CE | 4 | 15 | 1Ø 110 | 60 | 30min. | 0.49 | 1550 | 1.00 | 0.100 | 1.20 | 0.120 | 6.0 |
| | S8R15GB-T<br>S8R15GB-T1<br>S8R15GB-T(TP)<br>S8R15GB-T1(TP)<br>S8R15GB-TCE<br>S8R15GB-TCE1 | 4 | 15 | 1Ø 220 | 60 | 30min. | 0.25 | 1550 | 1.00 | 0.100 | 1.20 | 0.120 | 1.5 |
| | S8R15GC-T<br>S8R15GC-T1<br>S8R15GC-T(TP)<br>S8R15GC-T(TP)1<br>S8R15GC-TCE<br>S8R15GC-T1CE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.58 | 1200 | 1.30 | 0.130 | 0.95 | 0.095 | 6.0 |
| | | | | | 60 | | 0.48 | 1500 | 1.10 | 0.110 | | | |
| | S8R15GD-T<br>S8R15GD-T1<br>S8R15GD-T(TP)<br>S8R15GD-T1(TP)<br>S8R15GD-TCE<br>S8R15GD-T1CE | 4 | 15 | 1Ø 200 | 50 | 30min. | 0.29 | 1200 | 1.30 | 0.130 | 0.95 | 0.095 | 1.5 |
| | | | | | 60 | | 0.25 | 1500 | 1.10 | 0.110 | | | |
| | S8R15GE-T<br>S8R15GE-T1<br>S8R15GE-TCE<br>S8R15GE-T1CE | 4 | 15 | 1Ø 100 | 50 | 30min. | 0.59 | 1250 | 1.30 | 0.130 | 0.95 | 0.095 | 6.0 |
| | | | | | 60 | | 0.48 | 1550 | 1.20 | 0.120 | | | |
| | | | | 1Ø 115 | 60 | | 0.52 | 1600 | 1.10 | 0.110 | | | 4.5 |
| | S8R15GX-T<br>S8R15GX-T1<br>S8R15GX-TCE<br>S8R15GX-T1CE | 4 | 15 | 1Ø 220 | 50 | 30min. | 0.16 | 1200 | 1.30 | 0.130 | 1.10 | 0.110 | 1.2 |
| | | | | 1Ø 240 | | | 0.18 | | 1.40 | 0.140 | 1.30 | 0.130 | |

❖ Appropriate capacitors shall be used according to the voltage for S8R15GE-T type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE. S8R15GE-TCE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8R15GE-T, S8R15GX-T is thermally protected type with TP mounted.
❖ Above data is measured with friction brake mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 3.4 | 4.1 | 5.7 | 6.8 | 8.5 | 10.2 | 11.3 | 14.2 | 17.0 | 20.4 | 20.4 | 25.6 | 30.7 | 36.8 | 40.9 | 46.2 | 55.4 | 69.2 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N·m | 0.333 | 0.402 | 0.559 | 0.666 | 0.833 | 1.000 | 1.107 | 1.392 | 1.666 | 1.999 | 1.999 | 2.509 | 3.009 | 3.606 | 4.008 | 4.530 | 5.433 | 6.786 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

## 60Hz

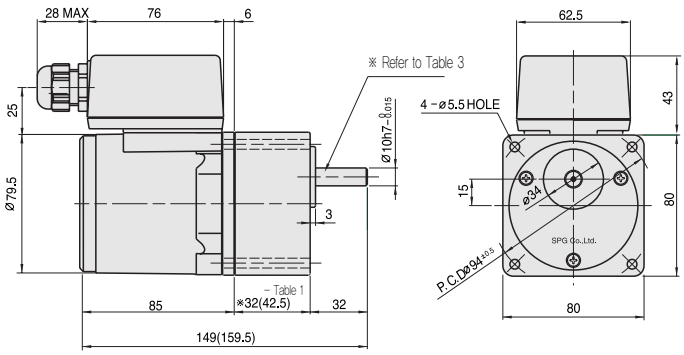
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 2.9 | 3.5 | 4.9 | 5.8 | 7.3 | 8.7 | 9.7 | 12.2 | 14.6 | 17.5 | 17.5 | 21.9 | 26.3 | 31.5 | 35.0 | 39.6 | 47.5 | 59.4 | 71.3 | 79.2 | 80 | 80 | 80 | 80 |
| | N·m | 0.284 | 0.343 | 0.481 | 0.568 | 0.715 | 0.853 | 0.951 | 1.196 | 1.432 | 1.715 | 1.715 | 2.146 | 2.577 | 3.087 | 3.430 | 3.881 | 4.658 | 5.825 | 6.992 | 7.767 | 7.840 | 7.840 | 7.840 | 7.840 |

- ❖ The code in □ of gearhead model is for gear ratio.
- ❖ It is the permissible torque of the assembled motor and gearhead.
- ❖ The permissible torque of the motor and inter-decimal gearhead is 80g-cm.
- ❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
- ❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
- ❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

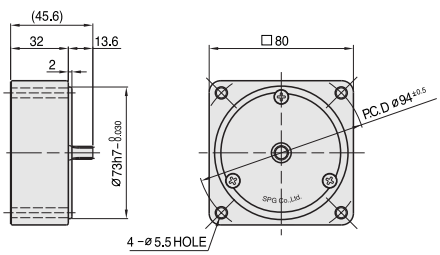
### ✚ GEARED MOTOR

※MOTOR MODEL : S8(I,R)15G□-T
※HEAD MODEL : S8□A3□~S8□A200□



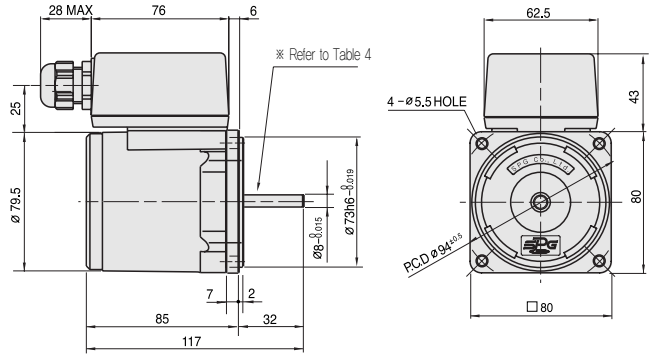

### ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B




### ✚ MOTOR

※MOTOR MODEL : S6R06□□-E



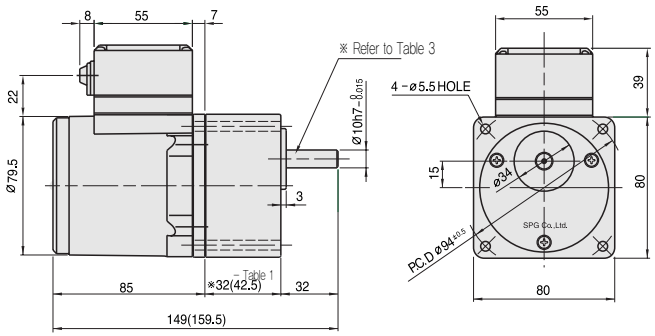

### ✚ WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.30 |
| REVERSIBLE MOTOR | | 1.60 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

# DIMENSIONS

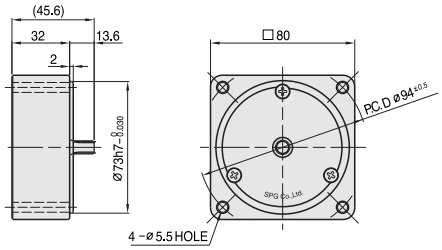
## GEARED MOTOR

※MOTOR MODEL : S8(I,R)15G□-T1
※HEAD MODEL : S8□A3□~S8□A200□



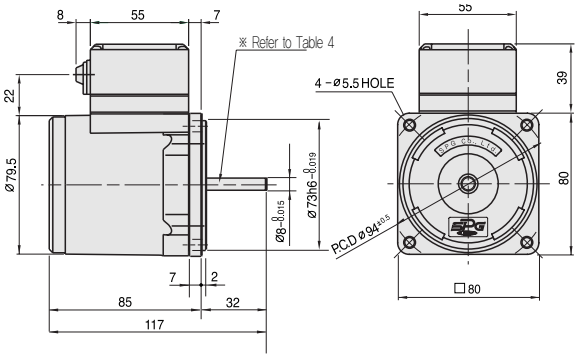

## INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B




## MOTOR

※MOTOR MODEL : S8(I,R)15□□-T1



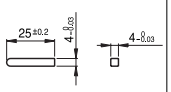
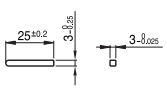

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

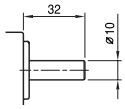
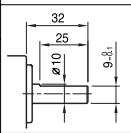
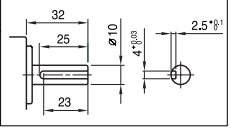
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.25 |
| REVERSIBLE MOTOR | | 0.55 |
| DECIMAL GEAR HEAD | | 1.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

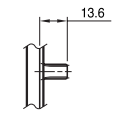
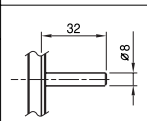
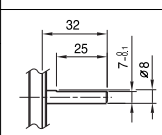
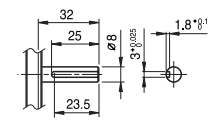
## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□ ~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□ ~S8DA200□ |  |
| KEY TYPE<br>S8KA3□ ~S8KA200□ |  |

## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8(I,R)15G□-T<br>S8(I,R)15G□-T1 |  |
| STRAIGHT TYPE<br>S8(I,R)15S□-T<br>S8(I,R)15S□-T1 |  |
| D-CUT TYPE<br>S8(I,R)15D□-T<br>S8(I,R)15D□-T1 |  |
| KEY TYPE<br>S8(I,R)15K□-T<br>S8(I,R)15K□-T1 |  |

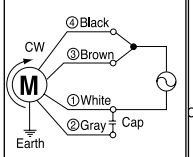
# SCHEMATIC DIAGRAMS

The direction of motor rotation is as viewed from the front shaft end of the motor.
Circled number is the terminal number inside terminal box.

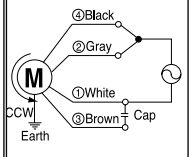
## ■ INDUCTION MOTOR

S8I15GA-T S8I15GB-T
S8I15GA-T1 S8I15GB-T1
S8I15GC-T S8I15GD-T
S8I15GC-T1 S8I15GD-T1

**CW**

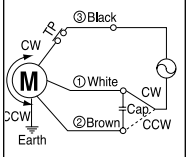



**CCW**




S8I15GX-T
S8I15GX-T1
S8I15GX-TCE
S8I15GX-T1CE

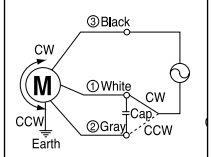
**CW,CCW**




## ■ REVERSIBLE MOTOR

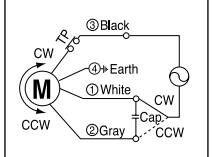
S8R15GA-T S8R15GC-T
S8R15GD-T S8R15GA-T1
S8R15GB-T S8R15GC-T1
S8R15GD-T1 S8R15GB-T1

**CW,CCW**



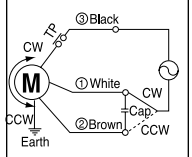

S8R15GA-TCE S8R15GB-TCE
S8R15GC-TCE S8R15GD-TCE
S8R15GE-T S8R15GE-TCE
S8R15GA-T1CE S8R15GB-T1CE
S8R15GC-T1CE S8R15GD-T1CE
S8R15GE-T1 S8R15GE-T1CE

**CW,CCW**




S8R15GX-TCE
S8R15GX-T1CE
S8R15GX-T
S8R15GX-T1

**CW,CCW**




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



# 25W

## INDUCTION MOTOR, REVERSIBLE MOTOR
## □80㎜ TERMINAL BOX TYPE

### INDUCTION MOTOR - CONTINUOUS RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8I25GA-T<br>S8I25GA-T1 | 4 | 25 | 1Ø 110 | 60 | Cont. | 0.51 | 1600 | 1.60 | 0.160 | 1.80 | 0.180 | 6.0 |
| | S8I25GB-T<br>S8I25GB-T1 | 4 | 25 | 1Ø 220 | 60 | Cont. | 0.23 | 1550 | 1.65 | 0.165 | 1.80 | 0.180 | 1.5 |
| | S8I25GC-T<br>S8I25GC-T1 | 4 | 25 | 1Ø 100 | 50 | Cont. | 0.57 | 1250 | 2.00 | 0.200 | 1.45 | 0.145 | 6.0 |
| | | | | | 60 | | 0.52 | 1550 | 1.65 | 0.165 | | | |
| | S8I25GD-T<br>S8I25GD-T1 | 4 | 25 | 1Ø 200 | 50 | Cont. | 0.30 | 1250 | 2.00 | 0.200 | 1.45 | 0.145 | 1.5 |
| | | | | | 60 | | 0.29 | 1500 | 1.70 | 0.170 | | | |
| | S8I25GX-T<br>S8I25GX-T1<br>S8I25GX-TCE<br>S8I25GX-T1CE | 4 | 25 | 1Ø 220 | 50 | Cont. | 0.23 | 1200 | 2.10 | 0.210 | 1.10 | 0.110 | 1.3 |
| | | | | 1Ø 240 | | | 0.25 | | 2.20 | 0.220 | 1.30 | 0.180 | |
| | S8I25GU-T<br>S8I25GU-T1<br>S8I25GU-TCE<br>S8I25GU-T1CE | 4 | 25 | 3Ø 200 | 50 | Cont. | 0.26 | 1300 | 1.95 | 0.195 | 3.50 | 0.350 | – |
| | | | | | 60 | | 0.24 | 1550 | 1.65 | 0.165 | 2.90 | 0.290 | |
| | S8I25GT-T<br>S8I25GT-T1<br>S8I25GT-TCE<br>S8I25GT-T1CE | 4 | 25 | 3Ø 220 | 50 | Cont. | 0.28 | 1350 | 1.90 | 0.190 | 4.20 | 0.420 | – |
| | | | | | 60 | | 0.24 | 1600 | 1.60 | 0.160 | 3.50 | 0.350 | |
| | S8I25GS-T<br>S8I25GS-T1<br>S8I25GS-TCE<br>S8I25GS-T1CE | 4 | 25 | 3Ø 380 | 50 | Cont. | 0.14 | 1250 | 2.00 | 0.200 | 3.15 | 0.315 | – |
| | | | | | 60 | | 0.12 | 1500 | 1.70 | 0.170 | 2.50 | 0.250 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.14 | 1250 | 2.10 | 0.210 | 3.50 | 0.350 | |
| | | | | | 60 | | 0.12 | 1500 | 1.80 | 0.180 | 2.75 | 0.275 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.15 | 1300 | 1.95 | 0.195 | 3.75 | 0.375 | |
| | | | | | 60 | | 0.13 | 1550 | 1.65 | 0.165 | 3.00 | 0.300 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.15 | 1300 | 2.10 | 0.210 | 4.40 | 0.440 | |
| | | | | | 60 | | 0.13 | 1550 | 1.80 | 0.180 | 3.40 | 0.340 | |

❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE with built-in TP.

❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8I25GX-T, S8I25GS-T is thermally protected type with TP mounted.

❖ "L" or "H" type does not apply to motors under 40W.

❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## REVERSIBLE MOTOR - 30MINUTES RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 80 | S8R25GA-T<br>S8R25GA-T<br>S8R25GA-T(TP)<br>S8R25GA-T1(TP)<br>S8R25GA-TCE<br>S8R25GA-T1CE | 4 | 25 | 1 Ø 110 | 60 | 30min. | 0.71 | 1550 | 1.70 | 0.170 | 2.30 | 0.230 | 10.0 |
| | S8R25GB-T<br>S8R25GB-T<br>S8R25GB-T(TP)<br>S8R25GB-T1(TP)<br>S8R25GB-TCE<br>S8R25GB-T1CE | 4 | 25 | 1 Ø 220 | 60 | 30min. | 0.35 | 1600 | 1.65 | 0.165 | 2.30 | 0.230 | 2.5 |
| | S8R25GC-T<br>S8R25GC-T<br>S8R25GC-T(TP)<br>S8R25GC-T1(TP)<br>S8R25GC-TCE<br>S8R25GC-T1CE | 4 | 25 | 1 Ø 100 | 50 | 30min. | 0.63 | 1250 | 2.10 | 0.210 | 1.80 | 0.180 | 10.0 |
| | | | | | 60 | | 0.70 | 1500 | 1.70 | 0.170 | | | |
| | S8R25GD-T<br>S8R25GD-T<br>S8R25GD-T(TP)<br>S8R25GD-T1(TP)<br>S8R25GD-TCE<br>S8R25GD-T1CE | 4 | 25 | 1 Ø 200 | 50 | 30min. | 0.33 | 1250 | 2.10 | 0.210 | 1.80 | 0.180 | 2.5 |
| | | | | | 60 | | | 1550 | 1.70 | 0.170 | | | |
| | S8R25GE-T<br>S8R25GE-T<br>S8R25GE-TCE<br>S8R25GE-T1CE | 4 | 25 | 1 Ø 100 | 50 | 30min. | 0.60 | 1250 | 2.10 | 0.210 | 1.30 | 0.130 | 8.0 |
| | | | | | 60 | | 0.65 | 1450 | 1.80 | 0.180 | | | |
| | | | | 1 Ø 115 | 60 | | 0.63 | 1550 | 1.70 | 0.170 | | | 7.0 |
| | S8R25GX-T<br>S8R25GX-T<br>S8R25GX-TCE<br>S8R25GX-T1CE | 4 | 25 | 1 Ø 220 | 50 | 30min. | 0.26 | 1200 | 2.00 | 0.200 | 1.70 | 0.170 | 2.0 |
| | | | | 1 Ø 240 | | | 0.28 | | 2.20 | 0.220 | 2.20 | 0.220 | |

❖ Appropriate capacitors shall be used according to the voltage for S8R25GE-T type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE. S8R25GE-TCE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S8R25GE-T, S8R25GX-T is thermally protected type with TP mounted.
❖ Above data is measured with friction brake mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 5.3 | 6.4 | 8.9 | 10.7 | 13.4 | 16.0 | 17.8 | 22.3 | 26.7 | 32.1 | 32.1 | 40.2 | 48.2 | 57.8 | 64.2 | 72.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.519 | 0.627 | 0.872 | 1.049 | 1.313 | 1.568 | 1.744 | 2.185 | 2.617 | 3.146 | 3.146 | 3.940 | 4.724 | 5.664 | 6.292 | 7.115 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

## 60Hz

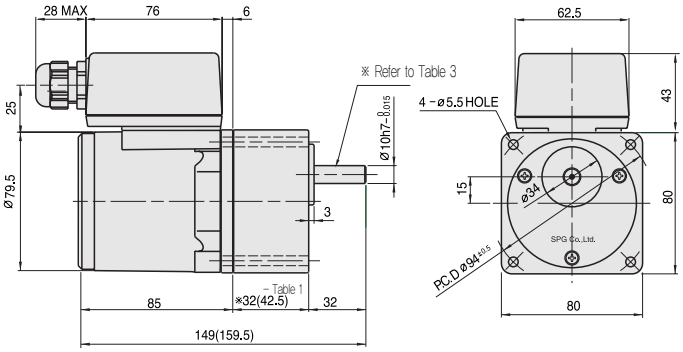
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 4.4 | 5.2 | 7.3 | 8.7 | 10.9 | 13.1 | 14.6 | 18.2 | 21.9 | 26.2 | 26.3 | 32.9 | 39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.431 | 0.510 | 0.715 | 0.853 | 1.068 | 1.284 | 1.431 | 1.784 | 2.146 | 2.568 | 2.577 | 3.224 | 3.861 | 4.635 | 5.155 | 5.821 | 6.987 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 8 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.

# DIMENSIONS

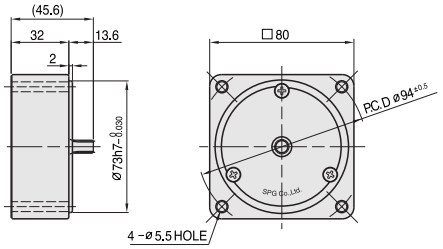
## ✚ GEARED MOTOR

※MOTOR MODEL : S8(I,R)25G□-T
※HEAD MODEL : S8□A3□~S8□A200□



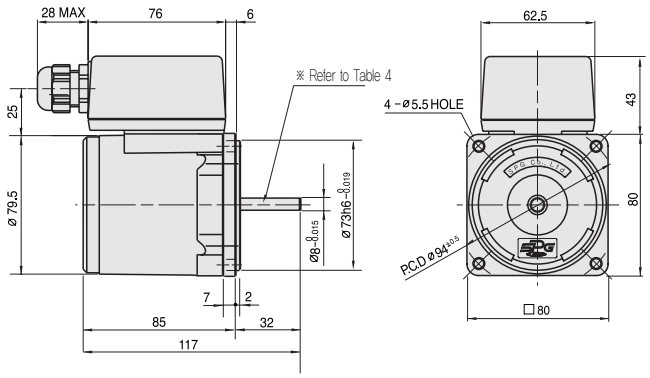

## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B




## ✚ MOTOR

※MOTOR MODEL : S8(I,R)25□□-T

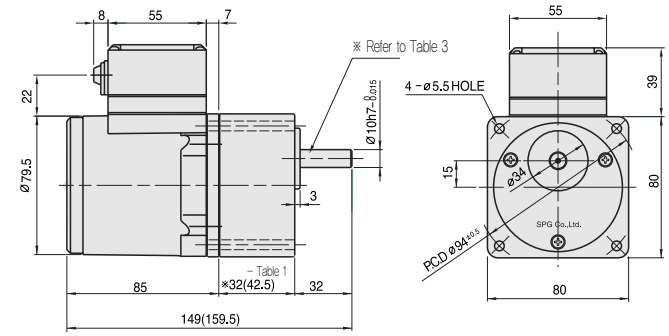



## ✚ WEIGHT - (Table 2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.60 |
| REVERSIBLE MOTOR | | 1.65 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

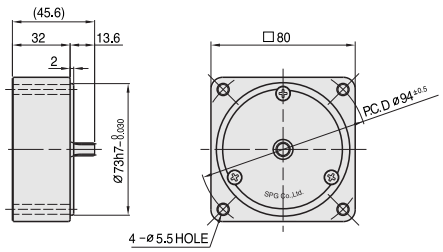
## ✚ GEARED MOTOR

※MOTOR MODEL : S8(I,R)25G□-T1
※HEAD MODEL : S8□A3□~S8□A200□



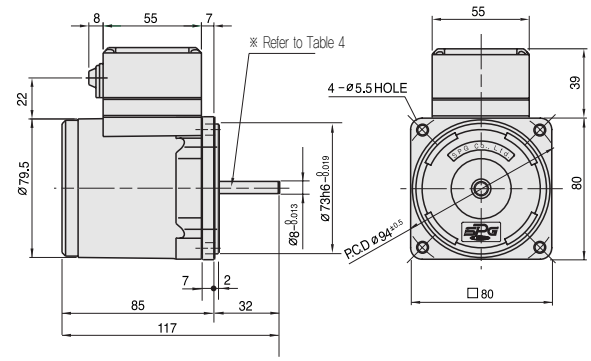

## ✚ INTER-DECIMAL GEAR HEAD

※ MODEL : S8GX10B




## ✚ MOTOR

※MOTOR MODEL : S8(I,R)25 □□-T1




## ✚ WEIGHT - (Table 2)

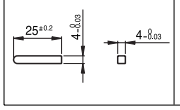
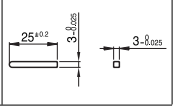
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.55 |
| REVERSIBLE MOTOR | | 1.60 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

# DIMENSIONS

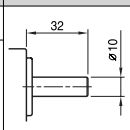
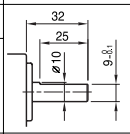
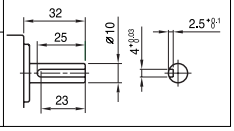
### ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

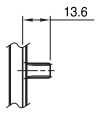
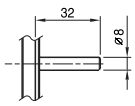
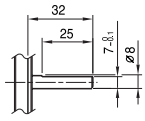
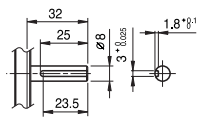
### ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

### ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□<br>~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□<br>~S8DA200□ |  |
| KEY TYPE<br>S8KA3□<br>~S8KA200□ |  |

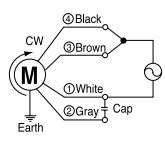
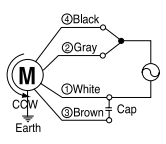
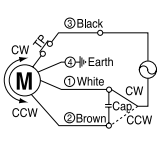
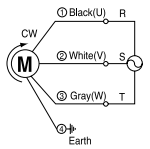
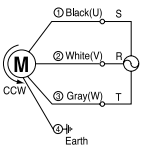
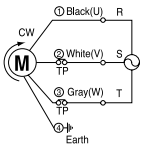
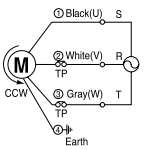
### ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8(I,R)25G□-T<br>S8(I,R))25G□-T1 |  |
| STRAIGHT TYPE<br>S8(I,R)25S□-T<br>S8(I,R)25S□-T1 |  |
| D-CUT TYPE<br>S8(I,R))25D□-T<br>S8(I,R)25D□-T1 |  |
| KEY TYPE<br>S8(I,R)25K□-T<br>S8(I,R25K□-T1 |  |

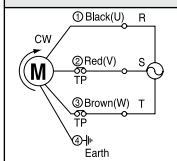
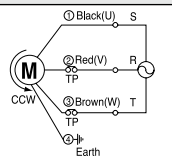
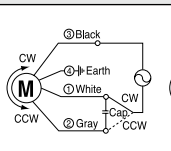
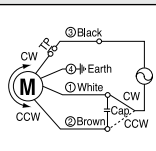
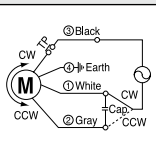
# SCHEMATIC DIAGRAMS

The direction of motor rotation is as viewed from the front shaft end of the motor.
Circled number is the terminal number inside terminal box.

■INDUCTION MOTOR

| S8I25GA-T S8I25GB-T S8I25GC-T S8I25GD-T<br>S8I25GA-T1S8I25GB-T1 S8I25GC-T1 S8I25GD-T1 | | S8I25GX-T S8I25GX-TCE<br>S8I25GX-T1 S8I25GX-T1CE | S8I25GU-T S8I25GT-T<br>S8I25GU-T1 S8I25GT-T1 | | S8I25GU-TCE S8I25GT-TCE<br>S8I25GU-T1CE S8I25GT-T1CE | |
|---|---|---|---|---|---|---|
| **CW** | **CCW** | **CW,CCW** | **CW** | **CCW** | **CW** | **CCW** |
|  |  |  |  |  |  |  |

■REVERSIBLE MOTOR

| S8I25GS-TCE S8I25GS-T<br>S8I25GS-T1CE S8I25GS-T1 | | S8R25GA-T, S8R25GB-T<br>S8R25GA-T1, S8R25GB-T1<br>S8R25GC-T, S8R25GD-T<br>S8R25GC-T1, S8R25GD-T1 | S8R25GX-T, S8R25GX-TCE<br>S8R25GX-T1, S8R25GX-T1CE | S8R25GA-T(TP), S8R25GB-T(TP),<br>S8R25GC-T(TP), S8R25GD-T(TP),<br>S8R25GA-T1(TP), S8R25GB-T1(TP),<br>S8R25GC-T1(TP), S8R25GD-T1(TP),<br>S8R25GA-TCE , S8R25GB-TCE , S8R25GC-TCE<br>S8R25GD-TCE , S8R25GE-T , S8R25GE-TCE<br>S8R25GA-T1CE , S8R25GB-T1CE , S8R25GC-T1CE<br>S8R25GD-T1CE , S8R25GE-T1 , S8R25GE-T1CE |
|---|---|---|---|---|
| **CW** | **CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |  |  |

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



# 40W

## INDUCTION MOTOR, REVERSIBLE MOTOR
## □90㎜ TERMINAL BOX TYPE

### INDUCTION MOTOR - CONTINUOUS RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I40GA( )-T<br>S9I40GA( )-T1 | 4 | 40 | 1Ø 110 | 60 | Cont. | 0.82 | 1600 | 2.50 | 0.250 | 2.90 | 0.290 | 10.0 |
| | S9I40GB( )-T<br>S9I40GB( )-T1 | 4 | 40 | 1Ø 220 | 60 | Cont. | 0.41 | 1600 | 2.50 | 0.250 | 2.90 | 0.290 | 2.5 |
| | S9I40GC( )-T<br>S9I40GC( )-T1 | 4 | 40 | 1Ø 100 | 50 | Cont. | 0.80 | 1300 | 3.10 | 0.310 | 2.40 | 0.240 | 10.0 |
| | | | | | 60 | | 0.85 | 1550 | 2.60 | 0.260 | | | |
| | S9I40GD( )-T<br>S9I40GD( )-T1 | 4 | 40 | 1Ø 200 | 50 | Cont. | 0.41 | 1300 | 3.10 | 0.310 | 2.40 | 0.240 | 2.5 |
| | | | | | 60 | | 0.43 | 1550 | 2.60 | 0.260 | | | |
| | S9I40GX( )-T<br>S9I40GX( )-T1<br>S9I40GX( )-TCE<br>S9I40GX( )-T1CE | 4 | 40 | 1Ø 220 | 50 | Cont. | 0.34 | 1250 | 3.15 | 0.320 | 1.80 | 0.180 | 2.0 |
| | | | | 1Ø 240 | | | 0.37 | | 3.35 | 0.355 | 2.10 | 0.210 | |
| | S9I40GU( )-T<br>S9I40GU( )-T1<br>S9I40GU( )-TCE<br>S9I40GU( )-T1CE | 4 | 40 | 3Ø 200 | 50 | Cont. | 0.36 | 1300 | 3.10 | 0.310 | 6.30 | 0.630 | — |
| | | | | | 60 | | 0.33 | 1550 | 2.60 | 0.260 | 5.20 | 0.520 | |
| | S9I40GT( )-T<br>S9I40GT( )-T1<br>S9I40GT( )-TCE<br>S9I40GT( )-T1CE | 4 | 40 | 3Ø 220 | 50 | Cont. | 0.39 | 1350 | 3.00 | 0.300 | 7.60 | 0.760 | — |
| | | | | | 60 | | 0.33 | 1600 | 2.50 | 0.250 | 6.10 | 0.610 | |
| | S9I40GS( )-T<br>S9I40GS( )-T1<br>S9I40GS( )-TCE<br>S9I40GS( )-T1CE | 4 | 40 | 3Ø 380 | 50 | Cont. | 0.21 | 1300 | 3.20 | 0.320 | 6.30 | 0.630 | — |
| | | | | | 60 | | 0.19 | 1550 | 2.70 | 0.270 | 4.85 | 0.485 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.21 | 1300 | 3.30 | 0.330 | 6.90 | 0.690 | |
| | | | | | 60 | | 0.19 | 1550 | 2.80 | 0.280 | 5.25 | 0.525 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.21 | 1350 | 3.10 | 0.310 | 7.30 | 0.730 | |
| | | | | | 60 | | 0.19 | 1600 | 2.60 | 0.260 | 5.70 | 0.570 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.21 | 1350 | 3.20 | 0.320 | 8.20 | 0.820 | |
| | | | | | 60 | | 0.19 | 1600 | 2.70 | 0.270 | 6.30 | 0.630 | |

❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE with built-in TP.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9I40GX, S9I40GX-T, S9I40GS-T is thermally protected type with TP mounted.
❖ Be cautious when using a three-phase 380V motor controlled with inverter.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## REVERSIBLE MOTOR - 30MINUTES RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R40GA( )-T<br>S9R40GA( )-T1<br>S9R40GA( )-T(TP)<br>S9R40GA( )-T1(TP)<br>S9R40GA( )-TCE<br>S9R40GA( )-T1CE | 4 | 40 | 1 Ø 110 | 60 | 30min | 1.00 | 1600 | 2.50 | 0.250 | 3.50 | 0.350 | 15.0 |
| | S9R40GB( )-T<br>S9R40GB( )-T1<br>S9R40GB( )-T(TP)<br>S9R40GB( )-T1(TP)<br>S9R40GB( )-TCE<br>S9R40GB( )-T1CE | 4 | 40 | 1 Ø 220 | 60 | 30min. | 0.46 | 1600 | 2.50 | 0.250 | 3.50 | 0.350 | 3.5 |
| | S9R40GC( )-T<br>S9R40GC( )-T1<br>S9R40GC( )-T(TP)<br>S9R40GC( )-T1(TP)<br>S9R40GC( )-TCE<br>S9R40GC( )-T1CE | 4 | 40 | 1 Ø 100 | 50 | 30min. | 0.84 | 1300 | 3.00 | 0.300 | 2.80 | 0.280 | 15.0 |
| | | | | | 60 | | 1.00 | 1550 | 2.60 | 0.260 | | | |
| | S9R40GD( )-T<br>S9R40GD( )-T1<br>S9R40GD( )-T(TP)<br>S9R40GD( )-T1(TP)<br>S9R40GD( )-TCE<br>S9R40GD( )-T1CE | 4 | 40 | 1 Ø 200 | 50 | 30min. | 0.39 | 1300 | 3.10 | 0.310 | 2.80 | 0.280 | 3.5 |
| | | | | | 60 | | 0.47 | 1550 | 2.60 | 0.260 | | | |
| | S9R40GE( )-T<br>S9R40GE( )-T1<br>S9R40GE( )-TCE<br>S9R40GE( )-T1CE | 4 | 40 | 1 Ø 100 | 50 | 30min. | 0.86 | 1300 | 3.10 | 0.310 | 2.90 | 0.290 | 15.0 |
| | | | | | 60 | | 1.00 | 1550 | 2.60 | 0.260 | | | |
| | | | | 1 Ø 115 | 60 | | 1.00 | 1550 | 2.70 | 0.270 | | | 12.0 |
| | S9R40GX( )-T<br>S9R40GX( )-T1<br>S9R40GX( )-TCE<br>S9R40GX( )-T1CE | 4 | 40 | 1 Ø 220 | 50 | 30min. | 0.40 | 1250 | 3.20 | 0.320 | 3.00 | 0.300 | 3.0 |
| | | | | 1 Ø 240 | | | 0.42 | | 3.40 | 0.340 | 3.20 | 0.320 | |

❖ Appropriate capacitors shall be used according to the voltage for S9R40GE-T type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE. S9R40GE-TCE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9R40GE-T, S9R40GX-T is thermally protected type with TP mounted.
❖ Above data is measured with friction brake mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KB□B( ) | kg-cm | 8.3 | 9.9 | 13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4 | 41.3 | 49.6 | 49.6 | 62.1 | 74.5 | 89.4 | 99.3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.813 | 0.970 | 1.352 | 1.617 | 2.029 | 2.430 | 2.695 | 3.371 | 4.047 | 4.861 | 4.861 | 6.086 | 7.301 | 8.761 | 9.731 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

## 60Hz

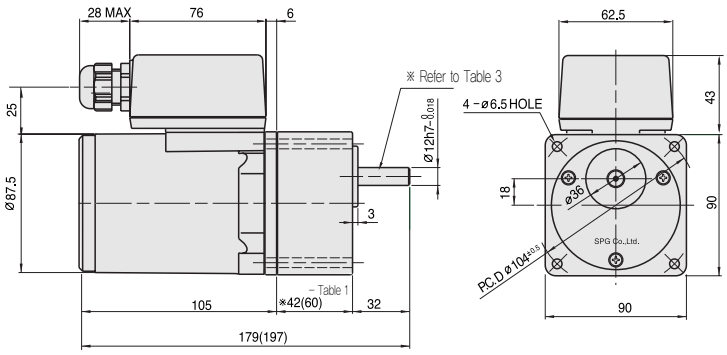
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KB□B( ) | kg-cm | 6.8 | 8.2 | 11.3 | 13.6 | 17.0 | 20.4 | 22.7 | 28.4 | 34.0 | 40.8 | 40.9 | 51.1 | 61.3 | 73.6 | 81.8 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.666 | 0.804 | 1.107 | 1.333 | 1.666 | 1.999 | 2.225 | 2.783 | 3.332 | 3.998 | 4.008 | 5.008 | 6.007 | 7.213 | 8.016 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

# DIMENSIONS

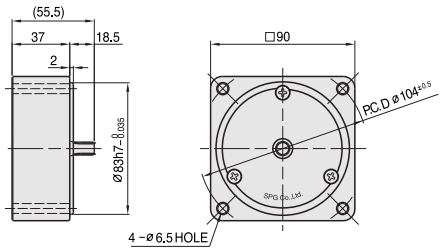
## ✚ GEARED MOTOR

※MOTOR MODEL : S9(I,R)40G□□-T
※HEAD MODEL : S9□B3□□~S9□B200□□



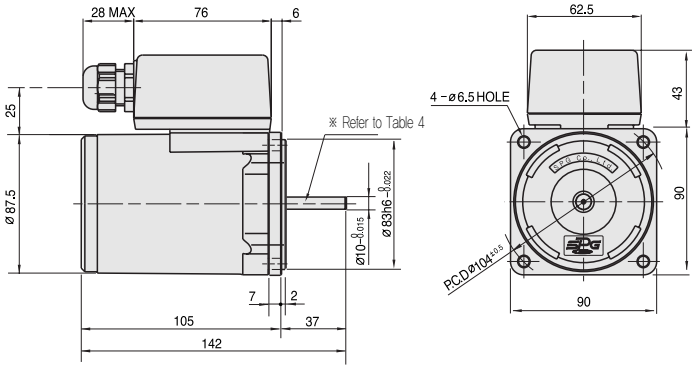

## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S9GX10B(H,L)




## ✚ MOTOR

※MOTOR MODEL : S9(I,R)40□□□-T

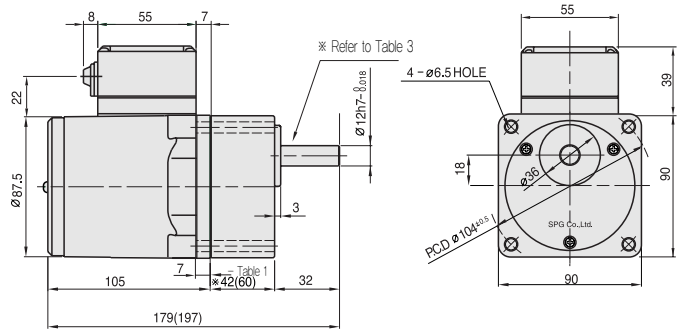



## ✚ WEIGHT - (Table 2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.45 |
| REVERSIBLE MOTOR | | 2.50 |
| DECIMAL GEAR HEAD | | 0.60 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□□ ~S9□B40□□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

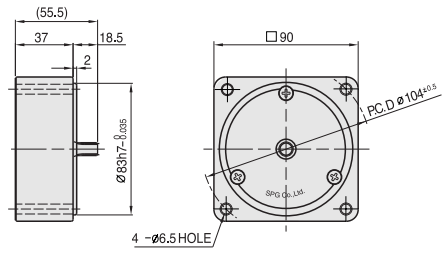
## ✚ GEARED MOTOR

※MOTOR MODEL : S9(I,R)40G□□-T1
※HEAD MODEL : S9□B3□□~S9□B200□



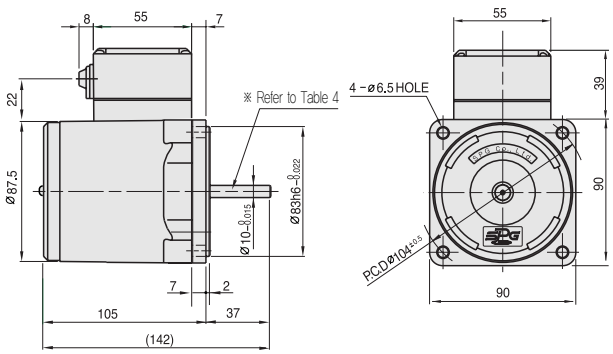

## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S9GX10B(H,L)




## ✚ MOTOR

※MOTOR MODEL : S9(I,R)40□□□-T1




## ✚ WEIGHT - (Table 2)

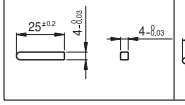
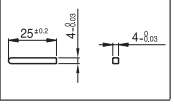
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.40 |
| REVERSIBLE MOTOR | | 2.45 |
| DECIMAL GEAR HEAD | | 0.60 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□□ ~S9□B40□□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

# DIMENSIONS

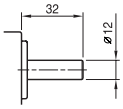
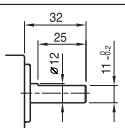
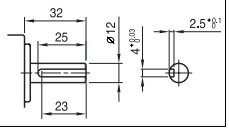
### ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S9□B3□□ ~ S9□B18□□ | 42 |
| S9□B20□□ ~ S9□B200□□ | 60 |

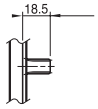
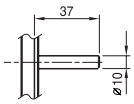
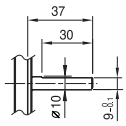
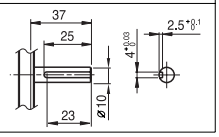
### ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

### ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SB3□□<br>~S9SB200□□ |  |
| D-CUT TYPE<br>S9DB3□□<br>~S9DB200□□ |  |
| KEY TYPE<br>S9IRB3□□<br>~S9IR200□□ |  |

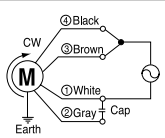
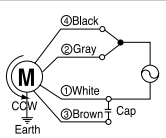
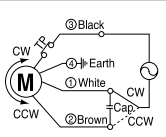
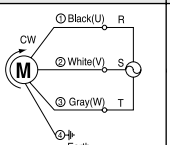
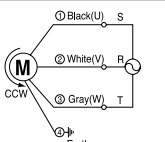
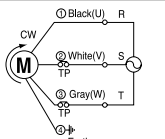
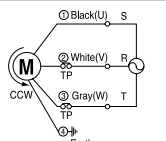
### ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9(I,R)40G□□-T<br>S9(I,R)40G□□-T1 |  |
| STRAIGHT TYPE<br>S9(I,R)40S□-T<br>S9(I,R)40S□-T1 |  |
| D-CUT TYPE<br>S9(I,R)40D□-T<br>S9(I,R)40D□-T1 |  |
| KEY TYPE<br>S9(I,R)40K□-T<br>S9(I,R)40K□-T1 |  |

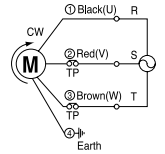
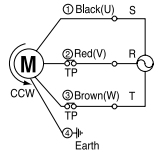
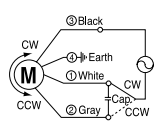
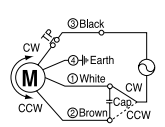
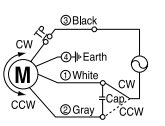
# SCHEMATIC DIAGRAMS

The direction of motor rotation is as viewed from the front shaft end of the motor.
Circled number is the terminal number inside terminal box.

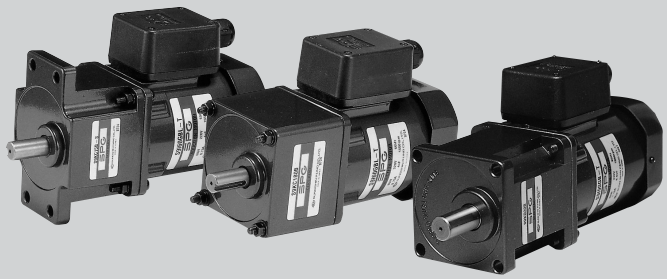
■INDUCTION MOTOR

| S9I40GA( )-T S9I40GB( )-T S9I40GC( )-T S9I40GD( )-T<br>S9I40GA( )-T1S9I40GB( )-T1 S9I40GC( )-T1 S9I40GD( )-T1 | | S9I40GX( )-T S9I40GX( )-TCE<br>S9I40GX( )-T1 S9I40GX( )-T1CE | S9I40GU( )-T S9I40GT( )-T<br>S9I40GU( )-T1 S9I40GT( )-T1 | | S9I40GU( )-TCE S9I40GT( )-TCE<br>S9I40GU( )-T1CE S9I40GT( )-T1CE | |
|---|---|---|---|---|---|---|
| **CW** | **CCW** | **CW,CCW** | **CW** | **CCW** | **CW** | **CCW** |
|  |  |  |  |  |  |  |

■REVERSIBLE MOTOR

| S9I40GS( )-TCE S9I40GS( )-T<br>S9I40GS( )-T1CE S9I40GS( )-T1 | | S9R40GA( )-T, S9R40GB( )-T<br>S9R40GA( )-T1, S9R40GB( )-T1<br>S9R40GC( )-T, S9R40GD( )-T<br>S9R40GC( )-T1, S9R40GD( )-T1 | S9R40GX( )-T, S9R40GX( )-TCE<br>S9R40GX( )-T1, S9R40GX( )-T1CE | S9R40GA( )-T(TP), S9R40GB( )-T(TP),<br>S9R40GC( )-T(TP), S9R40GD( )-T(TP),<br>S9R40GA( )-T1(TP), S9R40GB( )-T1(TP),<br>S9R40GC( )-T1(TP), S9R40GD( )-T1(TP),<br>S9R40GA( )-TCE , S9R40GB( )-TCE , S9R40GC( )-TCE<br>S9R40GD( )-TCE , S9R40GE( )-T , S9R40GE( )-TCE<br>S9R40GA( )-T1CE , S9R40GB( )-T1CE , S98R40GC( )-T1CE<br>S9R40GD( )-T1CE , S9R40GE( )-T1 , S9R40GE( )-T1CE |
|---|---|---|---|---|
| **CW** | **CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |  |  |

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



# 60W

## INDUCTION MOTOR, REVERSIBLE MOTOR
## □90㎜ TERMINAL BOX TYPE

### INDUCTION MOTOR - CONTINUOUS RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I60GA( )-T<br>S9I60GA( )-T1 | 4 | 60 | 1 Ø 110 | 60 | Cont. | 1.35 | 1600 | 3.80 | 0.380 | 4.80 | 0.480 | 15.0 |
| | S9I60GB( )-T<br>S9I60GB( )-T1 | 4 | 60 | 1 Ø 220 | 60 | Cont. | 0.68 | 1600 | 3.90 | 0.390 | 4.80 | 0.480 | 4.0 |
| | S9I60GC( )-T<br>S9I60GC( )-T1 | 4 | 60 | 1 Ø 100 | 50 | Cont. | 1.26 | 1300 | 4.60 | 0.460 | 3.40 | 0.340 | 15.0 |
| | | | | | 60 | | 1.37 | 1550 | 3.90 | 0.390 | | | |
| | S9I60GD( )-T<br>S9I60GD( )-T1 | 4 | 60 | 1 Ø 200 | 50 | Cont. | 0.65 | 1300 | 4.70 | 0.470 | 3.85 | 0.385 | 4.0 |
| | | | | | 60 | | 0.70 | 1550 | 4.00 | 0.400 | | | |
| | S9I60GX( )-T<br>S9I60GX( )-T1<br>S9I60GX( )-TCE<br>S9I60GX( )-T1CE | 4 | 60 | 1 Ø 220 | 50 | Cont. | 0.47 | 1300 | 4.60 | 0.460 | 3.20 | 0.320 | 3.5 |
| | | | | 1 Ø 240 | | | 0.50 | | 4.90 | 0.490 | 3.90 | 0.390 | |
| | S9I60GU( )-T<br>S9I60GU( )-T1<br>S9I60GU( )-TCE<br>S9I60GU( )-T1CE | 4 | 60 | 3 Ø 200 | 50 | Cont. | 0.60 | 1300 | 4.60 | 0.460 | 9.30 | 0.930 | — |
| | | | | | 60 | | 0.50 | 1550 | 3.90 | 0.390 | 8.00 | 0.800 | |
| | S9I60GT( )-T<br>S9I60GT( )-T1<br>S9I60GT( )-TCE<br>S9I60GT( )-T1CE | 4 | 60 | 3 Ø 220 | 50 | Cont. | 0.80 | 1350 | 4.40 | 0.440 | 11.35 | 1.135 | — |
| | | | | | 60 | | 0.57 | 1600 | 3.90 | 0.390 | 9.30 | 0.930 | |
| | S9I60GS( )-T<br>S9I60GS( )-T1<br>S9I60GS( )-TCE<br>S9I60GS( )-T1CE | 4 | 60 | 3 Ø 380 | 50 | Cont. | 0.27 | 1300 | 4.60 | 0.460 | 8.25 | 0.825 | — |
| | | | | | 60 | | 0.24 | 1550 | 3.90 | 0.390 | 6.50 | 0.650 | |
| | | | | 3 Ø 400 | 50 | Cont. | 0.29 | 1300 | 4.70 | 0.470 | 9.30 | 0.930 | |
| | | | | | 60 | | 0.25 | 1550 | 4.00 | 0.400 | 7.35 | 0.735 | |
| | | | | 3 Ø 415 | 50 | Cont. | 0.27 | 1350 | 4.60 | 0.460 | 9.95 | 0.995 | |
| | | | | | 60 | | 0.23 | 1600 | 3.80 | 0.380 | 7.50 | 0.750 | |
| | | | | 3 Ø 440 | 50 | Cont. | 0.31 | 1350 | 4.70 | 0.470 | 10.75 | 1.075 | |
| | | | | | 60 | | 0.25 | 1600 | 3.90 | 0.390 | 8.40 | 0.840 | |

❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE with built-in TP.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9I40GX, S9I40GX-T, S9I40GS-T is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## REVERSIBLE MOTOR - 30MINUTES RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R60GA( )-T<br>S9R60GA( )-T1<br>S9R60GA( )-T(TP)<br>S9R60GA( )-T1(TP)<br>S9R60GA( )-TCE<br>S9R60GA( )-T1CE | 4 | 60 | 1 Ø 110 | 60 | 30min. | 1.60 | 1600 | 3.80 | 0.380 | 7.00 | 0.700 | 25.0 |
| | S9R60GB( )-T<br>S9R60GB( )-T1<br>S9R60GB( )-T(TP)<br>S9R60GB( )-T1(TP)<br>S9R60GB( )-TCE<br>S9R60GB( )-T1CE | 4 | 60 | 1 Ø 220 | 60 | 30min. | 0.75 | 1600 | 3.80 | 0.380 | 7.00 | 0.700 | 6.0 |
| | S9R60GC( )-T<br>S9R60GC( )-T1<br>S9R60GC( )-T(TP)<br>S9R60GC( )-T1(TP)<br>S9R60GC( )-TCE<br>S9R60GC( )-T1CE | 4 | 60 | 1 Ø 100 | 50 | 30min. | 1.40 | 1250 | 4.80 | 0.480 | 6.00 | 0.600 | 25.0 |
| | | | | | 60 | | 1.60 | 1550 | 3.90 | 0.390 | | | |
| | S9R60GD( )-T<br>S9R60GD( )-T1<br>S9R60GD( )-T(TP)<br>S9R60GD( )-T1(TP)<br>S9R60GD( )-TCE<br>S9R60GD( )-T1CE | 4 | 60 | 1 Ø 200 | 50 | 30min. | 0.70 | 1250 | 4.80 | 0.480 | 5.50 | 0.550 | 6.0 |
| | | | | | 60 | | 0.76 | 1550 | 3.90 | 0.390 | | | |
| | S9R60GE( )-T<br>S9R60GE( )-T1<br>S9R60GE( )-TCE<br>S9R60GE( )-T1CE | 4 | 60 | 1 Ø 100 | 50 | 30min. | 1.40 | 1250 | 4.80 | 0.480 | 5.90 | 0.590 | 25.0 |
| | | | | | 60 | | 1.60 | 1550 | 3.90 | 0.390 | | | |
| | | | | 1 Ø 115 | 60 | | 1.30 | 1600 | 3.90 | 0.390 | 6.00 | 0.600 | 20.0 |
| | S9R60GX( )-T<br>S9R60GE( )-T1CE<br>S9R60GX( )-TCE<br>S9R60GX( )-T1CE | 4 | 60 | 1 Ø 220 | 50 | 30min. | 0.63 | 1250 | 4.80 | 0.480 | 5.90 | 0.590 | 5.0 |
| | | | | 1 Ø 240 | | | 0.67 | | 5.00 | 0.500 | 6.30 | 0.630 | |

❖ Appropriate capacitors shall be used according to the voltage for S9R60GE-T type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE.
S9R60GE-TCE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9R60GE-T, S9R60GX-T is thermally protected type with TP mounted.
❖ Above data is measured with friction brake mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

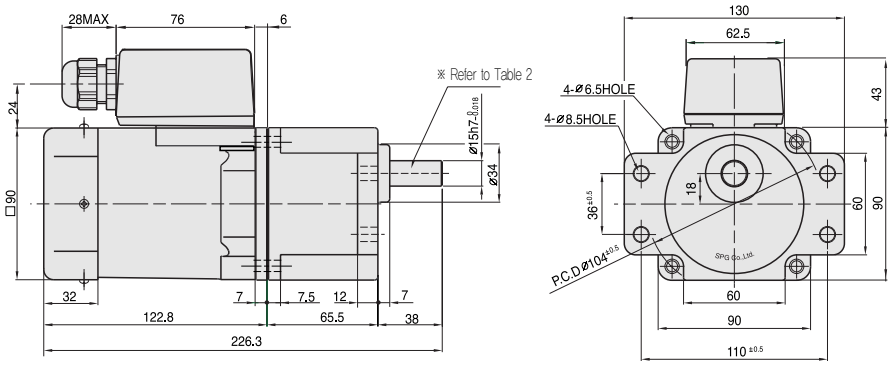
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

# DIMENSIONS

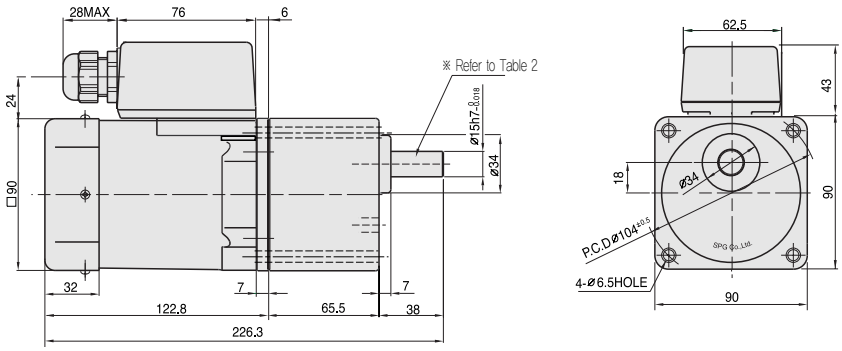
## ✚ GEARED MOTOR

※MOTOR MODEL : S9(I,R)60G□□-T

※HEAD MODEL □ : S9□C3B□-S~S9□C200B□-S

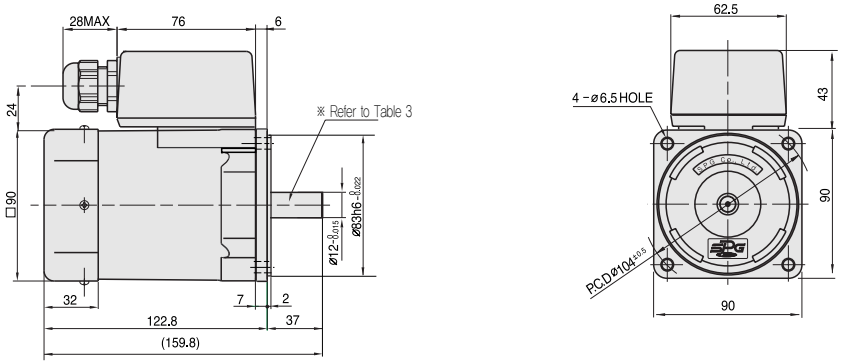



※HEAD MODEL : S9□C3B□~S9□C200B□



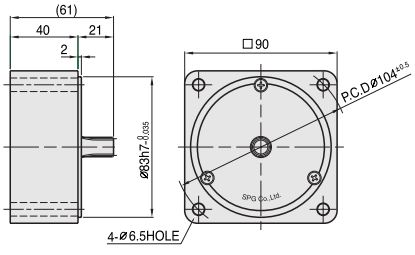

## ✚ MOTOR

※MOTOR MODEL : S9(I,R)60□□□-T




## ✚ INTER-DECIMAL GEAR HEAD

※ MODEL : S9GX10B(H,L)-S



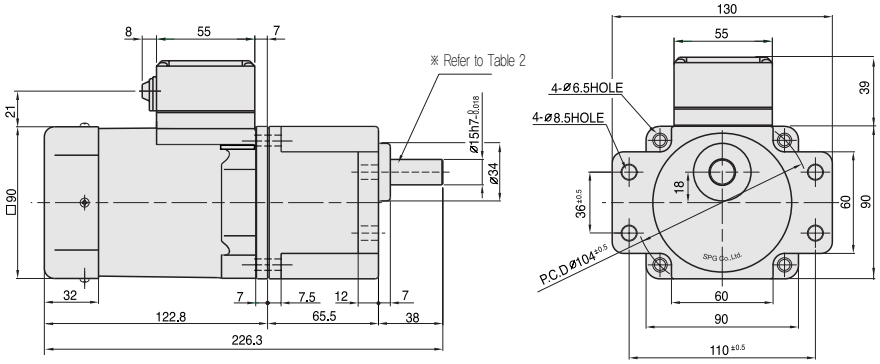

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.60 |
| REVERSIBLE MOTOR | | 2.65 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

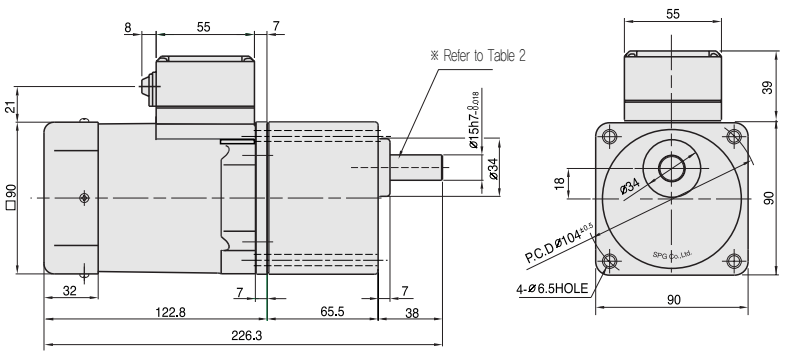
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9(I,R)60G□□-T1
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

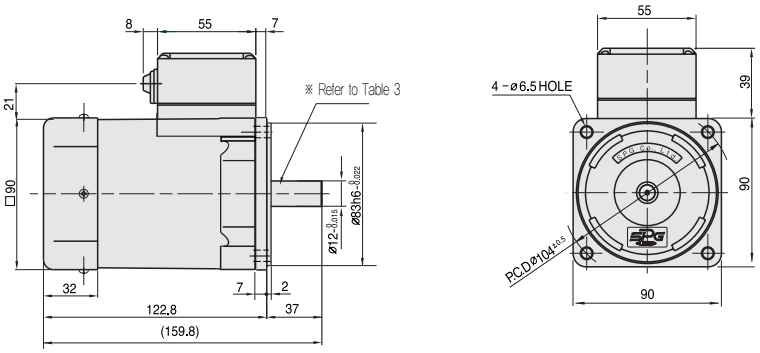



※HEAD MODEL □ : S9□C3B□~S9□C200B□



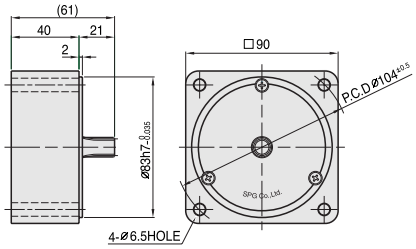

## ✚ MOTOR

※MOTOR MODEL : S9(I,R)60□□□-T1




## ✚ INTER-DECIMAL GEAR HEAD

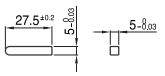
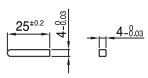
※ MODEL : S9GX10B(H,L)-S



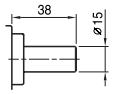
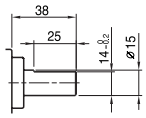
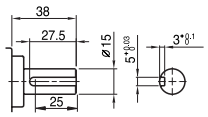

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.55 |
| REVERSIBLE MOTOR | | 2.60 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

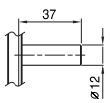
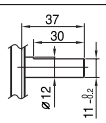
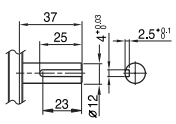
## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |

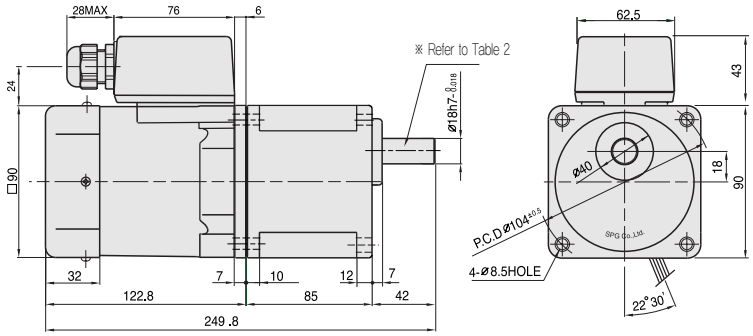
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9(I,R)60G□□-T<br>S9(I,R)60G□□-T1 |  |
| STRAIGHT TYPE<br>S9(I,R)60S□-T<br>S9(I,R)60S□-T1 |  |
| D-CUT TYPE<br>S9(I,R)60D□-T<br>S9(I,R)60D□-T1 |  |
| KEY TYPE<br>S9(I,R)60K□-T<br>S9(I,R)60K□-T1 |  |

# DIMENSIONS

## ✚ GEARED MOTOR

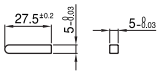
※MOTOR MODEL : S9(I,R)60G□H-T
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table 2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.60 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

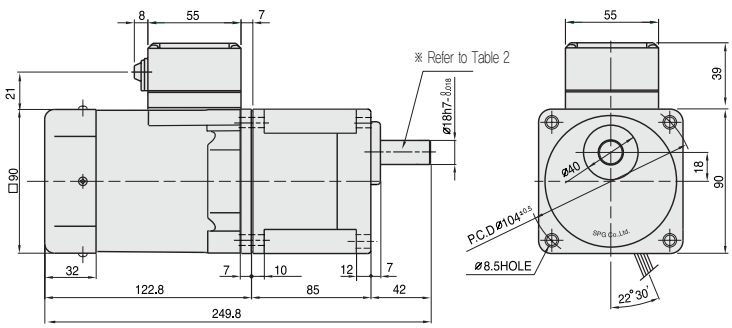
| GEAR HEAD |
|---|
|  |



# DIMENSIONS

## ✚ GEARED MOTOR

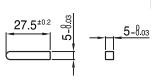
※MOTOR MODEL : S9(I,R)60G□H-T1
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table 1)

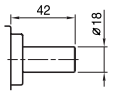
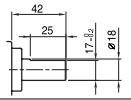
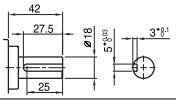
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.55 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table 2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DD3B ~S9DD200B | | S9KDB ~S9KD200B | |

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 221 | 266 | 295 | 300 | 300 | 300 | 300 |
| | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 21.67 | 26.09 | 28.93 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

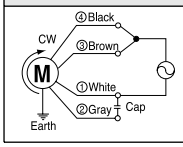
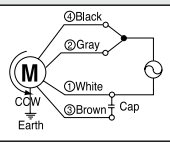
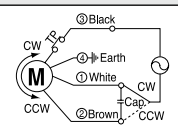
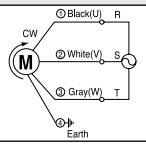
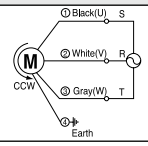
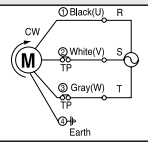
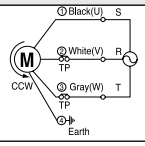
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 212 | 236 | 283 | 300 | 300 | 300 |
| | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 20.79 | 23.14 | 27.75 | 29.42 | 29.42 | 29.42 |

- ❖ The code in □ of gearhead model is for gear ratio.
- ❖ It is the permissible torque of the assembled motor and gearhead.
- ❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
- ❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
- ❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
- ❖ Only "H" type is applicable. Please use "H" type motor.

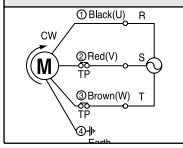
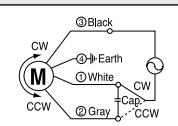
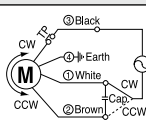
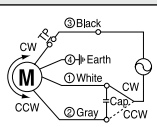
# SCHEMATIC DIAGRAMS

The direction of motor rotation is as viewed from the front shaft end of the motor.
Circled number is the terminal number inside terminal box.

■INDUCTION MOTOR

| S9I60GA( )-T S9I60GB( )-T S9I60GC( )-T S9I60GD( )-T<br>S9I60GA( )-T1S9I60GB( )-T1 S9I60GC( )-T1 S9I60GD( )-T1 | | S9I60GX( )-T S9I60GX( )-TCE<br>S9I60GX( )-T1 S9I60GX( )-T1CE | S9I60GU( )-T S9I60GT( )-T<br>S9I60GU( )-T1 S9I60GT( )-T1 | | S9I60GU( )-TCE S9I60GT( )-TCE<br>S9I60GU( )-T1CE S9I60GT( )-T1CE | |
|---|---|---|---|---|---|---|
| **CW** | **CCW** | **CW,CCW** | **CW** | **CCW** | **CW** | **CCW** |
|  |  |  |  |  |  |  |

■REVERSIBLE MOTOR

| S9I60GS( )-TCE S9I60GS( )-T<br>S9I60GS( )-T1CE S9I60GS( )-T1 | S9R60GA( )-T, S9R60GB( )-T<br>S9R60GA( )-T1, S9R60GB( )-T1<br>S9R60GC( )-T, S9R60GD( )-T<br>S9R60GC( )-T1, S9R60GD( )-T1 | S9R60GX( )-T, S9R60GX( )-TCE<br>S9R60GX( )-T1, S9R60GX( )-T1CE | S9R60GA( )-T(TP), S9R60GB( )-T(TP),<br>S9R60GC( )-T(TP), S9R60GD( )-T(TP),<br>S9R60GA( )-T1(TP), S9R60GB( )-T1(TP),<br>S9R60GC( )-T1(TP), S9R60GD( )-T1(TP),<br>S9R60GA( )-TCE , S9R60GB( )-TCE , S9R60GC( )-TCE<br>S9R60GD( )-TCE , S9R60GE( )-T , S9R60GE( )-TCE<br>S9R60GA( )-T1CE , S9R60GB( )-T1CE , S98R60GC( )-T1CE<br>S9R60GD( )-T1CE , S9R60GE( )-T1 , S9R60GE( )-T1CE |
|---|---|---|---|
| **CW** **CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |  |

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



# 90W

## INDUCTION MOTOR, REVERSIBLE MOTOR
## □90㎜ TERMINAL BOX TYPE

### INDUCTION MOTOR - CONTINUOUS RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I90GA( )-T<br>S9I90GA( )-T1 | 4 | 90 | 1Ø 110 | 60 | Cont. | 2.00 | 1600 | 5.60 | 0.560 | 5.70 | 0.570 | 25.0 |
| | S9I90GB( )-T<br>S9I90GB( )-T1 | 4 | 90 | 1Ø 220 | 60 | Cont. | 1.00 | 1600 | 5.60 | 0.560 | 5.70 | 0.570 | 6.0 |
| | S9I90GC( )-T<br>S9I90GC( )-T1 | 4 | 90 | 1Ø 100 | 50 | Cont. | 1.80 | 1300 | 6.90 | 0.690 | 5.00 | 0.500 | 25.0 |
| | | | | | 60 | | 2.00 | 1550 | 5.80 | 0.580 | | | |
| | S9I90GD( )-T<br>S9I90GD( )-T1 | 4 | 90 | 1Ø 200 | 50 | Cont. | 0.90 | 1300 | 6.90 | 0.690 | 5.00 | 0.500 | 6.0 |
| | | | | | 60 | | 1.00 | 1550 | 5.80 | 0.580 | | | |
| | S9I90GX( )-T<br>S9I90GX( )-T1<br>S9I90GX( )-TCE<br>S9I90GX( )-T1CE | 4 | 90 | 1Ø 220 | 50 | Cont. | 0.68 | 1300 | 6.90 | 0.690 | 4.80 | 0.480 | 5.0 |
| | | | | 1Ø 240 | | | 0.72 | | 7.20 | 0.720 | 5.20 | 0.520 | |
| | S9I90GU( )-T<br>S9I90GU( )-T1<br>S9I90GU( )-TCE<br>S9I90GU( )-T1CE | 4 | 90 | 3Ø 200 | 50 | Cont. | 0.63 | 1300 | 6.90 | 0.690 | 10.60 | 1.060 | — |
| | | | | | 60 | | 0.60 | 1550 | 6.00 | 0.600 | 8.90 | 0.890 | |
| | S9I90GT( )-T<br>S9I90GT( )-T1<br>S9I90GT( )-TCE<br>S9I90GT( )-TCE1 | 4 | 90 | 3Ø 220 | 50 | Cont. | 0.68 | 1350 | 6.80 | 0.680 | 13.00 | 1.300 | — |
| | | | | | 60 | | 0.55 | 1600 | 5.70 | 0.570 | 10.50 | 1.050 | |
| | S9I90GS( )-T<br>S9I90GS( )-T1<br>S9I90GS( )-TCE<br>S9I90GS( )-TCE | 4 | 90 | 3Ø 380 | 50 | Cont. | 0.32 | 1300 | 6.80 | 0.680 | 10.55 | 1.055 | — |
| | | | | | 60 | | 0.30 | 1550 | 5.70 | 0.570 | 8.20 | 0.820 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.35 | 1300 | 6.90 | 0.690 | 11.70 | 1.170 | |
| | | | | | 60 | | 0.32 | 1550 | 5.80 | 0.580 | 8.90 | 0.890 | |
| | | | | 3Ø 415 | 50 | Cont. | 0.33 | 1350 | 6.80 | 0.680 | 12.00 | 1.200 | |
| | | | | | 60 | | 0.29 | 1600 | 5.70 | 0.570 | 9.50 | 0.950 | |
| | | | | 3Ø 440 | 50 | Cont. | 0.35 | 1350 | 6.90 | 0.690 | 13.30 | 1.330 | |
| | | | | | 60 | | 0.31 | 1600 | 5.80 | 0.580 | 10.50 | 1.050 | |

❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE with built-in TP.

❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9140GX, S9140GX-T, S9140GS-T is thermally protected type with TP mounted.

❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## REVERSIBLE MOTOR-30MINUTES RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9R90GA( )-T<br>S9R90GA( )-T1<br>S9R90GA( )-T(TP)<br>S9R90GA( )-T1(TP)<br>S9R90GA( )-TCE<br>S9R90GA( )-T1CE | 4 | 90 | 1Ø 110 | 60 | 30min. | 2.25 | 1550 | 5.80 | 0.580 | 8.50 | 0.850 | 30.0 |
| | S9R90GB( )-T<br>S9R90GB( )-T1<br>S9R90GB( )-T(TP)<br>S9R90GB( )-T1(TP)<br>S9R90GB( )-TCE<br>S9R90GB( )-T1CE | 4 | 90 | 1Ø 220 | 60 | 30min. | 1.00 | 1550 | 5.80 | 0.580 | 8.50 | 0.850 | 7.0 |
| | S9R90GC( )-T<br>S9R90GC( )-T1<br>S9R90GC( )-T(TP)<br>S9R90GC( )-T1(TP)<br>S9R90GC( )-TCE<br>S9R90GC( )-T1CE | 4 | 90 | 1Ø 100 | 50 | 30min. | 2.10 | 1200 | 7.50 | 0.750 | 6.50 | 0.650 | 30.0 |
| | | | | | 60 | | 2.25 | 1500 | 6.00 | 0.600 | | | |
| | S9R90GD( )-T<br>S9R90GD( )-T1<br>S9R90GD( )-T(TP)<br>S9R90GD( )-T1(TP)<br>S9R90GD( )-TCE<br>S9R90GD( )-T1CE | 4 | 90 | 1Ø 200 | 50 | 30min. | 0.90 | 1200 | 7.50 | 0.750 | 6.50 | 0.650 | 7.0 |
| | | | | | 60 | | 1.00 | 1500 | 6.00 | 0.600 | | | |
| | S9R90GE( )-T<br>S9R90GE( )-T1<br>S9R90GE( )-TCE<br>S9R90GE( )-T1CE | 4 | 90 | 1Ø 100 | 50 | 30min. | 1.80 | 1200 | 7.50 | 0.750 | 6.50 | 0.650 | 30.0 |
| | | | | | 60 | | 1.90 | 1500 | 6.00 | 0.600 | | | |
| | | | | 1Ø 115 | 60 | | 1.80 | 1550 | 6.00 | 0.600 | 8.00 | 0.800 | 25.0 |
| | S9R90GX( )-T<br>S9R90GX( )-T1<br>S9R90GX( )-TCE<br>S9R90GX( )-T1CE | 4 | 90 | 1Ø 220 | 50 | 30min. | 0.82 | 1250 | 7.20 | 0.720 | 6.50 | 0.650 | 6.0 |
| | | | | 1Ø 240 | | | 0.86 | | 7.40 | 0.740 | 8.00 | 0.800 | |

❖ Appropriate capacitors shall be used according to the voltage for S9R60GE-T type since the size of the capacitor differs by different voltages. Malfunction may occur when not used properly. Capacitor for 115V will be delivered otherwise the required voltage is informed.
❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE.
S9R60GE-TCE is available only for 115V specification.
❖ TP marked at the end of the model name indicates that it is standard motor with Thermal Protector mounted.
S9R60GE-T, S9R60GX-T is thermally protected type with TP mounted.
❖ Above data is measured with friction brake mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

## 60Hz

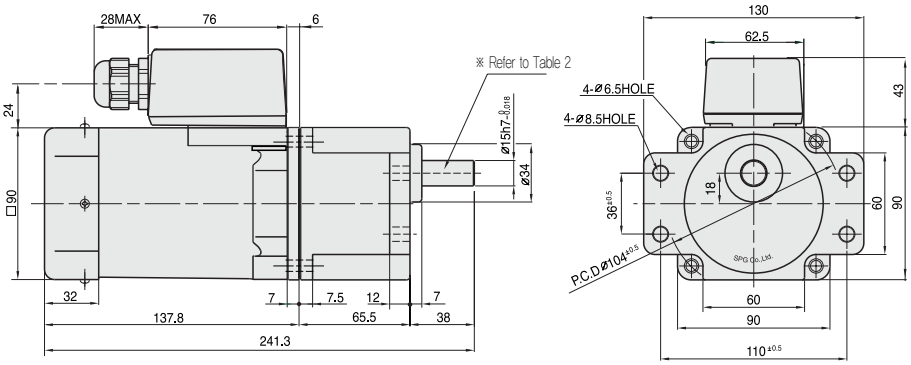
| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.

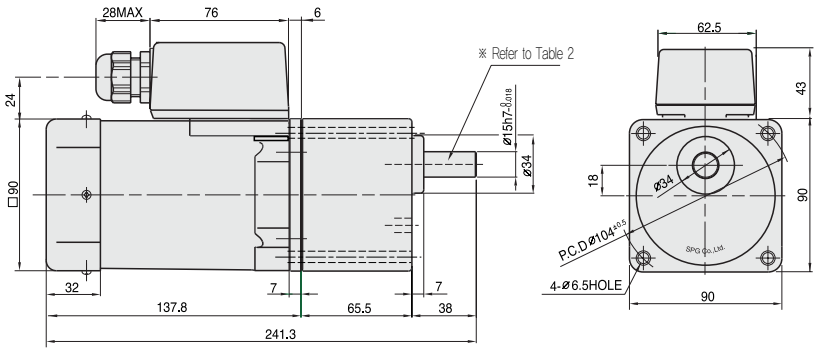
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9(I,R)90G□□-T
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

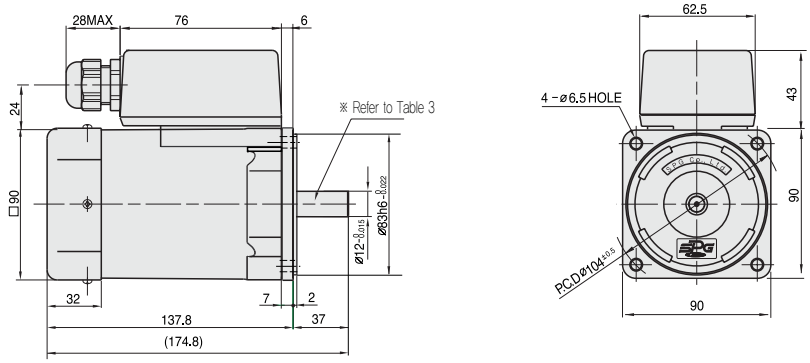



※HEAD MODEL □ : S9□C3B□~S9□C200B□



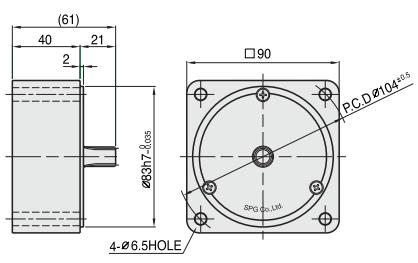

## ✚ MOTOR

※MOTOR MODEL : S9(I,R)90□□□-T




## ✚ INTER-DECIMAL GEAR HEAD

※ MODEL : S9GX10B(H,L)-S



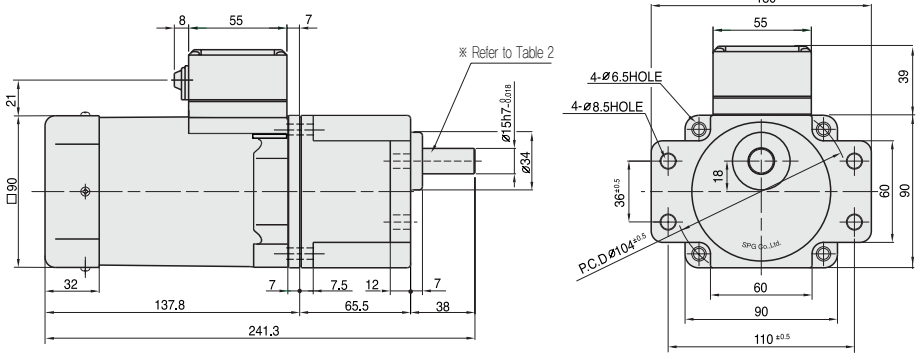

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.10 |
| REVERSIBLE MOTOR | | 3.15 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

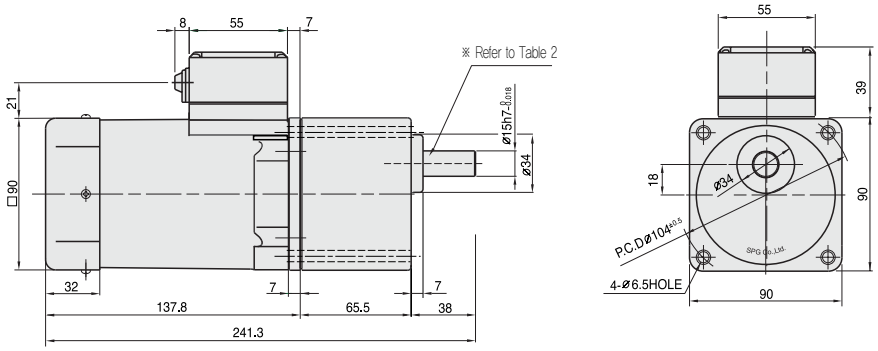
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9(I,R)90G□□-T1
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

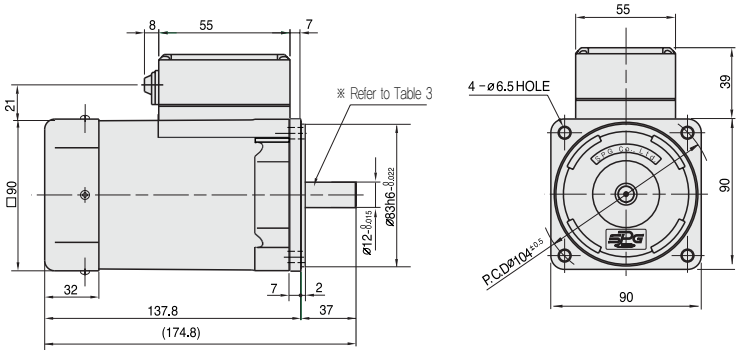



※HEAD MODEL : S9□C3B□~S9□C200B□



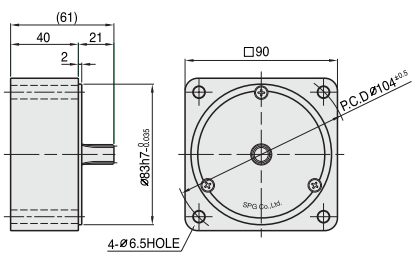

## ✚ MOTOR

※MOTOR MODEL : S9(I,R)90□□□-T1




## ✚ INTER-DECIMAL GEAR HEAD

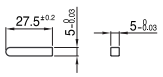
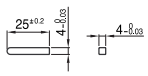
※MODEL : S9GX10B(H,L)-S



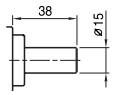
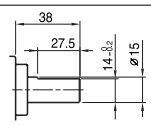
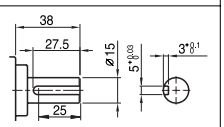

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.05 |
| REVERSIBLE MOTOR | | 3.10 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

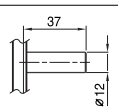
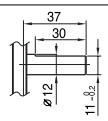
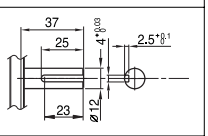
## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |

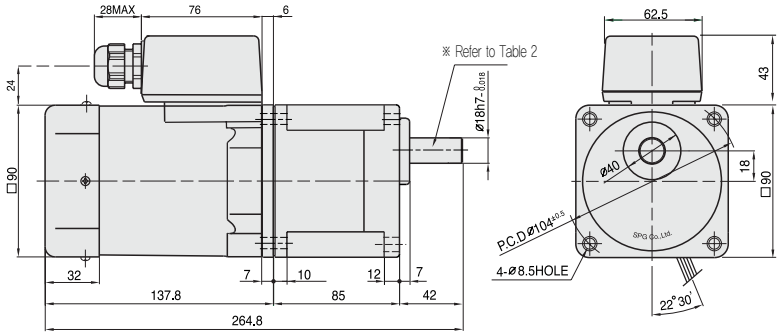
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9(I,R)90G□□-T<br>S9(I,R)90G□□-T1 |  |
| STRAIGHT TYPE<br>S9(I,R)90S□-T<br>S9(I,R)90S□-T1 |  |
| D-CUT TYPE<br>S9(I,R)90D□-T<br>S9(I,R)90D□-T1 |  |
| KEY TYPE<br>S9(I,R)90K□-T<br>S9(I,R)90K□-T1 |  |

# DIMENSIONS

## ✚ GEARED MOTOR

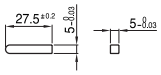
※MOTOR MODEL : S9(I,R)90G□H-T
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table 2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.10 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

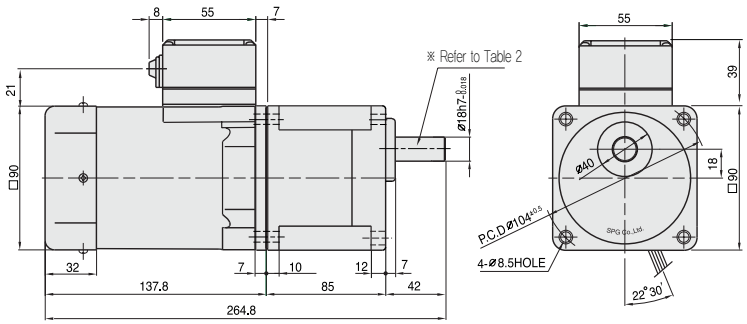
| GEAR HEAD |
|---|
|  |



# DIMENSIONS

## ✚ GEARED MOTOR

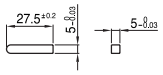
※MOTOR MODEL : S9(I,R)90G□H-T1
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table 1)

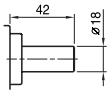
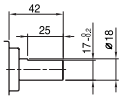
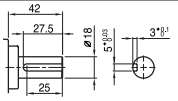
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table 2)

| MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF | MODEL | TYPES OF OUTPUT SHAF |
|---|---|---|---|---|---|
| STRAIGHT TYPE |  | D-CUT TYPE |  | KEY TYPE |  |
| S9SD3B ~S9SD200B | | S9DD3B ~S9DD200B | | S9KDB ~S9KD200B | |

## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 248 | 297 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 24.32 | 29.13 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

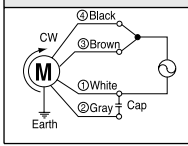
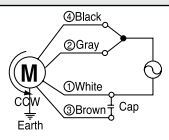
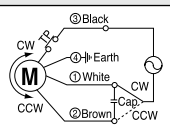
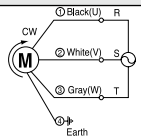
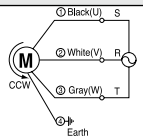
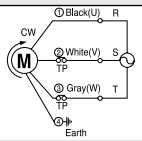
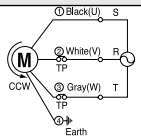
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 238 | 266 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 23.34 | 26.09 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque (in small letters to be consistent with others) of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.

# SCHEMATIC DIAGRAMS

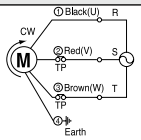
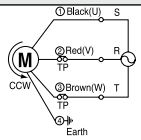
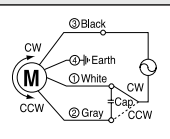
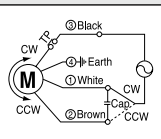
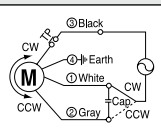
The direction of motor rotation is as viewed from the front shaft end of the motor.
Circled number is the terminal number inside terminal box.

■INDUCTION MOTOR

| S9I90GA( )-T S9I90GB( )-T S9I90GC( )-T S9I90GD( )-T<br>S9I90GA( )-T1S9I90GB( )-T1 S9I90GC( )-T1 S9I90GD( )-T1 | | S9I90GX( )-T S9I90GX( )-TCE<br>S9I90GX( )-T1 S9I90GX( )-T1CE | S9I90GU( )-T S9I90GT( )-T<br>S9I90GU( )-T1 S9I90GT( )-T1 | | S9I90GU( )-TCE S9I90GT( )-TCE<br>S9I90GU( )-T1CE S9I90GT( )-T1CE | |
|---|---|---|---|---|---|---|
| **CW** | **CCW** | **CW,CCW** | **CW** | **CCW** | **CW** | **CCW** |
|  |  |  |  |  |  |  |



■REVERSIBLE MOTOR

| S9I90GS( )-TCE S9I90GS( )-T<br>S9I90GS( )-T1CE S9I90GS( )-T1 | S9R90GA( )-T, S9R90GB( )-T<br>S9R90GA( )-T1, S9R90GB( )-T1<br>S9R90GC( )-T, S9R90GD( )-T<br>S9R90GC( )-T1, S9R90GD( )-T1 | S9R90GX( )-T, S9R90GX( )-TCE<br>S9R90GX( )-T1, S9R90GX( )-T1CE | S9R90GA( )-T(TP), S9R90GB( )-T(TP),<br>S9R90GC( )-T(TP), S9R90GD( )-T(TP),<br>S9R90GA( )-T1(TP), S9R90GB( )-T1(TP),<br>S9R90GC( )-T1(TP), S9R90GD( )-T1(TP),<br>S9R90GA( )-TCE , S9R90GB( )-TCE , S9R90GC( )-TCE<br>S9R90GD( )-TCE , S9R90GE( )-T , S9R90GE( )-TCE<br>S9R90GA( )-T1CE , S9R90GB( )-T1CE , S98R90GC( )-T1CE<br>S9R90GD( )-T1CE , S9R90GE( )-T1 , S9R90GE( )-T1CE |
|---|---|---|---|
| **CW** | **CCW** | **CW,CCW** | **CW,CCW** | **CW,CCW** |
|  |  |  |  |  |



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



# 150W

## INDUCTION MOTOR
## □90㎜ TERMINAL BOX TYPE

## INDUCTION MOTOR - CONTINUOUS RATING

| SIZE mm sq. | Type | Poles | Output | Voltage | Frequency | Duty | Rated Load | | | | Starting Torque | | Capacitor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Current | Speed | Torque | | | | |
| | | | (W) | (V) | (Hz) | | (A) | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (uF) |
| 90 | S9I150GU-T<br>S9I150GU-T1<br>S9I150GU-TCE<br>S9I150GU-T1CE | 4 | 150 | 3Ø 200 | 50 | Cont. | 1.0 | 1250 | 11.70 | 1.170 | 18.0 | 1.800 | — |
| | | | | | 60 | | 0.9 | 1500 | 9.70 | 0.970 | 15.0 | 1.500 | |
| | S9I150GT-T<br>S9I150GT-T1<br>S9I150GT-TCE<br>S9I150GT-T1CE | 4 | 150 | 3Ø 220 | 50 | Cont. | 1.0 | 1300 | 11.30 | 1.130 | 22.0 | 2.200 | — |
| | | | | | 60 | | 0.9 | 1550 | 9.40 | 0.940 | 19.0 | 1.900 | |
| | S9I150GS-T<br>S9I150GS-T1<br>S9I150GS-TCE<br>S9I150GS-T1CE | 4 | 150 | 3Ø 380 | 50 | Cont. | 0.46 | 1250 | 11.70 | 1.170 | 18.00 | 1.800 | — |
| | | | | | 60 | | 0.42 | 1500 | 9.70 | 0.970 | 15.00 | 1.500 | |
| | | | | 3Ø 400 | 50 | Cont. | 0.49 | 1250 | 11.70 | 1.170 | 19.00 | 1.900 | |
| | | | | | 60 | | 0.43 | 1500 | 9.70 | 0.970 | 16.00 | 1.900 | |

❖ Above model is a TP embeded and thermally protected type.
❖ CE marked at the end of the model name indicates that it is thermally protected type which has received CE with built-in TP.
❖ Only "H" type is applicable.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KH□B | kg-cm | 23.1 | 27.7 | 38.5 | 46.2 | 57.7 | 69.3 | 77.0 | 86.6 | 104 | 125 | 139 | 156 | 187 | 224 | 249 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 2.26 | 2.72 | 3.77 | 4.53 | 5.66 | 6.79 | 7.55 | 8.49 | 10.24 | 12.29 | 13.65 | 15.36 | 18.34 | 21.97 | 24.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

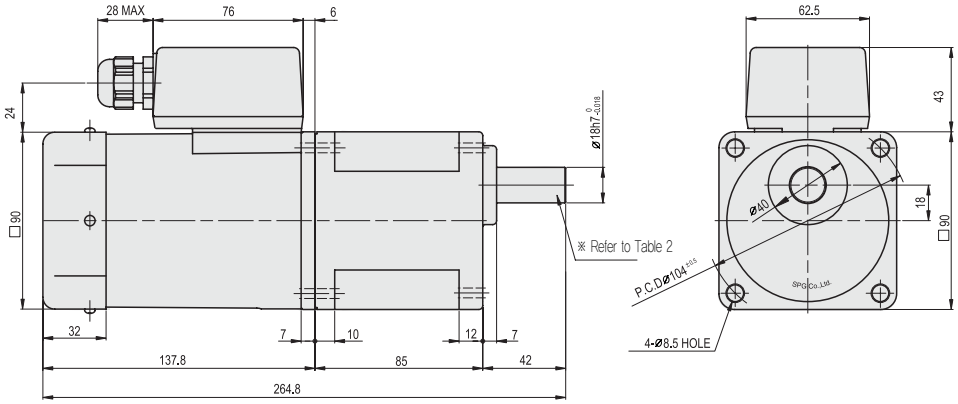
| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KH□B | kg-cm | 23.2 | 27.8 | 38.7 | 46.4 | 58.0 | 69.6 | 77.4 | 87.0 | 104 | 125 | 139 | 156 | 188 | 225 | 250 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 2.28 | 2.73 | 3.79 | 4.55 | 5.69 | 6.83 | 7.59 | 8.53 | 10.24 | 12.29 | 13.65 | 15.36 | 18.43 | 22.06 | 24.52 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque (in small letters to be consistent with others) of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ For a three-phase 380V~440V motor, be cautious when using the inverter. When inverter is used, the insulation of winding becomes hot and may cause damage to motor.

# DIMENSIONS

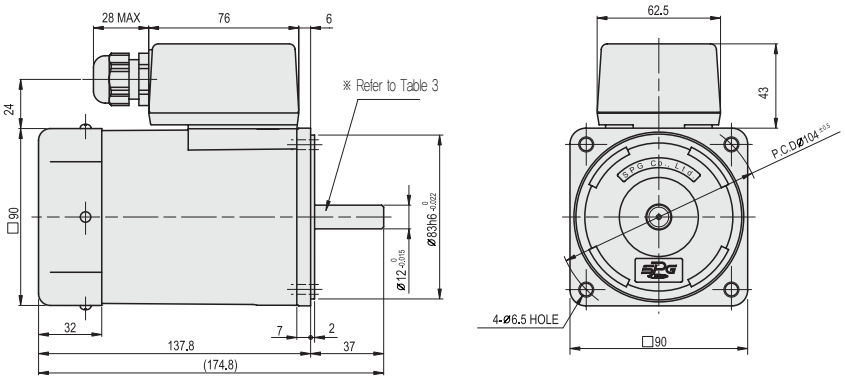
## GEARED MOTOR

※MOTOR MODEL : S9I150G□-T
※HEAD MODEL : S9□H3B~S9□H200B




## MOTOR

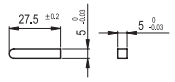
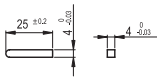
※MOTOR MODEL : S9I150□□-T



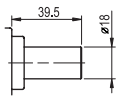
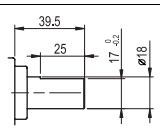
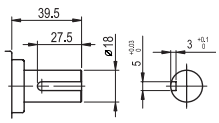

## WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.10 |
| GEAR HEAD | S9□H3B ~S9□H10B | 1.65 |
| | S9□H12.5B ~S9□H20 B | 1.80 |
| | S9□H25B ~S9□H60B | 1.90 |
| | S9□H75B ~S9□H200B | 1.95 |

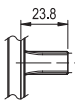
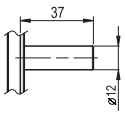
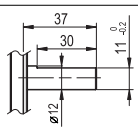
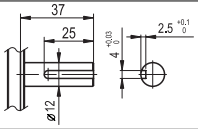
## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SH3B ~S9SH200B |  |
| D-CUT TYPE<br>S9DH3B ~S9DH200B |  |
| KEY TYPE<br>S9KH3B ~S9KH200B |  |

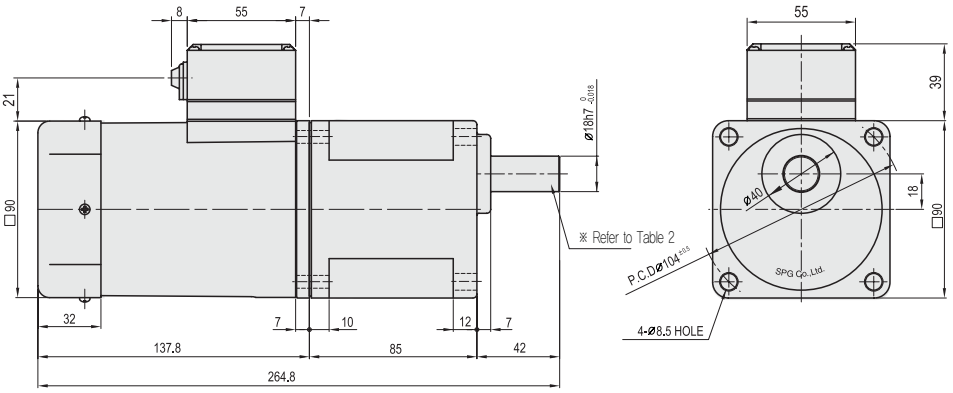
## SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I150G□-T |  |
| STRAIGHT TYPE<br>S9I150S□-T |  |
| D-CUT TYPE<br>S9I150D□-T |  |
| KEY TYPE<br>S9I150K□-T |  |

# DIMENSIONS

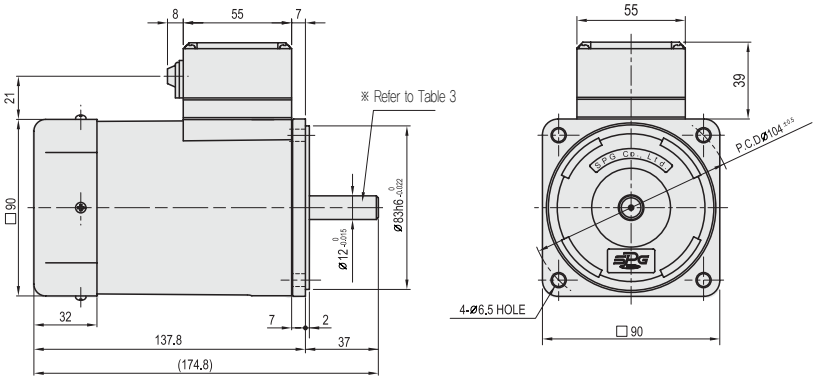
## GEARED MOTOR

※MOTOR MODEL : S9I150G□-T1
※HEAD MODEL : S9□H3B~S9□H200B




## MOTOR

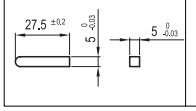
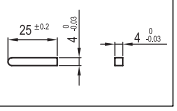
※MOTOR MODEL : S9I150□□-T1




## WEIGHT - (Table1)

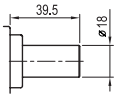
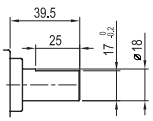
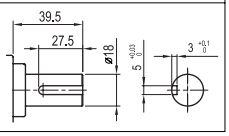
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.05 |
| GEAR HEAD | S9□H3B ~S9□H10B | 1.65 |
| | S9□H12.5B ~S9□H20B | 1.80 |
| | S9□H25B ~S9□H60B | 1.90 |
| | S9□H75B ~S9□H200B | 1.95 |

## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

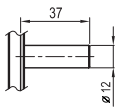
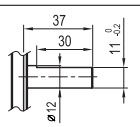
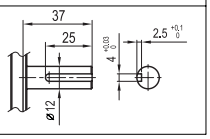


## SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SH3B ~S9SH200B |  |
| D-CUT TYPE<br>S9DH3B ~S9DH200B |  |
| KEY TYPE<br>S9KH3B ~S9KH200B |  |



## SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I150G□-T1 |  |
| STRAIGHT TYPE<br>S9I150S□-T1 |  |
| D-CUT TYPE<br>S9I150D□-T1 |  |
| KEY TYPE<br>S9I150K□-T1 |  |

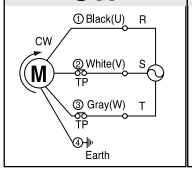
# SCHEMATIC DIAGRAMS

The direction of motor rotation is as viewed from the front shaft end of the motor.
Circled number is the terminal number inside terminal box.

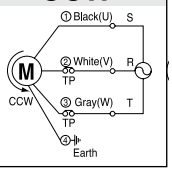
S9I150GU-T
S9I150GU-T1
S9I150GU-TCE
S9I150GU-T1CE

S9I150GU-T
S9I150GU-T1
S9I150GU-TCE
S9I150GU-T1CE

**CW**



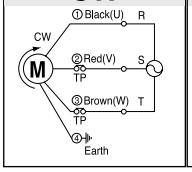

**CCW**



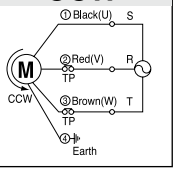

S9I150GS-TCE
S9I150GS-T1CE

S9I150GS-T
S9I150GS-T1

**CW**




**CCW**




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


SPG
MOTOR

# SPEED CONTROLLER AND CONTROL MOTORS

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# CHARACTERISTICS OF SPEED CONTROL MOTORS



## 1. Characteristics of Speed Control Motos

- By using it with the speed controller, a wide range of speed can be controlled (50Hz: 90~1400rpm, 60Hz: 90~1700rpm). The speed can be controlled easily with the speed controller.
- Depending on the type of speed controller, it can be combined with the motor for various purposes such as speed-control, braking, slow run, slow stop, etc.
- Built in T.G(Tacho Generator) to control the feedback. Thus, even if the power frequency changes the rotating numbers does not change.
- When the speed control motor with an electronic brake is used instantaneous braking and electronic braking operate simultaneously for strong braking power.
- The speed control motor with an electronic brake also has a non-excitation run type of electronic brake. Even if the power is off, braking remains active to maintain braking of a load.
- There are 3 types of speed control motors: induction motor, reversible motor and speed control motor, all with an electronic brake. An appropriate motor should be selected depending on its usage.
- Output range of the induction motor is 06W~90W (unit types are 06W~180W). The reversible motor has an output range of 06W~40W and the electronic brake motor has an output range of 06W~40W (However, SR types are 06W~90W).

## 2. Selection Method

### (1) Selection of motor and controller

- Is speed control needed only?
- Is instantaneous braking needed?
- Is maintenance of braking power needed?
- How much is the output of the applicable motor?
- Are the slow run, slow stop functions needed?

### (2) Selection of gear ratio of gearhead

- When the number of rotations of the output shaft of the gear requires A rpm to B rpm, the gear ratio is calculated by using the higher number of rotations (B rpm).
- For the AC speed control motor, the number of rotations for the motor is calculated with 1300rpm. (1300 rpm is used as a numerator since the largest output torque is required and 1300 rpm is most frequently used). Use the nearest approximated value of the gearhead (gear ratio = i)

$$\text{at Gear Ratio } i = \frac{1300[\text{rpm}]}{B[\text{rpm}]}$$

### (3) Highest number of rotations and lowest number of rotations of the motor shaft

- When the highest number of rotations is NH and the lowest number of rotations is NL, they are as follows.
- Highest number of rotations of the required motor : $NH = B \times i$[rpm]
- Lowest number of rotations of the required motor : $NL = A \times i$[rpm]

### (4) Required torque of the motor

The required torque of the motor is found as follows.

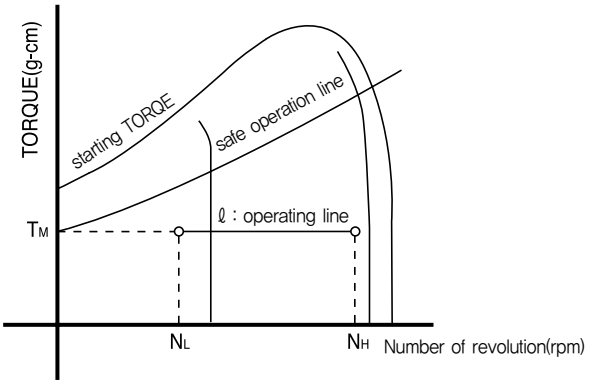
$$T_M = \frac{T_L}{i \times \eta} \quad [g \cdot cm]$$

$T_M$ : required torque of the motor [g · cm]
$T_L$ : torque necessary to operate actual load [g · cm]
i : reduction ratio $\eta$ : efficiency of the gearhead

### (5) Selection of the motor

- The motor is decided by the required torque TM, rotational frequencies NL~NH and the torque-number of rotations curve (hereafter, N-T curve). When selecting an AC speed control motor, choose the motor with its operating line below the safe operation line shown in 〈Fig. 1〉

(Even in the area above the limit curve, the motor can be used without any problems as long as the surface temperature remains below 90°C.




〈Fig.1〉 Torque-Number of revolutions (N-T) curve

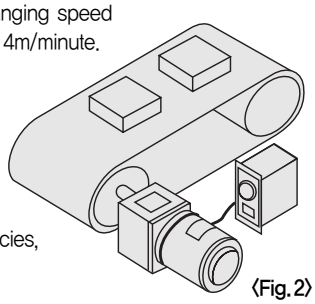
### (6) Selection of gearhead

- After the motor is selected, the gearhead should be decided with consideration of the torque size of the load. Confirm that the torque of the load is within the torque allowed by the gearhead.

## 3. Example of selecting the appropriate motor

Conditions: One way rotation, changing speed within 1m/minute, 2m/minute and 4m/minute.

Drum diameter : 10cm
Operating torque : 30kg · cm
Power : single phase 110V 60Hz
instantaneous braking in emergencies, but no holding power.



〈Fig.2〉

### (1) Motor and controller

- Rotation is in one direction and there is no holding power. Therefore, the induction motor is selected.

### (2) Revolutions of output shaft of gearhead

- The number of rotations of the gearhead shaft when the belt conveyor speed is 1m/minute.

$$\text{Number of rotations} = \frac{\text{Speed of belt conveyor}}{\text{Outer diameter of drum}} = \frac{100}{10\pi} \fallingdotseq 3.18[\text{rpm}]$$

- Number of rotations of the gearhead shaft when the belt conveyor speed is 2m/minute.

$$\text{Number of rotations} = \frac{\text{Speed of belt conveyor}}{\text{Outer diameter of drum}} = \frac{200}{10\pi} \fallingdotseq 6.37[\text{rpm}]$$

- Number of rotations of the gearhead shaft when the belt conveyor speed is 4m/minute.

$$\text{Number of rotations} = \frac{\text{Speed of belt conveyor}}{\text{Outer diameter of drum}} = \frac{400}{10\pi} \fallingdotseq 12.74[\text{rpm}]$$

### (3) Gear ratio

- The gear ratio is calculated using the higher number of rotations of the gearhead.

$$\frac{\text{Number of rotations of the motor}}{\text{Number of rotations of the gearhead}} = \frac{1300}{12.74} \fallingdotseq 102$$

The nearest approximated reduction ratio is 1/100.

### (4) Number of rotations of motor shaft

- The number of rotations of the motor shaft is calculated by the number of rotations of the gearhead shaft × reduction ratio for each speed of the belt conveyor.
  · 3.18 × 100 = 318 [rpm]
  · 6.37 × 100 = 637 [rpm]
  · 12.74 × 100 = 1274 [rpm]

### (5) Required torque of motor

The transfer efficiency of a gear head with gear ratio 100 is 66%, so the required torque of the motor is

$$\frac{\text{operating torque}}{\text{gear ratio} \times \text{Efficiency}} = \frac{30}{100 \times 0.66} \fallingdotseq 0.45\ [\text{kg} \cdot \text{cm}]$$

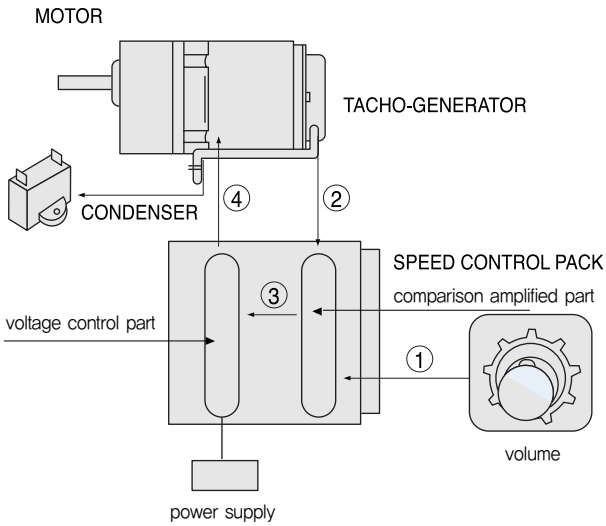
### (6) Selection of motor

- From the N-T curve of the induction motor, the S8125GB-V12 motor and the S8KA100B gearhead can be combined to use. However, in such a case, make sure that the inertia load should fall within the specification of the selected motor.

## 4. The Principle of Speed Control

### (1) The Principle of Speed Control

- 〈Fig. 3〉 shows is the basic speed control structure of the close loop current control method.
  The followings are explanations of close loop speed control.

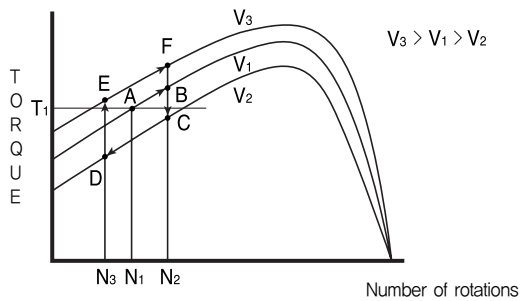



〈Fig.3〉 Basic structure of speed control for the close loopvoltage control method

- If Tacho-Generator changes the voltage that is proportional to the rotations, make comparison between the number of rotations of the motor and the voltage preset by the volume.
- This difference in voltage is called "comparative voltage".
- Comparative voltage operates the motor through the voltage amplifier and the voltage controller.
- Comparative voltage is mostly controlled by zero-crossing. Number of rotations is decided by the value that the speed controller selects.
- Even when the load changes, the number of rotations does not change. When the Tacho-Generator changes, the number of rotations immediately changes with the value.
- Accordingly, CLOSE LOOP speed control detects the number of rotations of the motor and controls the operating voltage to maintain it constantly.

### (2) Primary voltage control by CLOSE LOOP

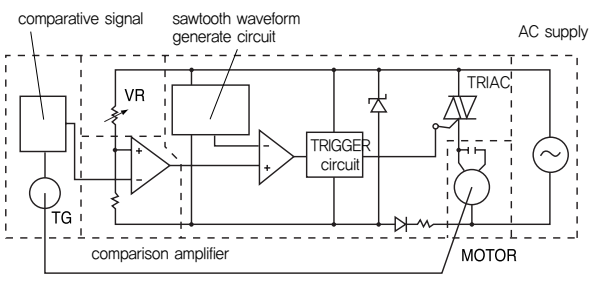
- 〈Fig. 4〉 shows the relationship between the torque of the induction motor and the number of rotations as applied voltage (primary voltage) changes.




〈Fig. 4〉

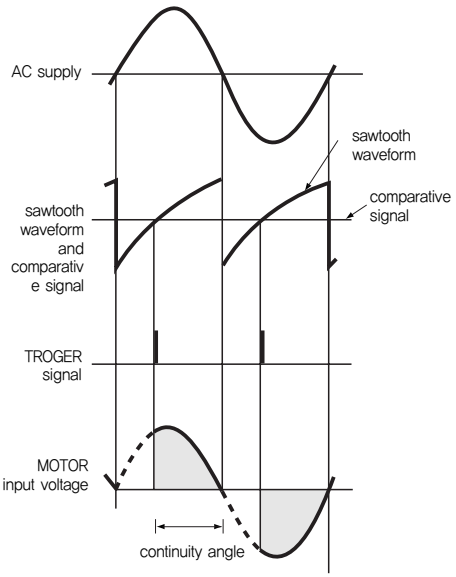
- Point A indicates current voltage ($V_1$), torque of the load ($T_1$), and the number of rotations ($N_1$). When rpm increases to $N_2$ and voltages changes to $V_2$, torque of the load changes to C
- At C, the torque of the load $T_1$ is larger than the torque of the motor, thus the number of rotations drops below $N_2$.
- When the number of rotations becomes $N_3$ and the voltage is raised to $V_3$, then the generated torque becomes larger than the torque of the load to move to E, and then the speed increases toward F.
- To stabilize the number of rotations, it has to make loop smaller like C→D→E→F by controlling the primary voltage.
- During the primary voltage control by close loop, to meet the changes according to the number of rotations of the motor, it should have the primary voltage controlled and maintain the number of rotations constant.

〈Fig. 5〉




### (3) Operation of speed controller

- The speed controller is explained in 〈Fig. 5.〉
- Number of rotations of the motor comes from the Tacho-Generator through feedback voltage through the rectifying circuit.
- The difference between the selected voltage of the speed controller which was controlled in the VR and the feedback voltage is amplified in the comparative amplifier.
- A trigger signal is generated from the sawtooth waveform which comes from the sawtooth waveform generator, comparator from the comparative signal and triac from the trigger circuit.
- The angle of the triac is controlled with the trigger signal to control voltage in the motor.
- This makes the number of rotations of the motor constant, thereby controlling it. Refer to 〈Fig. 6〉.

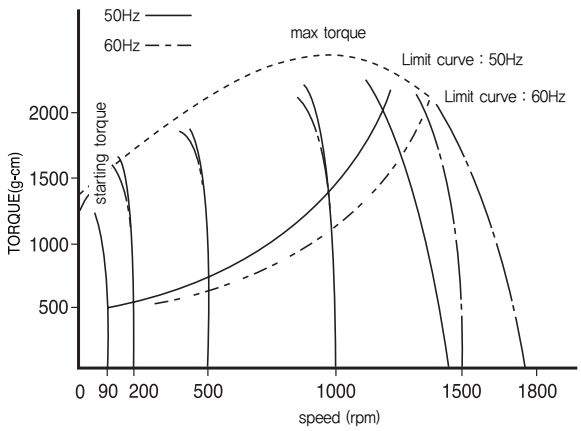



〈Fig. 6〉

## 5. Limit of Use

### (1) Limit curve

- In the AC speed control motor N-T graph 〈Fig. 7〉, the area below the Limit curve is called the continuous operation area.




〈Fig. 7〉 Torque-number of revolutions N-T curve

- The limit curve does not go beyond the highest temperature allowed by the motor (continuous for induction motors and 30 minutes rating for reversible motors) and because continuous operation is possible Limit curve does not go beyond the highest temperature within its continuous operation(continuous for induction motors, 30 minutes rating for reversible motors), and the curve is decided by the motor's temperature. is decided by the temperature of the motor.

- Our speed control motor has a class E insulation and the permitted temperature of the winding section is 120℃. Therefore, if the temperature of the winding section is less than 120℃, continuous operation is possible, But since measuring the temperature of the winding section is difficult, continuous operation is generally possible when the surface temperature of the motor housing is less than 90℃. The temperature difference between the winding section and the housing surface is generally around 10˚C to 20˚C, but may vary depending on the type of the motor.

### (2) Surface temperature of 90˚C or less

- The highest part of the motor's rising temperature is the winding section. Thus, the highest allowable temperature is decided by the insulation level of the winding section. (SPG's small AC motors have a class E insulation and the highest allowable temperature is 120℃.)
- The difference between the temperature of the surface of the motor and the winding section is about 10˚C~20˚C. (A motor with a cooling fan has about 30˚C difference because the cooling fan cools the surface of the motor.)
- When the temperature of the winding section is 120℃, the surface temperature is about 100℃. Therefore 90℃ is the sufficient value.

# ANALOGUE TYPE SPEED CONTROLLER



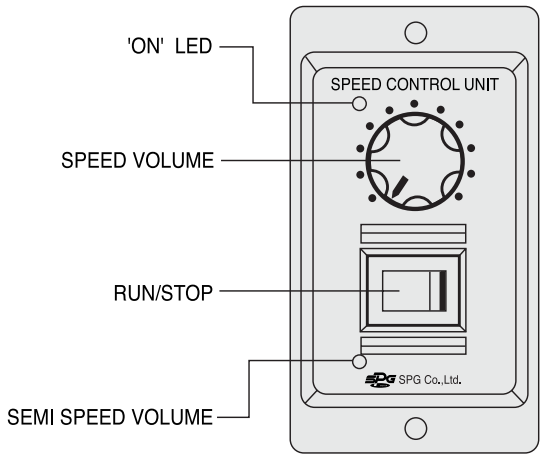

## 1. How to use

### (1) Operation

1) The speed control unit and the lead wire connector of the motor are connected and then the plug cord is connected to AC power.
2) When the 「RUN/STOP」 switch of the control unit is switched to 「RUN」, it turns clockwise.
3) The product is made so that it will rotate in the clockwise direction. However, at times, due to gear ratio, the gearhead shaft rotates counterclockwise.

### (2) Speed control

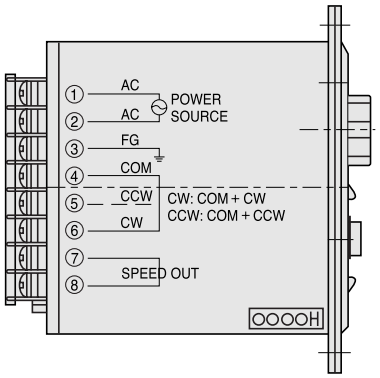
1) If the 「SPEED VOLUME」 switch of the analogue type speed controller is turned clockwise, number of rotation of the motor increases and when turned counterclockwise, it slows down.
2) It is possible to control and designate the speed of the motor between 90[rpm]~1400[rpm] at 50Hz and 90[rpm]~1700[rpm] at 60Hz.




〈Fig.1〉 Front of the analogue type speed controller

### (3) Stop

1) If the 「RUN/STOP」 switch of the analogue type speed controller is switched to 「STOP」, the motor stops.
2) This switch is not an on-off switch for power.
When the motor needs to be stopped for a long time, a separate power source should be installed and turned off.




〈Fig.2〉 Side of the unit type speed controller

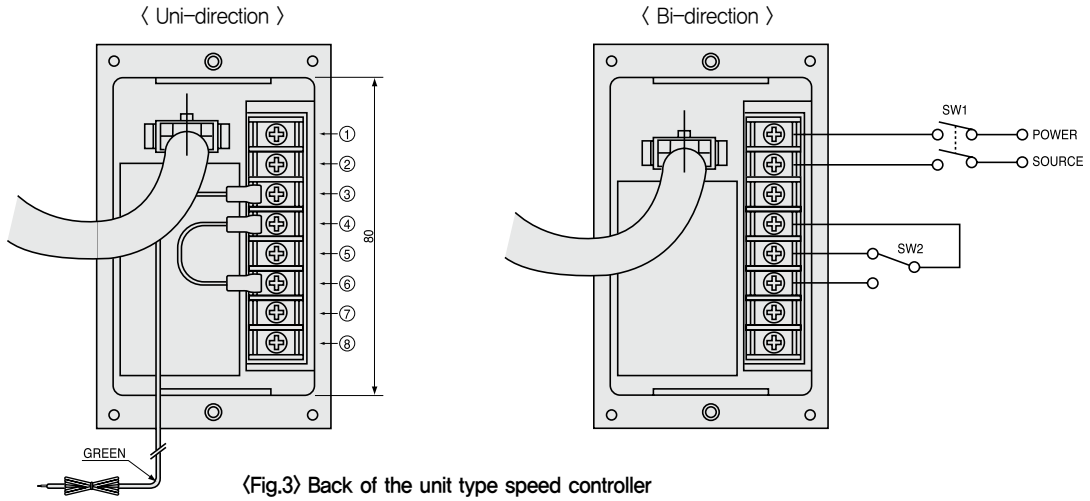
### (4) Changing of rotation direction〈Fig.3〉

#### 1) Continuous operation by uni-direction

- When ④COM and ⑤CCM are connected, the motor will rotate in an opposite direction with that of the conveyer unit.
- Power cords should always be connected to the ①AC and ② AC terminals. Make sure the unit is off when connecting.

#### 2) Normal/reverse operation

- Install the power supply switch (SW1) and the switch (SW2) to changeover between normal and reverse direction as shown in 〈Fig. 3〉 to change the direction of rotation.
- The motor should completely stop after the power switch (SW1) is turned off in order to turn switch (SW2) on. Therefore, instantaneous reverse is not possible.




〈Fig.3〉 Back of the unit type speed controller

| Switch number | Switch contact capacity |
|---|---|
| SW1 | AC 125V or AC 250V more than 5A |
| SW2 | AC 125V or AC 250V more than 5A |

## (5) SPEED OUT

⑦ and ⑧ are jacks to connect the rpm meter.

1) Number of rotation can be seen by connecting a digital display rpm meter(both of Digital and Analogue).
(Note) Use the spec, suitable as 2000 rpm, AC 10V products.

# 3. Combination

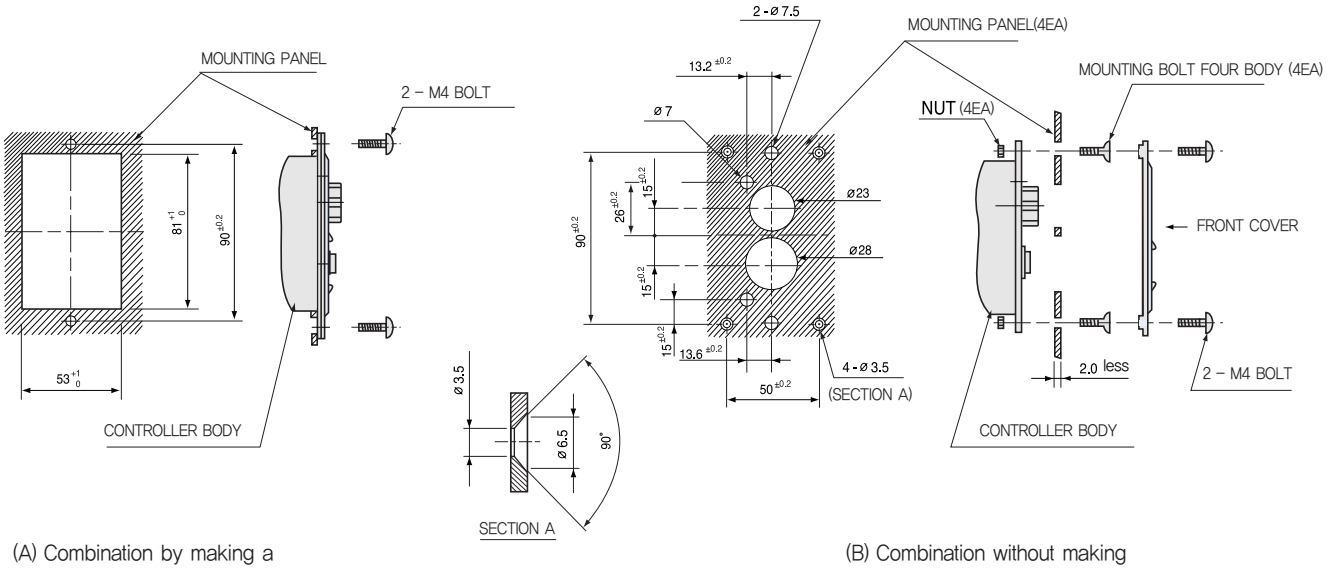
- There are 2 ways to combine the control unit

### (1) Combination by making a rectangular hole 〈Refer to Fig. 4A〉

1) Make rectangular holes in the combination panel.
2) Assemble the main body of the controller and the front cover so that the controller body fits in the rectangular holes of the panel. Use M4 bolts and nuts to fix.

### (2) Combination without making a rectangular hole 〈Refer to Fig. 4B〉

1) Make holes in the combination panel.
2) Separate the main body of the controller and the front cover.
3) Put the controller surface in the combination panel hole and fix with M3 flat-head bolts and nuts.
4) Attach the front cover of the controller to the combination panel and fix with M4 bolts and nuts.
5) The combination panel should be less than 2㎜ thick.




(A) Combination by making a rectangular hole

(B) Combination without making a rectangular hole

〈Fig.4〉 Analogue controller combination

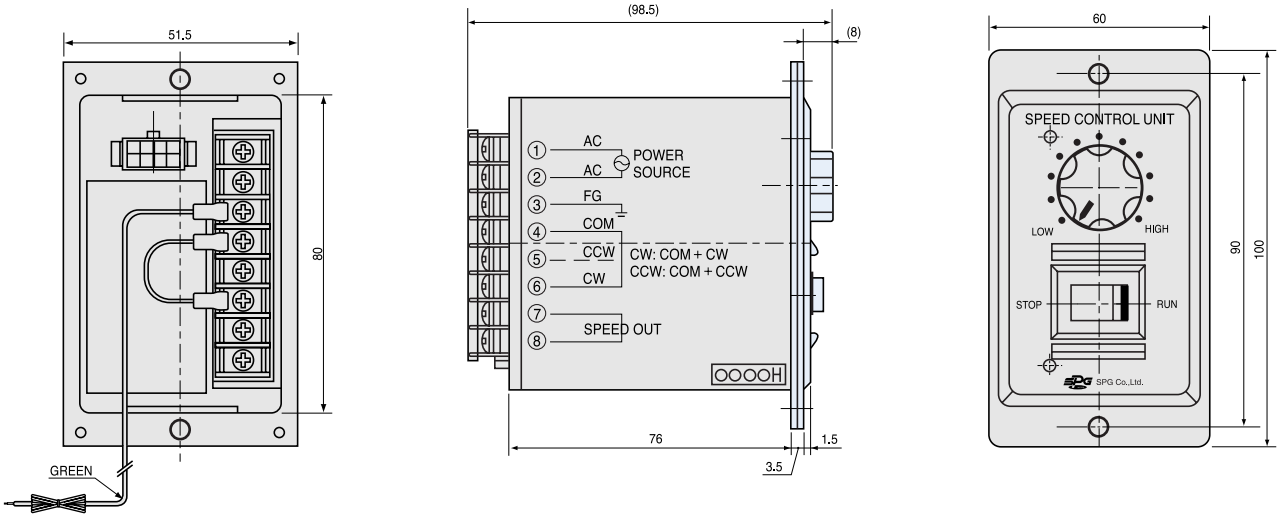
## 4. SPECIFICATIONS

| SPEC \ MOTOR | SUA□IA-V12 | SUA□IB-V12 | SUA□IC-V12 | SUA□ID-V12 | SUA□IX-V12 |
|---|---|---|---|---|---|
| Rated Voltage | AC 110V | AC 220V | AC 100V | AC 200V | AC 220V~240V |
| Operation Voltage Range | ±10% | | | | |
| Power Source Frequency | 60Hz | 60Hz | 50/60Hz | 50/60Hz | 50Hz |
| Speed control range | 60Hz : 90~1700rpm<br>50Hz : 90~1400rpm | | | | |
| Speed variation | 5%(Standard) | | | | |
| Speed setting device | Built in external speed setting device attachable | | | | |
| Slow run<br>Slow stop | None | | | | |
| Operation Temperature | 0~40℃ | | | | |
| Storage Temperature | -10~60℃ | | | | |
| Ambient humidity | 85% Maximum(non condensing) | | | | |

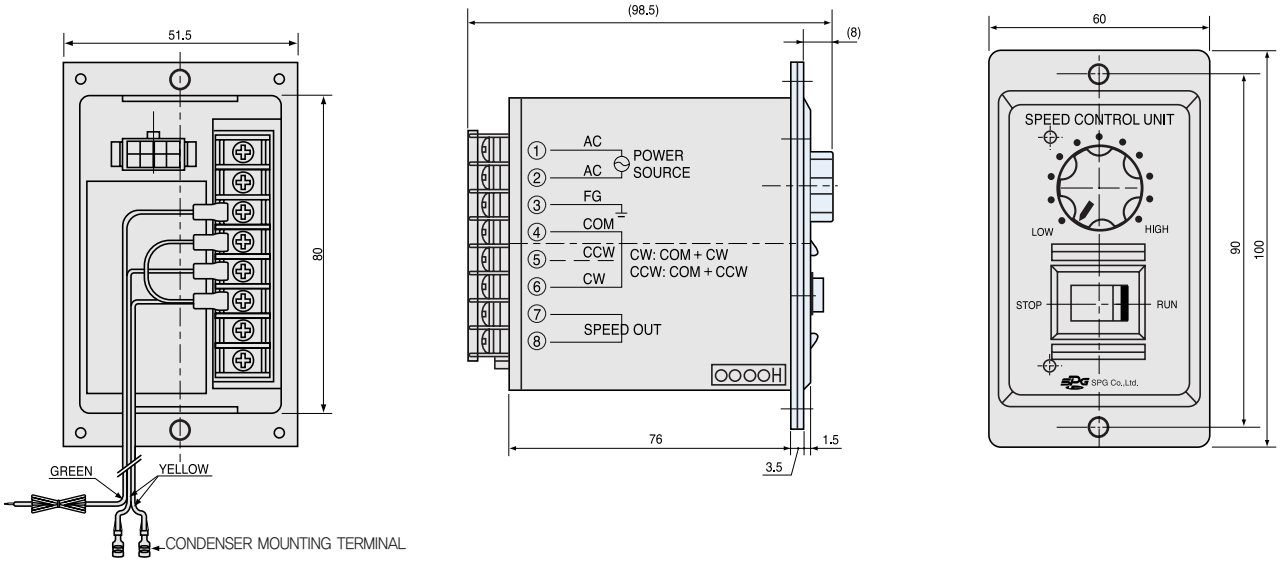
# DIMENSIONS

## ✚ SPEED CONTROLLER (SCALE = 1/2)

- **180W and below** (interior condenser)
  → Except for over 60W 110V types




- **60W and over** (exterior condenser)
  → 110V types



# DIGITAL TYPE SPEED CONTROLLER




## 1. Funtion chart

• Automatic computer control

| Function | Contents |
|---|---|
| Change rotating direction | CW/CCW termianls(Default setting: Clockwise) |
| Run / Stop | Operated with RUN/STOP Key |
| Set RPM | Set digital(multiple magnification unit, 10rpm) |
| Set mark magnification | Set with Gear ratio(refer to gear ratio chat) & multiple magnification(Unit 0.005) |
| SLOW RUN SLOW STOP | 0.1 sec. ~ 30 sec.(Unit 0.1) |
| POWER-ON/OFF | Set the mode when power is supplied |
| LOCK Function | Prevents malfunctions |
| Setup Parameters | Setup for powering off and saving the parameters |

## 2. How to use

### (1) Power on/off Switch (Default setting: 'NO')

The following features the functions when the power is supplied.

| | |
|---|---|
| YES | It keeps running even when the power is off, if set to "Run". It stops when the power is off, if set to "Stop". |
| NO | It stops regardless of "Run/Stop". |

• Setting up to "NO" can help prevent unexpected dangers.

• When using"YES" mode (Please use in set mode)

The user can remotely control "RUN/STOP" regardless the power is on or off.

Installation
1. Set the switch to 'YES' when power is on
2. Operate RUN/STOP once when power is on (It recognizes YES)

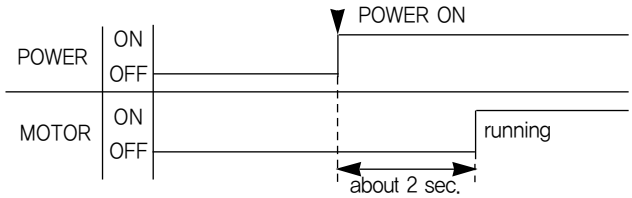
⚠ Caution
1. It takes about 2 seconds to commence operation after the power is supplied.
2. Both "Run" and "Stop" may lighten up when the "Run/Stop" key is used over 10,000 times. In such a case, alter the switch to "No" for a second to restore its normal condition.

### (2) Restoration after a blackout

The conditions will be restored in a same manner before the blackout occurred.

### (3) Reset time

Reset time takes approximately 2 seconds. No digital indication will be made while resetting.




Operate the key after digital signal is on.
When "Run/Stop" key is set to "Run" before turning the power off, it will take 2 seconds to run when the power is supplied. Reset time applies to post-blackout as well.

### (4) Automatic alteration of frequency

When set as 1400 rpm ~ 1800 rpm at 60 Hz, rpm becomes at 1500 at 50 Hz, but when set as 1500 rpm at 50 Hz, rpm remains 1500 even when Hz increases to 60.

### (5) Trouble Indications

Whenever trouble occurs, "Run" and "Stop" signals are both indicated. It may be restored and set to default setting when the power is resupplied. If the trouble is not resolved after resupplying the power, please contact SPG's R&D department or refer to 7. Troubleshooting.

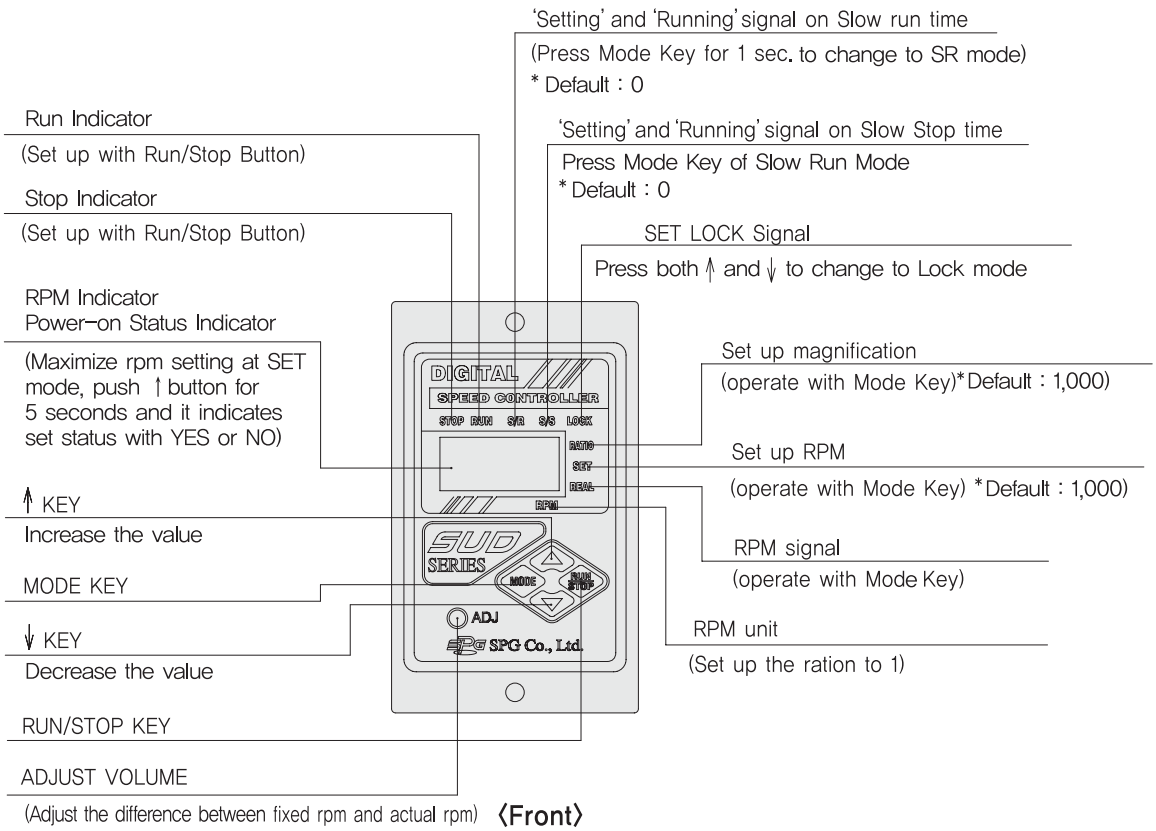
### (6) Thermal protector

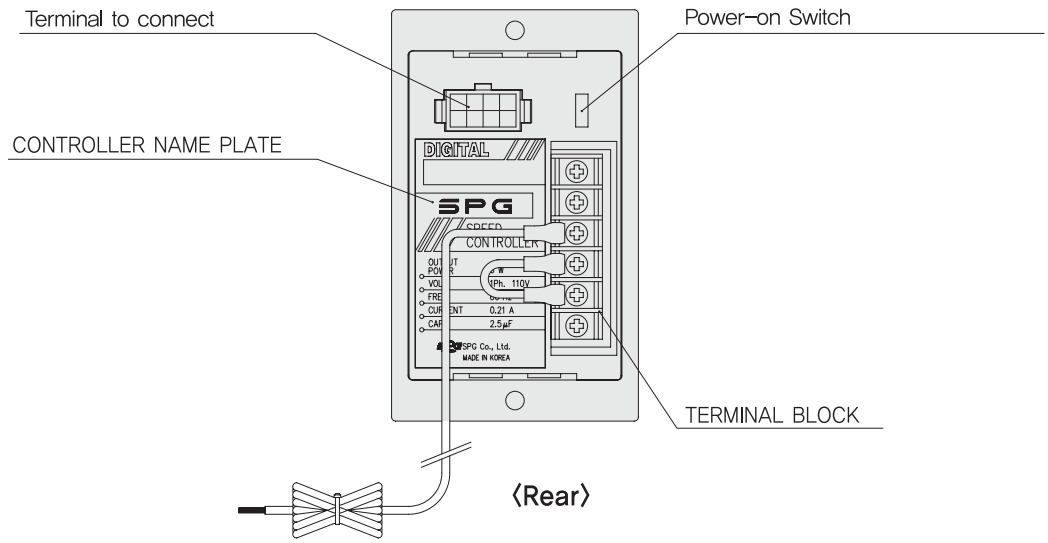
A thermal protector (TP) is installed in a motor to prevent the motor from overheating. When the motor overheats, the TP activates to stop the motor. It automatically deactivates when the motor cools down and start the motor again.

### (7) Test for withstand voltage & Impulse voltage

Need to disconnect of two power codes from outer motor wire in the case of withstand voltage testing with line earth, impulse voltage testing and testing of heat transfer resistance.

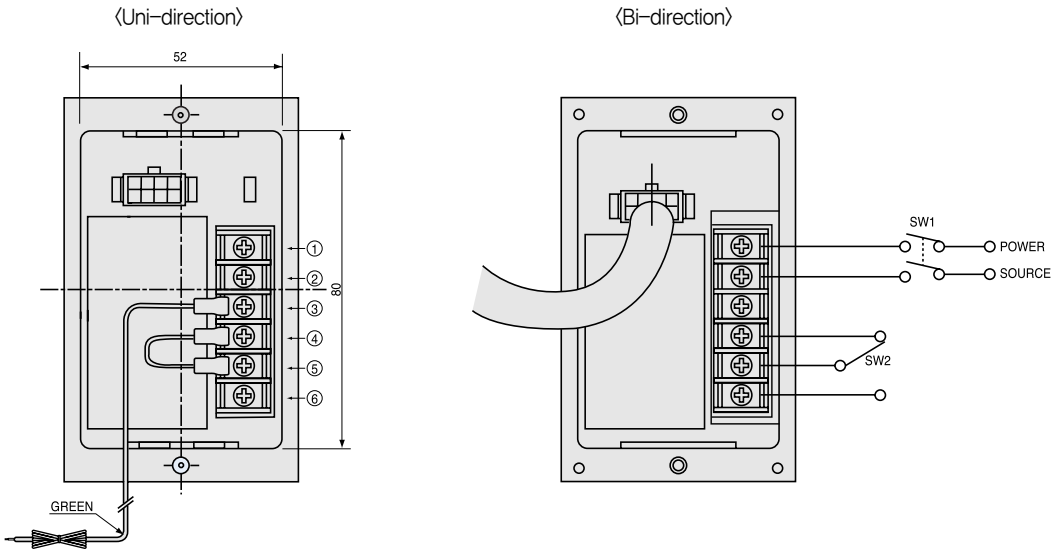
## 3. Parts names and functions



# 4. Usage

## (1) Transformation of rotation direction




〈Fig.3〉 Rear side of the digital type speed controller

### 1) Uni-direction continuous operation

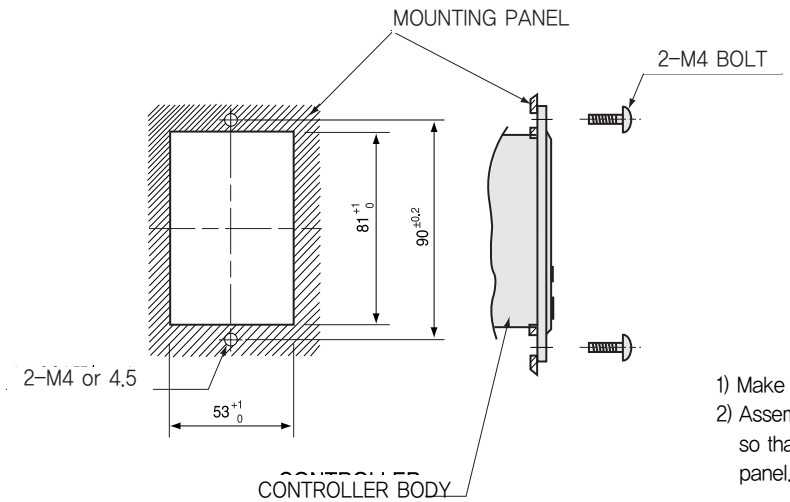
- To reverse the direction of rotation from clockwise to counter-clockwise, connect ⑤COM and ⑥CCW instead of connecting ⑤ COM and ④CW.
- Power cords should always be connected to ①AC and ②AC terminals. Do not forget to turn the power off before connecting.

### 2) Bi-direction operation

- Install the switches as shown in 〈Fig. 3〉 〈Bi-direction?〉
- The rotating direction cannot be reversed instantaneously. (SW1) must be turned off and the motor must be completely stopped before switching (SW2).

| Switch number | Switch contact capacity |
|---|---|
| SW1 | AC 125V or AC 250V more than 5A |
| SW2 | AC 125V or AC 250V more than 5A |

## (2) Mounting procedure




1) Make rectangular holes in the combination panel.
2) Assemble the main body of the controller and the front cover so that the controller body fits in the rectangular holes of the panel. Use M4 bolts and nuts to fix

# 5. Mode Descriptions

## (1) RATIO MODE

Ratio mode indicates the actual speed of gearhead output RPM and conveyor speed by multiplying rpm with magnification.

### 1) Gear Ratio (for indication conforming to gearhead output rpm)

〈"SET" or"REAL" value = Motor rpm÷Gearratio〉
Example) The Gear Ratio chart is listed. Select the required value with ↑, ↓ button 1.000 ↔ 3 ↔ ... ↔ 100 ... ↔ 202 ... ↔ 1000 ... ↔ 2515 [Refer to P14. Gear ratio]

### 2) Multiple magnification value (for indication conforming to the transfer speed of conveyor belt)

〈"SET"or"REAL"value =Motor rpm X Multiple magnification value 〉
Example) The Multiple magnifications are listed from 0.005 thru 0.995. Select the required value with ↑, ↓ button 1.000 ↔ 0.995 ↔... ↔ 0.015 ↔ 0.010 ↔ 0.005 (0.005 per tick)

## (2) SET MODE

Set mode is used to setup RPM using ↑, ↓ button

**If the indicated magnification is 1.000**

Term Value is 10 rpm
Example) • Frequency 50Hz : 90 ↔ 100 ↔ 110 ↔ ... ↔ 1400 ↔ 1500rpm
• Frequency 60Hz : 90 ↔ 100 ↔ 110 ↔ ... ↔ 1400 ↔ ... ↔ 1700 ↔ 1800rpm

**If the indicated magnification is not 1.000**

Rpm can be set in connection with the Multiple Magnification value set on Ratio Mode.
Example) Gear ratio value = 3
Base Unit, 10÷3rpm. The value is rounded to nearest tenth.
• Frequency 50Hz : 29.9 ↔ 33.3 ↔ 36.6 ↔ ... ↔ 466.6 ↔ 500.0rpm
• Frequency 60Hz : 29.9 ↔ 33.3 ↔ 36.6 ↔ ... ↔ 466.6 ↔ ... ↔ 566.6 ↔ 600.0rpm
Example) Multiple magnifications value =0.500
Base Unit, 10X0.500. The value is rounded to nearest tenth.
• Frequency 50Hz : 45.0 ↔ 50.0 ↔ 55.0 ↔ ... ↔ 700.0 ↔ 750.0rpm
• Frequency 60Hz : 45.0 ↔ 50.0 ↔ 55.0 ↔ ... ↔ 700.0 ↔ ... ↔ 850.0 ↔ 900.0rpm

## (3) REAL MODE

Real mode indicates the actual speed of a motor by multiplying with magnification.

「If the indicated magnification is 1.000」
Term Value is 5 rpm
Example) 0 ↔ 5 ↔ 10 ↔ ... ↔ 90 ↔ 95 ↔ 100 ↔ ... ↔ 1400 ↔ ... ↔ 1700rpm

「If the indicated magnification is not 1.000」
Operate on "Ratio" Mode by follows magnification and Gear ratio value
Example) Gear ratio value = 3
Base Unit, 5÷3rpm. The value is rounded to nearest tenth.
0 ↔ 1.6 ↔ ... ↔ 29.9 ↔ 31.6 ↔ 33.3 ↔ ... ↔ 466.6 ↔ ... ↔ 566.6rpm
Example) Multiple magnification value=0.500
Base Unit, 5X0.500. The value is rounded to nearest tenth.
Example) 0 ↔ 1.6 ↔ ... ↔ 29.9 ↔ 31.6 ↔ 33.3 ↔ ... ↔ 466.6 ↔ ... ↔ 566.6rpm

NOTE Nothing will be indicated if the magnification is under 1.000

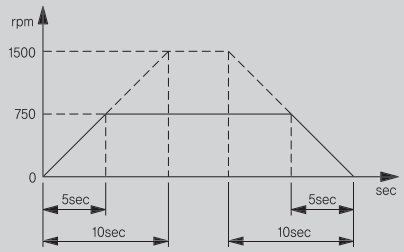
## (4) S/R MODE

S/R mode sets up the Slow Run time using ↑, ↓ button. 0.1 sec per tick, up to 30 seconds
0 ↔ 0.1 ↔ ... ↔ 0.2 ↔ 0.3 ↔ 0.4 ↔ ... ↔ 29.9 ↔ 30.0sec.

## (5) S/S MODE

S/S mode sets up the Slow Stop time using ↑, ↓ button. 0.1 sec per tick, up to 30 seconds
0 ↔ 0.1 ↔ ... ↔ 0.2 ↔ 0.3 ↔ 0.4 ↔ ... ↔ 29.9 ↔ 30.0sec.

NOTE 1. SLOW RUN · SLOW STOP time




Slow Run and Slow Stop time refers to time required to change rpm from 0 to 1500 and vice versa.

(ex) When Slow Run time is 10sec. And "Set" rpm is 750rpm

$$10s \times \frac{750rpm}{1500rpm} = 5s$$

It takes about 5sec from 0rpm to 750rpm.
The same time will be required for Slow Stop.

NOTE 2. Slow Run and Slow Stop time can be longer if Inertia of load is bigger

## (6) Power-On Status Setup Mode

Power-On Status Setup mode enables selections of operation when the power is supplied.

### 1) Indicating "YES"

When the power is resupplied, it recovers its previous operating conditions.

| Previous condition | After the power is resupplied |
|---|---|
| "RUN" | Run(after 2Sec.) |
| "STOP" | Stop |

2) Indicating "NO"

When the power is resupplied, it stops regardless of its previous condition

| Previous condition | After the power is resupplied |
|---|---|
| "RUN" | Stop |
| "STOP" | Stop |

## 6. Gear Ratio Char

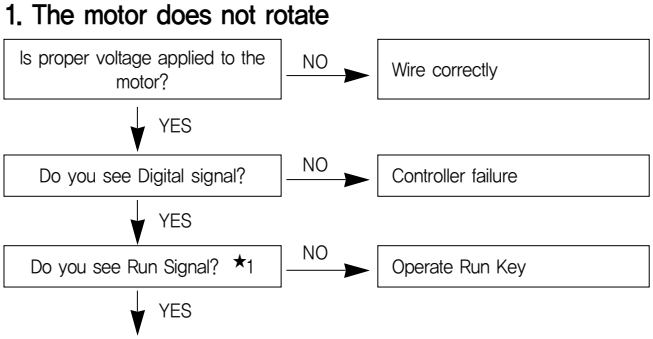
The gear ratio between actual and nominal can be different. Prefer to the chart in below

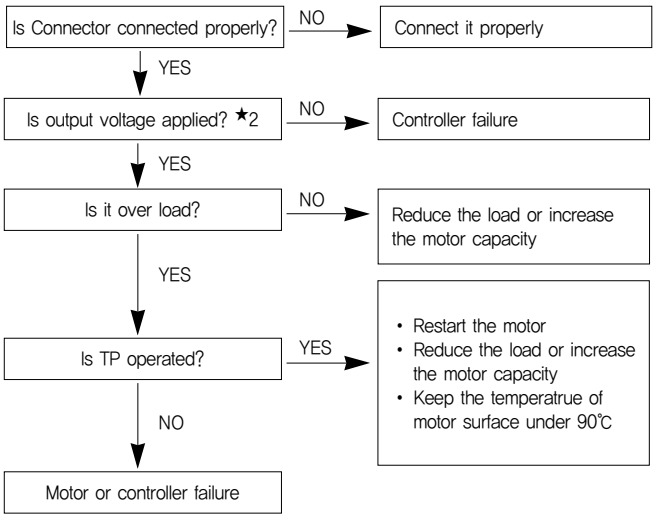
| Nominal gear ratio | Actual gear ratio | | | | | | | Inter-decimal gear head |
|---|---|---|---|---|---|---|---|---|
| | 60/6W | 70/15W | 80/15W | 80/25W | 90/40W | 90/60W | 90/90W | |
| 3 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | |
| 3.6 | 3.60 | 3.59 | 3.57 | 3.57 | 3.60 | 3.60 | 3.60 | |
| 5 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.04 | 5.04 | |
| 6 | 6.00 | 6.00 | 6.00 | 6.00 | 6.03 | 6.00 | 6.00 | |
| 7.5 | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | |
| 9 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | |
| 10 | 10.00 | 10.29 | 10.00 | 10.00 | 10.00 | 10.00 | 10.00 | |
| 12.5 | 12.50 | 12.14 | 12.50 | 12.50 | 12.50 | 12.50 | 12.50 | |
| 15 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | |
| 18 | 18.00 | 17.92 | 18.08 | 18.08 | 17.67 | 18.00 | 18.00 | |
| 20 | 19.90 | 20.00 | 20.00 | 20.00 | 20.00 | 20.19 | 20.19 | 10 |
| 25 | 25.06 | 24.80 | 25.00 | 25.00 | 24.73 | 25.00 | 25.00 | |
| 30 | 30.25 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | |
| 36 | 36.30 | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | 36.00 | |
| 40 | 40.80 | 40.36 | 40.11 | 40.11 | 40.36 | 39.68 | 39.68 | |
| 50 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | 50.00 | |
| 60 | 60.00 | 60.00 | 60.00 | 60.00 | 60.00 | 60.00 | 60.00 | |
| 75 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 76.02 | 76.02 | |
| 90 | 90.00 | 90.67 | 90.00 | 90.00 | 90.00 | 90.00 | 90.00 | |
| 100 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | |
| 120 | 120.0 | 118.0 | 120.0 | 120.0 | 120.0 | 120.0 | 120.0 | |
| 150 | 150.0 | 154.0 | 150.0 | 150.0 | 150.0 | 149.9 | 149.9 | |
| 180 | 180.0 | 181.2 | 180.0 | 180.0 | 180.0 | 179.8 | 179.8 | |
| 200 | 198.9 | 194.8 | 200.0 | 200.0 | 201.8 | 197.2 | 197.2 | |
| 250 | 251.5 | - | - | - | - | - | - | |

## 7. Trouble shooting

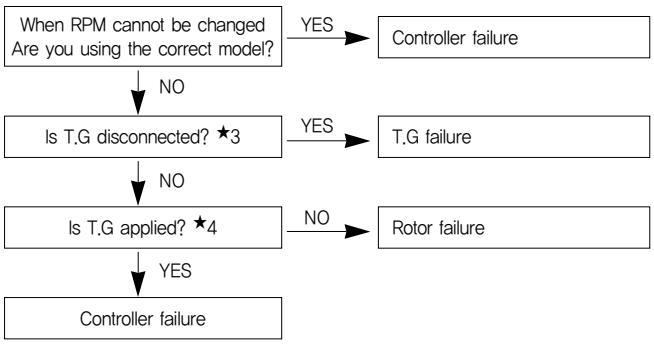
Whenever the trouble occurs, check the following table to see if it can be repaired on site. If the trouble remains unresolved after corresponding to the following steps, please contact the dealer or manufacturer.

### 1. The motor does not rotate

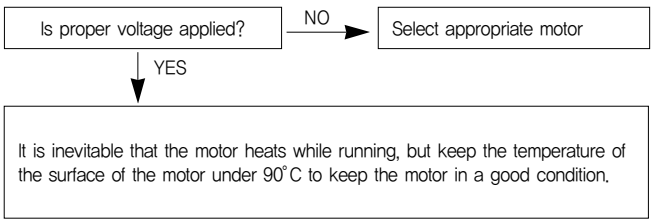



### 2. When RPM cannot be changed




### 3. When abnormal temperature occurs during running




1. If "Run" and "Stop" signals are indicated simultaneously, it is caused either by a failure of the controller or as the operation limit of "Yes" mode has been reached. Use "No" mode instead.
2. Check the voltage : Check the motor voltage of black-white, black-gray during motor connector is plugged.
   〈C.W black-white=100V〉 〈CCW black-grey=100V〉 (Voltage doubles for 220V specifications)
3. Turn on Test
   Disconnect the motor connector and check the resistance of red-red wire.
4. Check the voltage
   Connect the motor connector and check the voltage of red-red wire.

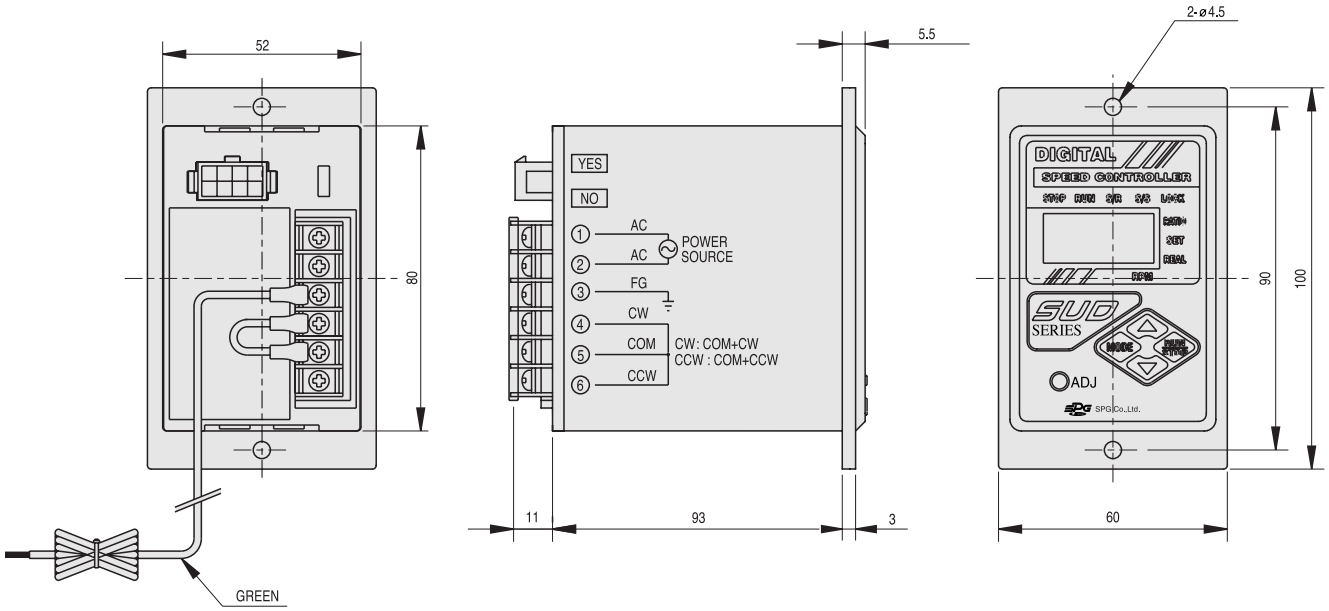
# 8. Specifications

| MODEL / List | SUD□IA-V12 | SUD□IB-V12 | SUD□IC-V12 | SUD□ID-V12 | SUD□IX-V12 |
|---|---|---|---|---|---|
| Rated Voltage | 1-phase 110V | 1-phase 220V | 1-phase 100V | 1-phase 200V | 1-phase 220~240V |
| Voltage range | ±10%(Compared with arted Voltage) | | | | |
| Frequency | 60Hz | 60Hz | 50/60Hz | 50/60Hz | 50Hz |
| Speed control range | 60Hz : 90-1700rpm<br>50Hz : 90-1400rpm | | | | |
| Speed changing rate | 5%(Standard) | | | | |
| Set Speed | Digital setting | | | | |
| Slow run/ Slow stop time | 0.1~30sec. | | | | |
| Temperature range | 0~40℃ | | | | |
| Conservation temperature range | -10~60℃ | | | | |
| Humidity range | Less than 85%(There is not dewing) | | | | |

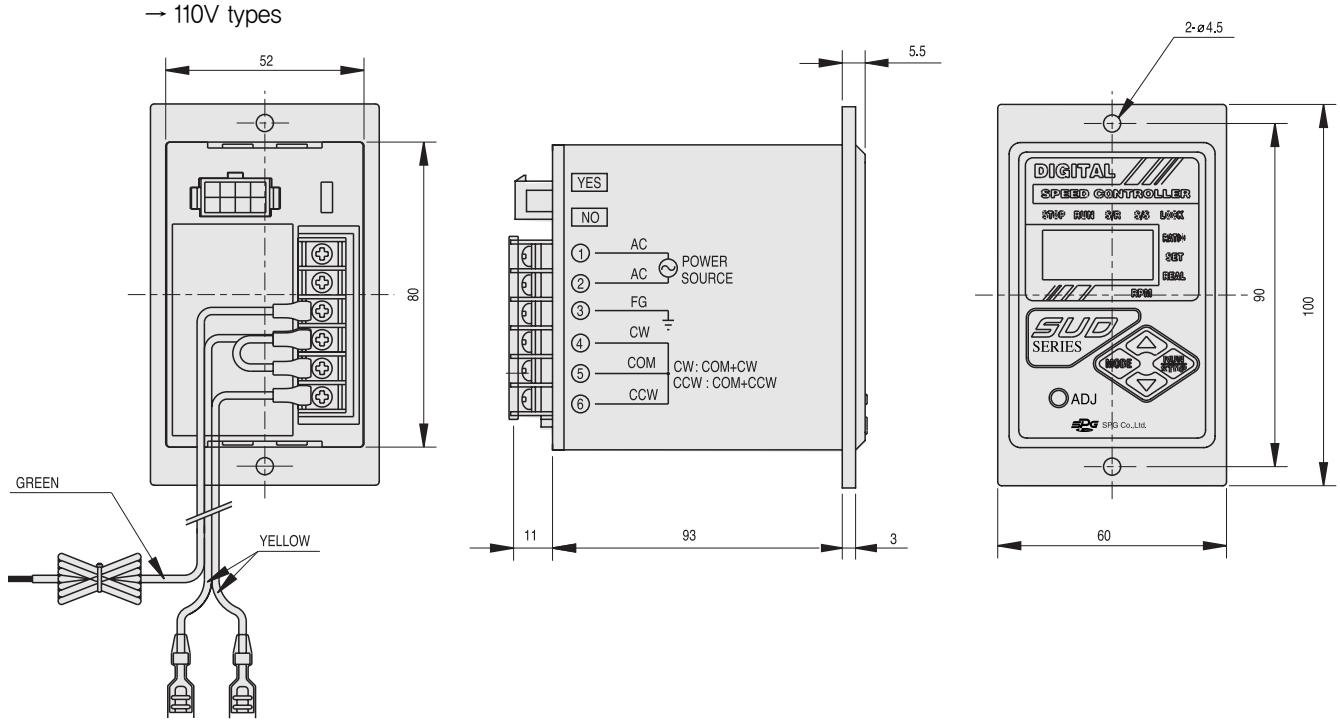
# DIMENSIONS

## ✚ SPEED CONTROLLER (SCALE = 1/2)

- **90W and below**(interior condenser)
  → Except over 60W 110V types




- **60W and over**(exterior condenser)
  → 110V types



# UNIT TYPE SPEED CONTROL MOTOR




## Characteristics of the unit type speed control motor

- This is a unit product that uses the seperate unit type controller and motor simultaneously.
- The motor and the controller are connected with one touch.
  AC power is connected and does not require a separate connection method. Speed can be controlled by a volume switch on the exterior. Therefore, it is appropriate for uses requiring remote control.
- The unit type controller has a speed controller circuit, a condenser for the motor and the volume.(By the size of the condenser, some units have to use the condenser on the outside.)
- The unit type controller does not have an instantaneous braking function.
- By using an extension cable(sold separately), it is possible to have a max distance of 2m between the motor and the controller.
- The control range is 90[rpm]~1400[rpm] for 50Hz and 90[rpm]~1700[rpm] for 60Hz.

### GENERAL SPECIFICATIONS OF SPEED CONTROL MOTORS

| ITEM | Specification |
|---|---|
| Insulation Resistance | 100㏁ or more when 500V megger is applied between the windings and the housing after rated motor operation under normal ambient temperature and humidity |
| Dielectric Strength | Sufficient to withstand 1.5V at 50/60㎐ applied between the windings and the case after rated motor operation under normal ambient temperature and humidity for 1min. |
| Temperature Rise | 80℃ or less increase measured by thermometer after rated operation. (45°C less than the motor with fan motors with fan) |
| Insulation Class | B Class (130℃) |
| Overheat Protection Device | Built-in thermal protector (automatic return type): Open 120℃±5℃, Close 76℃±15℃ |
| Ambient Temperature | -10℃~40℃ |
| Ambient Humidity | 85% maximum(non condensing) |




# 6W

## INDUCTION SPEED CONTROL MOTOR
## □60㎜ CONNECTOR TYPE

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output (W) | Voltage (V) | Freq. (Hz) | Duty | Speed Range (rpm) | Permissible Torque at 1200rpm (kg-cm) | Permissible Torque at 1200rpm (N-m) | Permissible Torque at 90rpm (kg-cm) | Permissible Torque at 90rpm (N-m) | Starting Torque (kg-cm) | Starting Torque (N-m) | Cap. (μF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 60 | S6I06GA-V12<br>S6I06GA-V12CE | SUA06IA-V12 | 4 | 6 | 1Ø 110 | 60 | Cont. | 90-1700 | 0.55 | 0.055 | 0.40 | 0.040 | 0.52 | 0.052 | 2.5 |
| | S6I06GB-V12<br>S6I06GB-V12CE | SUA06IB-V12 | 4 | 6 | 1Ø 220 | 60 | Cont. | 90-1700 | 0.55 | 0.055 | 0.40 | 0.040 | 0.52 | 0.052 | 0.7 |
| | S6I06GC-V12<br>S6I06GC-V12CE | SUA06IC-V12 | 4 | 6 | 1Ø 100 | 50<br>60 | Cont. | 90-1400<br>90-1700 | 0.48 | 0.048 | 0.30 | 0.030 | 0.40 | 0.040 | 2.5 |
| | S6I06GD-V12<br>S6I06GD-V12CE | SUA06ID-V12 | 4 | 6 | 1Ø 200 | 50<br>60 | Cont. | 90-1400<br>90-1700 | 0.48 | 0.048 | 0.30 | 0.030 | 0.40 | 0.040 | 0.7 |
| | S6I06GX-V12<br>S6I06GX-V12CE | SUA06IX-V12 | 4 | 6 | 1Ø 220<br>1Ø 240 | 50 | Cont. | 90-1400 | 0.35<br>0.45 | 0.035<br>0.045 | 0.22<br>0.22 | 0.022<br>0.022 | 0.35<br>0.42 | 0.035<br>0.042 | 0.7 |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ "L" or "H" type does not apply to motors under 40W.

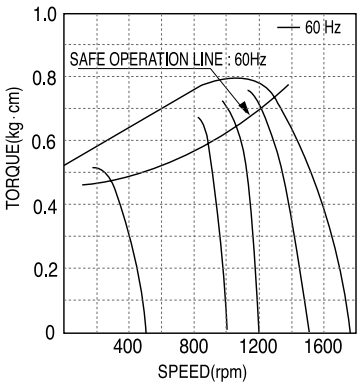
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DA□B | kg-cm | 1.3 | 1.5 | 2.1 | 2.6 | 3.2 | 3.9 | 4.3 | 5.4 | 6.4 | 7.7 | 7.7 | 9.7 | 11.6 | 13.9 | 15.5 | 17.5 | 21.0 | 26.2 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.127 | 0.147 | 0.206 | 0.255 | 0.314 | 0.382 | 0.421 | 0.529 | 0.627 | 0.755 | 0.755 | 0.951 | 1.137 | 1.362 | 1.519 | 1.715 | 2.058 | 2.568 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

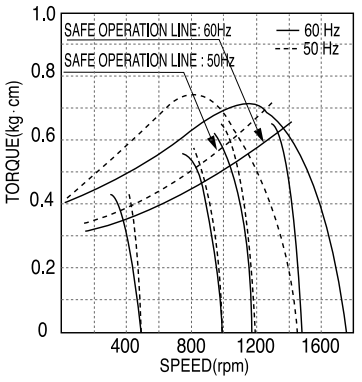
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DA□B | kg.-cm | 1.0 | 1.3 | 1.7 | 2.1 | 2.6 | 3.1 | 3.5 | 4.4 | 5.2 | 6.3 | 6.3 | 7.8 | 9.4 | 11.3 | 12.6 | 14.2 | 17.0 | 21.3 | 25.5 | 28.4 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.098 | 0.127 | 0.167 | 0.206 | 0.255 | 0.304 | 0.343 | 0.431 | 0.510 | 0.617 | 0.617 | 0.764 | 0.921 | 1.107 | 1.235 | 1.392 | 1.666 | 2.087 | 2.499 | 2.783 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

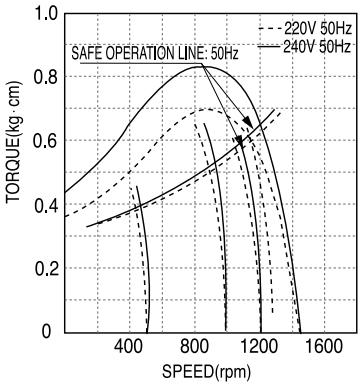
❖ The value in □ of gearhead model is for gear ratio.
❖ This is permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 30 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S6I06GA-V12 , S6I06GB-V12
S6I06GA-V12CE , S6I06GB-V12CE




▲ S6I06GC-V12 , S6I06GD-V12
S6I06GC-V12CE , S6I06GD-V12CE

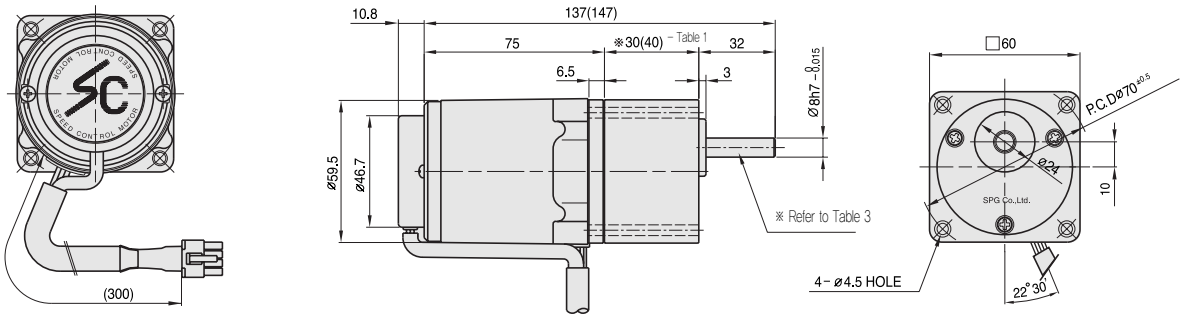



▲ S6I06GX-V12
S6I06GX-V12CE

# DIMENSIONS

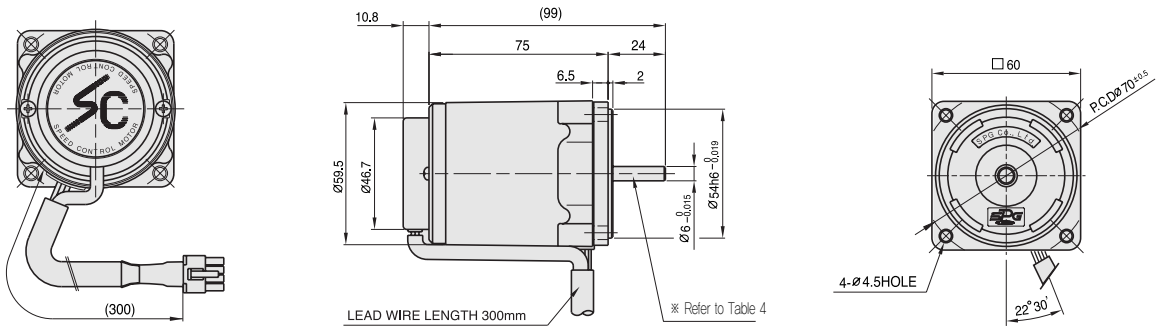
## ✚ GEARED MOTOR

※MOTOR MODEL : S6I06G□-V12
※HEAD MODEL : S6□A3□~S6□A250□



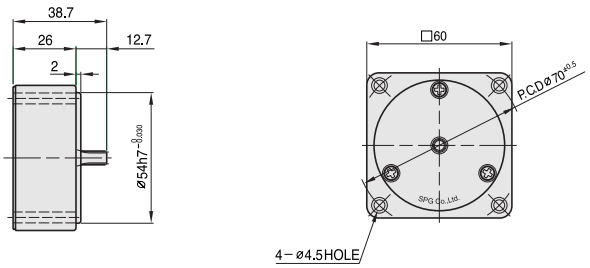

## ✚ MOTOR

※MOTOR MODEL : S6I06□□-V12

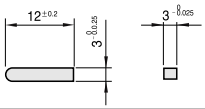



## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S6GX10B




## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



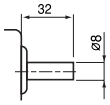
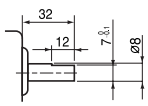
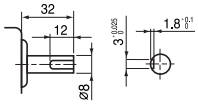
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S6□A3□ ~ S6□A18□ | 30 |
| S6□A20□ ~ S6□A250□ | 40 |

## ✚ WEIGHT - (Table2)

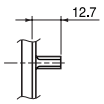
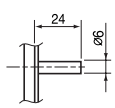
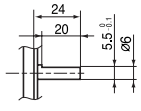
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 0.76 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□A3□ ~S6□A18□ | 0.24 |
| | S6□A20□ ~S6□A40□ | 0.30 |
| | S6□A50□ ~S6□A250□ | 0.33 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S6SA3□ ~S6SA250□ |  |
| D-CUT TYPE<br>S6DA3□ ~S6DA250□ |  |
| KEY TYPE<br>S6KA3□ ~S6KA250□ |  |



## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S6I06G□-V12 |  |
| STRAIGHT TYPE<br>S6I06S□-V12 |  |
| D-CUT TYPE<br>S6I06D□-V12 |  |




# 15W

## INDUCTION SPEED CONTROL MOTOR
## □70㎜ CONNECTOR TYPE

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output (W) | Voltage (V) | Freq. (Hz) | Duty | Speed Range (rpm) | Permissible Torque at 1200rpm (kg-cm) | Permissible Torque at 1200rpm (N-m) | Permissible Torque at 90rpm (kg-cm) | Permissible Torque at 90rpm (N-m) | Starting Torque (kg-cm) | Starting Torque (N-m) | Cap. (μF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70 | S7I15GA-V12<br>S7I15GA-V12(TP)<br>S7I15GA-V12CE | SUA715A-V12 | 4 | 15 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.15 | 0.115 | 0.60 | 0.060 | 0.90 | 0.090 | 5.0 |
| | S7I15GB-V12<br>S7I15GB-V12(TP)<br>S7I15GB-V12CE | SUA715B-V12 | 4 | 15 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.15 | 0.115 | 0.60 | 0.060 | 0.90 | 0.090 | 1.2 |
| | S7I15GC-V12<br>S7I15GC-V12(TP)<br>S7I15GC-V12CE | SUA715C-V12 | 4 | 15 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.10 | 0.110 | 0.40 | 0.040 | 0.75 | 0.075 | 5.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S7I15GD-V12<br>S7I15GD-V12(TP)<br>S7I15GD-V12CE | SUA715D-V12 | 4 | 15 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.10 | 0.110 | 0.40 | 0.040 | 0.75 | 0.075 | 1.2 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S7I15GX-V12<br>S7I15GX-V12CE | SUA715X-V12 | 4 | 15 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.05 | 0.105 | 0.50 | 0.050 | 0.70 | 0.070 | 0.9 |
| | | | | | 1Ø 240 | | | | 1.25 | 0.125 | 0.60 | 0.060 | 0.85 | 0.085 | |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8I15GX-V12, S8I15GX-V12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

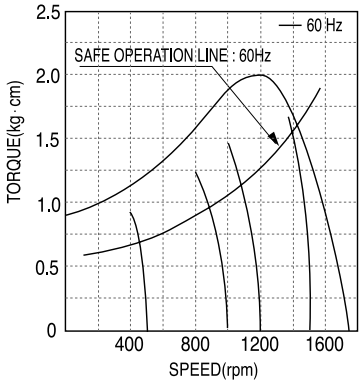
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S7KA□B | kg-cm | 3.2 | 3.9 | 5.4 | 6.5 | 8.1 | 9.7 | 10.8 | 13.5 | 16.2 | 19.4 | 19.4 | 24.2 | 29.1 | 34.9 | 38.8 | 43.6 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.314 | 0.382 | 0.530 | 0.637 | 0.794 | 0.951 | 1.059 | 1.324 | 1.587 | 1.902 | 1.902 | 2.373 | 2.854 | 3.423 | 3.805 | 4.276 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

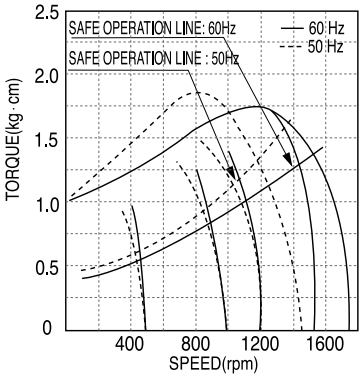
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S7KA□B | kg-cm | 3.0 | 3.6 | 5.1 | 6.1 | 7.6 | 9.1 | 10.1 | 12.7 | 15.2 | 18.2 | 18.2 | 22.8 | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.294 | 0.353 | 0.500 | 0.598 | 0.745 | 0.892 | 0.990 | 1.245 | 1.491 | 1.785 | 1.785 | 2.236 | 2.677 | 3.217 | 3.579 | 4.021 | 4.825 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

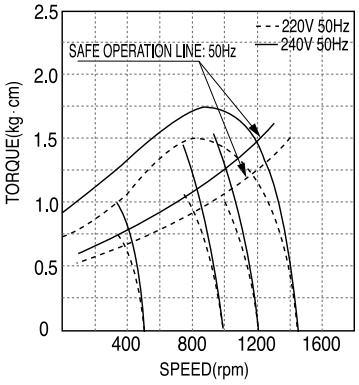
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 50 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S7I15GA-V12 S7I15GB-V12
S7I15GA-V12(TP) S7I15GB-V12(TP)
S7I15GA-V12CE S7I15GB-V12CE




▲ S7I15GC-V12 S7I15GD-V12
S7I15GC-V12(TP) S7I15GD-V12(TP)
S7I15GC-V12CE S7I15GD-V12CE

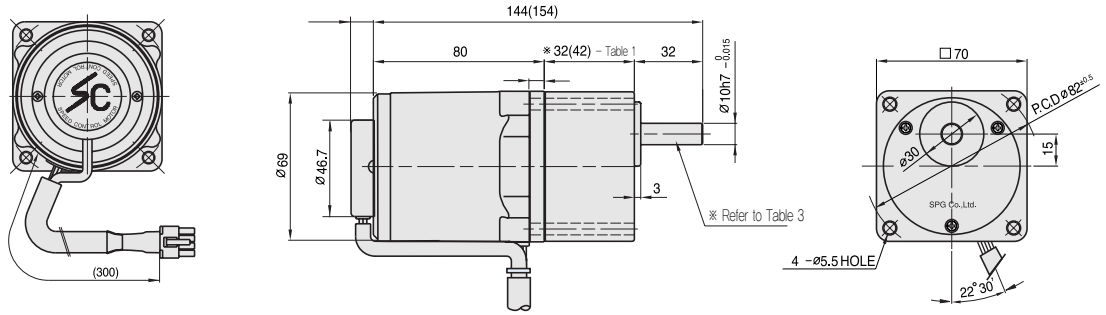



▲ S7I15GX-V12
S7I15GX-V12CE

# DIMENSIONS

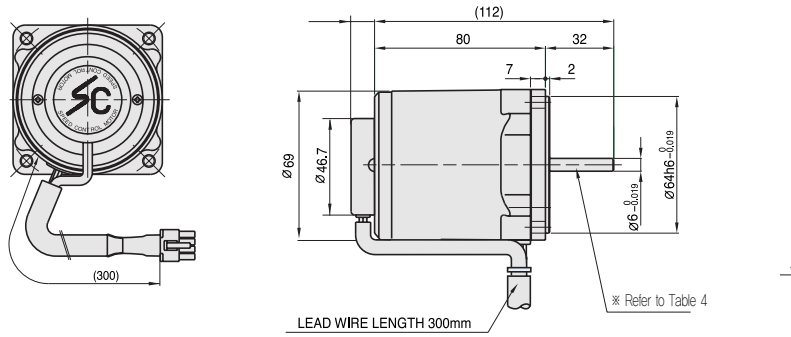
## ✚ GEARED MOTOR

※MOTOR MODEL : S7I15G□-V12
※HEAD MODEL : S7□A3□~S7□A200□



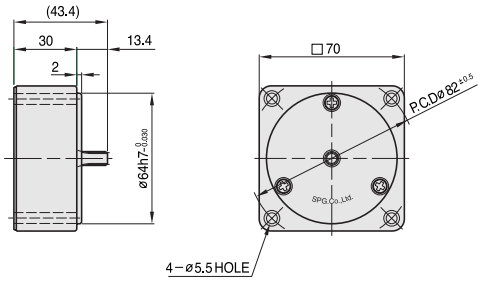

## ✚ MOTOR

※MOTOR MODEL : S7I15G□-V12

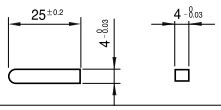



## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S7GX10B




## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



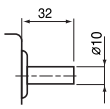
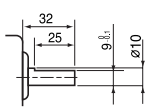
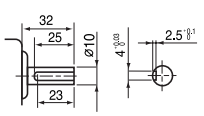
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S7□A3□ ~ S7□A18□ | 32 |
| S7□A20□ ~ S7□A200□ | 42 |

## ✚ WEIGHT - (Table2)

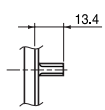
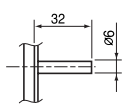
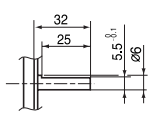
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.04 |
| DECIMAL GEAR HEAD | | 0.32 |
| GEAR HEAD | S7□A3□ ~S7□A18□ | 0.38 |
| | S7□A20□ ~S7□A40□ | 0.47 |
| | S7□A50□ ~S7□A200□ | 0.52 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S7SA3□ ~S7SA200□ |  |
| D-CUT TYPE<br>S7DA3□ ~S7DA200□ |  |
| KEY TYPE<br>S7KA3□ ~S7KA200□ |  |



## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S7I15G□-V12 |  |
| STRAIGHT TYPE<br>S7I15S□-V12 |  |
| D-CUT TYPE<br>S7I15D□-V12 |  |




# 15W

## INDUCTION SPEED CONTROL MOTOR
## □80㎜ CONNECTOR TYPE

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8I15GA-V12<br>S8I15GA-V12(TP)<br>S8I15GA-V12CE | SUA15IA-V12 | 4 | 15 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.50 | 0.150 | 0.35 | 0.035 | 0.75 | 0.075 | 4.0 |
| | S8I15GB-V12<br>S8I15GB-V12(TP)<br>S8I15GB-V12CE | SUA15IB-V12 | 4 | 15 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.50 | 0.150 | 0.35 | 0.035 | 0.75 | 0.075 | 1.0 |
| | S8I15GC-V12<br>S8I15GC-V12(TP)<br>S8I15GC-V12CE | SUA15IC-V12 | 4 | 15 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.32 | 0.032 | 0.60 | 0.060 | 4.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S8I15GD-V12<br>S8I15GD-V12(TP)<br>S8I15GD-V12CE | SUA15ID-V12 | 4 | 15 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.32 | 0.032 | 0.60 | 0.060 | 1.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S8I15GX-V12<br>S8I15GX-V12CE | SUA15IX-V12 | 4 | 15 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.35 | 0.035 | 0.55 | 0.055 | 1.0 |
| | | | | | 1Ø 240 | | | | 1.40 | 0.140 | 0.35 | 0.035 | 0.60 | 0.060 | |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8I15GX-V12, S8I15GX-V12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

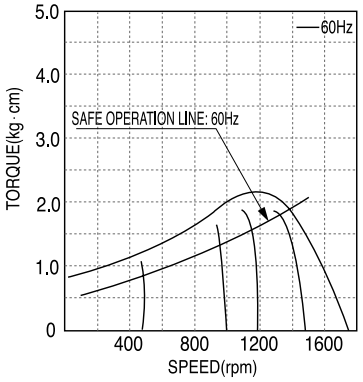
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 3.4 | 4.1 | 5.7 | 6.8 | 8.5 | 10.2 | 11.3 | 14.2 | 17.0 | 20.4 | 20.4 | 25.6 | 30.7 | 36.8 | 40.9 | 46.2 | 55.4 | 69.2 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N·m | 0.333 | 0.402 | 0.559 | 0.666 | 0.833 | 1.000 | 1.107 | 1.392 | 1.666 | 1.999 | 1.999 | 2.509 | 3.009 | 3.606 | 4.008 | 4.530 | 5.433 | 6.786 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

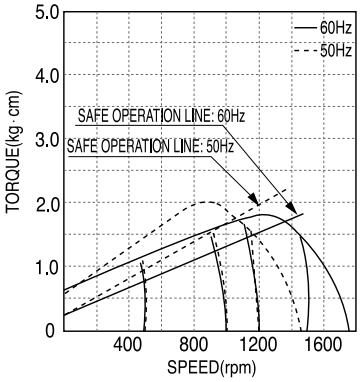
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 2.9 | 3.5 | 4.9 | 5.8 | 7.3 | 8.7 | 9.7 | 12.2 | 14.6 | 17.5 | 17.5 | 21.9 | 26.3 | 31.5 | 35.0 | 39.6 | 47.5 | 59.4 | 71.3 | 79.2 | 80 | 80 | 80 | 80 |
| | N·m | 0.284 | 0.343 | 0.481 | 0.568 | 0.715 | 0.853 | 0.951 | 1.196 | 1.432 | 1.715 | 1.715 | 2.146 | 2.577 | 3.087 | 3.430 | 3.881 | 4.658 | 5.825 | 6.992 | 7.767 | 7.840 | 7.840 | 7.840 | 7.840 |

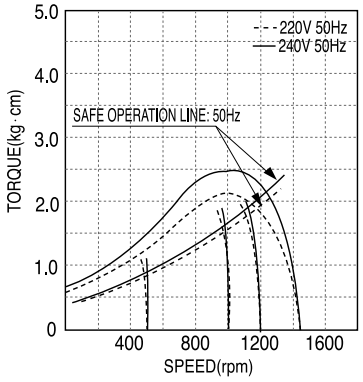
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S8I15GA-V12 S8I15GB-V12
S8I15GA-V12(TP) S8I15GB-V12(TP)
S8I15GA-V12CE S8I15GB-V12CE




▲ S8I15GC-V12 S8I15GD-V12
S8I15GC-V12(TP) S8I15GD-V12(TP)
S8I15GC-V12CE S8I15GD-V12CE




▲ S8I15GX-V12
S8I15GX-V12CE




# 25W

## INDUCTION SPEED CONTROL MOTOR
## □80㎜ CONNECTOR TYPE

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output (W) | Voltage (V) | Freq. (Hz) | Duty | Speed Range (rpm) | Permissible Torque at 1200rpm (kg-cm) | Permissible Torque at 1200rpm (N-m) | Permissible Torque at 90rpm (kg-cm) | Permissible Torque at 90rpm (N-m) | Starting Torque (kg-cm) | Starting Torque (N-m) | Cap. (μF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | S8I25GA-V12<br>S8I25GA-V12(TP)<br>S8I25GA-V12CE | SUA25IA-V12 | 4 | 25 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.70 | 0.170 | 0.08 | 0.080 | 1.50 | 0.150 | 6.0 |
| | S8I25GB-V12<br>S8I25GB-V12(TP)<br>S8I25GB-V12CE | SUA25IB-V12 | 4 | 25 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.70 | 0.170 | 0.08 | 0.080 | 1.50 | 0.150 | 1.5 |
| | S8I25GC-V12<br>S8I25GC-V12(TP)<br>S8I25GC-V12CE | SUA25IC-V12 | 4 | 25 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.60 | 0.160 | 0.55 | 0.055 | 1.10 | 0.110 | 6.0 |
| | | | | | | 60 | | 90-1700 | 1.50 | 0.150 | | | | | |
| | S8I25GD-V12<br>S8I25GD-V12(TP)<br>S8I25GD-V12CE | SUA25ID-V12 | 4 | 25 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.60 | 0.160 | 0.55 | 0.055 | 1.10 | 0.110 | 1.5 |
| | | | | | | 60 | | 90-1700 | 1.50 | 0.150 | | | | | |
| | S8I25GX-V12<br>S8I25GX-V12CE | SUA25IX-V12 | 4 | 25 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.50 | 0.150 | 0.50 | 0.050 | 1.00 | 0.100 | 1.5 |
| | | | | | 1Ø 240 | | | | 1.80 | 0.180 | 0.50 | 0.050 | 1.20 | 0.120 | |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8I25GX-V12, S8I25GX-V12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

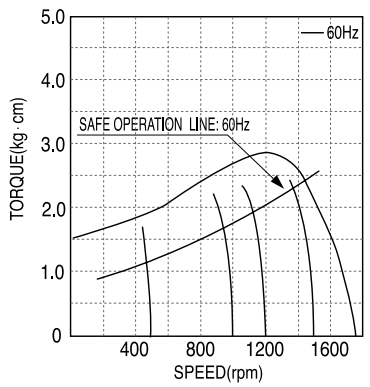
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 5.3 | 6.4 | 8.9 | 10.7 | 13.4 | 16.0 | 17.8 | 22.3 | 26.7 | 32.1 | 32.1 | 40.2 | 48.2 | 57.8 | 64.2 | 72.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.519 | 0.627 | 0.872 | 1.049 | 1.313 | 1.568 | 1.744 | 2.185 | 2.617 | 3.146 | 3.146 | 3.940 | 4.724 | 5.664 | 6.292 | 7.115 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

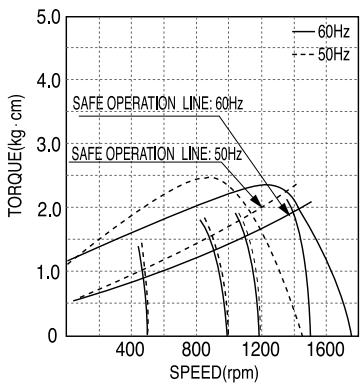
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 4.4 | 5.2 | 7.3 | 8.7 | 10.9 | 13.1 | 14.6 | 18.2 | 21.9 | 26.2 | 26.3 | 32.9 | 39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.431 | 0.510 | 0.715 | 0.853 | 1.068 | 1.284 | 1.431 | 1.784 | 2.146 | 2.568 | 2.577 | 3.224 | 3.861 | 4.635 | 5.155 | 5.821 | 6.987 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

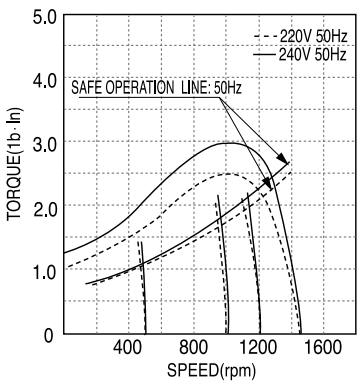
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S8I25GA-V12 S8I25GB-V12
S8I25GA-V12(TP) S8I25GB-V12(TP)
S8I25GA-V12CE S8I25GB-V12CE




▲ S8I25GC-V12 S8I25GD-V12
S8I25GC-V12(TP) S8I25GD-V12(TP)
S8I25GC-V12CE S8I25GD-V12CE

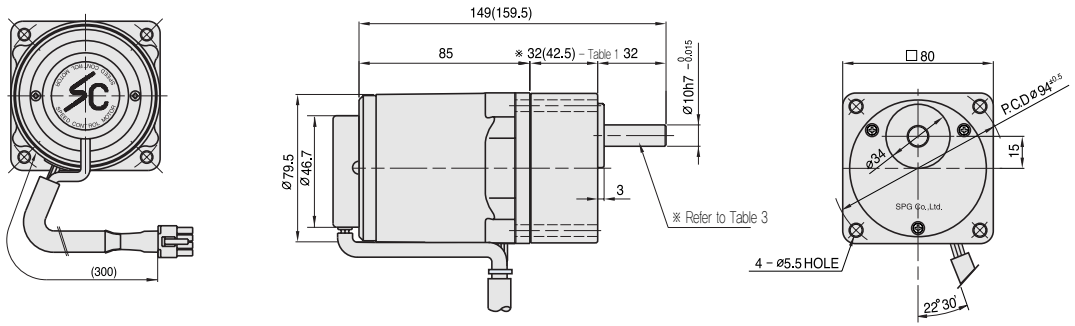



▲ S8I25GX-V12
S8I25GX-V12CE

# DIMENSIONS

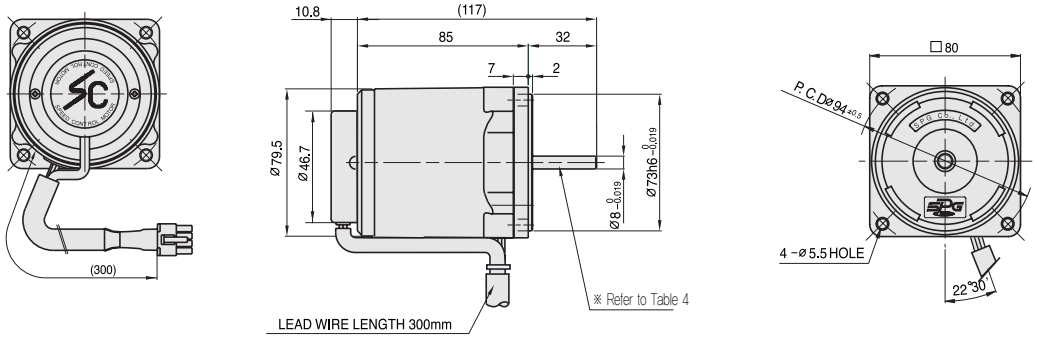
## ✚ GEARED MOTOR

※MOTOR MODEL : S8(15,25)G□-V12
※HEAD MODEL : S8□A3□~S8□A200□



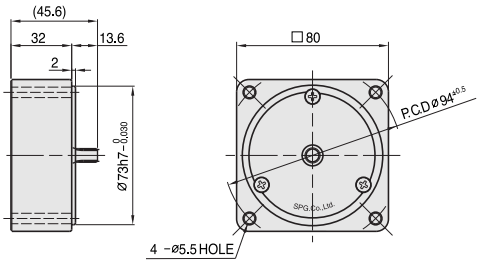

## ✚ MOTOR

※MOTOR MODEL : S8I(15,25)□□-V12




## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B



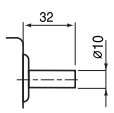
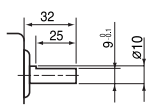
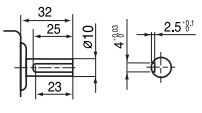

## ✚ ※26(35) - (Table 1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

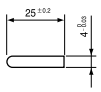
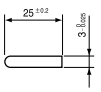
## ✚ WEIGHT - (Table 2)

| PART | | WEIGHT(kg) |
|---|---|---|
| 15W MOTOR | | 1.6 |
| 25W MOTOR | | 1.6 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

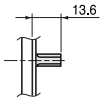
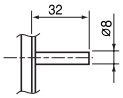
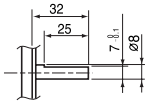
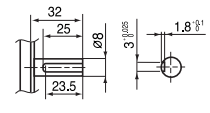
## ✚ SPEC for output shaft of gearhead - (Table 3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□ ~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□ ~S8DA200□ |  |
| KEY TYPE<br>S8KA3□ ~S8KA200□ |  |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of motor - (Table 4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8I15G□-V12<br>S8I25G□-V12 |  |
| STRAIGHT TYPE<br>S8I15S□-V12<br>S8I25S□-V12 |  |
| D-CUT TYPE<br>S8I15D□-V12<br>S8I25D□-V12 |  |
| KEY TYPE<br>S8I15K□-V12<br>S8I25K□-V12 |  |




# 40W

## INDUCTION SPEED CONTROL MOTOR
## □90㎜ CONNECTOR TYPE

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output (W) | Voltage (V) | Freq. (Hz) | Duty | Speed Range (rpm) | Permissible Torque at 1200rpm (kg-cm) | Permissible Torque at 1200rpm (N-m) | Permissible Torque at 90rpm (kg-cm) | Permissible Torque at 90rpm (N-m) | Starting Torque (kg-cm) | Starting Torque (N-m) | Cap. (μF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | S9I40GA()-V12<br>S9I40GA()-V12(TP)<br>S9I40GA()-V12CE | SUA40IA-V12 | 4 | 40 | 1Ø 110 | 60 | Cont. | 90-1700 | 2.70 | 0.270 | 1.00 | 0.100 | 2.20 | 0.220 | 10.0 |
| | S9I40GB()-V12<br>S9I40GB()-V12(TP)<br>S9I40GB()-V12CE | SUA40IB-V12 | 4 | 40 | 1Ø 220 | 60 | Cont. | 90-1700 | 2.70 | 0.270 | 1.00 | 0.100 | 2.20 | 0.220 | 2.5 |
| | S9I40GC()-V12<br>S9I40GC()-V12(TP)<br>S9I40GC()-V12CE | SUA40IC-V12 | 4 | 40 | 1Ø 100 | 50 | Cont. | 90-1400 | 2.70 | 0.270 | 0.90 | 0.090 | 1.80 | 0.180 | 10.0 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S9I40GD()-V12<br>S9I40GD()-V12(TP)<br>S9I40GD()-V12CE | SUA40ID-V12 | 4 | 40 | 1Ø 200 | 50 | Cont. | 90-1400 | 2.70 | 0.270 | 0.90 | 0.090 | 1.80 | 0.180 | 2.5 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S9I40GX()-V12<br>S9I40GX()-V12CE | SUA40IX-V12 | 4 | 40 | 1Ø 220 | 50 | Cont. | 90-1400 | 2.50 | 0.250 | 0.70 | 0.070 | 1.70 | 0.170 | 2.0 |
| | | | | | 1Ø 240 | | | | 3.00 | 0.300 | 0.70 | 0.070 | 2.10 | 0.210 | |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I40GX( )-V12, S9I40GX( )-V12CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

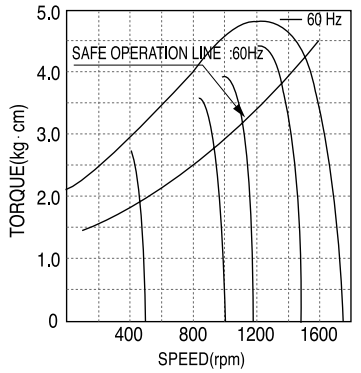
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KB□B( ) | kg-cm | 8.3 | 9.9 | 13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4 | 41.3 | 49.6 | 49.6 | 62.1 | 74.5 | 89.4 | 99.3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.813 | 0.970 | 1.352 | 1.617 | 2.029 | 2.430 | 2.695 | 3.371 | 4.047 | 4.861 | 4.861 | 6.086 | 7.301 | 8.761 | 9.731 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

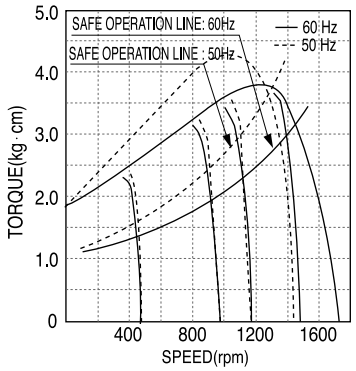
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KB□B( ) | kg-cm | 6.8 | 8.2 | 11.3 | 13.6 | 17.0 | 20.4 | 22.7 | 28.4 | 34.0 | 40.8 | 40.9 | 51.1 | 61.3 | 73.6 | 81.8 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.666 | 0.804 | 1.107 | 1.333 | 1.666 | 1.999 | 2.225 | 2.783 | 3.332 | 3.998 | 4.008 | 5.008 | 6.007 | 7.213 | 8.016 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

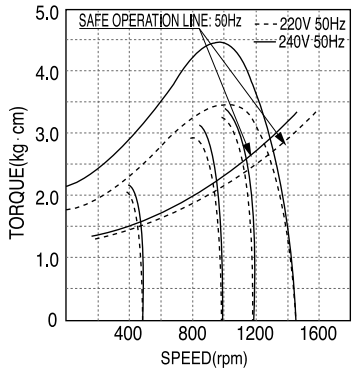
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9I40GA()-V12 S9I40GB()-V12
S9I40GA()-V12(TP) S9I40GB()-V12(TP)
S9I40GA()-V12CE S9I40GB()-V12CE




▲ S9I40GC()-V12 S9I40GD()-V12
S9I40GC()-V12(TP) S9I40GD()-V12(TP)
S9I40GC()-V12CE S9I40GD()-V12CE

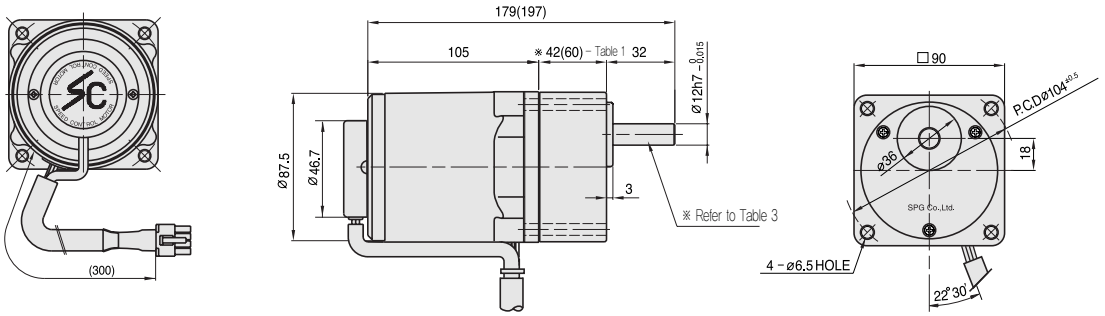



▲ S9I40GX()-V12
S9I40GX()-V12CE

# DIMENSIONS

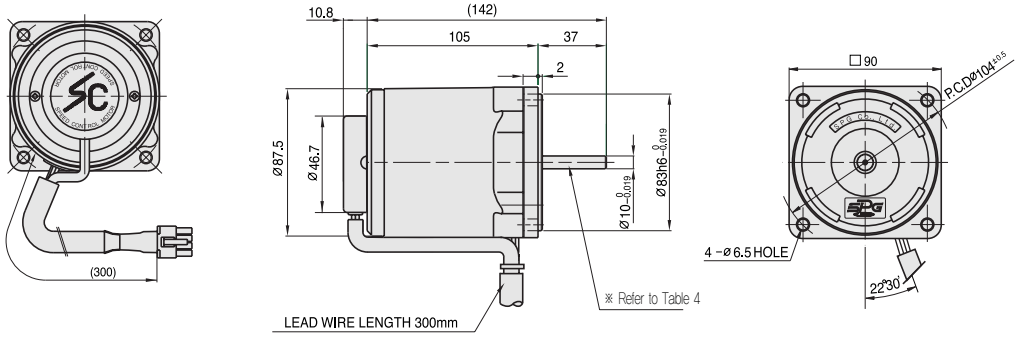
## ✚ GEARED MOTOR

※MOTOR MODEL : S8(15,25)G□-V12
※HEAD MODEL : S8□A3□~S8□A200□



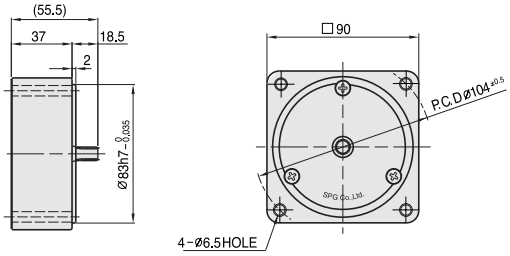

## ✚ MOTOR

※MOTOR MODEL : S8I(15,25)□□-V12

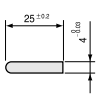
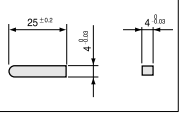



## ✚ INTER-DECIMAL GEAR HEAD

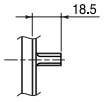
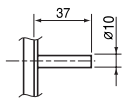
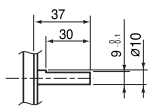
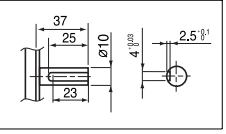
※MODEL : S8GX10B




## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I40G□□-V12 |  |
| STRAIGHT TYPE<br>S9I40S□-V12 |  |
| D-CUT TYPE<br>S9I40D□-V12 |  |
| KEY TYPE<br>S9I40K□-V12 |  |

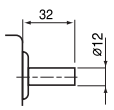
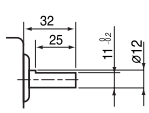
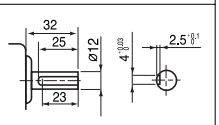
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S9□B3□ ~ S9□B18□ | 42 |
| S9□B20□ ~ S9□B200□ | 60 |

## ✚ WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.42 |
| DECIMAL GEAR HEAD | | 0.60 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□□ ~S9□B40□□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SB3□ ~S9SB200□ |  |
| D-CUT TYPE<br>S9DB3□ ~S9DB200□ |  |
| KEY TYPE<br>S9KB3□□ ~S9KB200□□ |  |



# 60W

## INDUCTION SPEED CONTROL MOTOR
## □90㎜ CONNECTOR TYPE

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I60GA( )-V12<br>S9I60GA( )-V12(TP)<br>S9I60GA( )-V12CE | SUA60IA-V12 | 4 | 60 | 1Ø 110 | 60 | Cont. | 90-1700 | 5.50 | 0.550 | 2.00 | 0.200 | 5.00 | 0.500 | 20.0 |
| | S9I60GB( )-V12<br>S9I60GB( )-V12(TP)<br>S9I60GB( )-V12CE | SUA60IB-V12 | 4 | 60 | 1Ø 220 | 60 | Cont. | 90-1700 | 5.50 | 0.550 | 2.00 | 0.200 | 5.00 | 0.500 | 5.0 |
| | S9I60GC( )-V12<br>S9I60GC( )-V12(TP)<br>S9I60GC( )-V12CE | SUA60IC-V12 | 4 | 60 | 1Ø 100 | 50 | Cont. | 90-1400 | 5.50 | 0.550 | 1.20 | 0.120 | 4.00 | 0.400 | 20.0 |
| | | | | | | 60 | | 90-1700 | 5.00 | 0.500 | | | | | |
| | S9I60GD( )-V12<br>S9I60GD( )-V12(TP)<br>S9I60GD( )-V12CE | SUA60ID-V12 | 4 | 60 | 1Ø 200 | 50 | Cont. | 90-1400 | 5.50 | 0.550 | 1.20 | 0.120 | 4.00 | 0.400 | 5.0 |
| | | | | | | 60 | | 90-1700 | 5.00 | 0.500 | | | | | |
| | S9I60GX( )-V12<br>S9I60GX( )-V12CE | SUA60IX-V12 | 4 | 60 | 1Ø 220 | 50 | Cont. | 90-1400 | 5.20 | 0.520 | 0.90 | 0.090 | 3.10 | 0.310 | 3.5 |
| | | | | | 1Ø 240 | | | | 5.80 | 0.580 | 0.90 | 0.090 | 3.60 | 0.360 | |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I60GX( )-V12, S9I60GX( )-V12CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

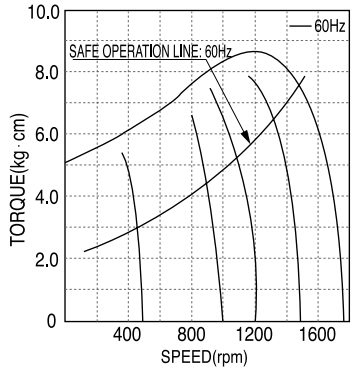
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

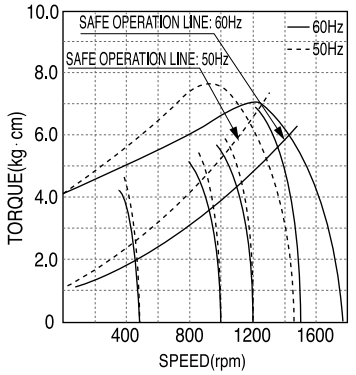
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

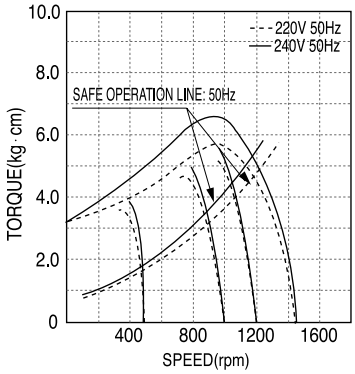
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9I60GA()-V12 S9I60GB()-V12
S9I60GA()-V12(TP) S9I60GB()-V12(TP)
S9I60GA()-V12CE S9I60GB()-V12CE




▲ S9I60GC()-V12 S9I60GD()-V12
S9I60GC()-V12(TP) S9I60GD()-V12(TP)
S9I60GC()-V12CE S9I60GD()-V12CE

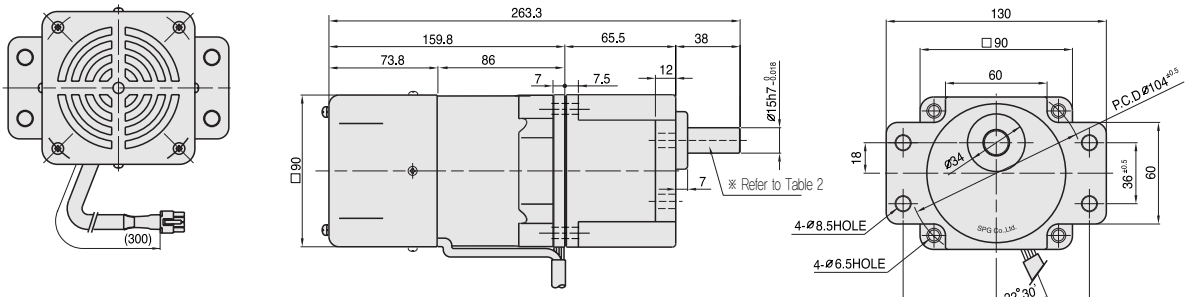



▲ S9I60GX()-V12
S9I60GX()-V12CE

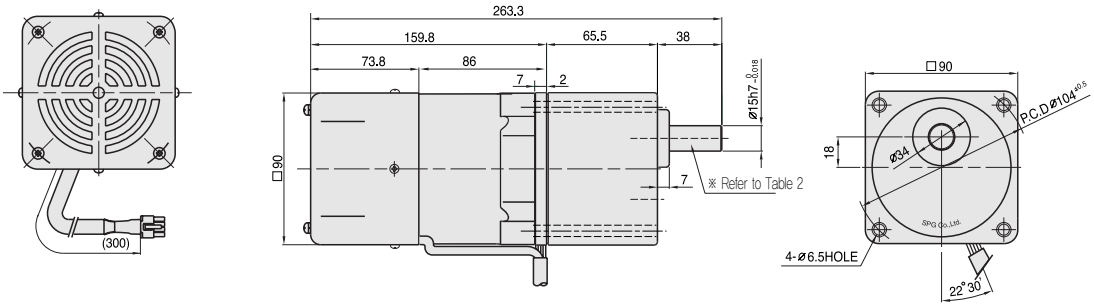
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9I60G□□-V12
※HEAD MODEL : S9□C3B□ ~ S9□C200□-S

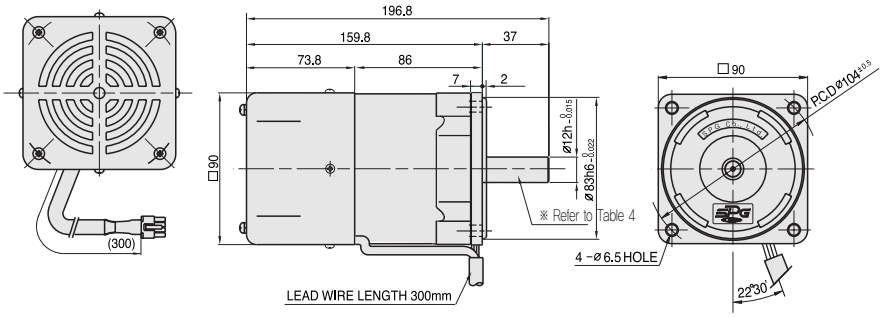



※HEAD MODEL : S9□C3B□ ~ S9□C200B□



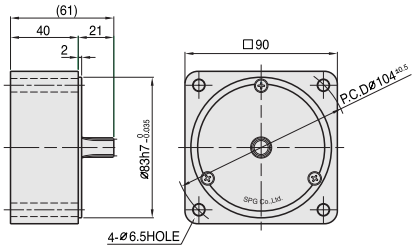

## ✚ MOTOR

※MOTOR MODEL : S9I60□□□-V12




## ✚ INTER-DECIMAL GEAR HEAD

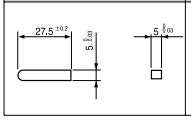
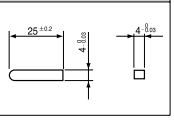
※MODEL : S9GX10B(H,L)-S



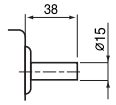
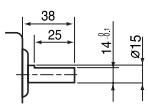
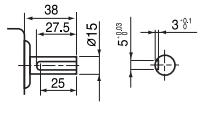

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

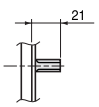
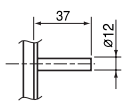
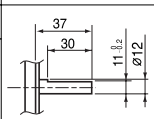
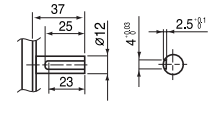
## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S9SC3B□ ~S9SC200B□ | |
| D-CUT TYPE |  |
| S9DC3B□ ~S9DC200B□ | |
| KEY TYPE |  |
| S9KC3B□ ~S9KC200B□ | |

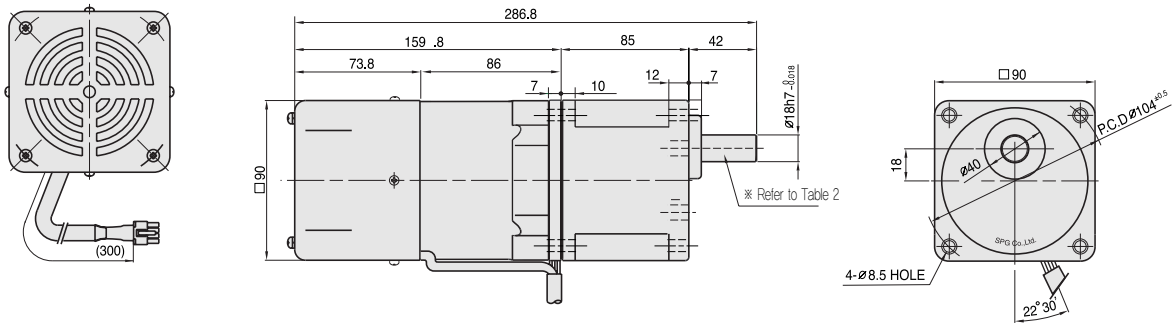
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE |  |
| S9I60G□□-V12 | |
| STRAIGHT TYPE |  |
| S9I60S□-V12 | |
| D-CUT TYPE |  |
| S9I60D□-V12 | |
| KEY TYPE |  |
| S9I60K□-V12 | |

# DIMENSIONS

## ✚ GEARED MOTOR

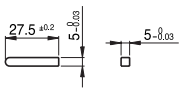
※MOTOR MODEL : S9I60G□H-V12
※HEAD MODEL : S9□D3B□~S9□D200B




## ✚ WEIGHT - (Table1)

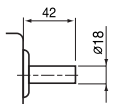
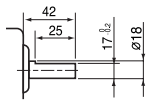
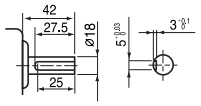
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S9SD3B ~S9SD200B | |
| D-CUT TYPE |  |
| S9DD3B ~S9DD200B | |
| KEY TYPE |  |
| S9KD3B ~S9KD200B | |



## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 221 | 266 | 295 | 300 | 300 | 300 | 300 |
| | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 21.67 | 26.09 | 28.93 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 212 | 236 | 283 | 300 | 300 | 300 |
| | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 20.79 | 23.14 | 27.75 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.



# 90W

## INDUCTION SPEED CONTROL MOTOR
## □90㎜ CONNECTOR TYPE

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I90GA( )-V12<br>S9I90GA( )-V12(TP)<br>S9I90GA( )-V12CE | SUA90IA-V12 | 4 | 90 | 1Ø 110 | 60 | Cont. | 90-1700 | 6.30 | 0.630 | 3.00 | 0.300 | 6.50 | 0.650 | 24.0 |
| | S9I90GB( )-V12<br>S9I90GB( )-V12(TP)<br>S9I90GB( )-V12CE | SUA90IB-V12 | 4 | 90 | 1Ø 220 | 60 | Cont. | 90-1700 | 6.30 | 0.630 | 3.00 | 0.300 | 6.50 | 0.650 | 7.0 |
| | S9I90GC( )-V12<br>S9I90GC( )-V12(TP)<br>S9I90GC( )-V12CE | SUA90IC-V12 | 4 | 90 | 1Ø 100 | 50 | Cont. | 90-1400 | 5.80 | 0.580 | 2.50 | 0.250 | 5.50 | 0.550 | 24.0 |
| | | | | | | 60 | | 90-1700 | 5.30 | 0.530 | | | | | |
| | S9I90GD( )-V12<br>S9I90GD( )-V12(TP)<br>S9I90GD( )-V12CE | SUA90ID-V12 | 4 | 90 | 1Ø 200 | 50 | Cont. | 90-1400 | 5.80 | 0.580 | 2.50 | 0.250 | 5.50 | 0.550 | 7.0 |
| | | | | | | 60 | | 90-1700 | 5.30 | 0.530 | | | | | |
| | S9I90GX( )-V12<br>S9I90GX( )-V12CE | SUA90IX-V12 | 4 | 90 | 1Ø 220 | 50 | Cont. | 90-1400 | 5.40 | 0.540 | 2.20 | 0.220 | 4.60 | 0.460 | 5.0 |
| | | | | | 1Ø 240 | | | | 6.10 | 0.610 | 2.20 | 0.220 | 5.50 | 0.550 | |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I90GX( )-V12, S9I90GX( )-V12CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

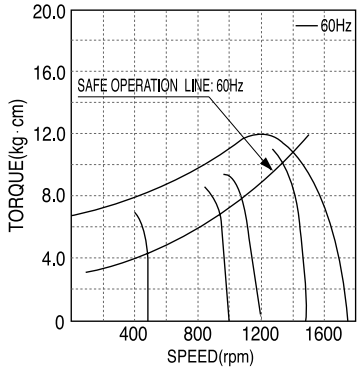
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

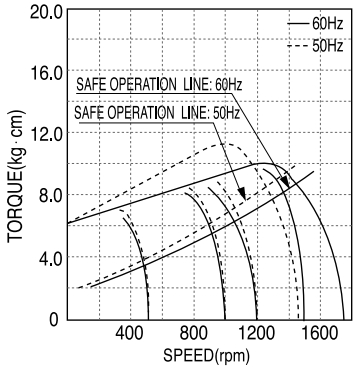
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

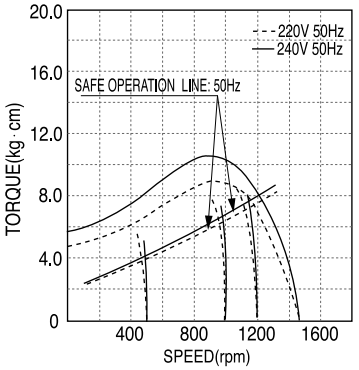
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9I90GA()-V12 S9I90GB()-V12
S9I90GA()-V12(TP) S9I90GB()-V12(TP)
S9I90GA()-V12CE S9I90GB()-V12CE




▲ S9I90GC()-V12 S9I90GD()-V12
S9I90GC()-V12(TP) S9I90GD()-V12(TP)
S9I90GC()-V12CE S9I90GD()-V12CE

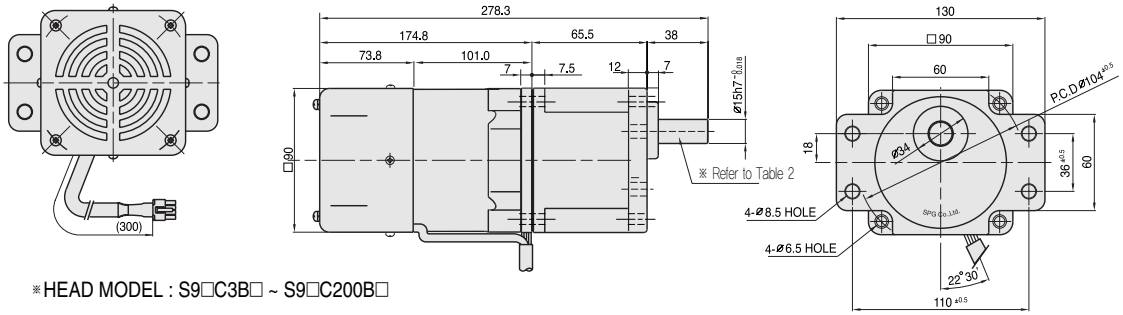



▲ S9I90GX()-V12
S9I90GX()-V12CE

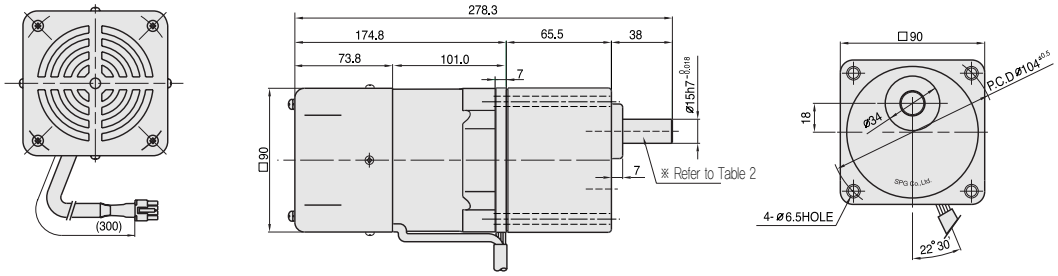
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9I90G□H-V12
※HEAD MODEL : S9□C3B□-S ~ S9□C200B□-S

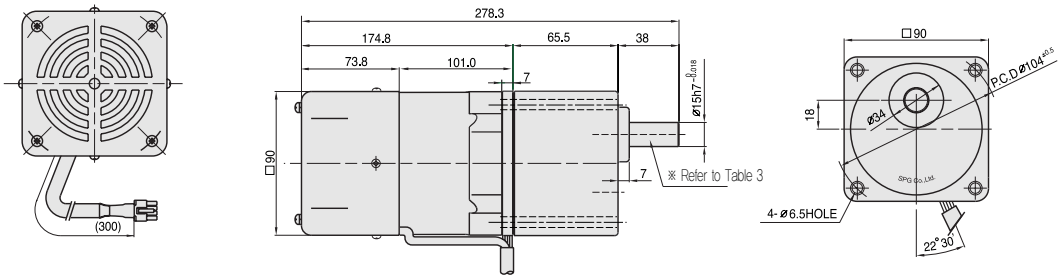



※HEAD MODEL : S9□C3B□ ~ S9□C200B□



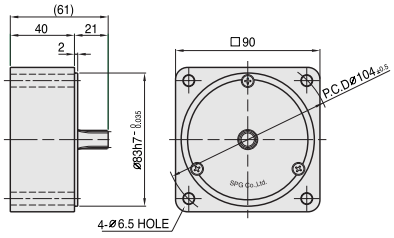

## ✚ MOTOR

※MOTOR MODEL : S9I90□□□-V12




## ✚ INTER-DECIMAL GEAR HEAD

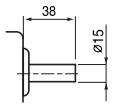
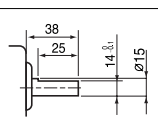
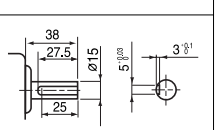
※MODEL : S9GX10B(H,L)-S



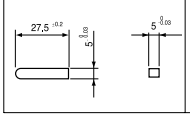
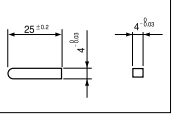

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.53 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

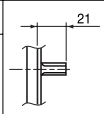
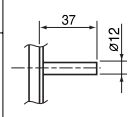
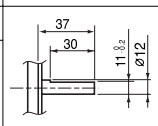
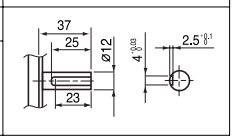
## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

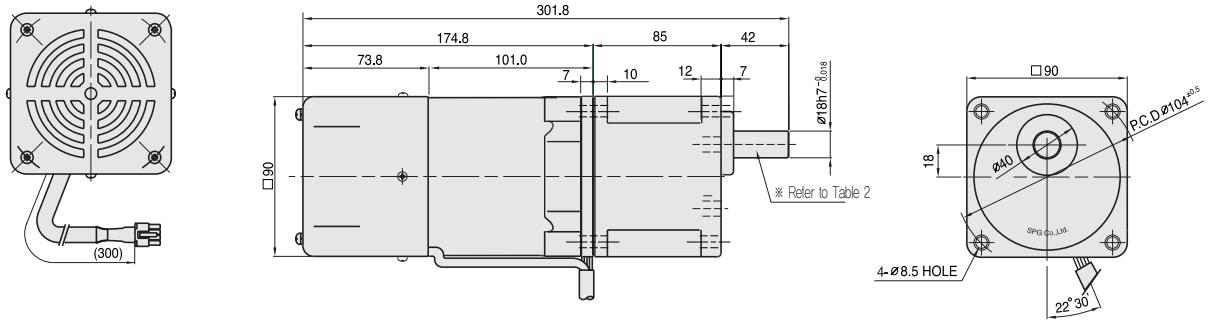
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I90G□□-V12 |  |
| STRAIGHT TYPE<br>S9I90S□-V12 |  |
| D-CUT TYPE<br>S9I90D□-V12 |  |
| KEY TYPE<br>S9I90K□-V12 |  |

# DIMENSIONS

## ✚ GEARED MOTOR

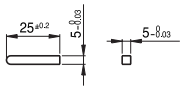
※MOTOR MODEL : S9I90G□H-V12
※HEAD MODEL : S9□D3B~S9□D200B




## ✚ WEIGHT - (Table1)

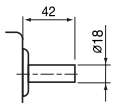
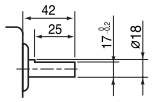
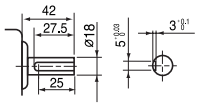
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.53 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SD3B ~S9SD200B |  |
| D-CUT TYPE<br>S9DD3B ~S9DD200B |  |
| KEY TYPE<br>S9KD3B ~S9KD200B |  |



## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 248 | 297 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 24.32 | 29.13 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 238 | 266 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 23.34 | 26.09 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.




# 180W

## INDUCTION SPEED CONTROL MOTOR
## □90㎜ CONNECTOR TYPE

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque | | | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | at 1200rpm | | at 90rpm | | | | |
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I180GB( )-V12<br>S9I180GB( )-V12(TP)<br>S9I180GB( )-V12CE | SUA180IB-V12 | 4 | 180 | 1 Ø 220 | 60 | Cont. | 90-1700 | 7.72 | 0.772 | 4.25 | 0.425 | 6.45 | 0.645 | 7.0 |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
❖ Only "H" type is applicable. Please use "H" type motor.

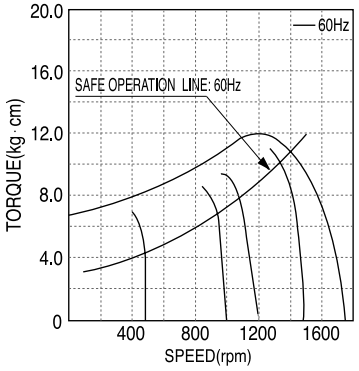
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KH□B | kg-cm | 34.0 | 41.0 | 57.0 | 68.0 | 85.1 | 102 | 113 | 128 | 153 | 184 | 204 | 230 | 278 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 3.336 | 4.021 | 5.590 | 6.672 | 8.341 | 10.01 | 11.12 | 12.55 | 15.01 | 18.04 | 20.02 | 22.56 | 27.26 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KH□B | kg-cm | 28.1 | 34.0 | 47.0 | 57.0 | 71.0 | 84.2 | 94.0 | 105 | 126 | 152 | 168 | 189 | 227 | 273 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 2.756 | 3.334 | 4.609 | 5.590 | 6.963 | 8.257 | 9.218 | 10.30 | 12.39 | 14.91 | 16.51 | 18.58 | 22.29 | 26.75 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the ambient torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 50 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.

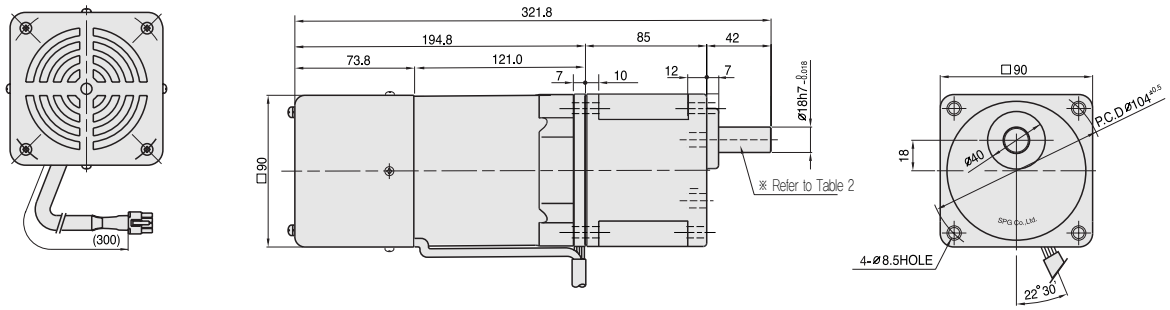



▲ S9I180GB()-V12
S9I180GB()-V12(TP)
S9I180GB()-V12CE

# DIMENSIONS

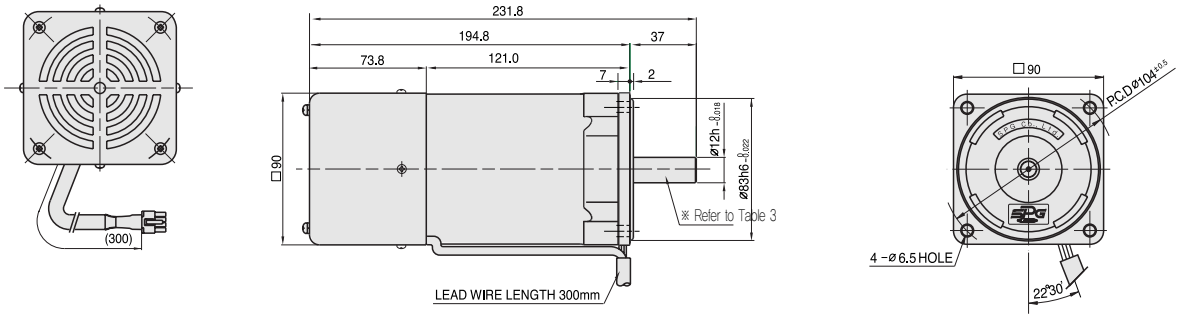
## ✚ GEARED MOTOR

※MOTOR MODEL : S9I180G□-V12
※HEAD MODEL : S9□H3B~S9□H200B




## ✚ MOTOR

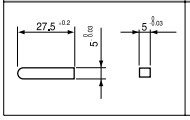
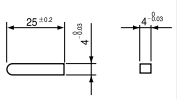
※MOTOR MODEL : S9I180□-V12



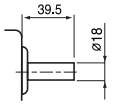
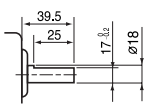
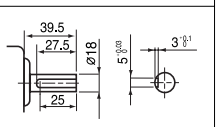

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 4.30 |
| GEAR HEAD | S9□H3B ~S9□H10B | 1.65 |
| | S9□H12.5B ~S9□H20B | 1.80 |
| | S9□H25B ~S9□H60B | 1.90 |
| | S9□H75B ~S9□H200B | 1.95 |

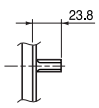
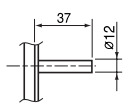
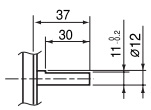
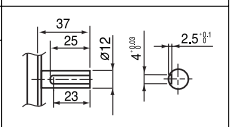
## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S9SH3B ~S9SH200B | |
| D-CUT TYPE |  |
| S9DH3B ~S9DH200B | |
| KEY TYPE |  |
| S9KH3B ~S9KH200B | |

## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE |  |
| S9I180G□-V12 | |
| STRAIGHT TYPE |  |
| S9I180S□-V12 | |
| D-CUT TYPE |  |
| S9I180D□-V12 | |
| KEY TYPE |  |
| S9I180K□-V12 | |


SPG
MOTOR

# SPEED CONTROLLER

## : SR TYPE



### Characteristics

- This is a speed controller for small geared motors which was developed to meet the motor's variable speed demands.
- It uses the IC circuit that SPG Motor independently developed and is small, lightweight and reliable.
- Speed control is possible by controlling the number of revolutions with the variable resistor on the front of the case.
- Remote control is possible by installing a speed controller(speed setter).
- Instantaneous braking is possible with an electric brake.
- The small 8 pin plug in method was used.

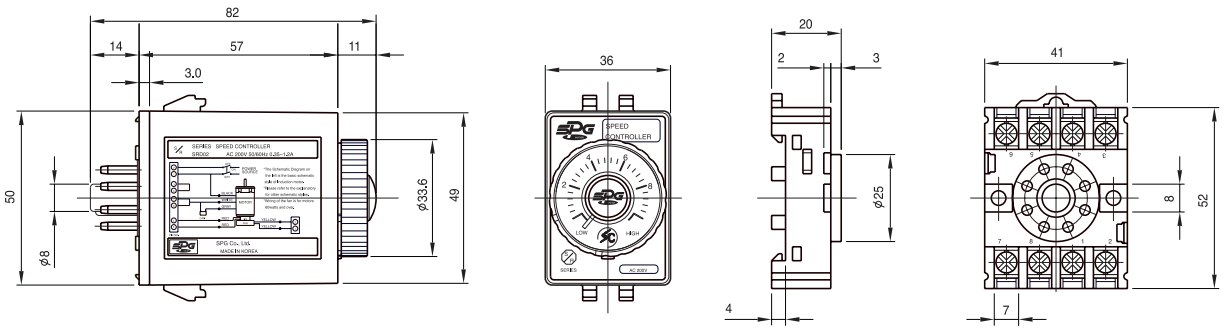
## SPECIFICATIONS

| SPEC \ MODEL | | SR TYPE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SRA01 | SRA02 | SRB01 | SRB02 | SRC01 | SRC02 | SRD01 | SRD02 | SRX01 | SRX02 |
| Rated Voltage | | AC110V 60Hz | | AC220V 60Hz | | AC100V 50/60Hz | | AC200V 50/60Hz | | AC220~240V 50Hz | |
| Operation Voltage Range | | ±10% | | | | | | | | | |
| APPLICABLE MOTOR OUTPUT ※1 | INDUCTION | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W |
| | REVERSIBLE | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W |
| | E·S | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W |
| Speed control range | | 50Hz : 90~1400rpm | | | | | | 60Hz : 90~1700rpm | | | |
| Speed variation | | 5%(standard) | | | | | | | | | |
| Speed setting device | | Built in external speed setting device attachable | | | | | | | | | |
| Braking | | Possible to stop brake for certain period by electric brake | | | | | | | | | |
| Braking period ※2 | | 0.5sec(standard) | | | | | | | | | |
| Parallel operation | | Not suitable for parallel operation | | | | | | | | | |
| Slow Run, Slow Stop | | none | | | | | | | | | |
| Operation Temperature | | -10~50℃ | | | | | | | | | |
| Storage Temperature | | -20~60℃ | | | | | | | | | |
| Ambient humidity | | 85%Maximum(non condensing) | | | | | | | | | |

※ 1: Suitable motors are Socket Type Speed Control Motor. (Use for 12V motor T.G)

※ 2: The electric brake does not have holding torque.

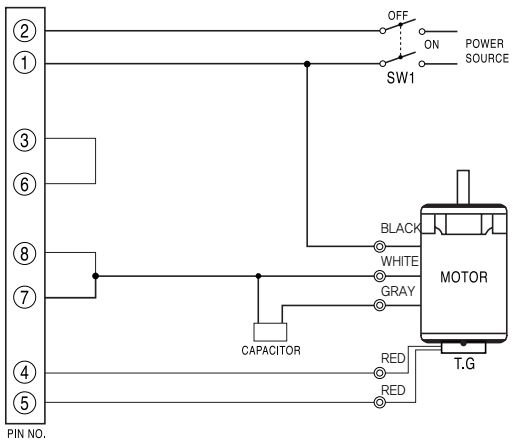
## ✚ DIMENSIONS SR TYPE SPEED CONTROLLER



# ✚ SCHEMATIC DIAGRAM (INDUCTION MOTOR)

## 1-1 Uni Direction+Variable Speed

INDUCTION MOTOR (6W~90W) REVERSIBLE MOTOR (6W~40W)

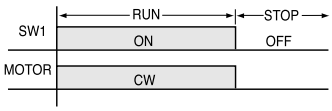



| SW1 | AC 125V or AC 250V MIN. 5A |
|---|---|

▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

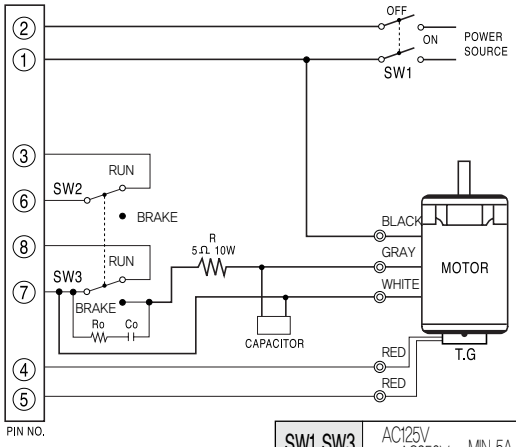
Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.

◆ Example of operation




## 1-2 Uni Direction + Variable Speed + Brake

INDUCTION MOTOR (6W~25W) REVERSIBLE MOTOR (6W~25W)

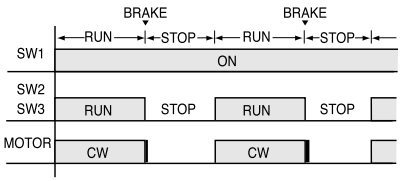



▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| SW1,SW3 | AC125V or AC250V MIN 5A |
|---|---|
| SW2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125W , AC250WV) |
| R | 4.7Ω ~6.8Ω MIN. 10W |

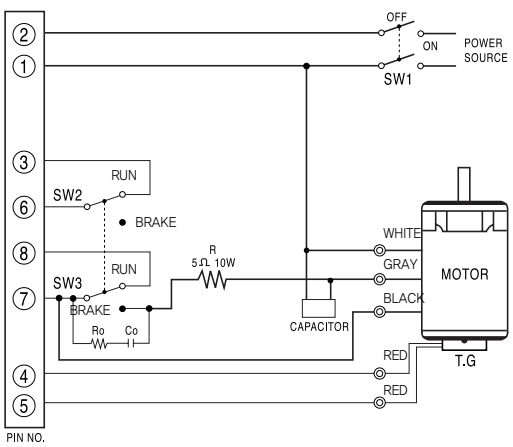
Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. When switched from Run to Stop, electric brake will function about 0.5 sec and motor will stop instantaneously.

◆ Example of operation




## 1-3 Uni Direction + Variable Speed + Brake

INDUCTION MOTOR (40W~90W) REVERSIBLE MOTOR (40W)

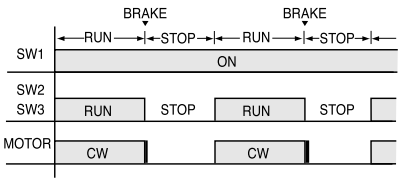



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| SW1,3 | AC125V or AC250V MIN 5A |
|---|---|
| SW2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV, AC250WV) |
| R | 4.7Ω ~6.8Ω MIN. 10W |

Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. When switched from Run to Stop, electric brake will function about 0.5 sec and motor will stop instantaneously.
3. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.

◆ Example of operation

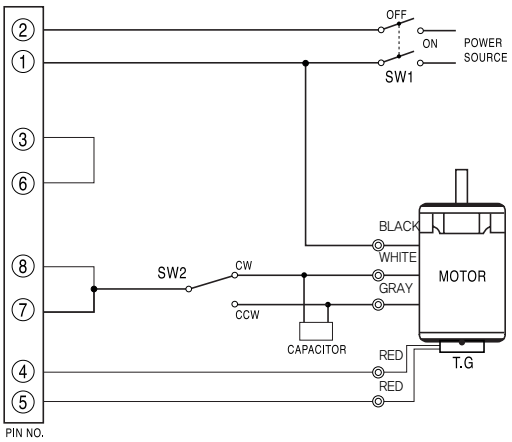



Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove. (There is a possibility to be burned.)

# ✚ SCHEMATIC DIAGRAM (REVERSIBLE MOTOR)

## 2-1 Reverse+Variable Speed

INDUCTION MOTOR (6W~90W) REVERSIBLE MOTOR (6W~40W)

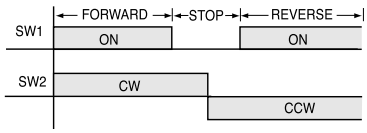



▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | |
|---|---|
| SW1,2 | AC125V or AC 250V MIN. 5A |

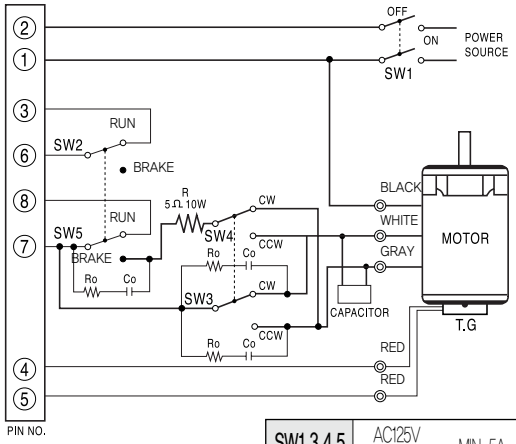
Note) 1. Set "Stop" period for induction motor and switch SW2 after rotation has stopped.
2. Rversible Motor does not need "Stop" period. It has no relation operating SW2 when SW1 is on.
3. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.

◆ Example of operation




## 2-2 Reverse + Variable Speed + Brake

INDUCTION MOTOR (6W~25W) REVERSIBLE MOTOR (6W~25W)

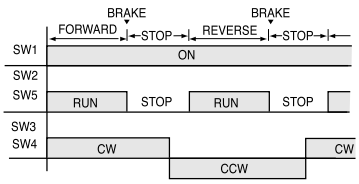



▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | |
|---|---|
| SW1,3,4,5 | AC125V or AC250V MIN. 5A |
| SW2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) |
| R | 4.7Ω~6.8Ω MIN. 10W |

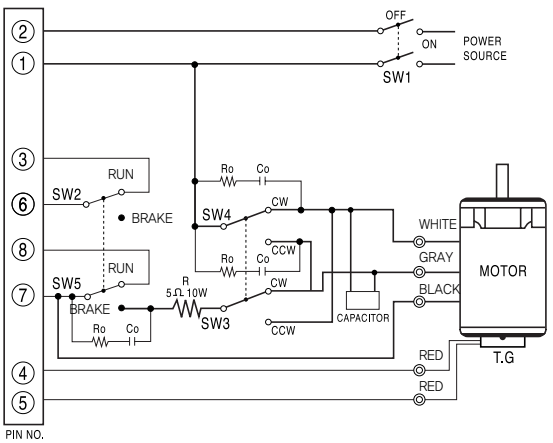
Note) 1. When switched from Run to Stop, electric brake will function for 0.5sec. and motor will stop instantaneously.
2. Do not operate SW4, SW5 for this 0.5 sec.
3. Changing period of SW4, SW5 should be done quicker than Stop to Run of SW2, SW3.

◆ Example of operation




## 2-3 Reverse + Variable Speed + Brake

INDUCTION MOTOR (40W~90W)
REVERSIBLE MOTOR (40W)

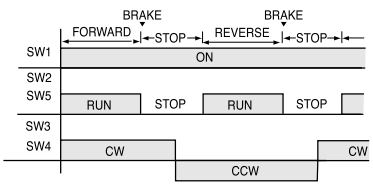



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | |
|---|---|
| SW1,3,4,5 | AC125V or AC250V MIN. 5A |
| SW2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) |
| R | 4.7Ω~6.8Ω MIN. 10W |

Note) 1. When switched from Run to Stop, electric brake will function for 0.5sec. and motor will stop instantaneously.
2. Do not operate SW4, SW5 for this 0.5 sec.
3. Changing period of SW4, SW5 should be done quicker than Stop to Run of SW2, SW3.
4. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to 178 page for the connection method.

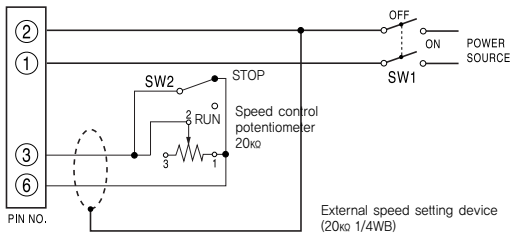
◆ Example of operation

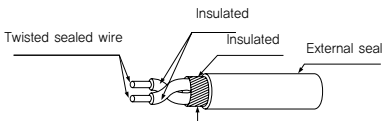



Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)

## 3-1 External speed setting device

### ■ When Distance Control is Necessary

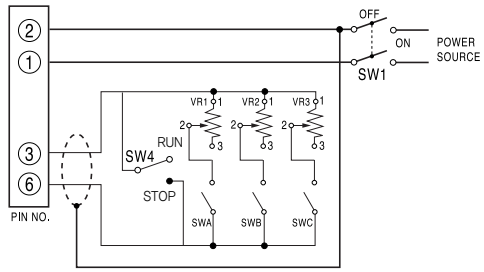



External speed setting device to No. 2 pin of the socket

Note) 1. Set the volume to 'LOW'.
2. Shorten the connection cable as much as possible. May result in malfunction. In such case use twist shield cable and connect it to No.2 terminal.

### ■ When Multi-Stage Speed Setting is Necessary

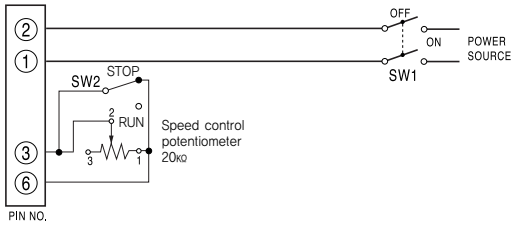



Note) 1. Set the volume to 'LOW'.
2. If multi-stage speed control is needed, install VR1, VR2, and VR3 respectively and the speed can be changed by SWA, SWB, and SWC. The open/close time of the switch is advised to follow the open/close time of the relay contact point.

## 3-2 For prompt start(1)

### ▼ Without braking

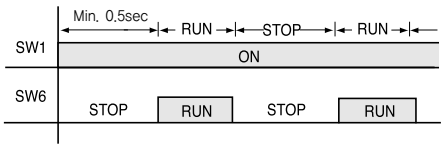
※ When the motor starts slowly while starting signal is input at Run switch(SW1), use external volume VR at SW2 for Run/Stop.




| SW2 | DC 20V 10mA |
|---|---|

External speed setting device (20KΩ 1/4WB)

◆ Example of operation

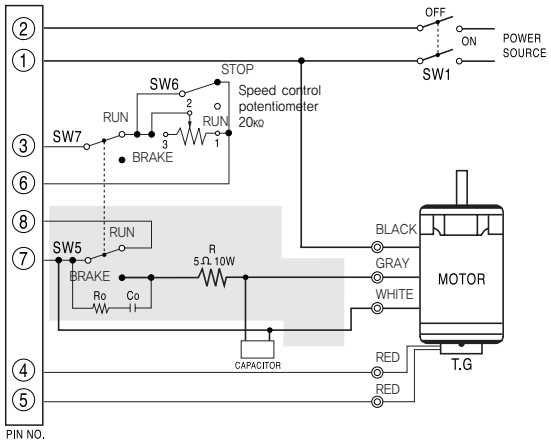



Note) 1. Input time of SW1 should be about 0.5sec earlier than starting signal of SW2.
2. Set the volume to "LOW" and use external volume VR to control speed.
3. During Run/Stop operation, control SW2 while SW1 is on. Even with small signal motor can be controlled.
4. When not in use for long period turn SW1 off.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove. (There is a possibility to be burned.)

## 3-3 For prompt start(2)

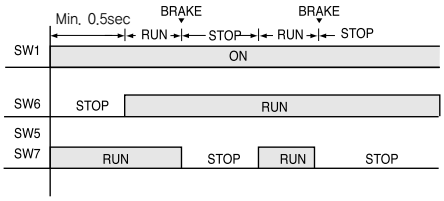
▼ While braking INDUCTION MOTOR(6W~25W)
REVERSIBLE MOTOR (6W~25W)




| | |
|---|---|
| SW1,5 | AC125V or AC250V MIN. 5A |
| SW6,7 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) |
| R | 4.7Ω~6.8Ω MIN. 10W |

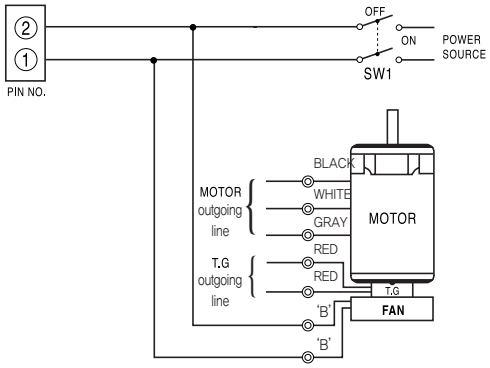
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

◆ Example of operation




Note) 1. This wiring is for unidirection+variable speed+braking of motors 25W or less. For motors 40W over part of wiring is different. Refer to the electrical wiring diagram for the corresponding connection.
2. Input time of SW1 should be about 0.5sec earlier than SW6.
3. Set the volume to "LOW" and use external volume VR to control speed.
4. When not in use for long period turn SW1 off.

## 3-4 Box fan motor connection method




| VOLTAGE | LEAD WIRE COLOR'B' |
|---|---|
| SINGLE PHASE AC100V~110V | BROWN |
| SINGLE PHASE AC200V~240V | YELLOW |

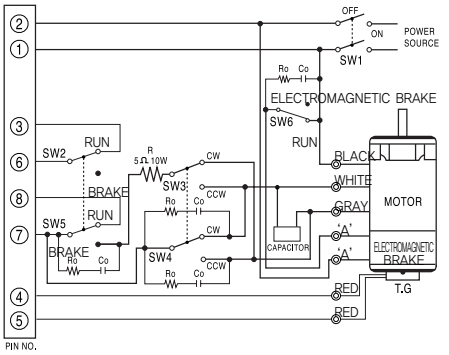
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

※ For the connection of something other than the box fan, refer to the electrical wiring diagram for the corresponding connection.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove. (There is a possibility to be burned.)

## 4-1 Wire connection for electromagnetic brake motor

### When electric brake of controller is used at the same time



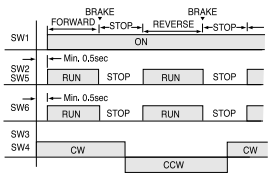

**E·S MOTOR (6W~25W)**

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

| | |
|---|---|
| SW1,3,4,5,6 | AC125V or AC250V MIN. 5A |
| SW2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) |
| R | 4.7Ω~6.8Ω MIN. 10W |

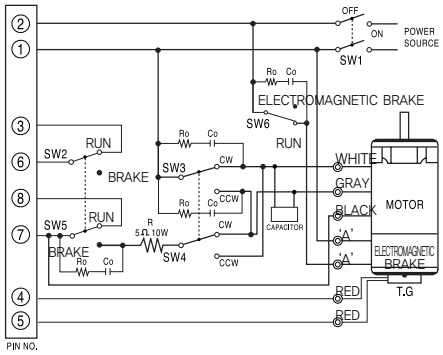
◆ Example of operation




Note) 1. When switched from Run to Stop, electromagnetic brake will function for about 0.5sec. and motor will stop instantaneously.
2. Operate SW3, SW4 after the motor has stopped.
3. Changing period of SW3, SW4 should be done quicker than stop to run of SW2, SW5, SW6.
4. Power input for SW1 should be at least 0.5sec. earlier than starting signals of SW2, SW5, SW6.
5. When Run/Stop, operate with SW2, SW5, SW6 while SW1 is On condition. Even with small signal it can control the motor. Turn SW1 off when not used for long period.

## 4-2 Wire connection for electromagnetic brake motor

### When electric brake of controller is used at the same time



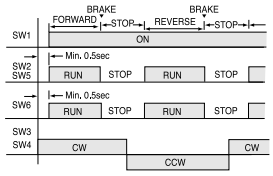

**E·S MOTOR (40W~90W)**

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

| | |
|---|---|
| SW1,3,4,5,6 | AC125V or AC250V MIN. 5A |
| SW2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) |
| R | 4.7Ω~6.8Ω MIN. 10W |

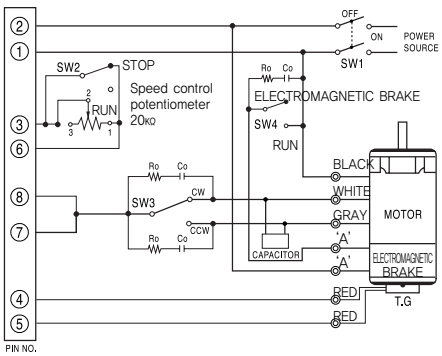
◆ Example of operation




Note) 1. When switched from Run to Stop, electromagnetic brake will function for about 0.5sec. and motor will stop instantaneously.
2. Operate SW3, SW4 after the motor has stopped.
3. Changing period of SW3, SW4 should be done quicker than stop to run of SW2, SW5, SW6.
4. Power input for SW1 should be at least 0.5sec. earlier than starting signals of SW2, SW5, SW6.
5. When Run/Stop, operate with SW2, SW5, SW6 while SW1 is 'On' condition. Even with small signal it can control the motor. Turn SW1 off when not used for long period.
6. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.

## 4-3 Wire connection for electromagnetic brake motor

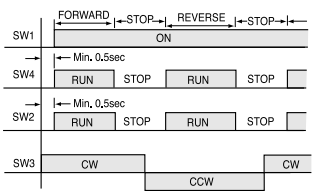
### When electric brake of controller is used at the same time




**E·S MOTOR (6W~90W)**

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

◆ Example of operation




| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

| | |
|---|---|
| SW 1,3,4 | AC125V or AC250V MIN. 5A |
| SW 2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) |

Note) 1. Set the stop period to stop and convert to SW2 after rotation has stopped
2. Input period for power switch SW1 should be about 0.5sec. earlier than the signal of start operating of SW6, SW9
3. When Run/Stop, operate with SW2, SW4 while SW1 is on. Even with small signal it can control the motor Turn SW1 off when not used for long period.
4. Set the volume low and control the speed with external speed setting device VR
5. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 178 for the connection method.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)

# SPEED CONTROLLER
## : SRCE TYPE



### Characteristics

- Speed controller SR series are developed by the demands of speed variation.
- It uses the IC circuit that SPG Motor independently developed and is small, light weight and reliability.
- With acquisition of CE Mark certification, the product guarantees higher reliability.
- The rotating speed of the motor may be adjusted by a speed control variable resistor located at the front of the case and can also operate long-range by an extra speed setter.
- Increase of instantaneous stop function by electromagnetic brake
- Miniaturized type with 11pin plug

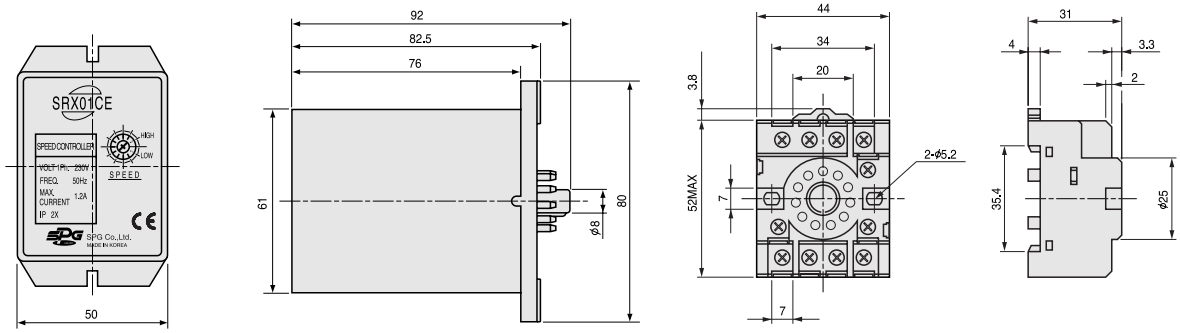
### SPECIFICATIONS

| SPEC \ MODEL | | SRCE TYPE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SRA01CE | SRA02CE | SRB01CE | SRB02CE | SRC01CE | SRC02CE | SRD01CE | SRD02CE | SRX01CE | SRX02CE |
| Rated Voltage | | AC110V 60Hz | | AC220V 60Hz | | AC100V 50/60Hz | | AC200V 50/60Hz | | AC220~240V 50Hz | |
| Operation Voltage Range | | ±10% | | | | | | | | | |
| ※1 APPLICABLE MOTOR OUTPUT | INDUCTION | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W |
| | REVERSIBLE | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W |
| | E·S | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W | 6W | 15W~90W |
| Speed control range | | 50Hz : 90~1400rpm | | | | | | 60Hz : 90~1700rpm | | | |
| Speed variation | | 5%(standard) | | | | | | | | | |
| Speed setting device | | Built in external speed setting device attachable | | | | | | | | | |
| Braking | | Possible to stop for certain period by electric brake | | | | | | | | | |
| ※2 Braking period | | 0.5sec(standard) | | | | | | | | | |
| Parallel operation | | Not suitable for parallel operation | | | | | | | | | |
| Slow Run, Slow Stop | | none | | | | | | | | | |
| Operation Temperature | | -10~50℃ | | | | | | | | | |
| Storage Temperature | | -20~60℃ | | | | | | | | | |
| Ambient humidity | | 85%Maximum(non condensing) | | | | | | | | | |

※1: Suitable motors are Socket Type Speed Control Motor. (Use for 12V motor T.G)

※2: The electric brake does not have holding torque.

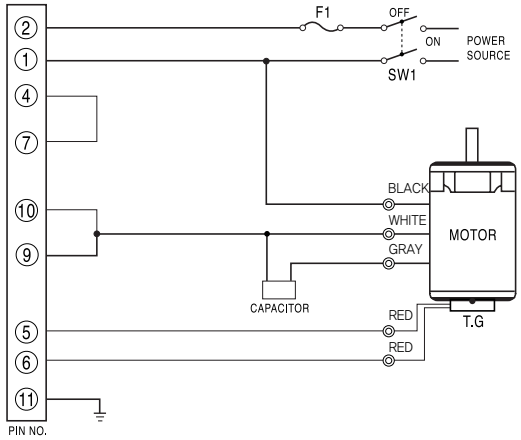
## ✚ DIMENSIONS SRCE TYPE SPEED CONTROLLER



# ✚ SCHEMATIC DIAGRAM

## 1-1 Uni Direction + Variable Speed

INDUCTION MOTOR (6W~90W) REVERSIBLE MOTOR (6W~40W)

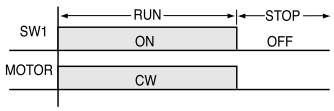



| | | |
|---|---|---|
| SW1 | AC 125V or AC 250V | MIN. 5A |
| F1 | AC 125V or AC 250V | 3A |

▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

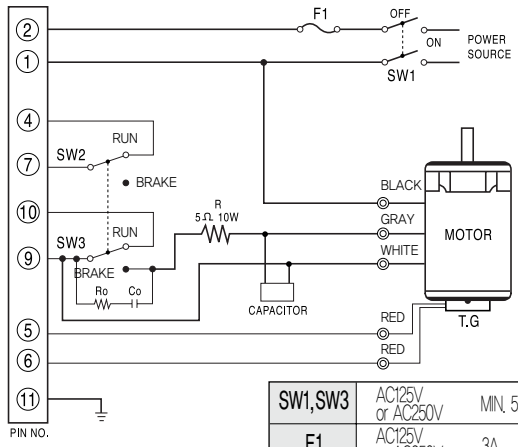
Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 184 for the connection method.

◆ Example of operation




## 1-2 Uni Direction + Variable Speed + Brake

INDUCTION MOTOR (6W~25W) REVERSIBLE MOTOR (6W~25W)

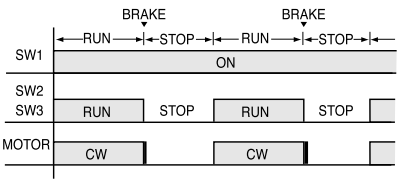



| | | |
|---|---|---|
| SW1,SW3 | AC125V or AC250V | MIN. 5A |
| F1 | AC125V or AC250V | 3A |
| SW2 | DC 20V 10mA | |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) | |
| R | 4.7Ω ~6.8Ω MIN. 10W | |

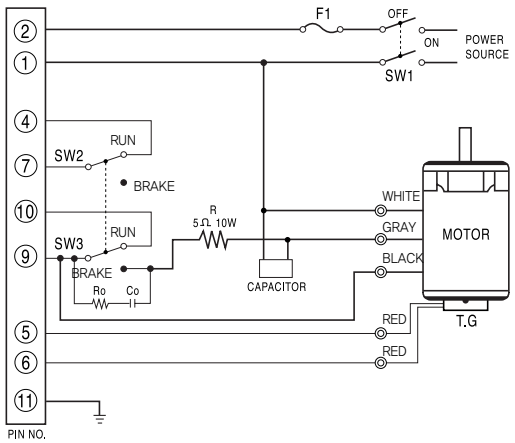
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. When switched from Run to Stop, electric brake will function about 0.5 sec. and motor will stop instantaneously.

◆ Example of operation




## 1-3 Uni Direction + Variable Speed + Brake

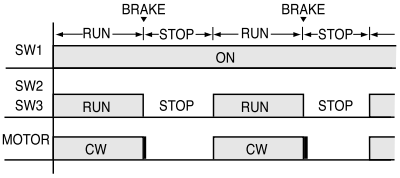



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | | |
|---|---|---|
| SW1,SW3 | AC125V or AC250V | MIN. 5A |
| F1 | AC125V or AC250V | 3A |
| SW2 | DC 20V 10mA | |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) | |
| R | 4.7Ω ~6.8Ω MIN. 10W | |

Note) 1. The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW, change and connect white and gray wire of motor.
2. When switched from Run to Stop, electric brake will function for 0.5sec. and motor will stop instantaneously.
3. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 184 for the connection method.

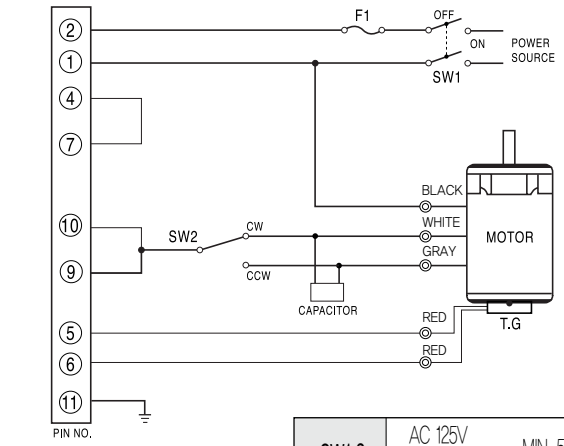
◆ Example of operation




Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)

## 2-1 Reverse + Variable Speed

INDUCTION MOTOR (6W~90W) REVERSIBLE MOTOR (6W~40W)

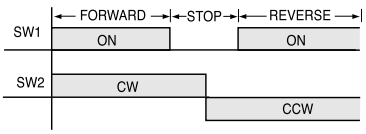



▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | | |
|---|---|---|
| SW1,2 | AC 125V or AC 250V | MIN. 5A |
| F1 | AC 125V or AC 250V | 3A |

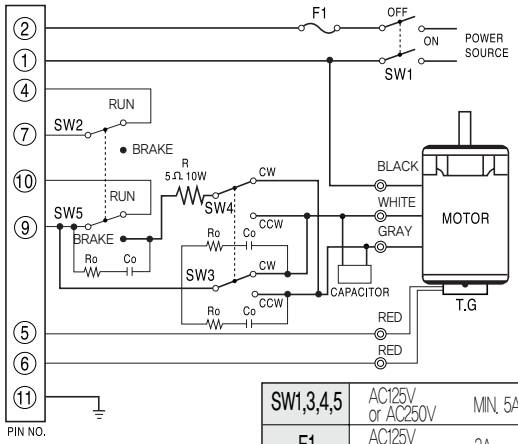
Note) 1. Set "Stop" period for induction motor and switch SW2 after rotation has stopped.
2. Reversible Motor does not need "Stop" period. SW2 does not work when SW1 is on.
3. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 184 for the connection method.

◆ Example of operation




## 2-2 Reverse + Variable Speed + Brake

INDUCTION MOTOR (6W~25W) REVERSIBLE MOTOR (6W~25W)

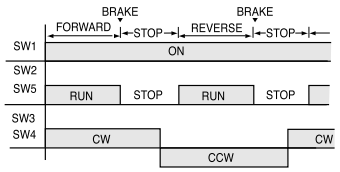



▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | | |
|---|---|---|
| SW1,3,4,5 | AC125V or AC250V | MIN. 5A |
| F1 | AC125V or AC250V | 3A |
| SW2 | DC 20V 10mA | |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) | |
| R | 4.7Ω~6.8Ω MIN. 10W | |

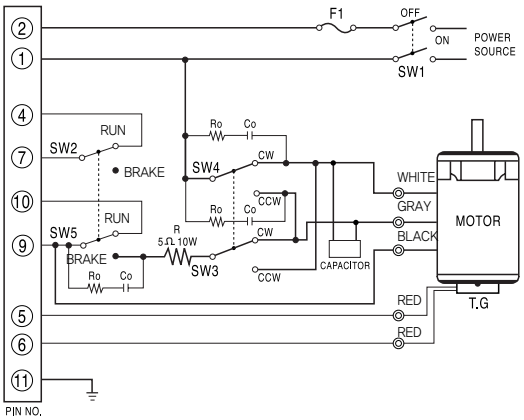
Note) 1. When switched from Run to Stop, electric brake will function for 0.5sec. and motor will stop instantaneously
2. Do not operate SW4, SW5 for this 0.5 sec.
3. Changing period of SW4, SW5 should be done quicker than Stop to Run of SW2, SW3

◆ Example of operation




## 2-3 Reverse + Variable Speed + Brake

INDUCTION MOTOR (40W~90W)
REVERSIBLE MOTOR (40W)

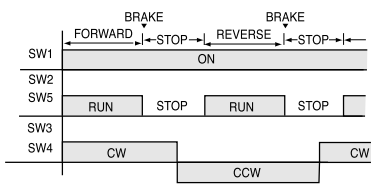



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | | |
|---|---|---|
| SW1,3,4,5 | AC125V or AC250V | MIN. 5A |
| F1 | AC125V or AC250V | 3A |
| SW2 | DC 20V 10mA | |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) | |
| R | 4.7Ω~6.8Ω MIN. 10W | |

Note) 1. When switched from Run to Stop, electric brake will function for 0.5sec. and motor will stop instantaneously
2. Do not operate SW4, SW5 for this 0.5 sec.
3. Changing period of SW4, SW5 should be done quicker than Stop to Run of SW2, SW3
4. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 184 for the connection method.

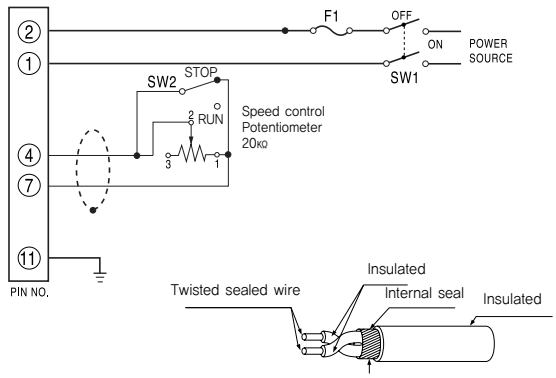
◆ Example of operation




Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)

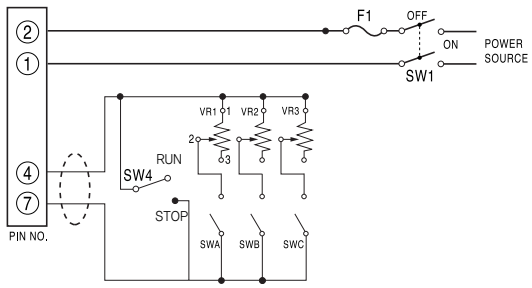
## 3-1 External speed setting device

### ■ When Distance Control is Necessary




Note) 1. Set the volume to 'LOW'.
2. Shorten the connection cable as much as possible May result in malfunction. In such case use twist shield cable and connect it to No.2 terminal.

### ■ When Multi-Stage Speed Setting is Necessary

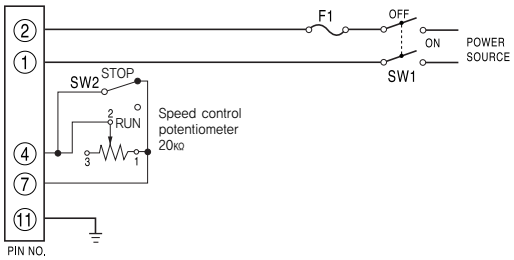



Note) 1. Set the volume to 'LOW'.
2. If multi-stage speed control is needed, install VR1, VR2, and VR3 respectively and the speed can be changed by SWA, SWB, and SWC. The open/close time of the switch is advised to follow the open/close time of the relay contact point.

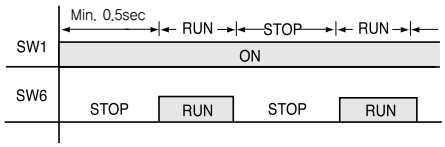
## 3-2 For prompt start(1)

### ▼ Without braking

※ When the motor starts slowly while starting signal is input at FUN switch(SW1), use external volume VR at SW2 for Run/Stop.




◆ Example of operation

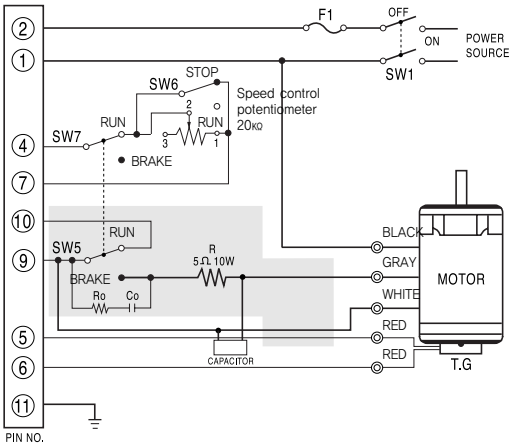



Note) 1. Input time of SW1 should be about 0.5sec quicker than starting signal of SW2.
2. Set the volume to "LOW" and use external volume VR to control speed.
3. During Run/Stop operation, control SW2 while SW1 is on. Even with small signal motor can be controlled.
4. When not in use for long period turn SW1 off.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)

## 3-3 For prompt start(2)

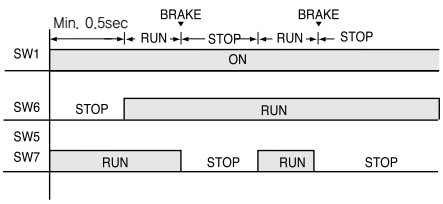
▼ With Braking INDUCTION MOTOR(6W~25W)
REVERSIBLE MOTOR (6W~25W)




| | | |
|---|---|---|
| SW1,5 | AC125V or AC250V | MIN. 5A |
| F1 | AC125V or AC250V | 3A |
| SW6,7 | DC 20V 10mA | |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) | |
| R | 4.7Ω ~6.8Ω MIN. 10W | |

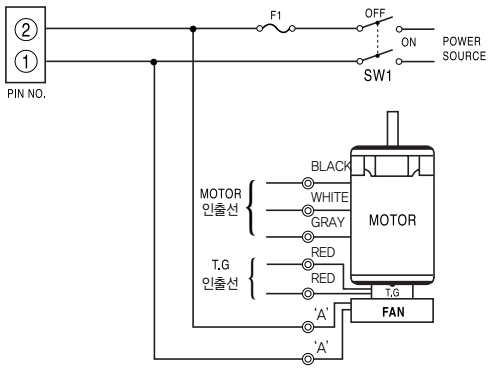
▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

◆ Example of operation




Note) 1. This wiring is for unidirection+Variable speed+braking of motors 25W or less. For motors 40W and over ■ part of wiring is different. Refer to the electrical wiring diagram for the corresponding connection.
2. Input time of SW1 should be about 0.5sec quicker than SW6.
3. Set the volume to "LOW" and use external volume VR to control speed.
4. When not in use for long period turn SW1 off.

## 3-4 Box fan motor connection method




| VOLTAGE | LEAD WIRE COLOR'A' |
|---|---|
| SINGLE PHASE AC100V~110V | BROWN |
| SINGLE PHASE AC200V~240V | YELLOW |

▲ For wiring of 220V~240V, 50Hz motor, change gray to brown.

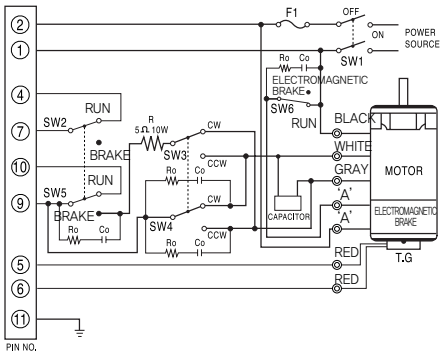
※ For the connection of something other than the box fan, refer to the electrical wiring diagram for the corresponding connection.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)

## 4-1 Wire connection for electromagnetic brake motor

### When electric brake of controller is used at the same time

E·S MOTOR (6W~25W)

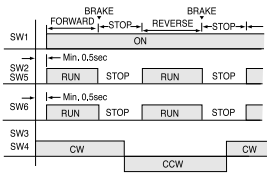



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

| | | |
|---|---|---|
| SW1,3,4,5,6 | AC125V or AC250V | MIN. 5A |
| F1 | AC125V or AC250V | 3A |
| SW2 | DC 20V 10mA | |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) | |
| R | 4.7Ω~6.8Ω MIN. 10W | |

◆ Example of operation

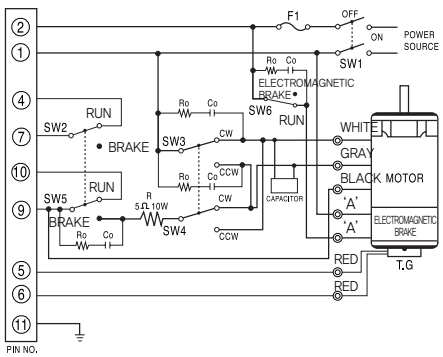



Note) 1. When switched from Run to Stop, electromagnetic brake will function for about 0.5sec. and motor will stop instantaneously.
2. Operate SW3, SW4 after the motor has stopped.
3. Changing period of SW3, SW4 should be done quicker than stop to run of SW2, SW5, SW6.
4. Power input for SW1 should be at least 0.5sec. quicker than starting signals of SW2, SW5, SW6.
5. When Run/Stop, operate with SW2, SW5, SW6 while SW1 is 'On' condition. Even with small signal it can control the motor. Turn SW1 off when not used for long period.

## 4-2 Wire connection for electromagnetic brake motor

### When electric brake of controller is used at the same time

E·S MOTOR (40W~90W)

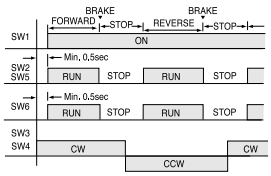



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

| | | |
|---|---|---|
| SW1,3,4,5,6 | AC125V or AC250V | MIN. 5A |
| F1 | AC125V or AC250V | 3A |
| SW2 | DC 20V 10mA | |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) | |
| R | 4.7Ω~6.8Ω MIN. 10W | |

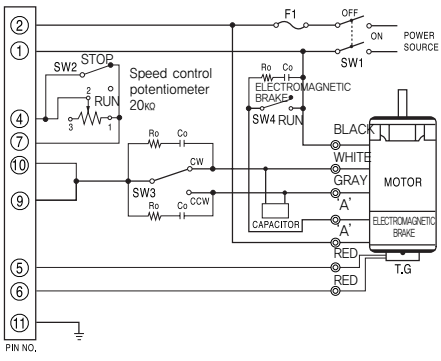
◆ Example of operation




Note) 1. When switched from Run to Stop, electromagnetic brake will function for about 0.5sec. and motor will stop instantaneously.
2. Operate SW3, SW4 after the motor has stopped.
3. Changing period of SW3, SW4 should be done quicker than stop to run of SW2, SW5, SW6.
4. Power input for SW1 should be at least 0.5sec. quicker than starting signals of SW2, SW5&SW6.
5. When Run/Stop, operate with SW2, SW5, SW6 while SW1 is On condition. Even with small signal it can control the motor. Turn SW1 off when not used for long period.
6. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 184 for the connection method.

## 4-3 Wire connection for electromagnetic brake motor

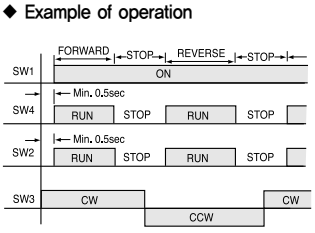
### When electric brake of controller is used at the same time




E·S MOTOR (6W~90W)

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

◆ Example of operation




| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

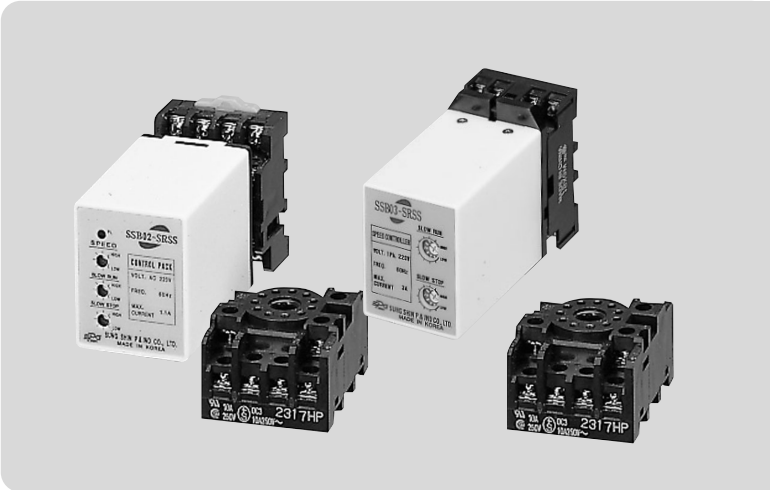
| | | |
|---|---|---|
| SW1,3,4 | AC125V or AC250V | MIN. 5A |
| F1 | AC125V or AC250V | 3A |
| SW2 | DC 20V 10mA | |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) | |

Note) 1. Set the stop period to stop and convert to SW2 after rotation has stopped.
2. Input period for power switch SW1 should be about 0.5sec. quicker than the signal of start operating of SW6, SW9.
3. When Run/Stop, operate with SW2, SW4 while SW1 is on. Even with small signal it can control the motor Turn SW1 off when not used for long period.
4. Set the volume to "LOW" and control the speed with external speed setting device VR.
5. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 184 for the connection method.

Note) The power switch should be off and check the PIN number when inserting a control pack into socket groove.
(There is a possibility to be burned.)


SPG
MOTOR

# SS TYPE SPEED CONTROLLER



## 1. Characteristics of the socket SS standard type

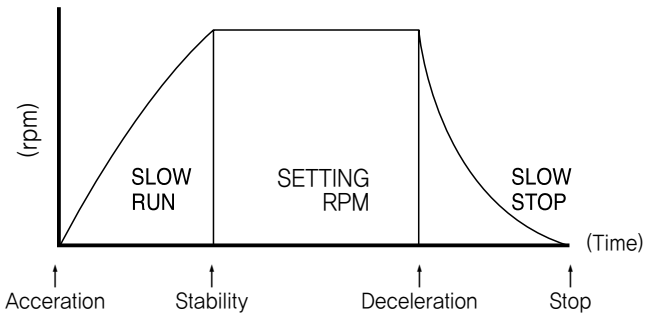
(1) This is used with the 6W~40W induction speed control motor and the 6W~40W reversible speed control motor.
(2) Number of revolutions may be controlled and designated with the speed setter on the front of the case.
(3) Instantaneous braking is possible with an electric brake.
(4) The small 11 pin plug-in method was used.
(5) It has slow run and slow stop functions, so operating and braking are not working rapidly, instead, slowly.
(6) It is simple to control because the slow run and slow stop functions have time setting functions.
(7) SPG has socket (SS) type standard speed controller may not be used for parallel operations. When parallel operation is necessary, the socket (SS) type high-output speed controller should be used.

## 2. Characteristics of the socket SS high-output type speed control

(1) It is used in the 6W~90W induction speed control motor, the 6W~40W reversible speed control motor and the 6W~40W electro-magnetic brake speed control motor.
(2) An external controller can control the number of rotation of the motor.
(3) Instantaneous braking is possible with an electric brake.
(4) Installation and operation is simple because of a compact plug-in 11pin type.
(5) It has slow run and slow stop functions, so operating and braking are not working rapidly instead, slowly.
(6) It is simple to control because the slow run and slow stop functions have time setting functions.
(7) Parallel operation is possible. Parallel operation allows multiple motor control packs to be operated at the same speed with one speed setter.

## 3. Use of socket SS type speed control

### (1) Use of slow run and slow stop




- The SRSS function of the socket SS type speed controller allows slow acceleration with slow run and gradual deceleration with slow stop function.
- This function relieves impact when accelerating and decelerating and should be used when smooth acceleration and deceleration are desired.
- Slow run and slow stop functions have time setting functions. The variable resistor in the control pack allows time to be set within 0.5 seconds~15 seconds/1200[rpm].
- Slow stop braking in a shorter time than the natural braking of the motor is impossible.
- When slow operation is not necessary, turn the volume switch inside all the way to the left (counter-clockwise).

### (2) Characteristics of instantaneous braking

- The control pack has an electric brake which allows instantaneous braking of the motor within 0.1 seconds.
- Brake current operates for about 0.5 seconds and then automatically discharges.
- Because there is no holding torque to hold the motor, after it stops, it is possible to control the location.
- When holding torque is necessary to stop an object that is moving up and down, use SPG has electro-magnetic brake control motor.

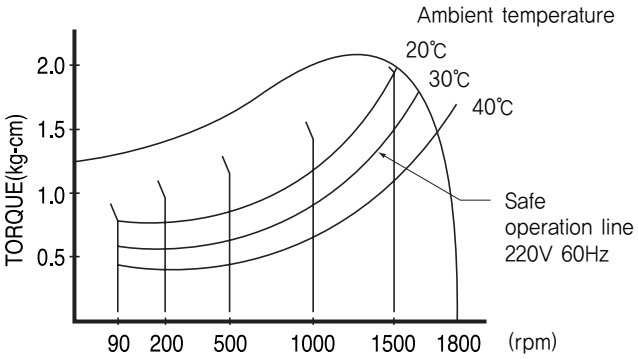
※ Note

- In the control pack, after instantaneous braking, it takes about 0.5 seconds before the motor starts rotating after the brake switch is turned to operate.
- In the control pack, if instantaneous braking is applied with the variable resistor at 0Ω or with the run/stop switch at stop and then turned to run again, the motor might rotates once, so do not operate it in this manner.
- If the run/stop switch is repeatedly switched from the AC power source within 0.5 seconds, the motor might momentarily rotate, so do not run/stop with the AC power source.

### (3) Temperature rise of the motor

- The AC speed control motor gets higher input power as the load increases so the rise in temperature is greater with a larger load.
- The curve with the temperature rise of the motor, the threshold torque and the number of rotations are called the safe operation line. Use the motor at the torque and number of revolutions below the curve.
- Safe operation line may be used at above the curve in the following cases.

〉 When radiation is high.
〉 When a cooling fan is used.
〉 When the ambient temperature is low.




★ Use at surface temperature of the motor case below 90℃

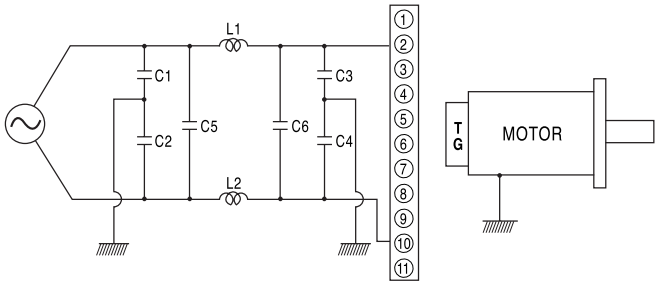
## 4. Cautions

### 1) Cautions in installation

- Use in temperature range between −10˚C and +50˚C and humidity of 85% or less.
  Avoid places with direct sunlight, moisture and oiliness. When used in such places, use a cover.
- Avoid places with vibration, shock, dust, inflammable and corrosive gas.

### 2) Cautions in wiring

- Use sockets for connection and do not solder on the PIN of the main body.
- When connecting the socket, check the terminal number.
- When inserting the control pack in the socket, turn the power off, check the PIN number and then insert.
- High-output motors, solenoid, high frequency power and electric welding machines could cause malfunctions of the control pack.
  Use a separate circuit and wire the above equipment circuits separately.




C1~C4 : 1000㎊F (2000VDC)
C5~C6 : 0.1㎌F~0.2㎌F (AC125WV or AC250WV)
L1~L2 : about 100㎌H
Note)

1. The specification of L1~L2 should not be magnetically saturated by the motor current.
2. The condenser and the motor should be grounded in the same place.
3. Use short wiring and ground with thick wires.

- Install a noise filter to prevent malfunctions.
- Install the motor and the control pack as closely as possible.
- When noise filters are necessary for independent parts, use a circuit as shown in the picture.

### 3) Cautions in operation

- Use at a motor surface temperature below 90℃ in rated load. Frequent instantaneous braking and repetition of operating raises the temperature of the motor.
- When stopping for a long time, turn the power off.
- Do not operate or stop the motor with the AC power source. The surge voltage from the switch could destroy the product.

# 5. Cause of malfunctions and management methods

## 1) Check

- To raise efficiency and use the control pack longer, check the followings.
  ① Is operation being carried out smoothly?
  ② Is there a strange noise when operating?
  ③ Is abnormal heat being generated?

## 2) Cause of malfunctions and management methods

| Malfunction | Checklist | Malfunctioning part | How to fix |
|---|---|---|---|
| The motor does not rotate. | Separate the pack from the socket and connect socket ④ and ⑩ terminals. | • The speed controller or the controller parts if the motor rotates. | • Check the connection of the speed control variable resistor. |
| | | • The motor parts if the motor does not rotate. | • Check the connection of the motor.<br>• Check the connection of the condenser. |
| | Separate the pack with the socket and open socket ⑧ and ⑨ terminals. | • The speed controller parts if the motor rotates at maximum. | • Check the connection of the speed control variable resistor.<br>• Check the connection of the run/stop switch. |
| | | • The motor parts if the motor does not rotate. | • Check the connection parts of the motor. |
| The motor is rotating at maximum speed. | Separate the control pack from the socket and allow AC power. | • The speed controller or the controller if the motor rotates. | • Check the connection of the speed control variable resistor. |
| | | • The motor parts if the motor does not rotate. | • Check the connection of the motor. |
| | Separate the pack from the socket and connect socket ⑧ and ⑨ terminals. | • The speed controller if the motor stop. | • Check the connection of the speed control variable resistor.<br>• Check the connection of the run/stop switch<br>• Check the connection of ① and ⑪ terminals. |
| | | • The speed controller or the controller if the motor rotates. | |
| The motor's speed is not controlled. | Select the variable resistor at maximum and check the voltage of ① and ⑪ terminals of the socket. | • The speed controller or the control parts if it is more than AC20V | • Check the connection of the speed controlvariable resistor. |
| | | • The tacho if it is less than AC20V | • Check the connection of ① and ⑪ terminals.<br>• Check that the resistance of the tacho part is 1.5kΩ. |
| | When changing the speed of the variable resistor, check the voltage of ⑧ and ⑨ terminals. | • The speed controller parts (speed setting section) if it changes between DC 0~6V | • Check the connection of the speed control variable resistor<br>• Check the connection of the run/stop switch<br>• Check if the speed control variable resistor changes between 0~20kΩ. |
| | | • The controller if it does not change between DC 0~6V | |
| The motor does not stop instantaneously. | | | • Check the connection of external resistance 10Ω, 10W.<br>• Check the connection of the run/stop switch. |

# SPEED CONTROLLER
## : SS STANDARD TYPE



### Characteristics

- Used for induction & reversible speed control motor of 6W~40W.
- Built in speed setting device on the case enables to control and set the speed of motors.
- Instantaneous stop function is possible by electromagnetic brake.
- Compact plug-in type with 11pins.
- It has slow run and slow stop functions, so operating and braking are not working rapidly, instead slowly.
- There is time (period) setting device installed to control slow run and slow stop functions easily.
- Can not be used for parallel operation. For parallel operation, please use high-output type of SPG.

**SPECIFICATIONS**

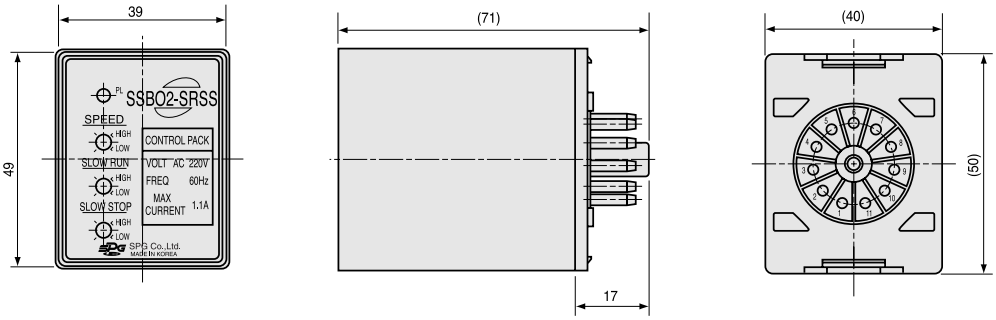
| | MODEL / SPEC | SS TYPE | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | SSA01-SRSS | SSA02-SRSS | SSB01-SRSS | SSB02-SRSS | SSC01-SRSS | SSC02-SRSS | SSD01-SRSS | SSD02-SRSS | SSX01-SRSS | SSX02-SRSS |
| | Rated Voltage | SINGLE-PHASE AC110V | | SINGLE-PHASE AC220V | | SINGLE-PHASE AC100V | | SINGLE-PHASE AC200V | | SINGLE-PHASE AC220V~240V | |
| | Operation Voltage Range | ±10% | | | | | | | | | |
| | Power source frequency | 60Hz | | | | 50/60Hz | | | | 50Hz | |
| | Rated current | 1.1A | 1.5A | 1.1A | 1.1A | 1.0A | 1.4A | 1.0A | 1.0A | 1.1A | 1.1A |
| ※1 | Applicable motor output | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W | 6W | 15W~40W |
| | Speed control range | 90~1700rpm | | | | 90~1400rpm /90~1700rpm | | | | 90~1400rpm | |
| | Speed variation | 5%(standard) | | | | | | | | | |
| | Speed setting device | Built in external speed setting device attachable(20KΩ) | | | | | | | | (10KΩ) | |
| | Braking | Possible to stop for certain period by electric brake | | | | | | | | | |
| ※2 | Braking period | 0.5초(standard) | | | | | | | | | |
| | Parallel operation | Not suitable for parallel operation | | | | | | | | | |
| | SLOW RUN, SLOW STOP | Possible(0.5sec~15sec/1200rpm) | | | | | | | | | |
| | Ambient temperature | -10℃~50℃ | | | | | | | | | |
| | Ambient humidity | 85%Maximum(non condensing) | | | | | | | | | |
| | Storage temperature | -20℃~+60℃ | | | | | | | | | |
| | Insulation resistance | 100MΩ or more when 500V megger is applied between the pin and the housing at ambient temperature and humidity | | | | | | | | | |
| | Dielectric strength | sufficient 1500V at 50/60Hz applied between the pin and the housing at ambient temperature and humidity for 1min | | | | | | | | | |

※ 1 : Applicable motors are socket type control motors of SPG. (Use for 24V motor T.G)
※ 2 : There are no holding torque on electromagnetic brake.

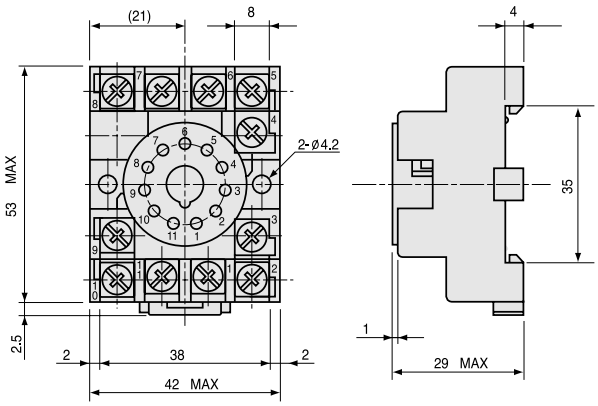
# DIMENSIONS

## ■ SS TYPE (STANDARD) SPEED CONTROLLER

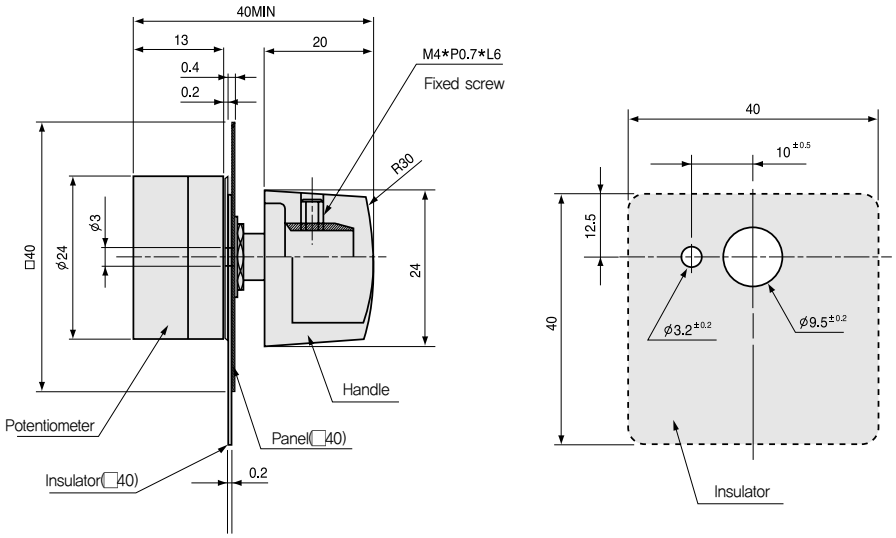
### ✚ CONTROLLER




### ✚ 11PIN SOCKET

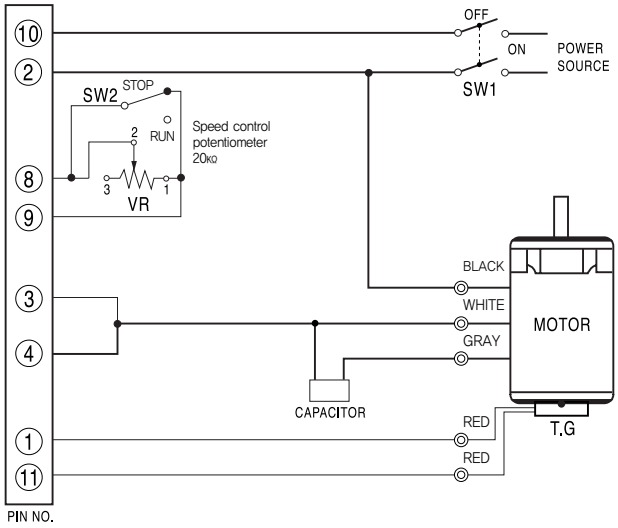



### ✚ SPECIFICATION OF VARIABLE RESISTOR FOR SPEED SETTING
### : 20kΩ(10kΩ) 1/4W B CHARACTERISTIC



# ✚ SCHEMATIC DIAGRAM (INDUCTION MOTOR)

## 1-1 Uni Direction + Variable Speed (6W~40W)

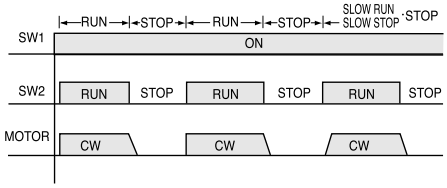



| | |
|---|---|
| SW1 | AC125V or AC250V MIN. 5A |
| SW2 | DC 20V 10mA |

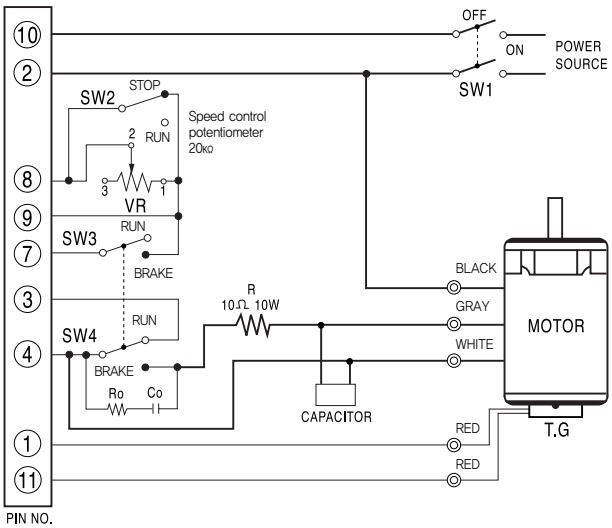
◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

Note)
The motor rotating direction is CW when viewed from output shaft.
When adjusting to CCW direction, exchange white wire to gray.

◆ **Example of operation**




## 1-2 Uni Direction + Variable Speed + Brake (6W~25W)

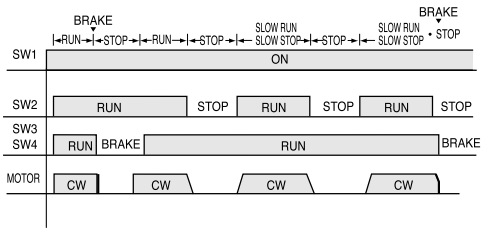



| | |
|---|---|
| SW1,4 | AC125V or AC250V MIN. 5A |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV, AC250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

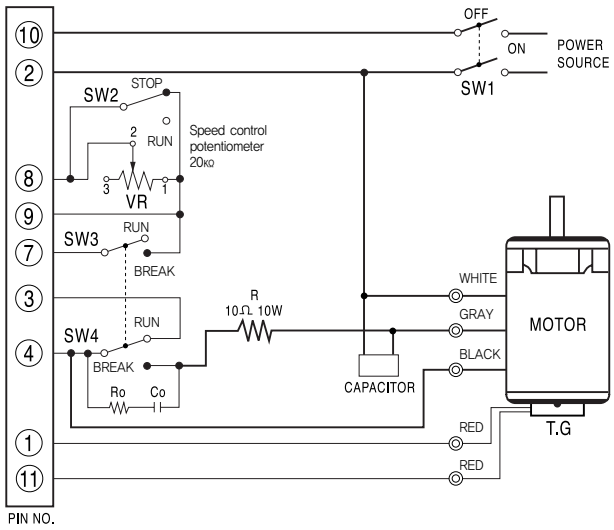
◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

Note)
The motor rotating direction is CW when viewed from output shaft.
When adjusting to CCW direction, exchange white wire to gray.

◆ **Example of operation**



## 1-3 Single Direction + Variable Speed + Brake (40W)

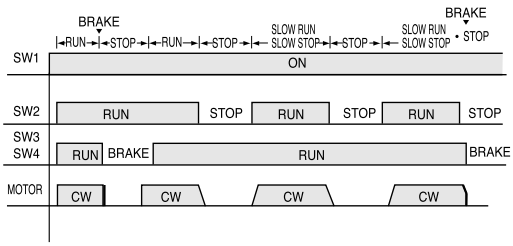



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

| | |
|---|---|
| SW1,4 | AC125V or AC250V MIN. 5A |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV, AC250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

Note)
The motor rotating direction is CW when viewed from output shaft. When adjusting to CCW direction, exchange white wire to gray.

◆ Example of operation




## 1-4 Instruction (INDUCTION MOTOR)

● **Run/Stop function**
If SW2 is switched to "RUN"as section 1-1,2,3, the motor will rotate per fixed speed set by external speed controller. When switched to "STOP" rotation will spontaneously stop by inertia force.

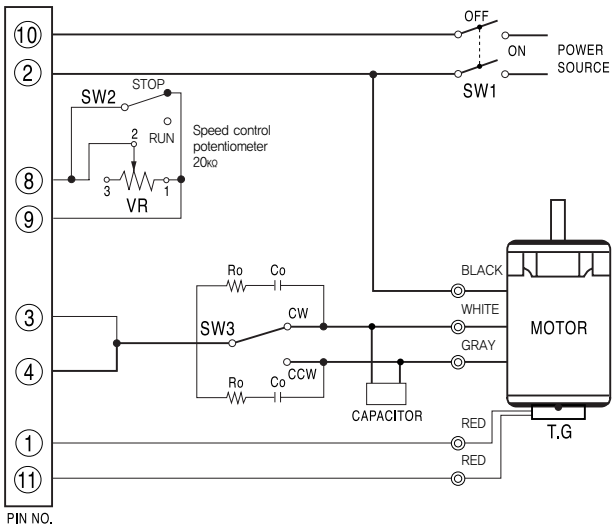
● **Run/Brake function**
If SW3 and SW4 is turned to stop while SW2 is on RUN condition, the brake will function for about 0.5 seconds and stop the motor instantaneously.

● **Slow Run/Slow Stop function**
- When SW2 is switched to Run/Stop after slow run, slow stop is set by the volume of controller, the motor will slowly start and slowly stop per set time.
- The speed of slow run and slow stop changes in rectilinearly against set time and the slope can be controlled within 0.5sec~ 15sec/1200rpm.
- Slow stop cannot be set for shorter period than natural stopping period of motor.

※ Turn SW1 off to prevent control pack from generating heat when not used for a long period.

# ✚ SCHEMATIC DIAGRAM (REVERSIBLE MOTOR)

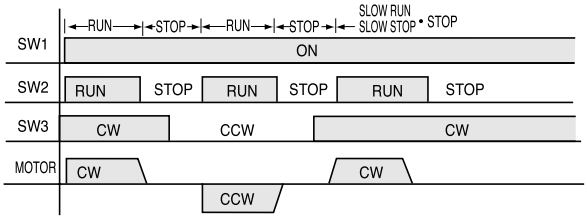
## 2-1 Reverse + Variable Speed (6W~40W)



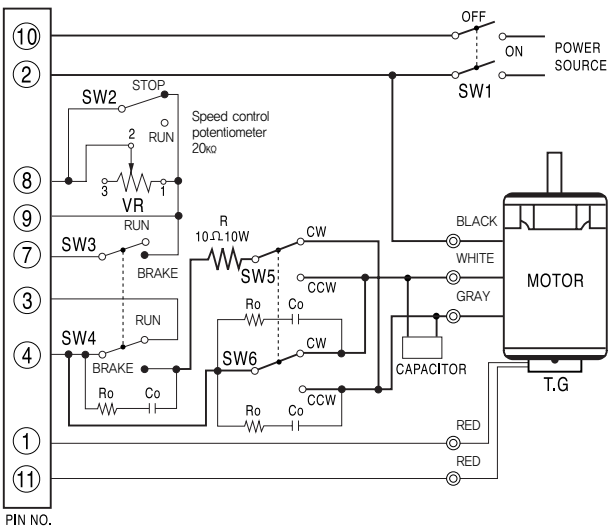

| | |
|---|---|
| SW1.3 | AC125V or AC 250V MIN. 5A |
| SW2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV,AC250WV) |

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

◆ Example of operation



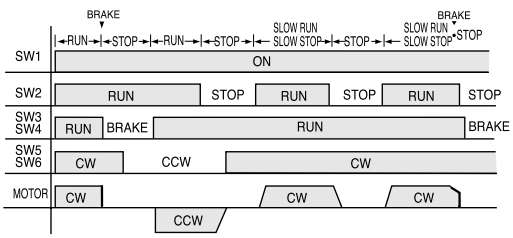

## 2-2 Reverse + Variable Speed + Brake (6W~25W)



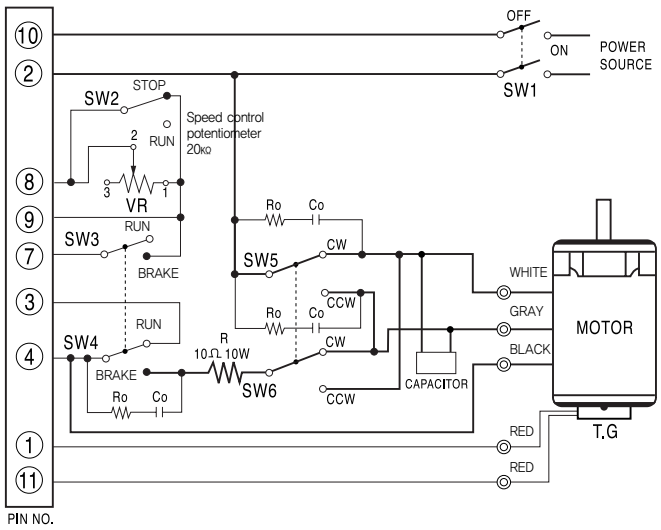

| | |
|---|---|
| SW1,4,5,6 | AC125V<br>or AC 250V MIN. 5A |
| SW2,3 | DC20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV, AC250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

◆ Example of operation



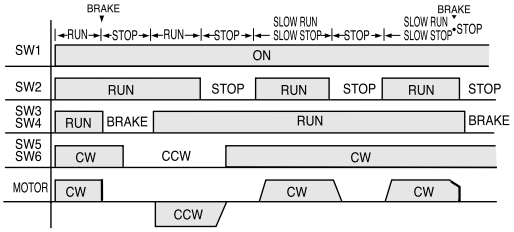
## 2-3 Reverse + Variable Speed + Brake (40W)




| | |
|---|---|
| SW1,4,5,6 | AC125V or AC 250V MIN. 5A |
| SW2,3 | DC20V 10mA |
| Ro,Co | Ro = 10~200Ω (MIN. 1/4W)<br>Co = 0.1~0.2μF<br>(AC 125WV, AC 250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

◆ **Example of operation**




## 2-4 Instruction (REVERSIBLE MOTOR)

● **Run/Stop function**

If SW2 is switched to "RUN"as section 1-1,2,3, the motor will rotate per fixed speed set by external speed controller. When switched to "STOP" rotation will spontaneously stop by inertia force.

● **Run/Brake function**

If SW3 and SW4 is turned to stop while SW2 is on RUN condition, the brake will function for about 0.5 seconds and stop the motor instantaneously.

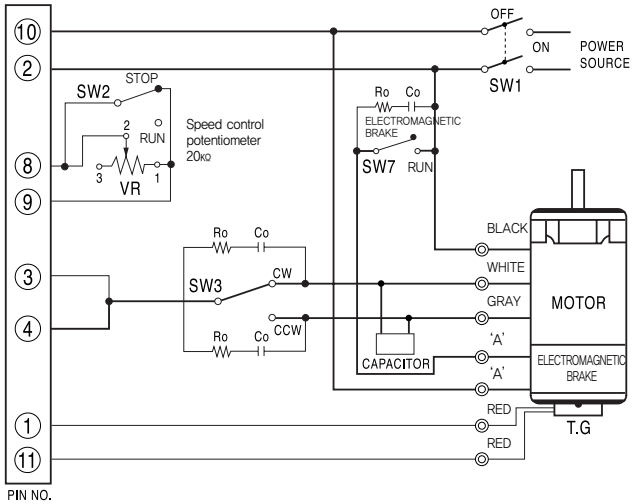
● **Slow Run/Slow Stop function**

- When SW2 is switched to Run/Stop after slow run, slow stop is set by the volume of controller, the motor will slowly start and slowly stop per set time.
- The speed of slow run and slow stop changes in rectilinearly against set time and the slope can be controlled within 0.5sec~ 15sec/1200rpm.
- Slow stop cannot be set for shorter period than natural stopping period of motor.

※ Turn SW1 off to prevent control pack from generating heat when not used for a long period.

# ✚ SCHEMATIC DIAGRAM (E · S MOTOR)

## 3-1 Reverse + Variable Speed (6W~40W)

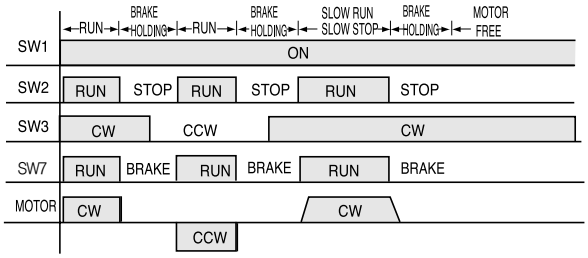



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

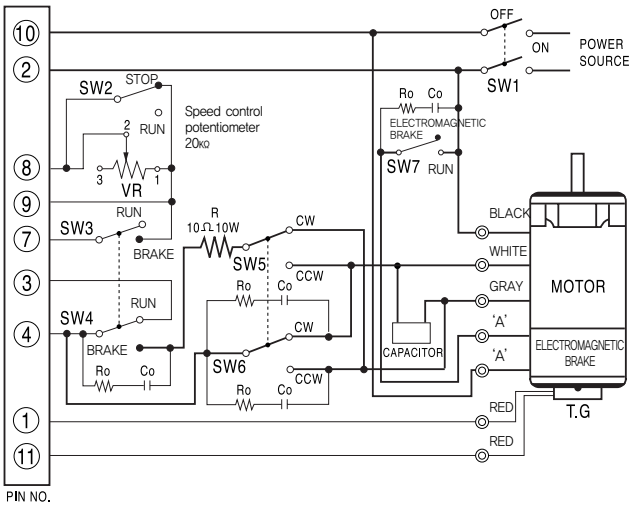
| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

| | |
|---|---|
| SW1,3,7 | AC125V or AC 250V MIN. 5A |
| SW2 | DC 20V 10mA |
| Ro,Co | Ro = 10~200Ω (MIN. 1/4W)<br>Co = 0.1~0.2μF<br>(AC 125WV, AC 250WV) |

◆ Example of operation




## 3-2 Reverse + Variable Speed + Brake (6W~25W)

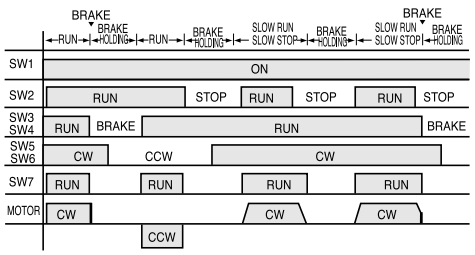



| | |
|---|---|
| SW1,4,5,6,7 | AC125V or AC250V MIN. 5A |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV,AC250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

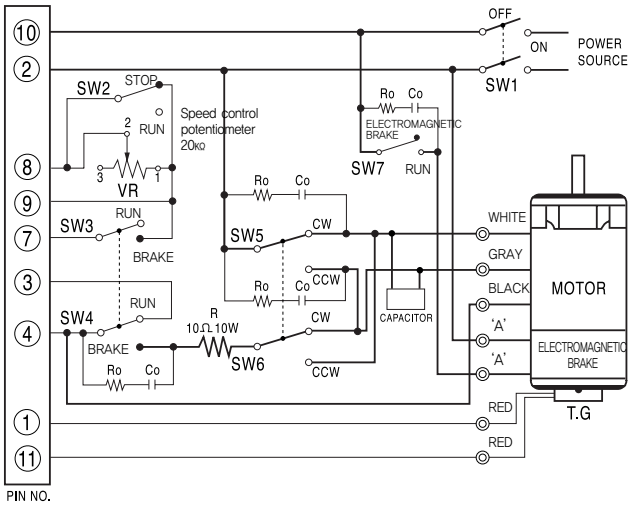
◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

◆ Example of operation



## 3-3 Reverse + Variable Speed + Brake (40W)

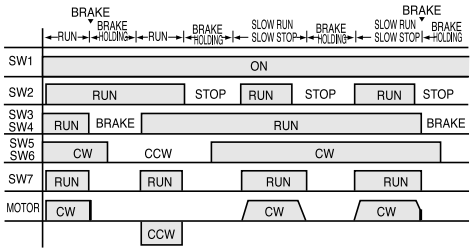



| | |
|---|---|
| SW1,4,5,6,7 | AC125Vor AC250V MIN. 5A |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro = 10~200Ω (MIN. 1/4W)<br>Co = 0.1~0.2μF<br>(AC 125WV, AC 250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown. Here, VR is 10kΩ.

| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

◆ **Example of operation**




## 3-4 Instruction (E.S MOTOR)

● **Run/Stop function**

If SW7 is switched to "RUN" and then switch SW2 to run from section 3-1,2 and 3, the motor will rotate per fixed speed set by external speed controller. When switched to "STOP" rotation will spontaneously stop by inertia force. (When SW2 and SW7 is to be linked and used braking and keeping position will be done by electromagnetic brake.)

● **Run/Brake function**

If SW3, SW4 and SW7 is linked and set to brake while SW2 is on RUN position from the basic diagram of section 3-2,3 electric brake will function for 0.5 seconds to stop motor instantaneously and will keep position by electromagnetic brake. Please do not tamper with SW5 or SW6 for 0.5 seconds while brake is functioning.

● **Slow Run/Slow Stop function**

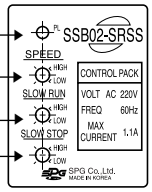
- When SW2 is switched to Run/Stop after slow run, slow stop is set by the volume of controller, the motor will slowly start and slowly stop per set time.
- The speed of slow run and slow stop changes in rectilinearly against set time and the slope can be controlled within 0.5sec~15sec/1200rpm.
- Slow stop cannot be set for shorter period than natural stopping period of motor.

※ Turn SW1 off to prevent control pack from generating heat when not used for a long period.

# ✚ WIDE APPLICATION OF ELECTRIC WIRING

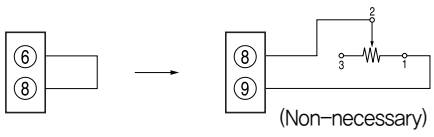
## Panel Layout

| | |
|---|---|
| LED | Lights when electric power is on |
| VR1 | Various resistance for setting speed(internal) |
| VR2 | Various resistance for setting slow run period |
| VR3 | Various resistance for setting slow run period |



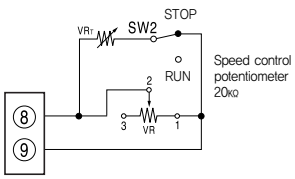

## Using Internal Volume

SS TYPE has various internal resistance for speed setting device installed. Therefore, it is possible to use without external variable resistor for speed setting. When pin no.⑥ and ⑧ of 11pin plug is connected, it is possible to use internal volume. Wiring diagram is the same except wiring for variable resistor for speed setting is not required.




## How to Speed Up Operation

To quicken operating speed, as the set speed is decelerated, there are more delays to start rotation when switch is turned ON If this causes problems, refer to following diagram and connect VRT.(Variable resistor for operating time control.)

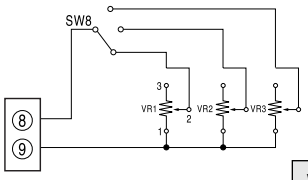



| | |
|---|---|
| VRT | 2kΩ 1/4W B Characteristic |
| SW2 | DC 20V 10mA |

※ For instantaneous stop, operate both RUN/BRAKE switch and RUN/STOP switch above.
※ Place RUN/STOP switch to stop and control VRT until motor starts.

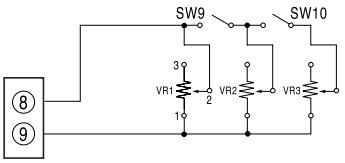
## Multistage Speed Control

1. When multistage speed control is required, set each VR1, VR2 and VR3 and then use SW8 to convert.



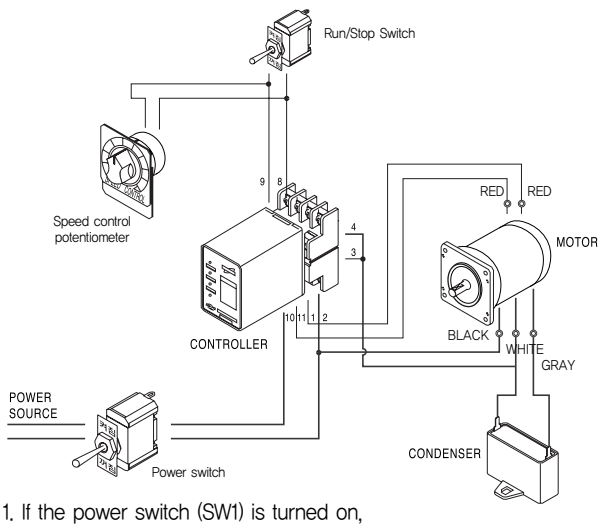

| | |
|---|---|
| VR1,2,3 | 20kΩ 1/4W B Characteristic |
| SW8 | DC 20V 10mA |

2. When converting time is slow as rotating switch SW8, converting speed is possible by connecting SW9, SW10 as following diagram since motor rotates with full speed momentarily.




| | |
|---|---|
| VR1,2,3 | 20kΩ 1/4W B Characteristic |
| SW9, SW10 | DC 20V 10mA |

## Total system

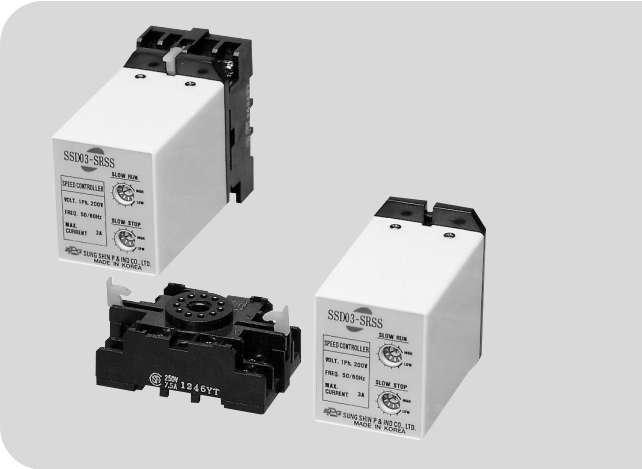



1. If the power switch (SW1) is turned on, the power lamp of the control pack will be lighted.
2. Speed of motor can be controlled without steps by using variable speed resistor for external speed setting. Turn to (HIGH) for high speed, and (LOW) for low speed.
3. There are operating current flowing on thick line. Use cable with 0.75㎟ for thick line and 0.5㎟ for thin line.


SPG
MOTOR

# SPEED CONTROLLER

## : SS HIGH OUTPUT TYPE




### Characteristics

- Used for induction speed control motors of 6W~90W, reversible speed control motors of 6W~40W and electromagnetic brake speed control motors of 6W~40W.
- Built-in speed setting device on the case enables to control and set the speed of motors.
- Instantaneous stop function is possible by electric brake.
- It is a compact plug-in type with 11pins so it is easy to set and use.
- It has slow run and slow stop functions, so operating and braking are not working rapidly, instead slowly.
- There is time (period) setting device installed to control easily slow run and slow stop function.
- Parallel operation is possible.

※ Parallel operation means that with one speed control volume, It can control plural speed controller at same time at same speed.

**SPECIFICATIONS**

| SPEC \ MODEL | | SS TYPE | | | | |
|---|---|---|---|---|---|---|
| | | SSA03-SRSS | SSB03-SRSS | SSC03-SRSS | SSD03-SRSS | SSX03-SRSS |
| Rated Voltage | | SINGLE-PHASE AC110V | SINGLE-PHASE AC220V | SINGLE-PHASE AC100V | SINGLE-PHASE AC200V | SINGLE-PHASE AC220V~240V |
| Operation Voltage Range | | ±10% | | | | |
| Power Source Frequency | | 60Hz | | 50/60Hz | | 50Hz |
| Rated Current | | 3.0A | | | | |
| ※1 APPLICABLE MOTOR OUTPUT | Induction | 6W~90W | 6W~90W | 6W~90W | 6W~90W | 6W~90W |
| | Reversible | 6W~40W | 6W~40W | 6W~40W | 6W~40W | 6W~40W |
| | E•S | 6W~40W | 6W~40W | 6W~40W | 6W~40W | 6W~40W |
| Speed control range | | 90~1700rpm | | 90~1400rpm/90~1700rpm | | 90~1400rpm |
| Speed variation | | 5%(standard) | | | | |
| Speed setting device | | Built in external speed setting device attachable | | | | |
| Braking | | possible to stop for certain period by electric brake | | | | |
| ※2 Braking period | | 0.5초(standard) | | | | |
| Parallel operation | | Possible | | | | |
| Slow Run,Slow Stop | | Possible(0.5sec~15sec/1200rpm) | | | | |
| Operation Temperature | | -10℃~50℃ | | | | |
| Operation humidity | | 85% Max(non condensing) | | | | |
| Storage Temperature | | -20℃~60℃ | | | | |
| Insulation resistance | | 100㏁ or more when 500V megger is applied between the pin and the housing at ambient temperature and humidity | | | | |
| Dielectric strength | | No abnormality after input of 1500V 50/60Hz between the pin and the housing at ambient temperature and humidity for 1min | | | | |

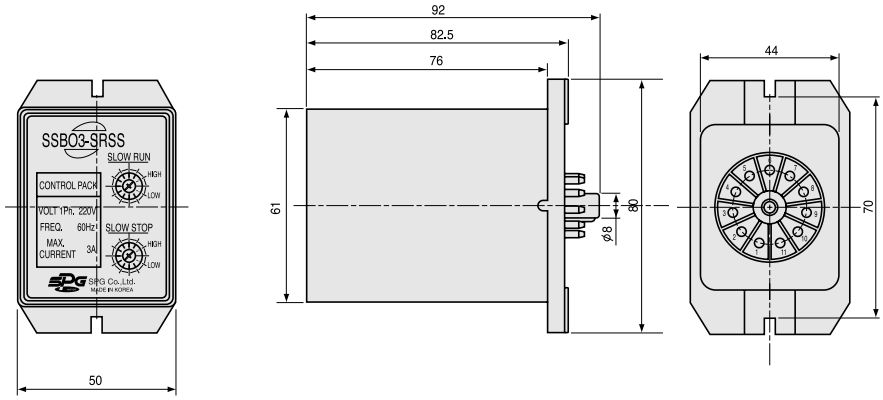
※ 1. : Applicable motors are socket type control motors of SPG. (Use for 24V motor T.G)

※ 2. : There are no holding torque on electric brake.

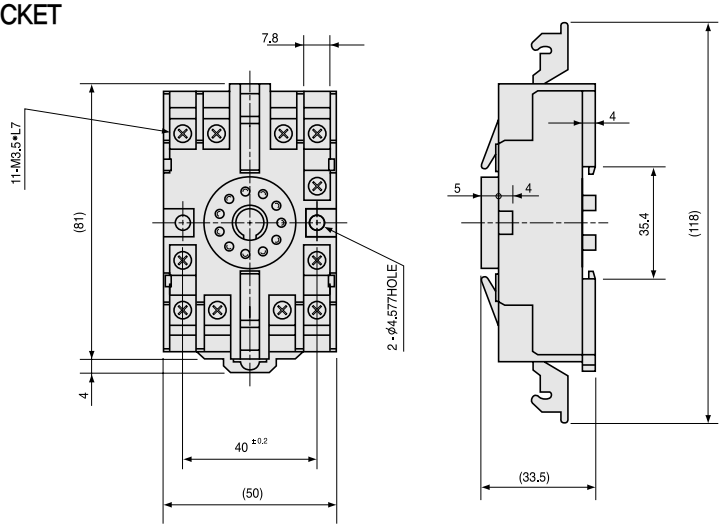
# DIMENSIONS

## ■ SS TYPE (HIGH OUTPUT) SPEED CONTROLLER

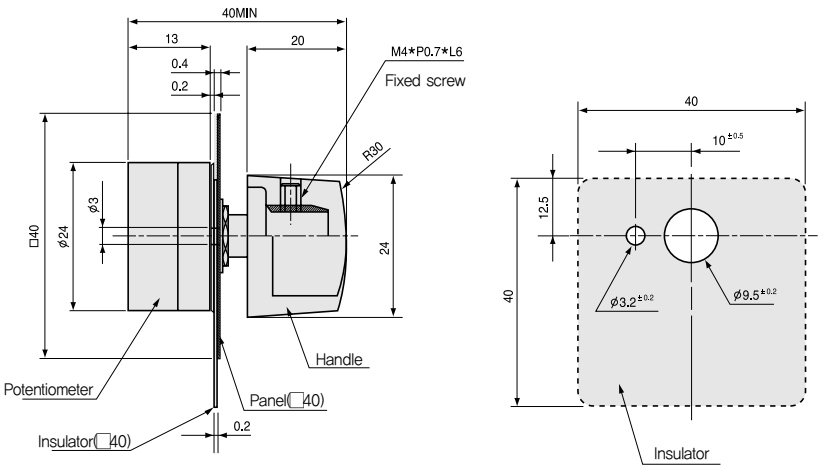
### ✚ CONTROLLER




### ✚ 11PIN SOCKET

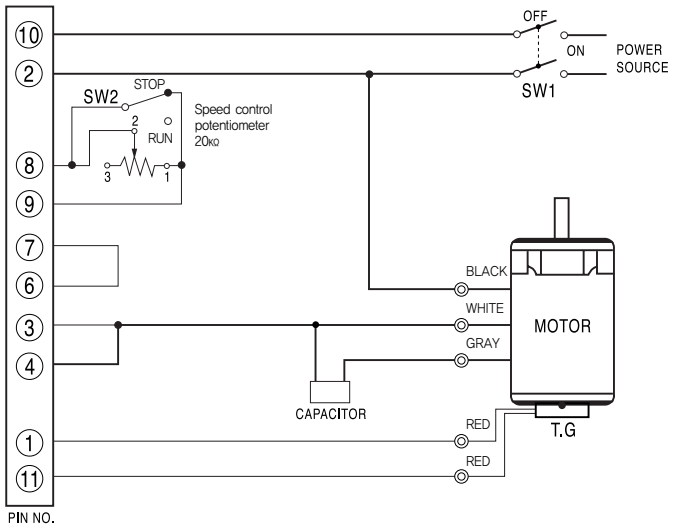



### ✚ VARIABLE RESISTOR 20kΩ 1/4W



# ✚ SCHEMATIC DIAGRAM (INDUCTION MOTOR)

## 1-1 Uni Direction + Variable Speed (6W~90W)

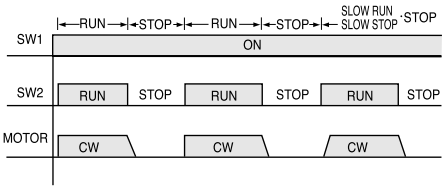



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

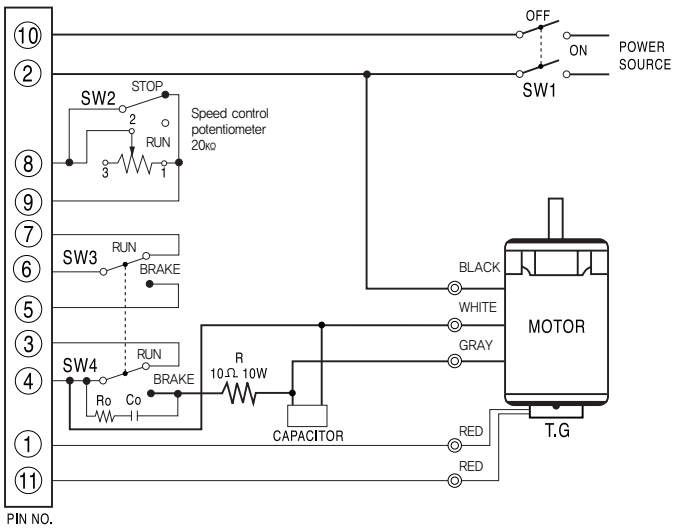
| | |
|---|---|
| SW1 | AC125V or AC 250V MIN. 5A |
| SW2 | DC 20V 10mA |

Note) 1. The motors, rotating direction is CW when viewed from output shaft. When adjusting to CCW direction, exchange white wire to gray.
2. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 208 for the connection method.

◆ **Example of operation**




## 1-2 Uni Direction + Variable Speed + Brake (6W~25W)

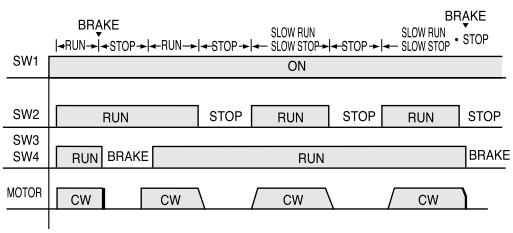



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

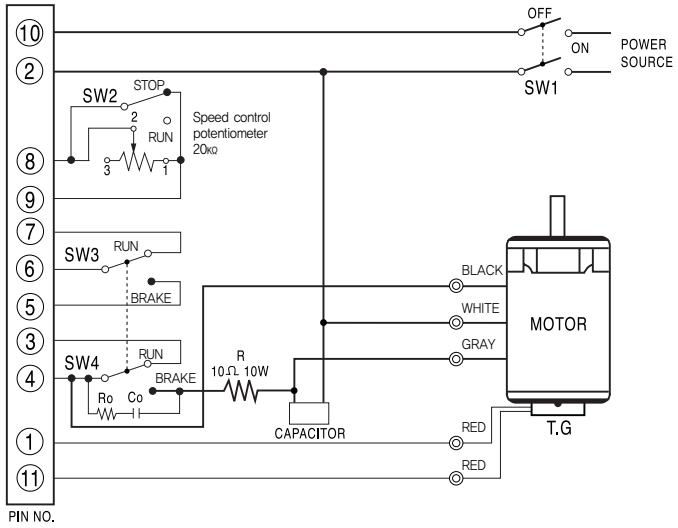
| | |
|---|---|
| SW1,4 | AC125V or AC 250V MIN. 5A |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro = 10~200Ω (MIN. 1/4W)<br>Co = 0.1~0.2μF<br>(AC 125WV, AC 250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

Note) 1. The motor rotating direction is CW when viewed from output shaft When adjusting to CCW direction, exchange white wire to gray.

◆ **Example of operation**



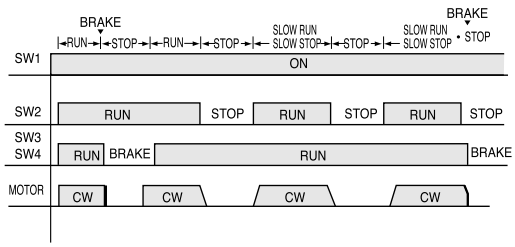
## 1-3 Uni Direction + Variable Speed + Brake (40W~90W)




◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | |
|---|---|
| SW1,4 | AC125V or AC 250V MIN. 5A |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro = 10~200Ω (MIN. 1/4W)<br>Co = 0.1~0.2μF<br>(AC 125WV, AC 250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

◆ **Example of operation**




Note) 1. The motor's rotating direction is CW when viewed from output shaft.
When adjusting to CCW direction, exchange white wire to gray.
2. The connection of a fan motor is applicable only if the output of the motor is greater than 60W and refer to page 208 for the connection method.

## 1-4 Instruction (INDUCTION MOTOR)

● **Run/Stop function**

If SW2 is switched to "RUN"as section 1-1,2,3, the motor will rotates per fixed speed set by external speed controller. When switched to "STOP" rotation will spontaneously stop by inertia force.

● **Run/Brake function**

If SW3 and SW4 is turned to stop while SW2 is on RUN condition, the brake will function for about 0.5 seconds and stop the motor instantaneously.

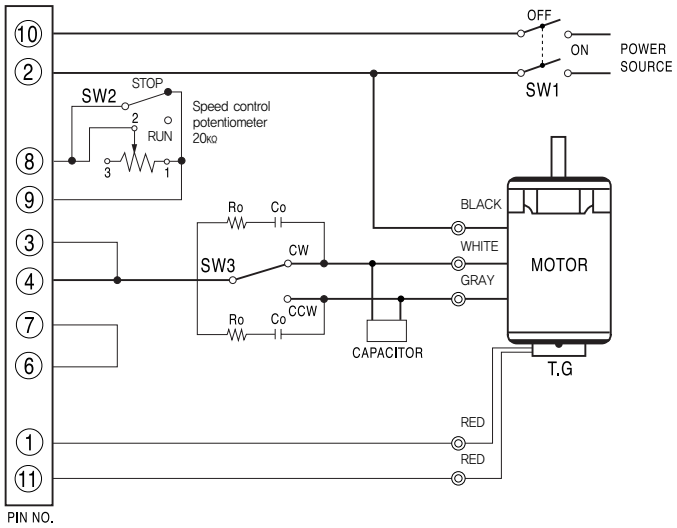
● **Slow Run/Slow Stop function**

- When SW2 is switched to Run/Stop after slow run, slow stop is set by the volume of controller, the motor will slowly start and slowly stop per set time.
- The speed of slow run and slow stop changes in rectilinearly against set time and the slope can be controlled within 0.5sec ~15sec/1200rpm.
- Slow stop cannot be set for shorter period than natural stopping period of motor.

※ Turn SW1 off to prevent control pack from generating heat when not used for a long period.

# ✚ SCHEMATIC DIAGRAM (INDUCTION MOTOR)

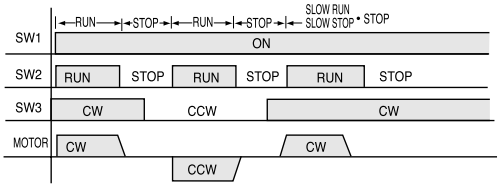
## 2-1 Reverse + Variable Speed (6W~40W)



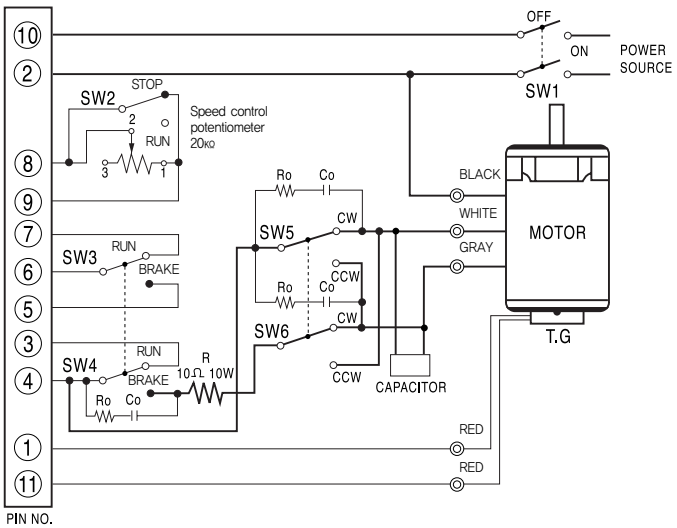

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | |
|---|---|
| SW1,3 | AC125V MIN. 5A or AC 250V |
| SW2 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC 125WV, AC 250WV) |

◆ Example of operation



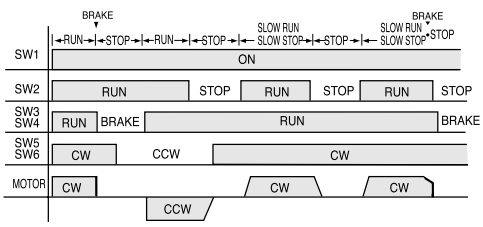

## 2-2 Reverse + Variable Speed + Brake (6W~25W)



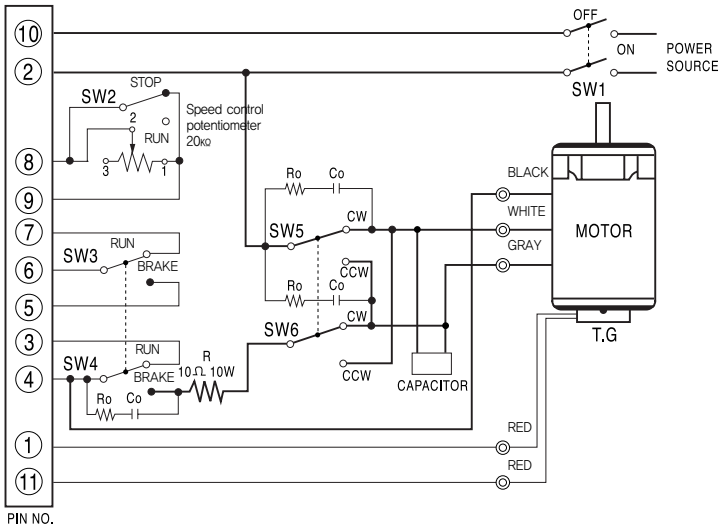

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | |
|---|---|
| SW1,4,5,6 | AC125V MIN. 5A or AC 250V |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC 125WV, AC 250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

◆ Example of operation



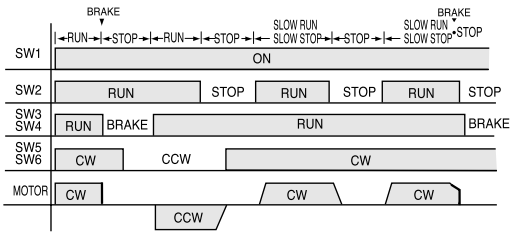
## 2-3 Reverse + Variable Speed + Brake (40W)




◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | |
|---|---|
| SW1,4,5,6 | AC125V or AC 250V MIN. 5A |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro = 10~200Ω (MIN. 1/4W)<br>Co = 0.1~0.2μF<br>(AC 125WV, AC 250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

◆ Example of operation




## 2-4 Instruction (INDUCTION MOTOR)

● **Run/Stop function**

If SW2 is switched to "RUN"as section 2-1,2,3, the motor will rotate per fixed speed set by external speed controller. When switched to "STOP" rotation will spontaneously stop by inertia force.

● **Run/Brake function**

If SW3 and SW4 is turned to stop while SW2 is on RUN condition, the brake will function for about 0.5 seconds and stop the motor instantaneously.

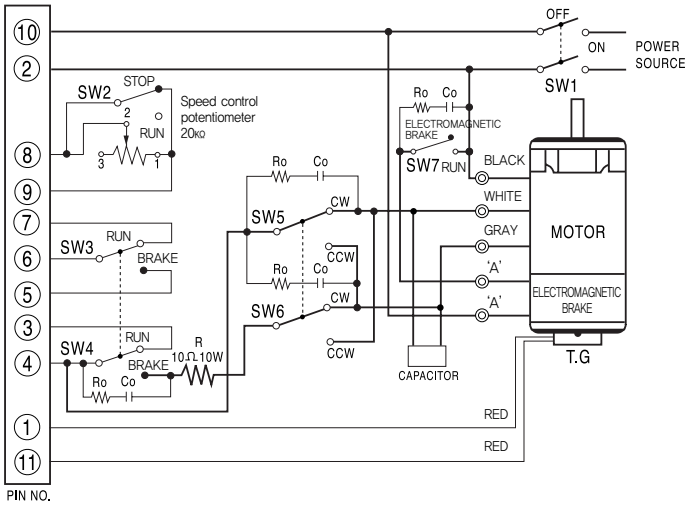
● **Slow Run/Slow Stop function**

- When SW2 is switched to Run/Stop after slow run, slow stop is set by the volume of controller, the motor will slowly start and slowly stop per set time.
- The speed of slow run and slow stop changes in rectilinearly against set time and the slope can be controlled within 0.5sec~ 15sec/1200rpm.
- Slow stop cannot be set for shorter period than natural stopping period of motor.

※ Turn SW1 off to prevent control pack from generating heat when not used for a long period.

# ✚ SCHEMATIC DIAGRAM (E · S MOTOR)

## 3-1 Reverse + Variable Speed (6W~40W)

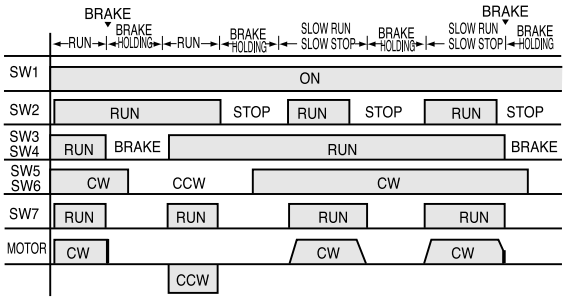



| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

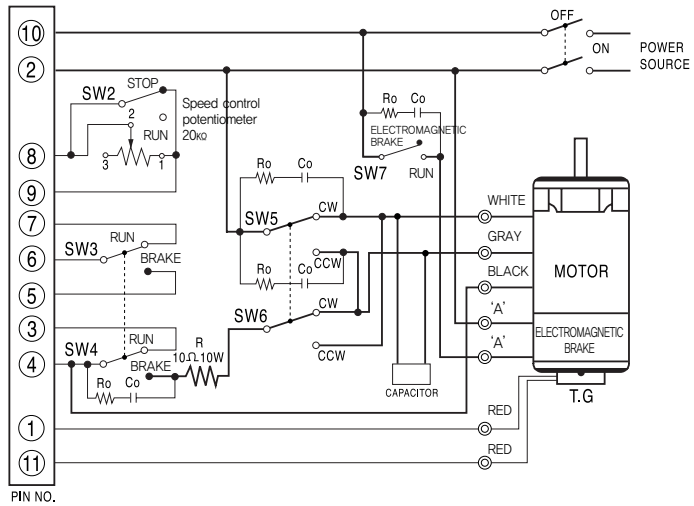
◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| | |
|---|---|
| SW1,4,5,6,7 | AC125V or AC 250V MIN. 5A |
| SW2,3 | DC 20V 10mA |
| Ro,Co | Ro=10~200Ω (MIN. 1/4W)<br>Co=0.1~0.2μF<br>(AC125WV ,AC250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

◆ Example of operation




## 3-2 Reverse + Variable Speed + Brake (6W~25W)

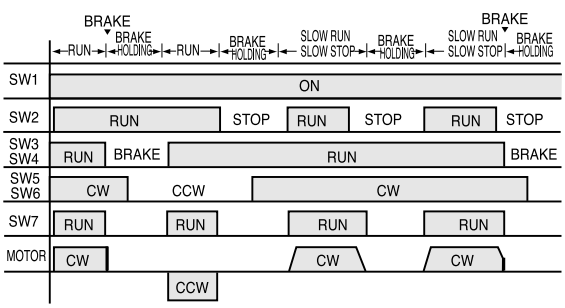



◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

| VOLTAGE | LEAD WIRE 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Blue |
| SINGLE PHASE AC200V~240V | Orange |

| | |
|---|---|
| SW1,4,5,6,7 | AC125V Or AC 250V MIN. 5A |
| SW2,3 | DC20V 10mA |
| Ro,Co | Ro = 10~200Ω (MIN. 1/4W)<br>Co = 0.1~0.2μF<br>(AC 125W, AC 250WV) |
| R : Braking external resistor | 10Ω, MIN. 10W |

◆ Example of operation



## 3-3 Instruction (E · S MOTOR)

● **Run/Stop function**
If SW2 is switched to "RUN"as section 3-1,2,3, the motor will rotate per fixed speed set by external speed controller. When switched to "STOP" rotation will spontaneously stop by inertia force.

● **Run/Brake function**
If SW3 and SW4 is turned to stop while SW2 is on RUN condition, the brake will function for about 0.5 seconds and stop the motor instantaneously.

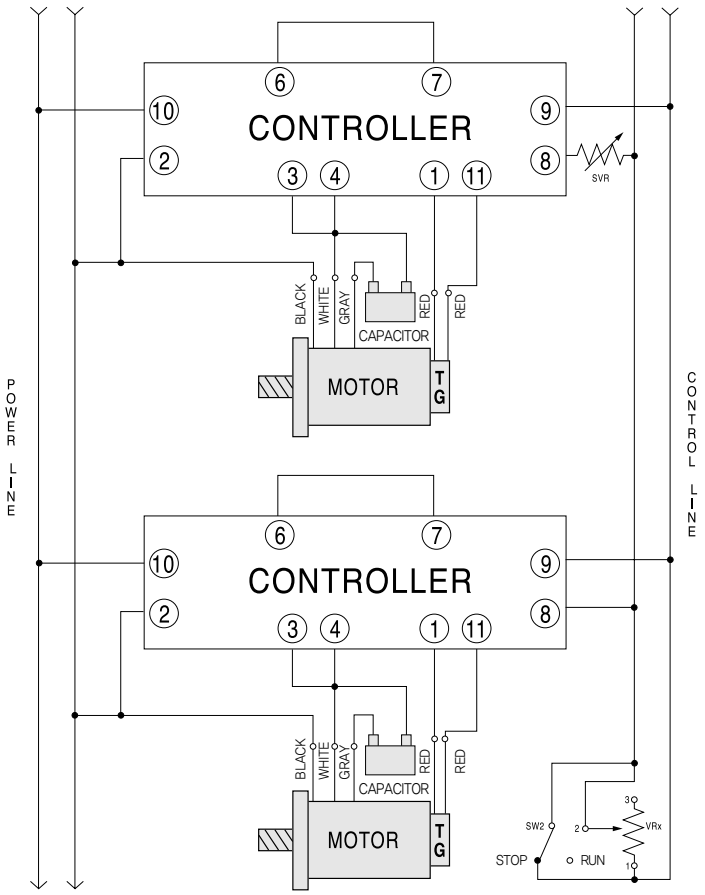
● **Slow Run/Slow Stop function**
- When SW2 is switched to Run/Stop after slow run, slow stop is set by the volume of controller, the motor will slowly start and slowly stop per set time.
- The speed of slow run and slow stop changes in rectilinearly against set time and the slope can be controlled within 0.5sec~ 15sec/1200rpm.
- Slow stop cannot be set for shorter period than natural stopping period of motor.

※Turn SW1 off to prevent control pack from generating heat when not used for a long period.

# ✚ APPLICATION OF SCHEMATIC DIAGRAM

## Parallel operation

SS TYPE high output controller can control speed of multiple motors using one variable resistor as per following diagram at same speed.




## Usage(Parallel operation)

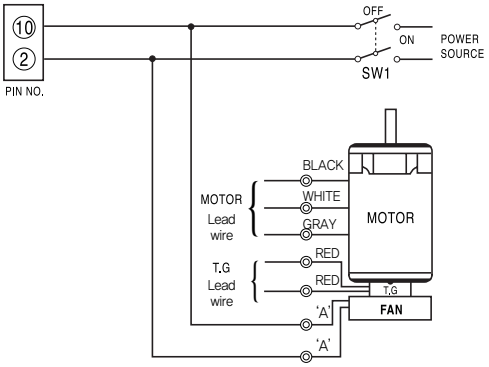
Connect power supply line(Terminal No. ②,⑩)& control line (Terminal No. ⑧, ⑨) for same line like the side wiring. In case of other motor and control pack, set power line and control line for parallel operation.

### ⚠ Warning

- Connect to correct pin numbers for power line and control line.
- The capacity of variable resistor for speed setting is calculated as follows.
  VRX=20/N ㏀, N/4W(N : Quantity of motor)
  eg) For 2EA of motors, it is 10㏀ 1/2W
- Although every motor runs at almost the same speed, there could be slight error due to difference of load and variation of products. To prevent this phenomenon, prepare 5~10% of resistance and 1/4 capacity of VR×(Variable resistance for speed setting)with SVR(Variable resistor for precise control) of terminal ⑧.

◀ For wiring of 220V~240V, 50Hz motor, change gray to brown.

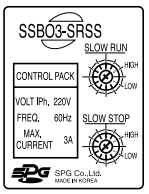
## Box Fan Motor Connection




| VOLTAGE | LEAD WIRE COLOR 'A' |
|---|---|
| SINGLE PHASE AC100V~110V | Brown |
| SINGLE PHASE AC200V~240V | Yellow |

※ For the connection of something other than the box fan, refer to the electrical wiring diagram for the corresponding connection.

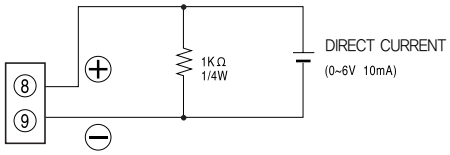
## Panel




| | |
|---|---|
| VR1 | Variable resistor for Slow Run period |
| VR2 | Variable resistor for Slow Stop period |

## Speed control using external direct current

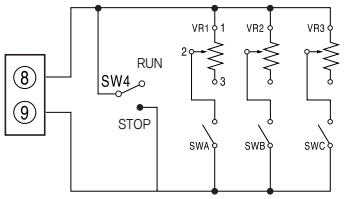
When speed is controlled by external direct current instead of supplied variable resistor for external speed setting, connect the wires of direct current with control pack as following diagram. (However, output of direct current has to be seperated and insulated with alternative current input and avoid changing polarity.)




〈The connection of speed control using external direct current〉

## Multistage speed conversion

1. When multistage speed control is required, set each VR1, VR2 & VR3 and conversion is possible by using SWA, SWB, and SWC. Switch conversion time should be maintained similar to the operating time of relay operation.

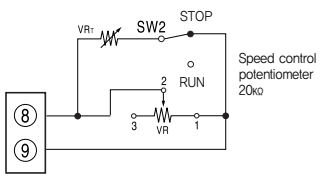



| | |
|---|---|
| VR1,2,3 | 20kΩ 1/4W B Characteristic |
| SW1,2,3,4 | DC 20V 10mA |

2. One external speed setting volume is included in a control pack. If additional external speed setting volume is required, please purchase SVR20KH.

## Increasing operating speed

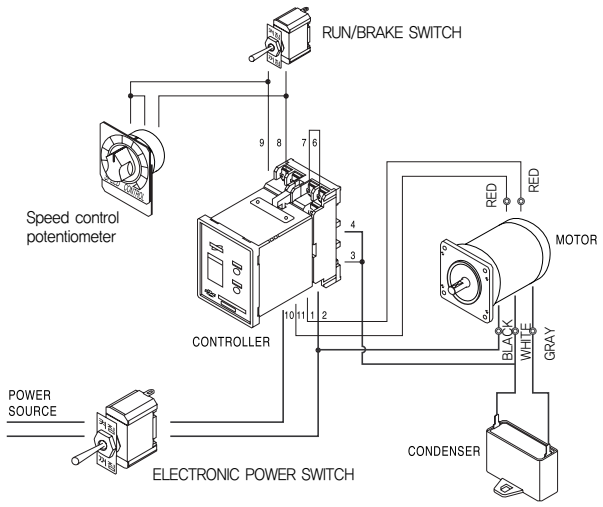
To quicken operating speed, as the set speed is decelerated, there are more delays to start rotations when switch is turned 'ON'. If this causes problems, please refer to following diagram and connect VRT (Variable resistor for operating time control)




| | |
|---|---|
| $VR_T$ | 2kΩ 1/4W B Characteristic |
| SW2 | DC 20V 10mA |

※ For instantaneous stop, operate both RUN/BRAKE switch and RUN/STOP switch above.
※ Place RUN/STOP switch to stop and control VRT until motor starts.

## Total system




1. Speed of motor can be controlled without steps by using variable speed resistor for external speed setting.
   Turn to (HIGH) for high speed, and (LOW) for low speed.
2. There are operating current flowing on thick line.
   Use cable with 0.75㎟ for thick line and 0.5㎟ for thin line.
3. For single-phase AC220V~240V 50Hz motors, change gray wire to brown.

# PACK TYPE SPEED CONTROL MOTORS



## Characteristics

- Variable speed conversion is possible using speed controller. (50Hz: 90~1400rpm, 60Hz: 90~1700rpm)
- Variable operation is possible such as speed conversion, braking, reversion. (Slow Run/Slow Stop is possible when SS type controller is used)
- Tacho Generator is installed to control feedback, so even when Hz changes, rpm remains the same.
- Applicable motors include Induction Motors, Reversible Motors, and Electromagnetic Brake Motors
- Motor capacity for induction motor is 6W~90W, reversible motor and electromagnetic brake motor is 6W~40W(6W~90W for SR type).

## SPECIFICATIONS OF SOCKET TYPE SPEED COTROL MOTORS

GENERAL Built-in thermal protector OF SPEED CONTROL MOTORS

| ITEM | Specification |
|---|---|
| Insulation Resistance | 100㏁ or more when 500V megger is applied between the windings and the housing after rated motor operation under normal ambient temperature and humidity |
| Dielectric Strength | Sufficient to withstand 1.5V at 50/60㎐ applied between the windings and the case after rated motor operation under normal ambient temperature and humidity for 1min. |
| Temperature Rise | 80℃ or less increase measured by thermometer after rated operation. (less than 45℃ for motors with fan) |
| Insulation Class | Class B(130℃) |
| Overheat Protection Device | THERMAL PROTECTOR 내장 (automatic return type) : Open 120℃±5℃, Close 76℃±15℃ |
| Ambient Temperature | -10℃ ~ +40℃ |
| Ambient Humidity | 85% maximum(non condensing) |

# SPEED CONTROL INDUCTION MOTORS

## INDEX


**SPEED CONTROL INDUCTION MOTOR 6W(□60㎜)** ..... **212**

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# 6W

## INDUCTION SPEED CONTROL MOTOR
## □60㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 60 | S6I06GA-S12<br>S6I06GA-S12CE | SRA01<br>SRA01CE | 4 | 6 | 1Ø 110 | 60 | Cont. | 90-1700 | 0.55 | 0.055 | 0.40 | 0.040 | 0.52 | 0.052 | 2.5 |
| | S6I06GB-S12<br>S6I06GB-S12CE | SRB01<br>SRB01CE | 4 | 6 | 1Ø 220 | 60 | Cont. | 90-1700 | 0.55 | 0.055 | 0.40 | 0.040 | 0.52 | 0.052 | 0.7 |
| | S6I06GC-S12<br>S6I06GC-S12CE | SRC01<br>SRC01CE | 4 | 6 | 1Ø 100 | 50 | Cont. | 90-1400 | 0.48 | 0.048 | 0.30 | 0.030 | 0.40 | 0.040 | 2.5 |
| | | | | | | 60 | | 90-1700 | | | | | | | |
| | S6I06GD-S12<br>S6I06GD-S12CE | SRD01<br>SRD01CE | 4 | 6 | 1Ø 200 | 50 | Cont. | 90-1400 | 0.48 | 0.048 | 0.30 | 0.030 | 0.40 | 0.040 | 0.7 |
| | | | | | | 60 | | 90-1700 | | | | | | | |
| | S6I06GX-S12<br>S6I06GX-S12CE | SRX01<br>SRX01CE | 4 | 6 | 1Ø 220 | 50 | Cont. | 90-1400 | 0.35 | 0.035 | 0.22 | 0.022 | 0.35 | 0.035 | 0.7 |
| | | | | | 1Ø 240 | | | | 0.45 | 0.045 | 0.22 | 0.022 | 0.42 | 0.042 | |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 60 | S6I06GA-S24<br>S6I06GA-S24CE | SSA01-SRSS<br>SSA03-SRSS | 4 | 6 | 1Ø 110 | 60 | Cont. | 90-1700 | 0.55 | 0.055 | 0.40 | 0.040 | 0.52 | 0.052 | 2.5 |
| | S6I06GB-S24<br>S6I06GB-S24CE | SSB01-SRSS<br>SSB03-SRSS | 4 | 6 | 1Ø 220 | 60 | Cont. | 90-1700 | 0.55 | 0.055 | 0.40 | 0.040 | 0.52 | 0.052 | 0.7 |
| | S6I06GC-S24<br>S6I06GC-S24CE | SSC01-SRSS<br>SSC03-SRSS | 4 | 6 | 1Ø 100 | 50 | Cont. | 90-1400 | 0.48 | 0.048 | 0.30 | 0.030 | 0.40 | 0.040 | 2.5 |
| | | | | | | 60 | | 90-1700 | | | | | | | |
| | S6I06GD-S24<br>S6I06GD-S24CE | SSD01-SRSS<br>SSD03-SRSS | 4 | 6 | 1Ø 200 | 50 | Cont. | 90-1400 | 0.48 | 0.048 | 0.30 | 0.030 | 0.40 | 0.040 | 0.7 |
| | | | | | | 60 | | 90-1700 | | | | | | | |
| | S6I06GX-S24<br>S6I06GX-S24CE | SSX01-SRSS<br>SSX03-SRSS | 4 | 6 | 1Ø 220 | 50 | Cont. | 90-1400 | 0.35 | 0.035 | 0.22 | 0.022 | 0.35 | 0.035 | 0.7 |
| | | | | | 1Ø 240 | | | | 0.45 | 0.045 | 0.22 | 0.022 | 0.42 | 0.042 | |

❖ CE marked at the end of motor model name indicates that it is impedance protected type which has received CE.
❖ "L" or "H" type does not apply to motors under 40W.

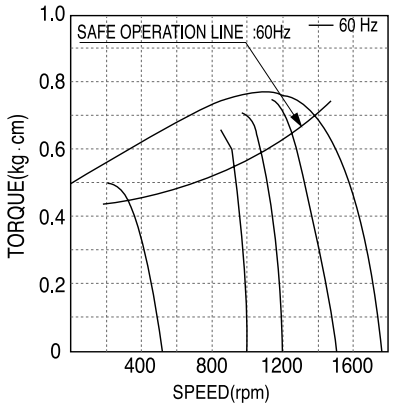
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DA□B | kg-cm | 1.3 | 1.5 | 2.1 | 2.6 | 3.2 | 3.9 | 4.3 | 5.4 | 6.4 | 7.7 | 7.7 | 9.7 | 11.6 | 13.9 | 15.5 | 17.5 | 21.0 | 26.2 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.127 | 0.147 | 0.206 | 0.255 | 0.314 | 0.382 | 0.421 | 0.529 | 0.627 | 0.755 | 0.755 | 0.951 | 1.137 | 1.362 | 1.519 | 1.715 | 2.058 | 2.568 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

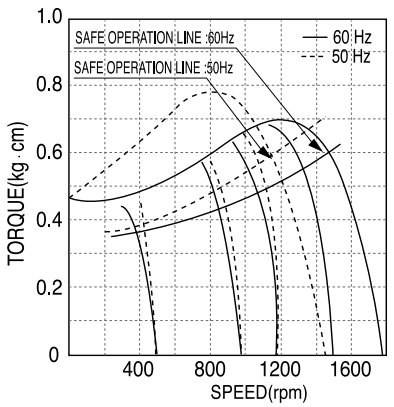
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DA□B | kg-cm | 1.0 | 1.3 | 1.7 | 2.1 | 2.6 | 3.1 | 3.5 | 4.4 | 5.2 | 6.3 | 6.3 | 7.8 | 9.4 | 11.3 | 12.6 | 14.2 | 17.0 | 21.3 | 25.5 | 28.4 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.098 | 0.127 | 0.167 | 0.206 | 0.255 | 0.304 | 0.343 | 0.431 | 0.510 | 0.617 | 0.617 | 0.764 | 0.921 | 1.107 | 1.235 | 1.392 | 1.666 | 2.087 | 2.499 | 2.783 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

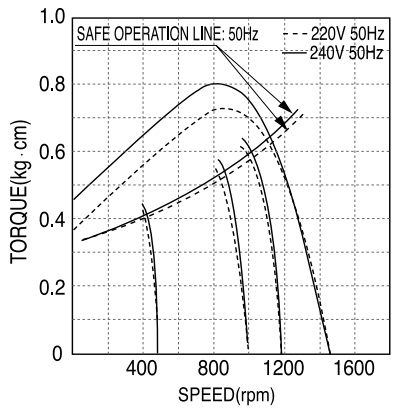
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 30 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S6I06GA-S12 S6I06GA-S24
S6I06GA-S12CE S6I06GA-S24CE
S6I06GB-S12 S6I06GB-S24
S6I06GB-S12CE S6I06GB-S24




▲ S6I06GC-S12 S6I06GC-S24
S6I06GC-S12CE S6I06GC-S24CE
S6I06GD-S12 S6I06GD-S24
S6I06GD-S12CE S6I06GD-S24

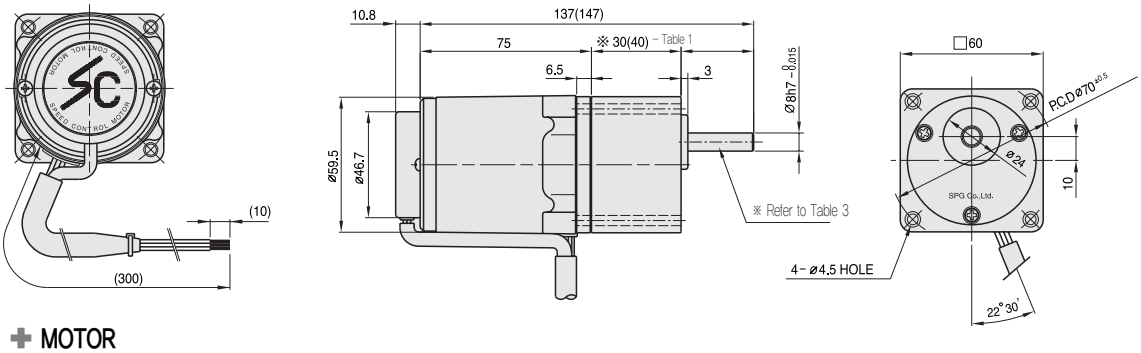



▲ S6I06GX-S12 S6I06GX-S24
S6I06GX-S12CE S6I06GX-S24CE

# DIMENSIONS

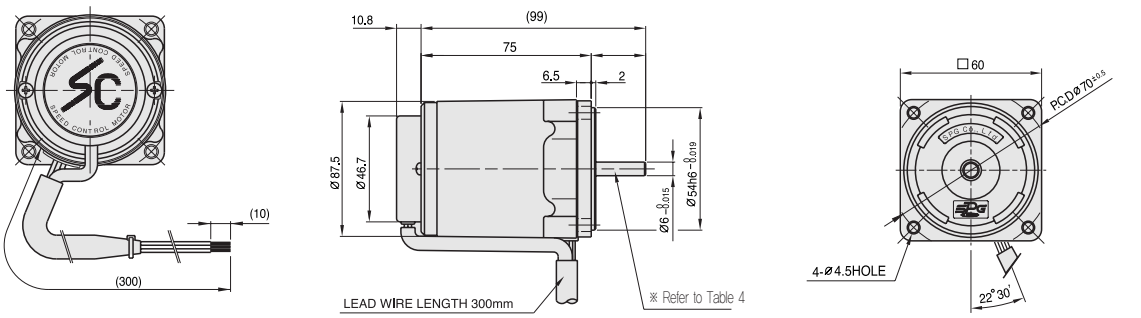
## GEARED MOTOR

※MOTOR MODEL : S6I06G□-S12, S6I06G□-S24
※HEAD MODEL : S6□A3□~S6□A250□



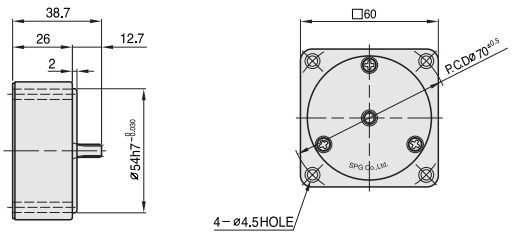

## MOTOR

※MOTOR MODEL : S6I06□□-S12
S6I06□□-S24

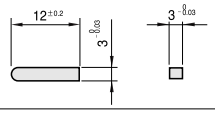



## INTER-DECIMAL GEAR HEAD

※MODEL : S6GX10B




## KEY SPEC

| GEAR HEAD |
|---|
|  |



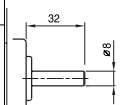
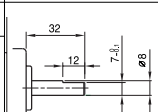
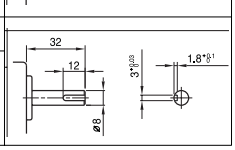
## ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S6□A3□ ~ S6□A18□ | 30 |
| S6□A20□ ~ S6□A250□ | 40 |

## WEIGHT - (Table2)

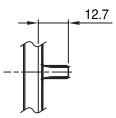
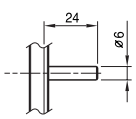
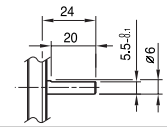
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 0.76 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□A3□ ~S6□A18B□ | 0.24 |
| | S6□A20□ ~S6□A40□ | 0.30 |
| | S6□A50□ ~S6□A250□ | 0.33 |

## SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S6SA3□ ~S6SA250B□ |  |
| D-CUT TYPE<br>S6DA3□ ~S6DA250□ |  |
| KEY TYPE<br>S6KA3B□ ~S6KA250□ |  |



## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S6I06G□-S12<br>S6I06G□-S24 |  |
| STRAIGHT TYPE<br>S6I06S□-S24<br>S6I06S□-S24 |  |
| D-CUT TYPE<br>S6I06D□-S12<br>S6I06D□-S24 |  |



# 15W

## INDUCTION SPEED CONTROL MOTOR
## □70㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 70 | S7I15GA-S12<br>S7I15GA-S12(TP)<br>S7I15GA-S12CE | SRA02<br>SRA02CE | 4 | 15 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.15 | 0.115 | 0.60 | 0.060 | 0.90 | 0.090 | 5.0 |
| | S7I15GB-S12<br>S7I15GB-S12(TP)<br>S7I15GB-S12CE | SRB02<br>SRB02CE | 4 | 15 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.15 | 0.115 | 0.60 | 0.060 | 0.90 | 0.090 | 1.2 |
| | S7I15GC-S12<br>S7I15GC-S12(TP)<br>S7I15GC-S12CE | SRC02<br>SRC02CE | 4 | 15 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.10 | 0.110 | 0.40 | 0.040 | 0.75 | 0.075 | 5.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S7I15GD-S12<br>S7I15GD-S12(TP)<br>S7I15GD-S12CE | SRD02<br>SRD02CE | 4 | 15 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.10 | 0.110 | 0.40 | 0.040 | 0.75 | 0.075 | 1.2 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S7I15GX-S12<br>S7I15GX-S12CE | SRX02<br>SRX02CE | 4 | 15 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.05 | 0.105 | 0.50 | 0.050 | 0.70 | 0.070 | 0.9 |
| | | | | | 1Ø 240 | | | | 1.25 | 0.125 | 0.60 | 0.060 | 0.85 | 0.085 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S7I15GX-S12, S7I15GX-S12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Seed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 70 | S7I15GA-S24<br>S7I15GA-S24(TP)<br>S7I15GA-S24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 15 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.15 | 0.115 | 0.60 | 0.060 | 0.90 | 0.090 | 5.0 |
| | S7I15GB-S24<br>S7I15GB-S24(TP)<br>S7I15GB-S24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 15 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.15 | 0.115 | 0.60 | 0.060 | 0.90 | 0.090 | 1.2 |
| | S7I15GC-S24<br>S7I15GC-S24(TP)<br>S7I15GC-S24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 15 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.10 | 0.110 | 0.40 | 0.040 | 0.75 | 0.075 | 5.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S7I15GD-S24<br>S7I15GD-S24(TP)<br>S7I15GD-S24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 15 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.10 | 0.110 | 0.40 | 0.040 | 0.75 | 0.075 | 1.2 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S7I15GX-S24<br>S7I15GX-S24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 15 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.05 | 0.105 | 0.50 | 0.050 | 0.70 | 0.070 | 0.9 |
| | | | | | 1Ø 240 | | | | 1.25 | 0.125 | 0.60 | 0.060 | 0.85 | 0.085 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S7I15GX-S24, S7I15GX-S24CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

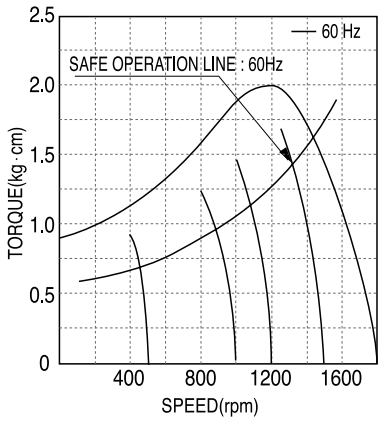
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S7KA□B | kg-cm | 3.2 | 3.9 | 5.4 | 6.5 | 8.1 | 9.7 | 10.8 | 13.5 | 16.2 | 19.4 | 19.4 | 24.2 | 29.1 | 34.9 | 38.8 | 43.6 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.314 | 0.382 | 0.530 | 0.637 | 0.794 | 0.951 | 1.059 | 1.324 | 1.587 | 1.902 | 1.902 | 2.373 | 2.854 | 3.423 | 3.805 | 4.276 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

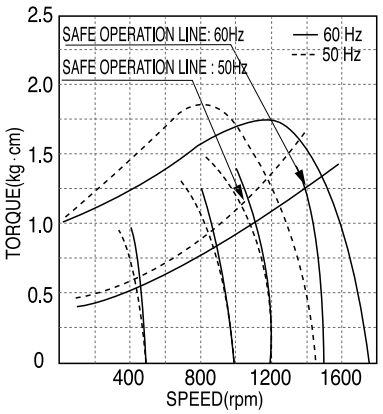
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S7KA□B | kg-cm | 3.0 | 3.6 | 5.1 | 6.1 | 7.6 | 9.1 | 10.1 | 12.7 | 15.2 | 18.2 | 18.2 | 22.8 | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.294 | 0.353 | 0.500 | 0.598 | 0.745 | 0.892 | 0.990 | 1.245 | 1.491 | 1.785 | 1.785 | 2.236 | 2.677 | 3.217 | 3.579 | 4.021 | 4.825 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

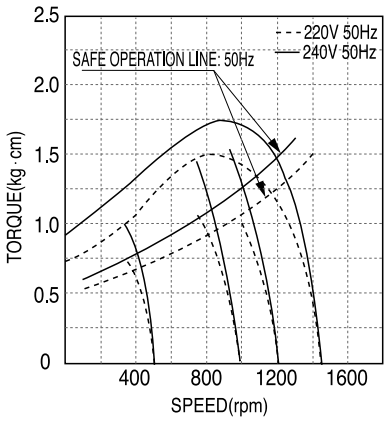
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 50 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S7I15GA-S12 S7I15GA-S24
S7I15GA-S12(TP) S7I15GA-S24(TP)
S7I15GA-S12CE S7I15GA-S24CE
S7I15GB-S12 S7I15GB-S24
S7I15GB-S12(TP) S7I15GB-S24(TP)
S7I15GB-S12CE S7I15GB-S24




▲ S7I15GC-S12 S7I15GC-S24
S7I15GC-S12(TP) S7I15GC-S24(TP)
S7I15GC-S12CE S7I15GC-S24CE
S7I15GD-S12 S7I15GD-S24
S7I15GD-S12(TP) S7I15GD-S24(TP)
S7I15GD-S12CE S7I15GD-S24

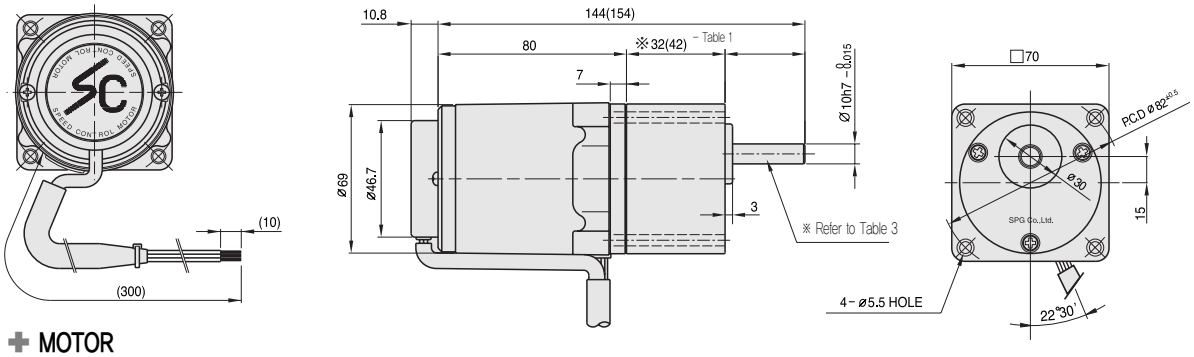



▲ S7I15GX-S12 S7I15GX-S24
S7I15GX-S12CE S7I15GX-S24CE

# DIMENSIONS

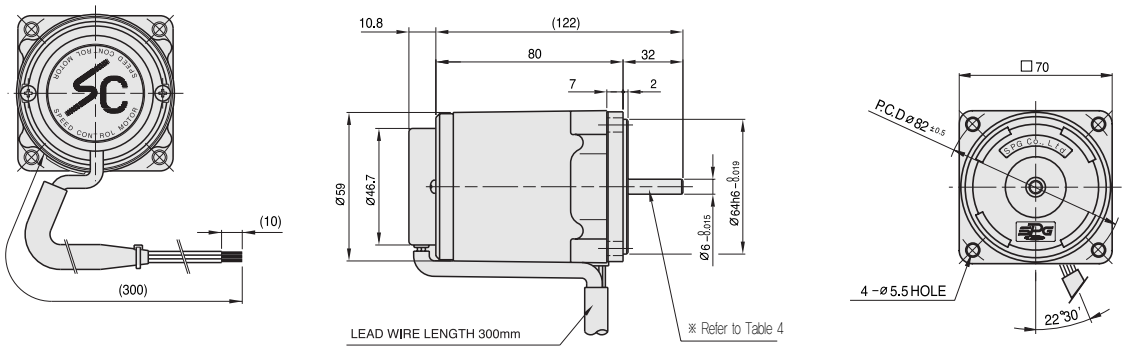
## ✚ GEARED MOTOR

※MOTOR MODEL : S7I15G□-S12, S7I15G□-S24
※HEAD MODEL : S7□A3□~S7□A200□



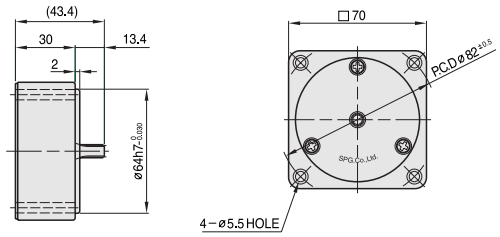

## ✚ MOTOR

※MOTOR MODEL : S7I15□□-S12, S7I15□□-S24

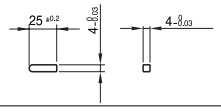



## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S7GX10B




## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



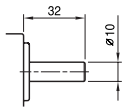
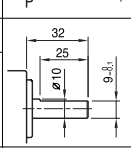
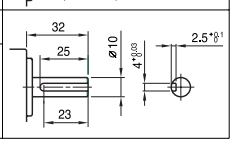
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S7□A3□ ~ S7□A18□ | 32 |
| S7□A20□ ~ S7□A200□ | 42 |

## ✚ WEIGHT - (Table2)

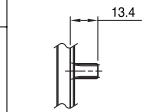
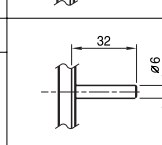
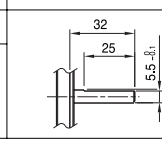
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.04 |
| DECIMAL GEAR HEAD | | 0.32 |
| GEAR HEAD | S7□A3□ ~S7□A40□ | 0.38 |
| | S7□A20□ ~S7□A40□ | 0.47 |
| | S7□A50□ ~S7□A200□ | 0.52 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S7SA3□ ~S7SA200□ |  |
| D-CUT TYPE<br>S7DA3□ ~S7DA200□ |  |
| KEY TYPE<br>S7KA3□ ~S7KA200□ |  |



## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S7I15G□-S12<br>S7I15G□-S24 |  |
| STRAIGHT TYPE<br>S7I15S□-S12<br>S7I15S□-S24 |  |
| D-CUT TYPE<br>S7I15D□-S12<br>S7I15D□-S24 |  |



# 15W

## INDUCTION SPEED CONTROL MOTOR
## □80㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8I15GA-S12<br>S8I15GA-S12(TP)<br>S8I15GA-S12CE | SRA02<br>SRA02CE | 4 | 15 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.50 | 0.150 | 0.35 | 0.035 | 0.75 | 0.075 | 4.0 |
| | S8I15GB-S12<br>S8I15GB-S12(TP)<br>S8I15GB-S12CE | SRB02<br>SRB02CE | 4 | 15 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.50 | 0.150 | 0.35 | 0.035 | 0.75 | 0.075 | 1.0 |
| | S8I15GC-S12<br>S8I15GC-S12(TP)<br>S8I15GC-S12CE | SRC02<br>SRC02CE | 4 | 15 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.32 | 0.032 | 0.60 | 0.060 | 4.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S8I15GD-S12<br>S8I15GD-S12(TP)<br>S8I15GD-S12CE | SRD02<br>SRD02CE | 4 | 15 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.32 | 0.032 | 0.60 | 0.060 | 1.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S8I15GX-S12 | SRX02<br>SRX02CE | 4 | 15 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.35 | 0.035 | 0.55 | 0.055 | 1.0 |
| | S8I15GX-S12CE | | | | 1Ø 240 | | | | 1.40 | 0.140 | 0.35 | 0.035 | 0.60 | 0.060 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8I15GX-S12, S8I15GX-S12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Seed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8I15GA-S24<br>S8I15GA-S24(TP)<br>S8I15GA-S24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 15 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.50 | 0.150 | 0.35 | 0.035 | 0.75 | 0.075 | 4.0 |
| | S8I15GB-S24<br>S8I15GB-S24(TP)<br>S8I15GB-S24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 15 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.50 | 0.150 | 0.35 | 0.035 | 0.75 | 0.075 | 1.0 |
| | S8I15GC-S24<br>S8I15GC-S24(TP)<br>S8I15GC-S24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 15 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.32 | 0.032 | 0.60 | 0.060 | 4.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S8I15GD-S24<br>S8I15GD-S24(TP)<br>S8I15GD-S24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 15 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.32 | 0.032 | 0.60 | 0.060 | 1.0 |
| | | | | | | 60 | | 90-1700 | 1.00 | 0.100 | | | | | |
| | S8I15GX-S24 | SSX02-SRSS<br>SSX03-SRSS | 4 | 15 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.20 | 0.120 | 0.35 | 0.035 | 0.55 | 0.055 | 1.0 |
| | S8I15GX-S24CE | | | | 1Ø 240 | | | | 1.40 | 0.140 | 0.35 | 0.035 | 0.60 | 0.060 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8I15GX-S24, S8I15GX-S24CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

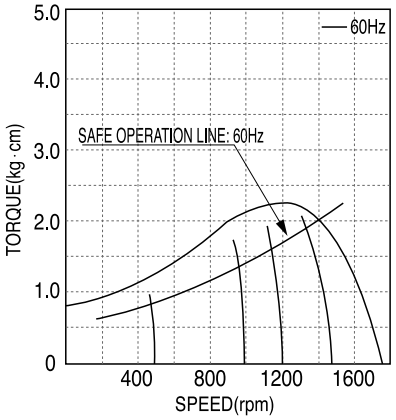
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 3.4 | 4.1 | 5.7 | 6.8 | 8.5 | 10.2 | 11.3 | 14.2 | 17.0 | 20.4 | 20.4 | 25.6 | 30.7 | 36.8 | 40.9 | 46.2 | 55.4 | 69.2 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N·m | 0.333 | 0.402 | 0.559 | 0.666 | 0.833 | 1.000 | 1.107 | 1.392 | 1.666 | 1.999 | 1.999 | 2.509 | 3.009 | 3.606 | 4.008 | 4.530 | 5.433 | 6.786 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

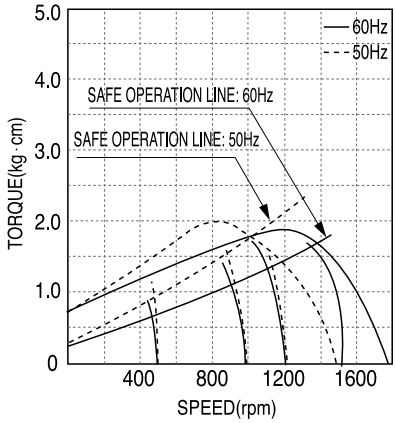
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 2.9 | 3.5 | 4.9 | 5.8 | 7.3 | 8.7 | 9.7 | 12.2 | 14.6 | 17.5 | 17.5 | 21.9 | 26.3 | 31.5 | 35.0 | 39.6 | 47.5 | 59.4 | 71.3 | 79.2 | 80 | 80 | 80 | 80 |
| | N·m | 0.284 | 0.343 | 0.481 | 0.568 | 0.715 | 0.853 | 0.951 | 1.196 | 1.432 | 1.715 | 1.715 | 2.146 | 2.577 | 3.087 | 3.430 | 3.881 | 4.658 | 5.825 | 6.992 | 7.767 | 7.840 | 7.840 | 7.840 | 7.840 |

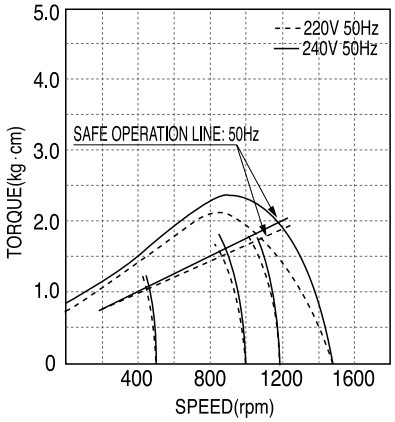
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S8I15GA-S12 S8I15GA-S24
S8I15GA-S12(TP) S8I15GA-S24(TP)
S8I15GA-S12CE S8I15GA-S24CE
S8I15GB-S12 S8I15GB-S24
S8I15GB-S12(TP) S8I15GB-S24(TP)
S8I15GB-S12CE S8I15GB-S24




▲ S8I15GC-S12 S8I15GC-S24
S8I15GC-S12(TP) S8I15GC-S24(TP)
S8I15GC-S12CE S8I15GC-S24CE
S8I15GD-S12 S8I15GD-S24
S8I15GD-S12(TP) S8I15GD-S24(TP)
S8I15GD-S12CE S8I15GD-S24




▲ S8I15GX-S12 S8I15GX-S24
S8I15GX-S12CE S8I15GX-S24CE



# 25W

## INDUCTION SPEED CONTROL MOTOR
## □80㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8I25GA-S12<br>S8I25GA-S12(TP)<br>S8I25GA-S12CE | SRA02<br>SRA02CE | 4 | 25 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.70 | 0.170 | 0.80 | 0.080 | 1.50 | 0.150 | 6.0 |
| | S8I25GB-S12<br>S8I25GB-S12(TP)<br>S8I25GB-S12CE | SRB02<br>SRB02CE | 4 | 25 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.70 | 0.170 | 0.80 | 0.080 | 1.50 | 0.150 | 1.5 |
| | S8I25GC-S12<br>S8I25GC-S12(TP)<br>S8I25GC-S12CE | SRC02<br>SRC02CE | 4 | 25 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.60 | 0.160 | 0.55 | 0.055 | 1.10 | 0.110 | 6.0 |
| | | | | | | 60 | | 90-1700 | 1.50 | 0.150 | | | | | |
| | S8I25GD-S12<br>S8I25GD-S12(TP)<br>S8I25GD-S12CE | SRD02<br>SRD02CE | 4 | 25 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.60 | 0.160 | 0.55 | 0.055 | 1.10 | 0.110 | 1.5 |
| | | | | | | 60 | | 90-1700 | 1.50 | 0.150 | | | | | |
| | S8I25GX-S12<br>S8I25GX-S12CE | SRX02<br>SRX02CE | 4 | 25 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.50 | 0.150 | 0.50 | 0.050 | 1.00 | 0.100 | 1.5 |
| | | | | | 1Ø 240 | | | | 1.80 | 0.180 | 0.50 | 0.050 | 1.20 | 0.120 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8I25GX-S12, S8I25GX-S12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8I25GA-S24<br>S8I25GA-S24(TP)<br>S8I25GA-S24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 25 | 1Ø 110 | 60 | Cont. | 90-1700 | 1.70 | 0.170 | 0.80 | 0.080 | 1.50 | 0.150 | 6.0 |
| | S8I25GB-S24<br>S8I25GB-S24(TP)<br>S8I25GB-S24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 25 | 1Ø 220 | 60 | Cont. | 90-1700 | 1.70 | 0.170 | 0.80 | 0.080 | 1.50 | 0.150 | 1.5 |
| | S8I25GC-S24<br>S8I25GC-S24(TP)<br>S8I25GC-S24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 25 | 1Ø 100 | 50 | Cont. | 90-1400 | 1.60 | 0.160 | 0.55 | 0.055 | 1.10 | 0.110 | 6.0 |
| | | | | | | 60 | | 90-1700 | 1.50 | 0.150 | | | | | |
| | S8I25GD-S24<br>S8I25GD-S24(TP)<br>S8I25GD-S24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 25 | 1Ø 200 | 50 | Cont. | 90-1400 | 1.60 | 0.160 | 0.55 | 0.055 | 1.10 | 0.110 | 1.5 |
| | | | | | | 60 | | 90-1700 | 1.50 | 0.150 | | | | | |
| | S8I25GX-S24<br>S8I25GX-S24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 25 | 1Ø 220 | 50 | Cont. | 90-1400 | 1.50 | 0.150 | 0.50 | 0.050 | 1.00 | 0.100 | 1.5 |
| | | | | | 1Ø 240 | | | | 1.80 | 0.180 | 0.50 | 0.050 | 1.20 | 0.120 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8I25GX-S24, S8I25GX-S24CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

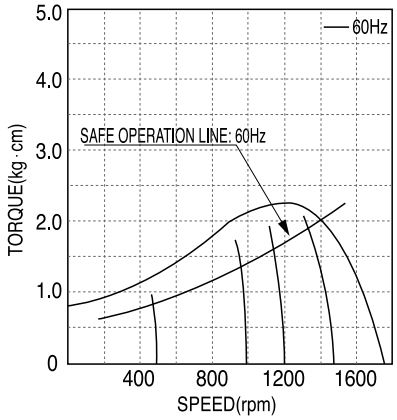
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 5.3 | 6.4 | 8.9 | 10.7 | 13.4 | 16.0 | 17.8 | 22.3 | 26.7 | 32.1 | 32.1 | 40.2 | 48.2 | 57.8 | 64.2 | 72.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.519 | 0.627 | 0.872 | 1.049 | 1.313 | 1.568 | 1.744 | 2.185 | 2.617 | 3.146 | 3.146 | 3.940 | 4.724 | 5.664 | 6.292 | 7.115 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

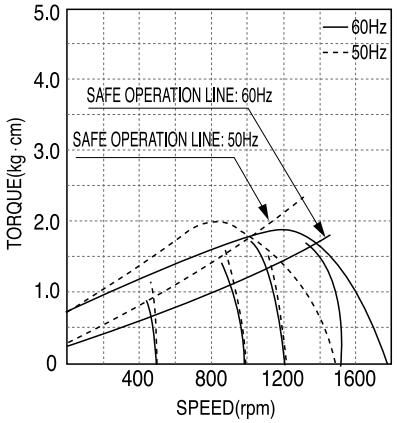
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 4.4 | 5.2 | 7.3 | 8.7 | 10.9 | 13.1 | 14.6 | 18.2 | 21.9 | 26.2 | 26.3 | 32.9 | 39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.431 | 0.510 | 0.715 | 0.853 | 1.068 | 1.284 | 1.431 | 1.784 | 2.146 | 2.568 | 2.577 | 3.224 | 3.861 | 4.635 | 5.155 | 5.821 | 6.987 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

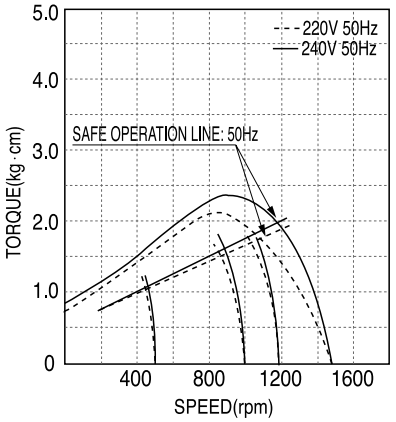
- ❖ The code in □ of gearhead model is for gear ratio.
- ❖ It is the permissible torque of the assembled motor and gearhead.
- ❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
- ❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
- ❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
- ❖ "L" or "H" type does not apply to motors under 40W.




▲ S8I25GA-S12 S8I25GA-S24
S8I25GA-S12(TP) S8I25GA-S24(TP)
S8I25GA-S12CE S8I25GA-S24CE
S8I25GB-S12 S8I25GB-S24
S8I25GB-S12(TP) S8I25GB-S24(TP)
S8I25GB-S12CE S8I25GB-S24




▲ S8I25GC-S12 S8I25GC-S24
S8I25GC-S12(TP) S8I25GC-S24(TP)
S8I25GC-S12CE S8I25GC-S24CE
S8I25GD-S12 S8I25GD-S24
S8I25GD-S12(TP) S8I25GD-S24(TP)
S8I25GD-S12CE S8I25GD-S24

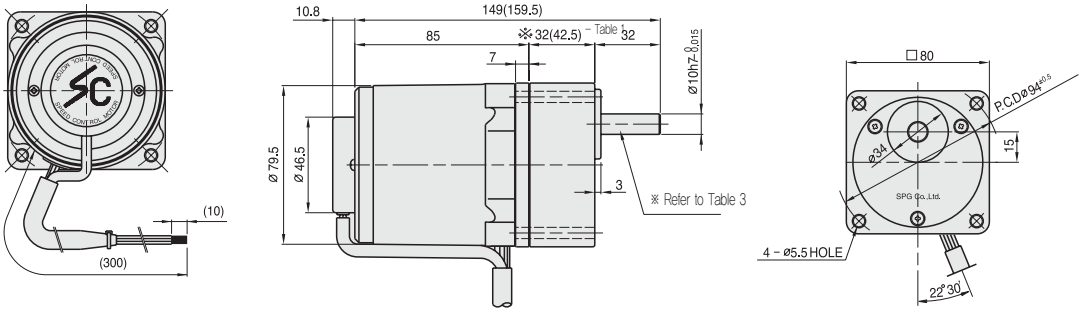



▲ S8I25GX-S12 S8I25GX-S24
S8I25GX-S12CE S8I25GX-S24CE

# DIMENSIONS

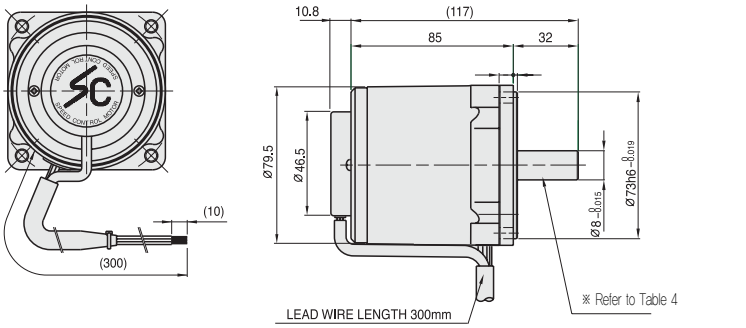
## ✚ GEARED MOTOR

※MOTOR MODEL : S8I(15,25)G□-S12, S8I(15,25)G□-S24
※HEAD MODEL : S8□A3□~S8□A200□



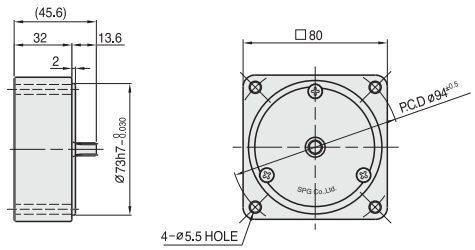

## ✚ MOTOR

※MOTOR MODEL : S8I(15,25)□□-S12, S8I(15,25)□□-S24




## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B



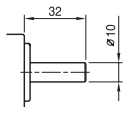
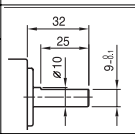
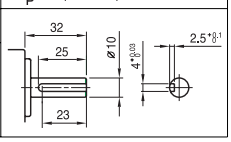

## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

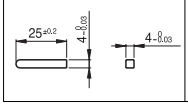
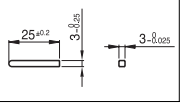
## ✚ WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| 15W MOTOR | | 1.6 |
| 25W MOTOR | | 1.6 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

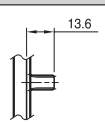
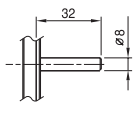
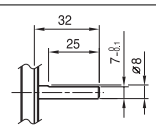
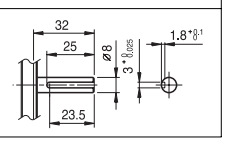
## ✚ SPEC for output shaft of gearhead - (Table3)

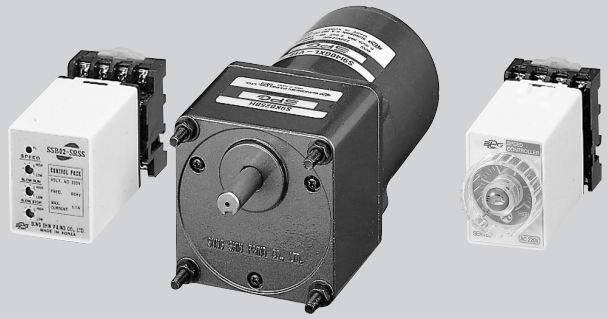
| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□ ~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□ ~S8DA200□ |  |
| KEY TYPE<br>S8KA3□ ~S8KA200□ |  |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8I15G□-S12<br>S8I25G□-S12<br>S8I15G□-S24<br>S8I25G□-S24 |  |
| STRAIGHT TYPE<br>S8I15S□-S12<br>S8I25S□-S12<br>S8I15S□-S24<br>S8I25S□-S24 |  |
| D-CUT TYPE<br>S8I15D□-S12<br>S8I25D□-S12<br>S8I15D□-S24<br>S8I25D□-S24 |  |
| KEY TYPE<br>S8I15K□-S12<br>S8I25K□-S12<br>S8I15K□-S24<br>S8I25K□-S24 |  |



# 40W

## INDUCTION SPEED CONTROL MOTOR
## □90㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I40GA( )-S12<br>S9I40GA( )-S12(TP)<br>S9I40GA( )-S12CE | SRA02<br>SRA02CE | 4 | 40 | 1Ø 110 | 60 | Cont. | 90-1700 | 2.70 | 0.270 | 1.00 | 0.100 | 2.20 | 0.220 | 10.0 |
| | S9I40GB( )-S12<br>S9I40GB( )-S12(TP)<br>S9I40GB( )-S12CE | SRB02<br>SRB02CE | 4 | 40 | 1Ø 220 | 60 | Cont. | 90-1700 | 2.70 | 0.270 | 1.00 | 0.100 | 2.20 | 0.220 | 2.5 |
| | S9I40GC( )-S12<br>S9I40GC( )-S12(TP)<br>S9I40GC( )-S12CE | SRC02<br>SRC02CE | 4 | 40 | 1Ø 100 | 50 | Cont. | 90-1400 | 2.70 | 0.270 | 0.90 | 0.090 | 1.80 | 0.180 | 10.0 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S9I40GD( )-S12<br>S9I40GD( )-S12(TP)<br>S9I40GD( )-S12CE | SRD02<br>SRD02CE | 4 | 40 | 1Ø 200 | 50 | Cont. | 90-1400 | 2.70 | 0.270 | 0.90 | 0.090 | 1.80 | 0.180 | 2.5 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S9I40GX( )-S12<br>S9I40GX( )-S12CE | SRX02<br>SRX02CE | 4 | 40 | 1Ø 220 | 50 | Cont. | 90-1400 | 2.50 | 0.250 | 0.70 | 0.070 | 1.70 | 0.170 | 2.0 |
| | | | | | 1Ø 240 | | | | 3.00 | 0.300 | 0.70 | 0.070 | 2.10 | 0.210 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I40GX-S12, S9I40GX-S12CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I40GA( )-S24<br>S9I40GA( )-S24(TP)<br>S9I40GA( )-S24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 40 | 1Ø 110 | 60 | Cont. | 90-1700 | 2.70 | 0.270 | 1.00 | 0.100 | 2.20 | 0.220 | 10.0 |
| | S9I40GB( )-S24<br>S9I40GB( )-S24(TP)<br>S9I40GB( )-S24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 40 | 1Ø 220 | 60 | Cont. | 90-1700 | 2.70 | 0.270 | 1.00 | 0.100 | 2.20 | 0.220 | 2.5 |
| | S9I40GC( )-S24<br>S9I40GC( )-S24(TP)<br>S9I40GC( )-S24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 40 | 1Ø 100 | 50 | Cont. | 90-1400 | 2.70 | 0.270 | 0.90 | 0.090 | 1.80 | 0.180 | 10.0 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S9I40GD( )-S24<br>S9I40GD( )-S24(TP)<br>S9I40GD( )-S24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 40 | 1Ø 200 | 50 | Cont. | 90-1400 | 2.70 | 0.270 | 0.90 | 0.090 | 1.80 | 0.180 | 2.5 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S9I40GX( )-S24<br>S9I40GX( )-S24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 40 | 1Ø 220 | 50 | Cont. | 90-1400 | 2.50 | 0.250 | 0.70 | 0.070 | 1.70 | 0.170 | 2.0 |
| | | | | | 1Ø 240 | | | | 3.00 | 0.300 | 0.70 | 0.070 | 2.10 | 0.210 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I40GX-S24, S9I40GX-S24CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'

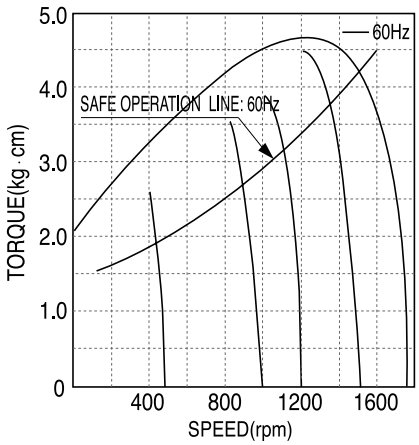
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KB□B( ) | kg-cm | 8.3 | 9.9 | 13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4 | 41.3 | 49.6 | 49.6 | 62.1 | 74.5 | 89.4 | 99.3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.813 | 0.970 | 1.352 | 1.617 | 2.029 | 2.430 | 2.695 | 3.371 | 4.047 | 4.861 | 4.861 | 6.086 | 7.301 | 8.761 | 9.731 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

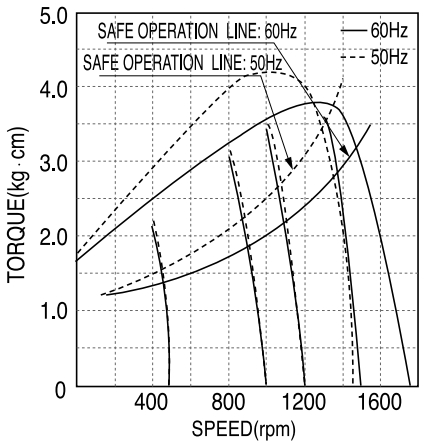
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KB□B( ) | kg-cm | 6.8 | 8.2 | 11.3 | 13.6 | 17.0 | 20.4 | 22.7 | 28.4 | 34.0 | 40.8 | 40.9 | 51.1 | 61.3 | 73.6 | 81.8 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.666 | 0.804 | 1.107 | 1.333 | 1.666 | 1.999 | 2.225 | 2.783 | 3.332 | 3.998 | 4.008 | 5.008 | 6.007 | 7.213 | 8.016 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

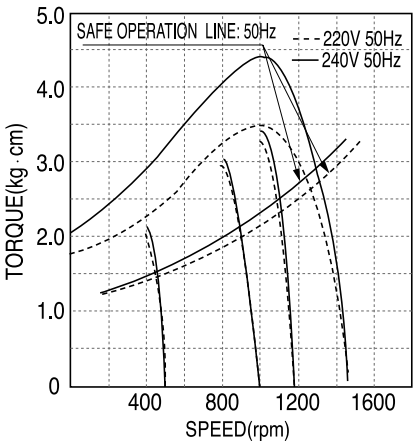
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9I40GA()-S12 S9I40GA()-S24
S9I40GA()-S12(TP) S9I40GA()-S24(TP)
S9I40GA()-S12CE S9I40GA()-S24CE
S9I40GB()-S12 S9I40GB()-S24
S9I40GB()-S12(TP) S9I40GB()-S24(TP)
S9I40GB()-S12CE S9I40GB()-S24




▲ S9I40GC()-S12 S9I40GC()-S24
S9I40GC()-S12(TP) S9I40GC()-S24(TP)
S9I40GC()-S12CE S9I40GC()-S24CE
S9I40GD()-S12 S9I40GD()-S24
S9I40GD()-S12(TP) S9I40GD()-S24(TP)
S9I40GD()-S12CE S9I40GD()-S24

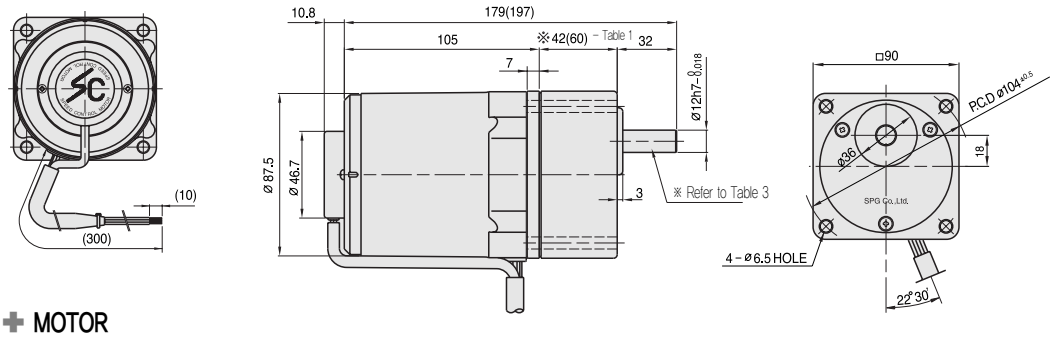



▲ S9I40GX()-S12 S9I40GX()-S24
S9I40GX()-S12CE S9I40GX()-S24CE

# DIMENSIONS

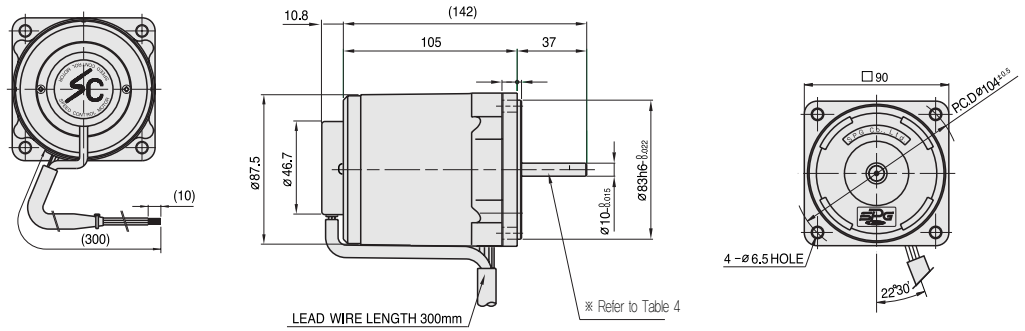
## ✚ GEARED MOTOR

※MOTOR MODEL : S9I40G□□-S12, S9I40G□□-S24
※HEAD MODEL : S9□B3□□~S9□B200□□



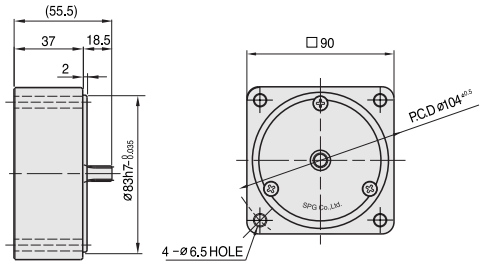

## ✚ MOTOR

※MOTOR MODEL : S9I40□□□-S12, S9I40□□□-S24

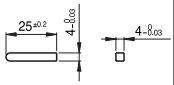
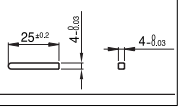



## ✚ INTER-DECIMAL GEAR HEAD

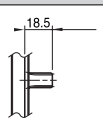
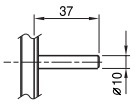
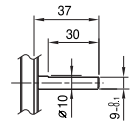
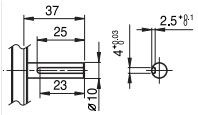
※MODEL : S9GX10B(H,L)




## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I40G□□-S12<br>S9I40G□□-S24 |  |
| STRAIGHT TYPE<br>S9I40S□-S12<br>S9I40S□-S24 |  |
| D-CUT TYPE<br>S9I40D□-S12<br>S9I40D□-S24 |  |
| KEY TYPE<br>S9I40K□-S12<br>S9I40K□-S24 |  |

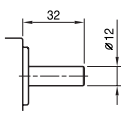
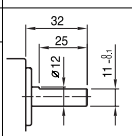
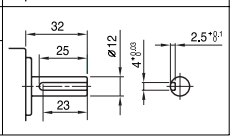
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S9□B3□ ~ S9□B18□ | 42 |
| S9□B20□ ~ S9□B200□ | 60 |

## ✚ WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.42 |
| DECIMAL GEAR HEAD | | 0.60 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□ ~S9□B40□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SB3□<br>~S9SB200□ |  |
| D-CUT TYPE<br>S9DB3□<br>~S9DB200□ |  |
| KEY TYPE<br>S9KB3□□<br>~S9KB200□□ |  |



# 60W

## INDUCTION SPEED CONTROL MOTOR
## □90㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I60GA( )-S12<br>S9I60GA( )-S12(TP)<br>S9I60GA( )-S12CE | SRA02<br>SRA02CE | 4 | 60 | 1Ø 110 | 60 | Cont. | 90-1700 | 5.50 | 0.550 | 2.00 | 0.200 | 5.00 | 0.500 | 20.0 |
| | S9I60GB( )-S12<br>S9I60GB( )-S12(TP)<br>S9I60GB( )-S12CE | SRB02<br>SRB02CE | 4 | 60 | 1Ø 220 | 60 | Cont. | 90-1700 | 5.50 | 0.550 | 2.00 | 0.200 | 5.00 | 0.500 | 5.0 |
| | S9I60GC( )-S12<br>S9I60GC( )-S12(TP)<br>S9I60GC( )-S12CE | SRC02<br>SRC02CE | 4 | 60 | 1Ø 100 | 50 | Cont. | 90-1400 | 5.50 | 0.550 | 1.20 | 0.120 | 4.00 | 0.400 | 20.0 |
| | | | | | | 60 | | 90-1700 | 5.00 | 0.500 | | | | | |
| | S9I60GD( )-S12<br>S9I60GD( )-S12(TP)<br>S9I60GD( )-S12CE | SRD02<br>SRD02CE | 4 | 60 | 1Ø 200 | 50 | Cont. | 90-1400 | 5.50 | 0.550 | 1.20 | 0.120 | 4.00 | 0.400 | 5.0 |
| | | | | | | 60 | | 90-1700 | 5.00 | 0.500 | | | | | |
| | S9I60GX( )-S12<br>S9I60GX( )-S12CE | SRX02<br>SRX02CE | 4 | 60 | 1Ø 220 | 50 | Cont. | 90-1400 | 5.20 | 0.520 | 0.90 | 0.090 | 3.10 | 0.310 | 3.5 |
| | | | | | 1Ø 240 | | | | 5.80 | 0.580 | 0.90 | 0.090 | 3.60 | 0.360 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I60GX( )-S12, S9I60GX( )-S12CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I60GA( )-S24<br>S9I60GA( )-S24(TP)<br>S9I60GA( )-S24CE | SSA03-SRSS | 4 | 60 | 1Ø 110 | 60 | Cont. | 90-1700 | 5.50 | 0.550 | 2.00 | 0.200 | 5.00 | 0.500 | 20.0 |
| | S9I60GB( )-S24<br>S9I60GB( )-S24(TP)<br>S9I60GB( )-S24CE | SSB03-SRSS | 4 | 60 | 1Ø 220 | 60 | Cont. | 90-1700 | 5.50 | 0.550 | 2.00 | 0.200 | 5.00 | 0.500 | 5.0 |
| | S9I60GC( )-S24<br>S9I60GC( )-S24(TP)<br>S9I60GC( )-S24CE | SSC03-SRSS | 4 | 60 | 1Ø 100 | 50 | Cont. | 90-1400 | 5.50 | 0.550 | 1.20 | 0.120 | 4.00 | 0.400 | 20.0 |
| | | | | | | 60 | | 90-1700 | 5.00 | 0.500 | | | | | |
| | S9I60GD( )-S24<br>S9I60GD( )-S24(TP)<br>S9I60GD( )-S24CE | SSD03-SRSS | 4 | 60 | 1Ø 200 | 50 | Cont. | 90-1400 | 5.50 | 0.550 | 1.20 | 0.120 | 4.00 | 0.400 | 5.0 |
| | | | | | | 60 | | 90-1700 | 5.00 | 0.500 | | | | | |
| | S9I60GX( )-S24<br>S9I60GX( )-S24CE | SSX03-SRSS | 4 | 60 | 1Ø 220 | 50 | Cont. | 90-1400 | 5.20 | 0.520 | 0.90 | 0.090 | 3.10 | 0.310 | 3.5 |
| | | | | | 1Ø 240 | | | | 5.80 | 0.580 | 0.90 | 0.090 | 3.60 | 0.360 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I60GX( )-S24, S9I60GX( )-S24CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

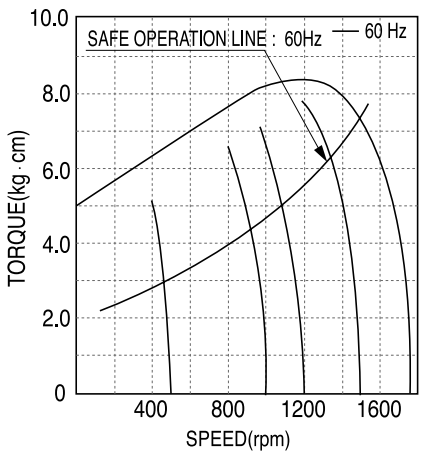
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

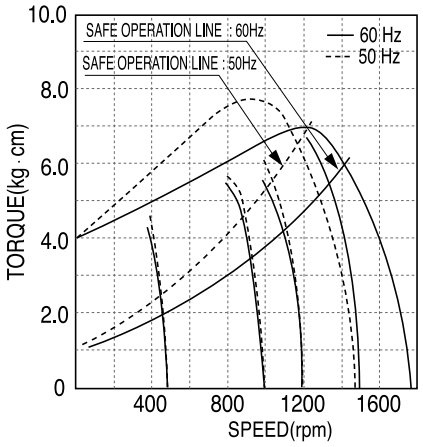
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-Cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

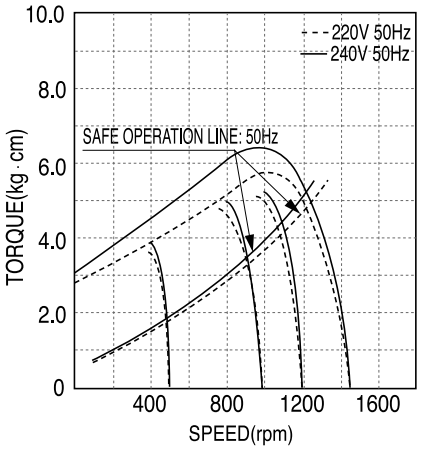
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9I60GA()-S12 S9I60GA()-S24
S9I60GA()-S12(TP) S9I60GA()-S24(TP)
S9I60GA()-S12CE S9I60GA()-S24CE
S9I60GB()-S12 S9I60GB()-S24
S9I60GB()-S12(TP) S9I60GB()-S24(TP)
S9I60GB()-S12CE S9I60GB()-S24




▲ S9I60GC()-S12 S9I60GC()-S24
S9I60GC()-S12(TP) S9I60GC()-S24(TP)
S9I60GC()-S12CE S9I60GC()-S24CE
S9I60GD()-S12 S9I60GD()-S24
S9I60GD()-S12(TP) S9I60GD()-S24(TP)
S9I60GD()-S12CE S9I60GD()-S24

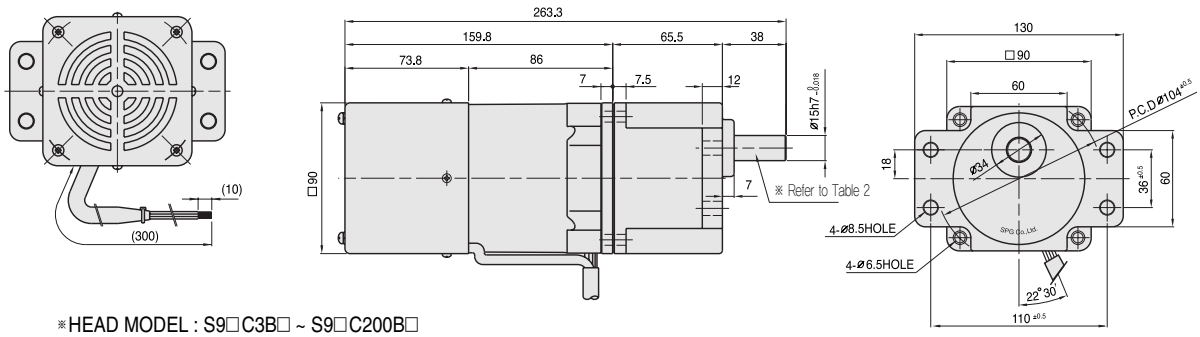



▲ S9I60GX()-S12 S9I60GX()-S24
S9I60GX()-S12CE S9I60GX()-S24CE

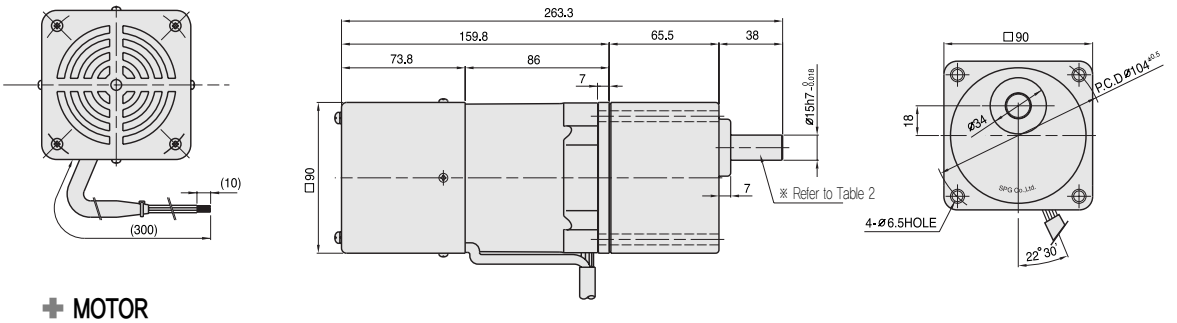
# DIMENSIONS

## ✚ GEARED MOTOR

※ MOTOR MODEL : S9I60G□□-S12, S9I60G□□-S24
※ HEAD MODEL : S9□C3B□-S ~ S9□C200B□-S

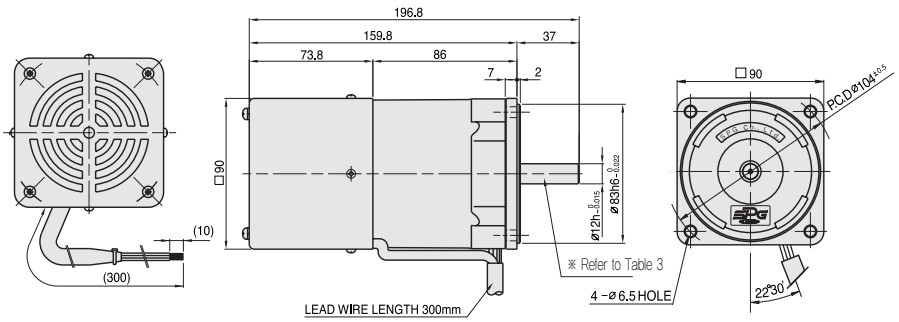



※HEAD MODEL : S9□C3B□ ~ S9□C200B□



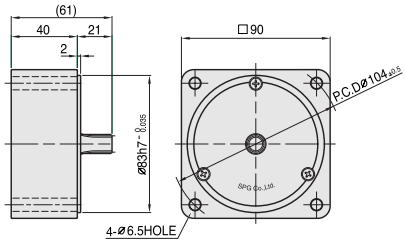

## ✚ MOTOR

※ MOTOR MODEL : S9I60□□□-S12, S9I60□□□-S24




## ✚ INTER-DECIMAL GEAR HEAD

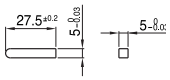
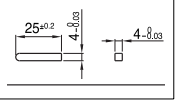
※MODEL : S9GX10B(H,L)-S



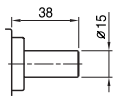
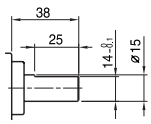
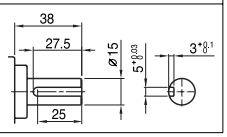

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

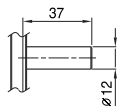
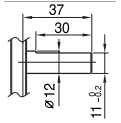
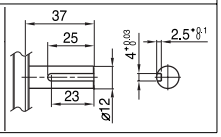
## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |

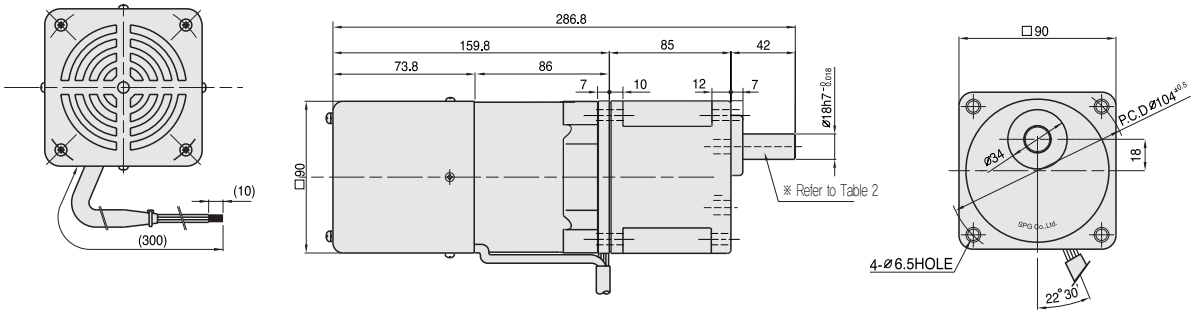
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I60G□-S12<br>S9I60G□-S24 |  |
| STRAIGHT TYPE<br>S9I60S□-S12<br>S9I60S□-S24 |  |
| D-CUT TYPE<br>S9I60D□-S12<br>S9I60D□-S24 |  |
| KEY TYPE<br>S9I60K□-S12<br>S9I60K□-S24 |  |

# DIMENSIONS

## ✚ GEARED MOTOR

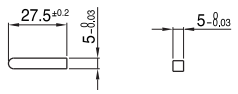
※ MOTOR MODEL : S9I60G□H-S12, S9I60G□H-S24
※ HEAD MODEL : S9□D3B-S9□D200B




## ✚ WEIGHT - (Table1)

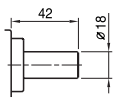
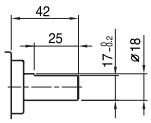
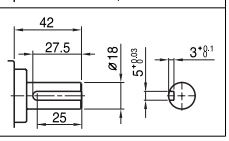
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.93 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SD3B ~S9SD200B |  |
| D-CUT TYPE<br>S9DD3B ~S9DD200B |  |
| KEY TYPE<br>S9KD3B ~S9KD200B |  |



## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 248 | 297 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 24.32 | 29.13 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 238 | 266 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 23.34 | 26.09 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.



# 90W

## INDUCTION SPEED CONTROL MOTOR
## □90㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I90GA( )-S12<br>S9I90GA( )-S12(TP)<br>S9I90GA( )-S12CE | SRA02<br>SRA02CE | 4 | 90 | 1Ø 110 | 60 | Cont. | 90-1700 | 6.30 | 0.630 | 3.00 | 0.300 | 6.50 | 0.650 | 24.0 |
| | S9I90GB( )-S12<br>S9I90GB( )-S12(TP)<br>S9I90GB( )-S12CE | SRB02<br>SRB02CE | 4 | 90 | 1Ø 220 | 60 | Cont. | 90-1700 | 6.30 | 0.630 | 3.00 | 0.300 | 6.50 | 0.650 | 7.0 |
| | S9I90GC( )-S12<br>S9I90GC( )-S12(TP)<br>S9I90GC( )-S12CE | SRC02<br>SRC02CE | 4 | 90 | 1Ø 100 | 50 | Cont. | 90-1400 | 5.80 | 0.580 | 2.50 | 0.250 | 5.50 | 0.550 | 24.0 |
| | | | | | | 60 | | 90-1700 | 5.30 | 0.530 | | | | | |
| | S9I90GD( )-S12<br>S9I90GD( )-S12(TP)<br>S9I90GD( )-S12CE | SRD02<br>SRD02CE | 4 | 90 | 1Ø 200 | 50 | Cont. | 90-1400 | 5.80 | 0.580 | 2.50 | 0.250 | 5.50 | 0.550 | 7.0 |
| | | | | | | 60 | | 90-1700 | 5.30 | 0.530 | | | | | |
| | S9I90GX( )-S12 | SRX02<br>SRX02CE | 4 | 90 | 1Ø 220 | 50 | Cont. | 90-1400 | 5.40 | 0.540 | 2.20 | 0.220 | 4.60 | 0.460 | 5.0 |
| | S9I90GX( )-S12CE | | | | 1Ø 240 | | | | 6.10 | 0.610 | 2.20 | 0.220 | 5.50 | 0.550 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I90GX( )-S24, S9I90GX( )-S24CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9I90GA( )-S24<br>S9I90GA( )-S24(TP)<br>S9I90GA( )-S24CE | SSA03-SRSS | 4 | 90 | 1Ø 110 | 60 | Cont. | 90-1700 | 6.30 | 0.630 | 3.00 | 0.300 | 6.50 | 0.650 | 24.0 |
| | S9I90GB( )-S24<br>S9I90GB( )-S24(TP)<br>S9I90GB( )-S24CE | SSB03-SRSS | 4 | 90 | 1Ø 220 | 60 | Cont. | 90-1700 | 6.30 | 0.630 | 3.00 | 0.300 | 6.50 | 0.650 | 7.0 |
| | S9I90GC( )-S24<br>S9I90GC( )-S24(TP)<br>S9I90GC( )-S24CE | SSC03-SRSS | 4 | 90 | 1Ø 100 | 50 | Cont. | 90-1400 | 5.80 | 0.580 | 2.50 | 0.250 | 5.50 | 0.550 | 24.0 |
| | | | | | | 60 | | 90-1700 | 5.30 | 0.530 | | | | | |
| | S9I90GD( )-S24<br>S9I90GD( )-S24(TP)<br>S9I90GD( )-S24CE | SSD03-SRSS | 4 | 90 | 1Ø 200 | 50 | Cont. | 90-1400 | 5.80 | 0.580 | 2.50 | 0.250 | 5.50 | 0.550 | 7.0 |
| | | | | | | 60 | | 90-1700 | 5.30 | 0.530 | | | | | |
| | S9I90GX( )-S24 | SSX03-SRSS | 4 | 90 | 1Ø 220 | 50 | Cont. | 90-1400 | 5.40 | 0.540 | 2.20 | 0.220 | 4.60 | 0.460 | 5.0 |
| | S9I90GX( )-S24CE | | | | 1Ø 240 | | | | 6.10 | 0.610 | 2.20 | 0.220 | 5.50 | 0.550 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9I90GX( )-S24, S9I90GX( )-S24CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

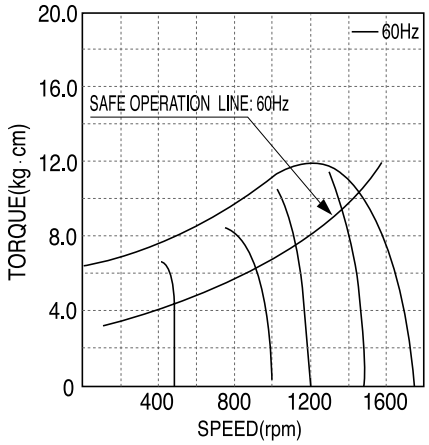
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

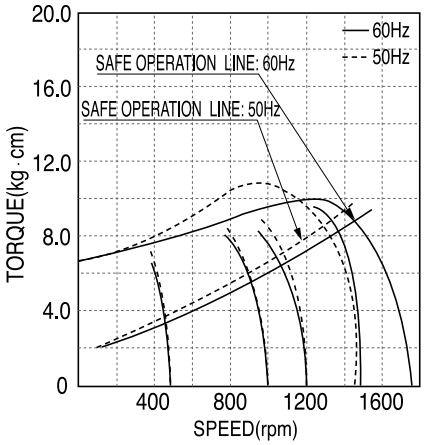
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

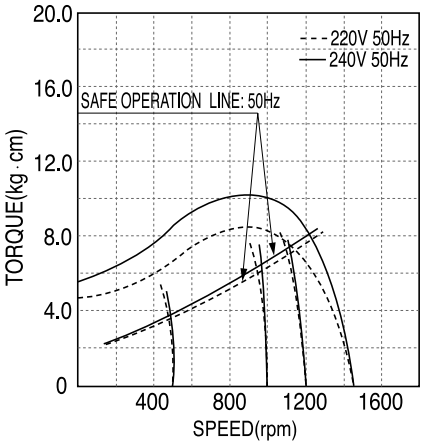
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9I90GA()-S12 S9I90GA()-S24
S9I90GA()-S12(TP) S9I90GA()-S24(TP)
S9I90GA()-S12CE S9I90GA()-S24CE
S9I90GB()-S12 S9I90GB()-S24
S9I90GB()-S12(TP) S9I90GB()-S24(TP)
S9I90GB()-S12CE S9I90GB()-S24




▲ S9I90GC()-S12 S9I90GC()-S24
S9I90GC()-S12(TP) S9I90GC()-S24(TP)
S9I90GC()-S12CE S9I90GC()-S24CE
S9I90GD()-S12 S9I90GD()-S24
S9I90GD()-S12(TP) S9I90GD()-S24(TP)
S9I90GD()-S12CE S9I90GD()-S24

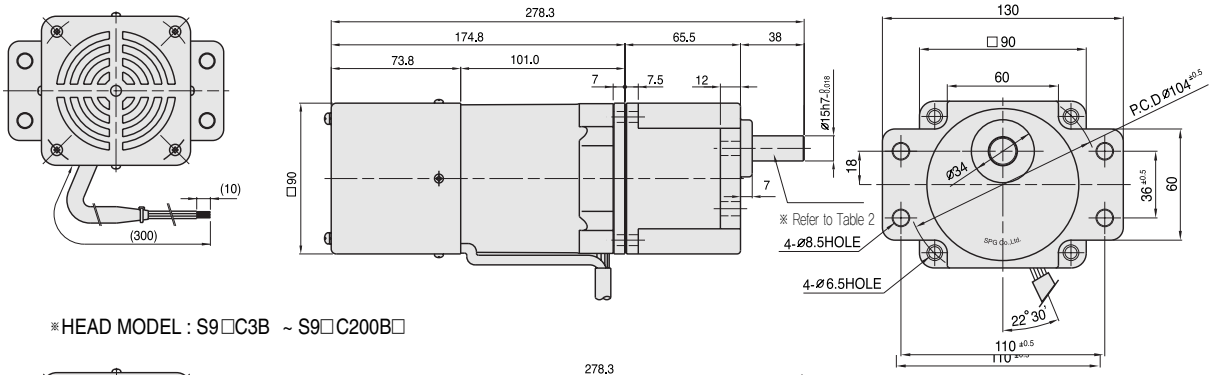



▲ S9I90GX()-S12 S9I90GX()-S24
S9I90GX()-S12CE S9I90GX()-S24CE

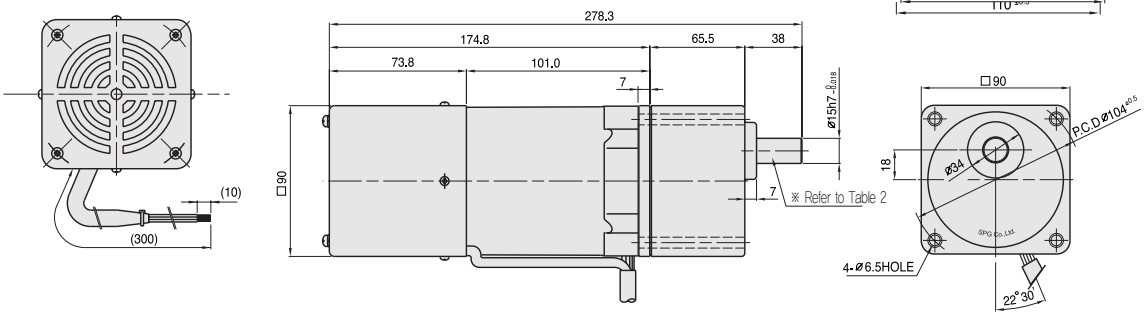
# DIMENSIONS

## ✚ GEARED MOTOR

※ MOTOR MODEL : S9I90G□□-S12, S9I90G□□-S24
※ HEAD MODEL : S9□C3B□-S ~ S9□C200B□-S

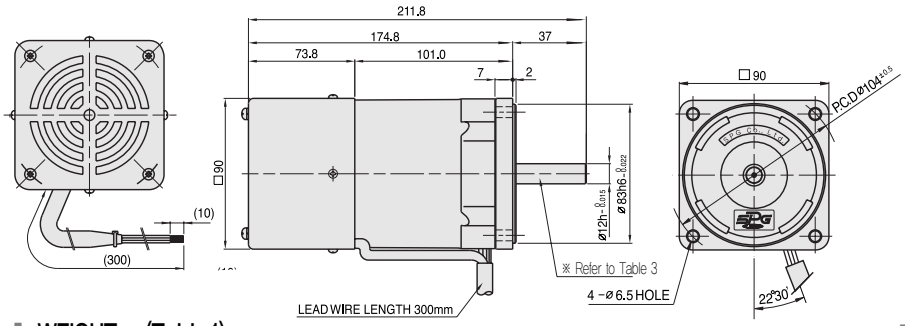



※HEAD MODEL : S9□C3B ~ S9□C200B□



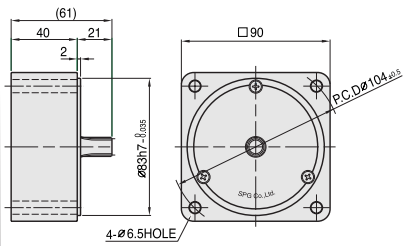

## ✚ MOTOR

※MOTOR MODEL : S9I90□□□-S12, S9I90□□□-S24




## ✚ INTER-DECIMAL GEAR HEAD

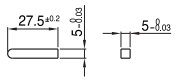
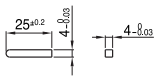
※MODEL : S9GX10B(H,L)-S



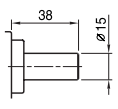
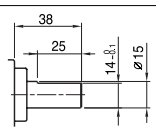
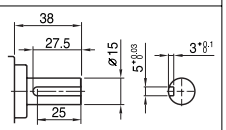

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.53 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

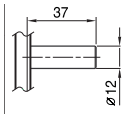
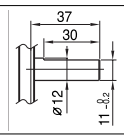
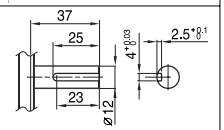
## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |

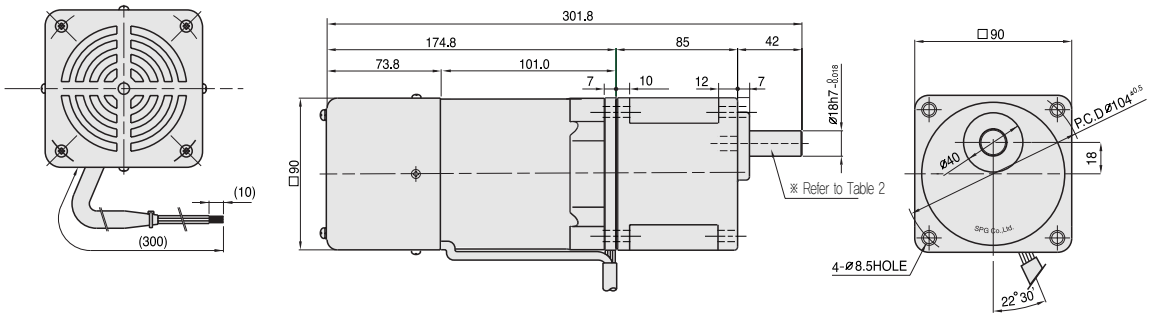
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9I90G□□-S12<br>S9I90G□□-S24 |  |
| STRAIGHT TYPE<br>S9I90S□-S12<br>S9I90S□-S24 |  |
| D-CUT TYPE<br>S9I90D□-S12<br>S9I90D□-S24 |  |
| KEY TYPE<br>S9I90K□ -S12<br>S9I90K□ -S24 |  |

# DIMENSIONS

## ✚ GEARED MOTOR

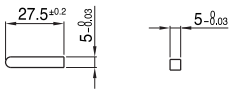
※ MOTOR MODEL : S9I90G□H-S12, S9I90G□H-S24
※ HEAD MODEL : S9□D3B-S9□D200B




## ✚ WEIGHT - (Table1)

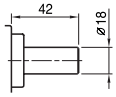
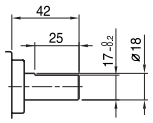
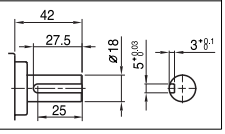
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.53 |
| GEAR HEAD | S9□D3B ~S9□D10B | 1.65 |
| | S9□D12.5B ~S9□D20B | 1.80 |
| | S9□D25B ~S9□D60B | 1.90 |
| | S9□D75B ~S9□D200B | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE | |
| S9SD3B ~S9SD200B |  |
| D-CUT TYPE | |
| S9DD3B ~S9DD200B |  |
| KEY TYPE | |
| S9KD3B ~S9KD200B |  |



## 50Hz

| | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 248 | 297 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 24.32 | 29.13 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 238 | 266 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 23.34 | 26.09 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable. Please use "H" type motor.


SPG
MOTOR

# SPEED CONTROL REVERSIBLE MOTORS

## INDEX


**SPEED CONTROL REVERSIBLE MOTOR 6W(□60㎜)** ..... **236**

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# 6W

## REVERSIBLE SPEED CONTROL MOTOR
## □60㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 60 | S6R06GA-S12<br>S6R06GA-S12CE | SRA01<br>SRA01CE | 4 | 6 | 1Ø 110 | 60 | 30min. | 90-1700 | 0.65 | 0.065 | 0.40 | 0.040 | 0.52 | 0.052 | 3.0 |
| | S6R06GB-S12<br>S6R06GB-S12CE | SRB01<br>SRB01CE | 4 | 6 | 1Ø 220 | 60 | 30min. | 90-1700 | 0.60 | 0.060 | 0.40 | 0.040 | 0.52 | 0.052 | 0.8 |
| | S6R06GC-S12<br>S6R06GC-S12CE | SRC01<br>SRC01CE | 4 | 6 | 1Ø 100 | 50 | 30min. | 90-1400 | 0.55 | 0.055 | 0.35 | 0.035 | 0.45 | 0.045 | 3.0 |
| | | | | | | 60 | | 90-1700 | | | | | | | |
| | S6R06GD-S12<br>S6R06GD-S12CE | SRD01<br>SRD01CE | 4 | 6 | 1Ø 200 | 50 | 30min. | 90-1400 | 0.55 | 0.055 | 0.35 | 0.035 | 0.45 | 0.045 | 0.8 |
| | | | | | | 60 | | 90-1700 | | | | | | | |
| | S6R06GX-S12<br>S6R06GX-S12CE | SRX01<br>SRX01CE | 4 | 6 | 1Ø 220 | 50 | 30min. | 90-1400 | 0.45 | 0.045 | 0.32 | 0.032 | 0.40 | 0.040 | 0.7 |
| | | | | | 1Ø 240 | | | | 0.50 | 0.050 | 0.32 | 0.032 | 0.47 | 0.047 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 60 | S6R06GA-S24<br>S6R06GA-S24CE | SSA01-SRSS<br>SSA03-SRSS | 4 | 6 | 1Ø 110 | 60 | 30min. | 90-1700 | 0.65 | 0.065 | 0.40 | 0.040 | 0.52 | 0.052 | 3.0 |
| | S6R06GB-S24<br>S6R06GB-S24CE | SSB01-SRSS<br>SSB03-SRSS | 4 | 6 | 1Ø 220 | 60 | 30min. | 90-1700 | 0.60 | 0.060 | 0.40 | 0.040 | 0.52 | 0.052 | 0.8 |
| | S6R06GC-S24<br>S6R06GC-S24CE | SSC01-SRSS<br>SSC03-SRSS | 4 | 6 | 1Ø 100 | 50 | 30min. | 90-1400 | 0.55 | 0.055 | 0.35 | 0.035 | 0.45 | 0.045 | 3.0 |
| | | | | | | 60 | | 90-1700 | | | | | | | |
| | S6R06GD-S24<br>S6R06GD-S24CE | SSD01-SRSS<br>SSD03-SRSS | 4 | 6 | 1Ø 200 | 50 | 30min. | 90-1400 | 0.55 | 0.055 | 0.35 | 0.035 | 0.45 | 0.045 | 0.8 |
| | | | | | | 60 | | 90-1700 | | | | | | | |
| | S6R06GX-S24<br>S6R06GX-S24CE | SSX01-SRSS<br>SSX03-SRSS | 4 | 6 | 1Ø 220 | 50 | 30min. | 90-1400 | 0.45 | 0.045 | 0.32 | 0.032 | 0.40 | 0.040 | 0.7 |
| | | | | | 1Ø 240 | | | | 0.50 | 0.050 | 0.32 | 0.032 | 0.47 | 0.047 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received. CE.
❖ "L" or "H" type does not apply to motors under 40W.

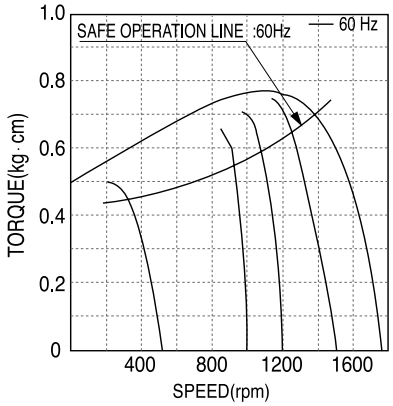
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DA□B | kg-cm | 1.3 | 1.5 | 2.1 | 2.6 | 3.2 | 3.9 | 4.3 | 5.4 | 6.4 | 7.7 | 7.7 | 9.7 | 11.6 | 13.9 | 15.5 | 17.5 | 21.0 | 26.2 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.127 | 0.147 | 0.206 | 0.255 | 0.314 | 0.382 | 0.421 | 0.529 | 0.627 | 0.755 | 0.755 | 0.951 | 1.137 | 1.362 | 1.519 | 1.715 | 2.058 | 2.568 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

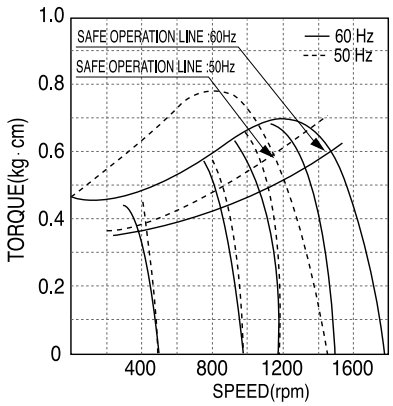
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DA□B | kg-cm | 1.0 | 1.3 | 1.7 | 2.1 | 2.6 | 3.1 | 3.5 | 4.4 | 5.2 | 6.3 | 6.3 | 7.8 | 9.4 | 11.3 | 12.6 | 14.2 | 17.0 | 21.3 | 25.5 | 28.4 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.098 | 0.127 | 0.167 | 0.206 | 0.255 | 0.304 | 0.343 | 0.431 | 0.510 | 0.617 | 0.617 | 0.764 | 0.921 | 1.107 | 1.235 | 1.392 | 1.666 | 2.087 | 2.499 | 2.783 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

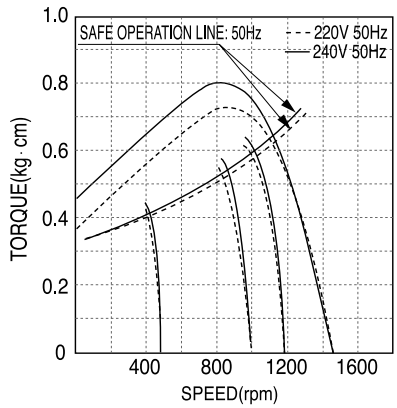
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 30 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S6R06GA-S12 S6R06GA-S24
S6R06GA-S12CE S6R06GA-S24CE
S6R06GB-S12 S6R06GB-S24
S6R06GB-S12CE S6R06GB-S24




▲ S6R06GC-S12 S6R06GC-S24
S6R06GC-S12CE S6R06GC-S24CE
S6R06GD-S12 S6R06GD-S24
S6R06GD-S12CE S6R06GD-S24CE

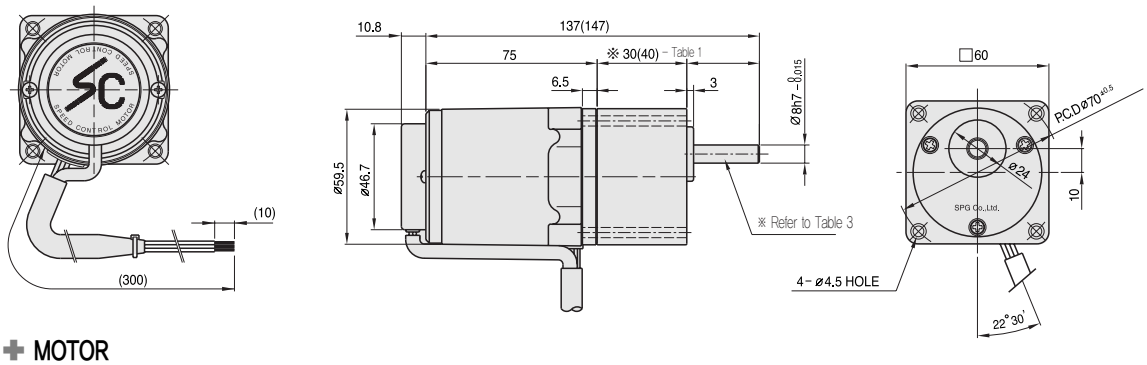



▲ S6R06GX-S12 S6R06GX-S24
S6R06GX-S12CE S6R06GX-S24CE

# DIMENSIONS

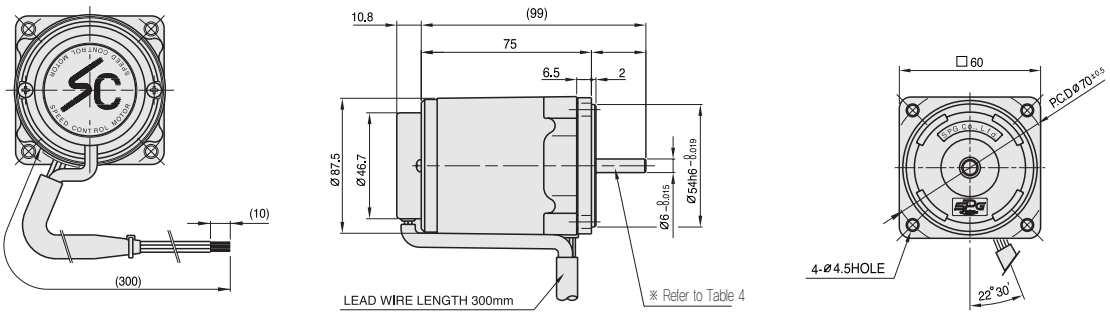
## GEARED MOTOR

※MOTOR MODEL : S6R06G□-S12, S6R06G□-S24
※HEAD MODEL □ : S6□A3□~S6□A250□



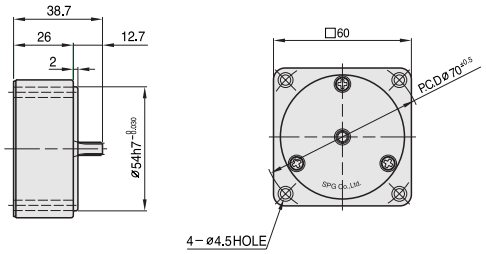

## MOTOR

※MOTOR MODEL : S6R06□□-S12, S6R06□□-S24

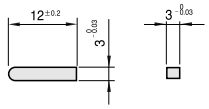



## INTER-DECIMAL GEAR HEAD

※MODEL : S6GX10B




## KEY SPEC

| GEAR HEAD |
|---|
|  |



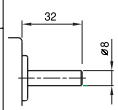
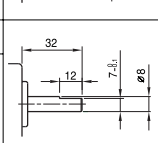
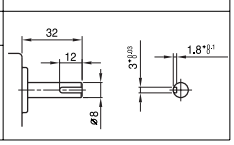
## ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S6□A3□ ~ S6□A18□ | 30 |
| S6□A20□ ~ S6□A250□ | 40 |

## WEIGHT - (Table2)

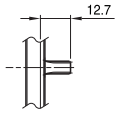
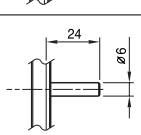
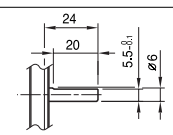
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 0.76 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□A3□ ~S6□A18B□ | 0.24 |
| | S6□A20□ ~S6□A40□ | 0.30 |
| | S6□A50□ ~S6□A250□ | 0.33 |

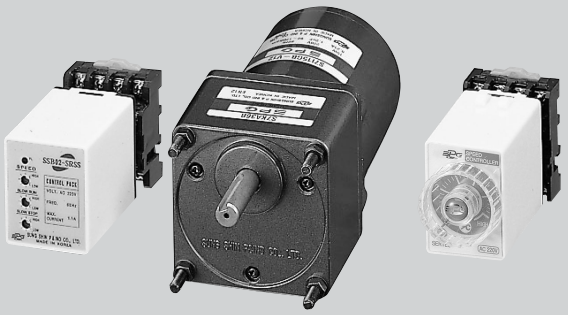
## SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S6SA3□ ~S6SA250□ |  |
| D-CUT TYPE<br>S6DA3□ ~S6DA250□ |  |
| KEY TYPE<br>S6KA3□ ~S6KA250□ |  |



## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S6R06G□-S12<br>S6R06G□-S24 |  |
| STRAIGHT TYPE<br>S6R06GS-□S12<br>S6R06GS-□S24 |  |
| D-CUT TYPE<br>S6R06D□-12<br>S6R06D□-12 |  |



# 15W

## REVERSIBLE SPEED CONTROL MOTOR
## □70㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | kg-cm | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 70 | S7R15GA-S12<br>S7R15GA-S12(TP)<br>S7R15GA-S12CE | SRA02<br>SRA02CE | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 1.10 | 0.110 | 0.55 | 0.055 | 1.00 | 0.100 | 6.0 |
| | S7R15GB-S12<br>S7R15GB-S12(TP)<br>S7R15GB-S12CE | SRB02<br>SRB02CE | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 1.10 | 0.110 | 0.55 | 0.055 | 1.00 | 0.100 | 1.5 |
| | S7R15GC-S12<br>S7R15GC-S12(TP)<br>S7R15GC-S12CE | SRC02<br>SRC02CE | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 1.05 | 0.105 | 0.50 | 0.050 | 0.80 | 0.080 | 6.0 |
| | | | | | | 60 | | 90-1700 | 0.80 | 0.080 | | | | | |
| | S7R15GD-S12<br>S7R15GD-S12(TP)<br>S7R15GD-S12CE | SRD02<br>SRD02CE | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 1.05 | 0.105 | 0.50 | 0.050 | 0.80 | 0.080 | 1.5 |
| | | | | | | 60 | | 90-1700 | 0.80 | 0.080 | | | | | |
| | S7R15GX-S12<br>S7R15GX-S12CE | SRX02<br>SRX02CE | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 1.00 | 0.100 | 0.50 | 0.050 | 0.75 | 0.075 | 1.2 |
| | | | | | 1Ø 240 | | | | 1.10 | 0.110 | 0.75 | 0.075 | 1.00 | 0.100 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S7R15GX-S12, S7R15GX-S12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 70 | S7R15GA-S24<br>S7R15GA-S24(TP)<br>S7R15GA-S24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 1.10 | 0.110 | 0.55 | 0.055 | 1.00 | 0.100 | 6.0 |
| | S7R15GB-S24<br>S7R15GB-S24(TP)<br>S7R15GB-S24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 1.10 | 0.110 | 0.55 | 0.055 | 1.00 | 0.100 | 1.5 |
| | S7R15GC-S24<br>S7R15GC-S24(TP)<br>S7R15GC-S24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 1.05 | 0.105 | 0.50 | 0.050 | 0.80 | 0.080 | 6.0 |
| | | | | | | 60 | | 90-1700 | 0.80 | 0.080 | | | | | |
| | S7R15GD-S24<br>S7R15GD-S24(TP)<br>S7R15GD-S24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 1.05 | 0.105 | 0.50 | 0.050 | 0.80 | 0.080 | 1.5 |
| | | | | | | 60 | | 90-1700 | 0.80 | 0.080 | | | | | |
| | S7R15GX-S24<br>S7R15GX-S24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 1.00 | 0.100 | 0.50 | 0.050 | 0.75 | 0.075 | 1.2 |
| | | | | | 1Ø 240 | | | | 1.10 | 0.110 | 0.75 | 0.075 | 1.00 | 0.100 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S7R15GX-S24, S7R15GX-S24CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

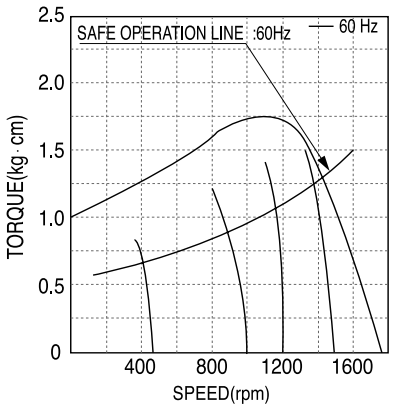
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S7KA□B | kg-cm | 3.2 | 3.9 | 5.4 | 6.5 | 8.1 | 9.7 | 10.8 | 13.5 | 16.2 | 19.4 | 19.4 | 24.2 | 29.1 | 34.9 | 38.8 | 43.6 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.314 | 0.382 | 0.530 | 0.637 | 0.794 | 0.951 | 1.059 | 1.324 | 1.587 | 1.902 | 1.902 | 2.373 | 2.854 | 3.423 | 3.805 | 4.276 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

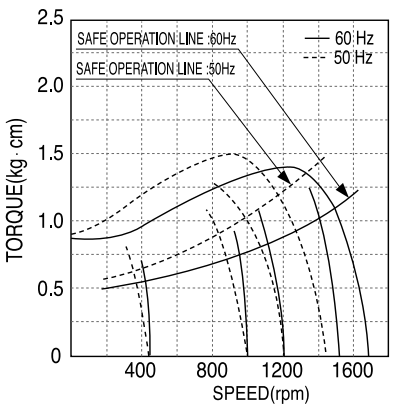
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S7KA□B | kg-cm | 3.0 | 3.6 | 5.1 | 6.1 | 7.6 | 9.1 | 10.1 | 12.7 | 15.2 | 18.2 | 18.2 | 22.8 | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.294 | 0.353 | 0.500 | 0.598 | 0.745 | 0.892 | 0.990 | 1.245 | 1.491 | 1.785 | 1.785 | 2.236 | 2.677 | 3.217 | 3.579 | 4.021 | 4.825 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

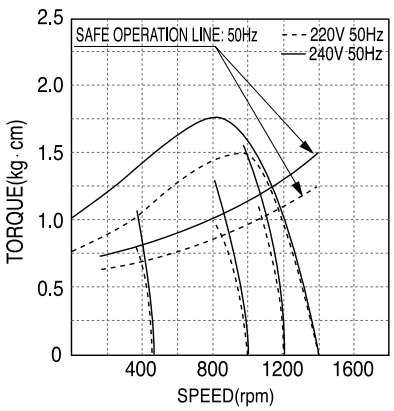
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ he permissible torque of the motor and inter-decimal gearhead is 50 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S7R15GA-S12 S7R15GA-S24
S7R15GA-S12(TP) S7R15GA-S24(TP)
S7R15GA-S12CE S7R15GA-S24CE
S7R15GB-S12 S7R15GB-S24
S7R15GB-S12(TP) S7R15GB-S24(TP)
S7R15GB-S12CE S7R15GB-S24




▲ S7R15GC-S12 S7R15GC-S24
S7R15GC-S12(TP) S7R15GC-S24(TP)
S7R15GC-S12CE S7R15GC-S24CE
S7R15GD-S12 S7R15GD-S24
S7R15GC-S12 S7R15GC-S24(TP)
S7R15GD-S12CE S7R15GD-S24CE

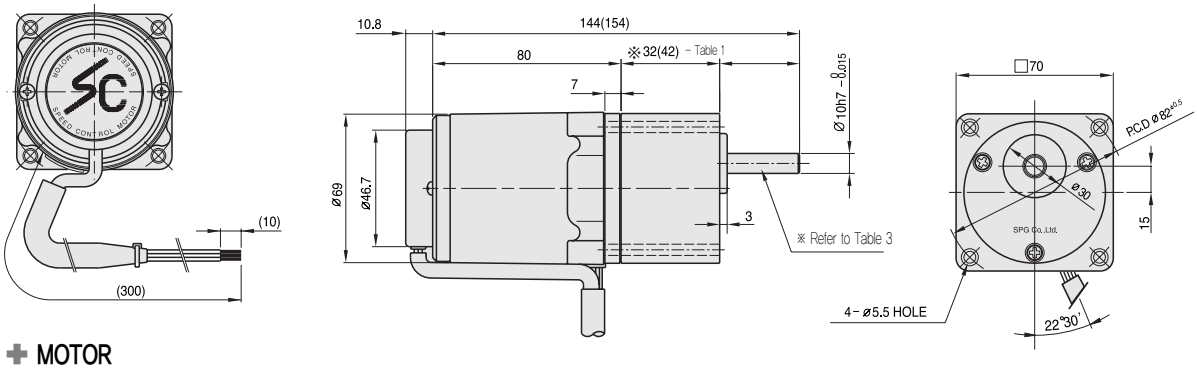



▲ S7R15GX-S12 S7R15GX-S24
S7R15GX-S12CE S7R15GX-S24CE

# DIMENSIONS

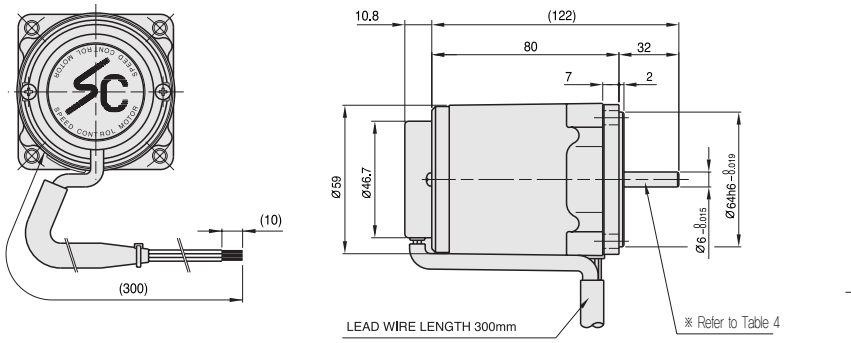
## ✚ GEARED MOTOR

※MOTOR MODEL : S7R15G□-S12, S7R15G□-S24
※HEAD MODEL : S7□A3□~S7□A200□



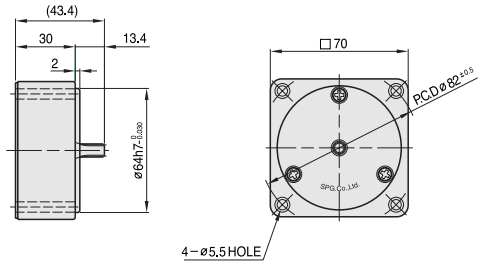

## ✚ MOTOR

※MOTOR MODEL : S7R15□□-S12, S7R15□□-S24

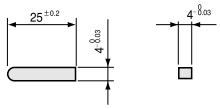



## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S7GX10B




## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



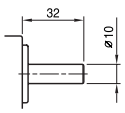
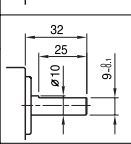
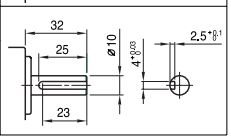
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S7□A3□ ~ S7□A18□ | 32 |
| S7□A20□ ~ S7□A200□ | 42 |

## ✚ WEIGHT - (Table2)

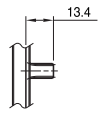
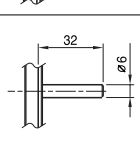
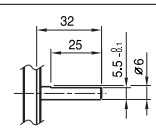
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.04 |
| DECIMAL GEAR HEAD | | 0.32 |
| GEAR HEAD | S7□A3□ ~S7□A40□ | 0.38 |
| | S7□A20□ ~S7□A40□ | 0.47 |
| | S7□A50□ ~S7□A200□ | 0.52 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S7SA3□ ~S7SA200□ |  |
| D-CUT TYPE<br>S7DA3□ ~S7DA200□ |  |
| KEY TYPE<br>S7KA3□ ~S7KA200□ |  |



## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S7R15G□-S12<br>S7R15G□-S24 |  |
| STRAIGHT TYPE<br>S7R15S□-S12<br>S7R15S□-S24 |  |
| D-CUT TYPE<br>S7R15D□-S12<br>S7R15D□-S24 |  |



# 15W

## REVERSIBLE SPEED CONTROL MOTOR
## □80㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8R15GA-S12<br>S8R15GA-S12(TP)<br>S8R15GA-S12CE | SRA02<br>SRA02CE | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 1.40 | 0.140 | 0.50 | 0.050 | 0.80 | 0.080 | 6.0 |
| | S8R15GB-S12<br>S8R15GB-S12(TP)<br>S8R15GB-S12CE | SRB02<br>SRB02CE | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 1.40 | 0.140 | 0.50 | 0.050 | 0.80 | 0.070 | 1.5 |
| | S8R15GC-S12<br>S8R15GC-S12(TP)<br>S8R15GC-S12CE | SRC02<br>SRC02CE | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 1.30 | 0.130 | 0.45 | 0.045 | 0.70 | 0.070 | 6.0 |
| | | | | | | 60 | | 90-1700 | 1.10 | 0.110 | | | | | |
| | S8R15GD-S12<br>S8R15GD-S12(TP)<br>S8R15GD-S12CE | SRD02<br>SRD02CE | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 1.30 | 0.130 | 0.45 | 0.045 | 0.70 | 0.070 | 1.5 |
| | | | | | | 60 | | 90-1700 | 1.10 | 0.110 | | | | | |
| | S8R15GX-S12<br>S8R15GX-S12CE | SRX02<br>SRX02CE | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 1.30 | 0.130 | 0.45 | 0.045 | 0.70 | 0.070 | 1.2 |
| | | | | | 1Ø 240 | | | | 1.40 | 0.140 | 0.80 | 0.080 | 0.80 | 0.08 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8R15GX-S12, S8R15GX-S12CE is thermally protected type with TP mounted.
❖ L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8R15GA-S24<br>S8R15GA-S24(TP)<br>S8R15GA-S24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 1.40 | 0.140 | 0.50 | 0.050 | 0.80 | 0.080 | 6.0 |
| | S8R15GB-S24<br>S8R15GB-S24(TP)<br>S8R15GB-S24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 1.40 | 0.140 | 0.50 | 0.050 | 0.80 | 0.070 | 1.5 |
| | S8R15GC-S24<br>S8R15GC-S24(TP)<br>S8R15GC-S24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 1.30 | 0.130 | 0.45 | 0.045 | 0.70 | 0.070 | 6.0 |
| | | | | | | 60 | | 90-1700 | 1.10 | 0.110 | | | | | |
| | S8R15GD-S24<br>S8R15GD-S24(TP)<br>S8R15GD-S24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 1.30 | 0.130 | 0.45 | 0.045 | 0.70 | 0.070 | 1.5 |
| | | | | | | 60 | | 90-1700 | 1.10 | 0.110 | | | | | |
| | S8R15GX-S24<br>S8R15GX-S24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 1.30 | 0.130 | 0.45 | 0.045 | 0.70 | 0.070 | 1.2 |
| | | | | | 1Ø 240 | | | | 1.40 | 0.140 | 0.80 | 0.080 | 0.80 | 0.08 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8R15GX-S24, S8R15GX-S24CE is thermally protected type with TP mounted.
❖ L" or "H" type does not apply to motors under 40W.

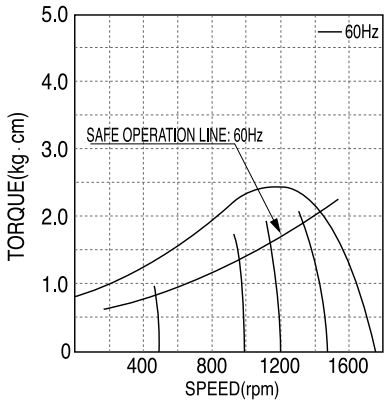
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 3.4 | 4.1 | 5.7 | 6.8 | 8.5 | 10.2 | 11.3 | 14.2 | 17.0 | 20.4 | 20.4 | 25.6 | 30.7 | 36.8 | 40.9 | 46.2 | 55.4 | 69.2 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N·m | 0.333 | 0.402 | 0.559 | 0.666 | 0.833 | 1.000 | 1.107 | 1.392 | 1.666 | 1.999 | 1.999 | 2.509 | 3.009 | 3.606 | 4.008 | 4.530 | 5.433 | 6.786 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

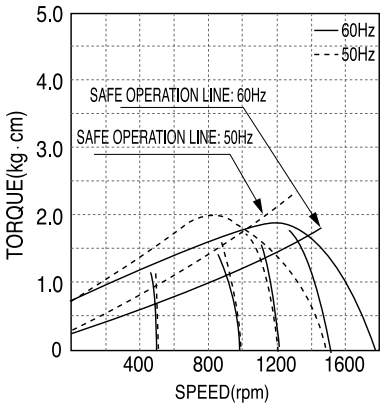
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 2.9 | 3.5 | 4.9 | 5.8 | 7.3 | 8.7 | 9.7 | 12.2 | 14.6 | 17.5 | 17.5 | 21.9 | 26.3 | 31.5 | 35.0 | 39.6 | 47.5 | 59.4 | 71.3 | 79.2 | 80 | 80 | 80 | 80 |
| | N·m | 0.284 | 0.343 | 0.481 | 0.568 | 0.715 | 0.853 | 0.951 | 1.196 | 1.432 | 1.715 | 1.715 | 2.146 | 2.577 | 3.087 | 3.430 | 3.881 | 4.658 | 5.825 | 6.992 | 7.767 | 7.840 | 7.840 | 7.840 | 7.840 |

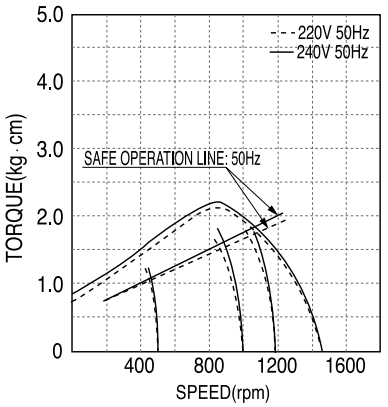
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S8R15GA-S12 S8R15GA-S24
S8R15GA-S12(TP) S8R15GA-S24(TP)
S8R15GA-S12CE S8R15GA-S24CE
S8R15GB-S12 S8R15GB-S24
S8R15GB-S12(TP) S8R15GB-S24(TP)
S8R15GB-S12CE S8R15GB-S24




▲ S8R15GC-S12 S8R15GC-S24
S8R15GC-S12(TP) S8R15GC-S24(TP)
S8R15GC-S12CE S8R15GC-S24CE
S8R15GD-S12 S8R15GD-S24
S8R15GC-S12 S8R15GC-S24(TP)
S8R15GD-S12CE S8R15GD-S24CE




▲ S8R15GX-S12 S8R15GX-S24
S8R15GX-S12CE S8R15GX-S24CE



# 25W

## REVERSIBLE SPEED CONTROL MOTOR
## □80㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8R25GA-S12<br>S8R25GA-S12(TP)<br>S8R25GA-S12CE | SRA02<br>SRA02CE | 4 | 25 | 1Ø 110 | 60 | 30min. | 90-1700 | 2.30 | 0.230 | 0.80 | 0.080 | 1.80 | 0.180 | 10.0 |
| | S8R25GB-S12<br>S8R25GB-S12(TP)<br>S8R25GB-S12CE | SRB02<br>SRB02CE | 4 | 25 | 1Ø 220 | 60 | 30min. | 90-1700 | 2.30 | 0.230 | 0.70 | 0.070 | 1.80 | 0.180 | 2.5 |
| | S8R25GC-S12<br>S8R25GC-S12(TP)<br>S8R25GC-S12CE | SRC02<br>SRC02CE | 4 | 25 | 1Ø 100 | 50 | 30min. | 90-1400 | 2.20 | 0.220 | 0.70 | 0.070 | 1.60 | 0.160 | 10.0 |
| | | | | | | 60 | | 90-1700 | 1.90 | 0.190 | | | | | |
| | S8R25GD-S12<br>S8R25GD-S12(TP)<br>S8R25GD-S12CE | SRD02<br>SRD02CE | 4 | 25 | 1Ø 200 | 50 | 30min. | 90-1400 | 2.20 | 0.220 | 0.70 | 0.070 | 1.60 | 0.160 | 2.5 |
| | | | | | | 60 | | 90-1700 | 1.90 | 0.190 | | | | | |
| | S8R25GX-S12<br>S8R25GX-S12CE | SRX02<br>SRX02CE | 4 | 25 | 1Ø 220 | 50 | 30min. | 90-1400 | 2.00 | 0.200 | 0.70 | 0.070 | 1.50 | 0.150 | 2.0 |
| | | | | | 1Ø 240 | | | | 2.25 | 0.225 | 0.70 | 0.070 | 1.70 | 0.170 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8R25GX-S12, S8R25GX-S12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8R25GA-S24<br>S8R25GA-S24(TP)<br>S8R25GA-S24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 2.30 | 0.230 | 0.80 | 0.080 | 1.80 | 0.180 | 10.0 |
| | S8R25GB-S24<br>S8R25GB-S24(TP)<br>S8R25GB-S24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 2.30 | 0.230 | 0.70 | 0.070 | 1.80 | 0.180 | 2.5 |
| | S8R25GC-S24<br>S8R25GC-S24(TP)<br>S8R25GC-S24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 2.20 | 0.220 | 0.70 | 0.070 | 1.60 | 0.160 | 10.0 |
| | | | | | | 60 | | 90-1700 | 1.90 | 0.190 | | | | | |
| | S8R25GD-S24<br>S8R25GD-S24(TP)<br>S8R25GD-S24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 2.20 | 0.220 | 0.70 | 0.070 | 1.60 | 0.160 | 2.5 |
| | | | | | | 60 | | 90-1700 | 1.90 | 0.190 | | | | | |
| | S8R25GX-S24<br>S8R25GX-S24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 2.00 | 0.200 | 0.70 | 0.070 | 1.50 | 0.150 | 2.0 |
| | | | | | 1Ø 240 | | | | 2.25 | 0.225 | 0.70 | 0.070 | 1.70 | 0.170 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8R25GX-S24, S8R25GX-S24CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

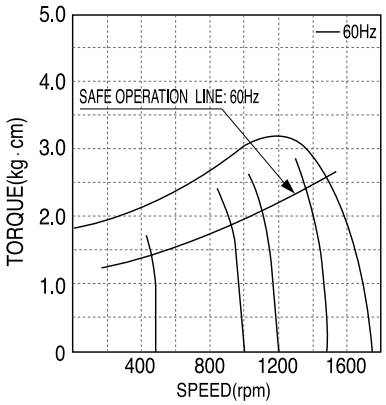
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 5.3 | 6.4 | 8.9 | 10.7 | 13.4 | 16.0 | 17.8 | 22.3 | 26.7 | 32.1 | 32.1 | 40.2 | 48.2 | 57.8 | 64.2 | 72.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.519 | 0.627 | 0.872 | 1.049 | 1.313 | 1.568 | 1.744 | 2.185 | 2.617 | 3.146 | 3.146 | 3.940 | 4.724 | 5.664 | 6.292 | 7.115 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

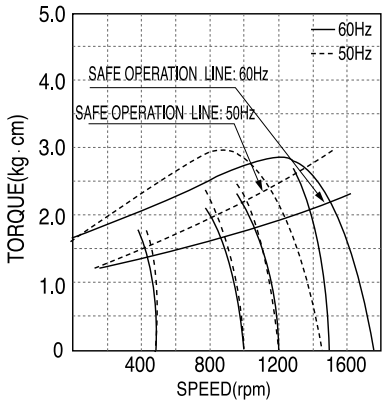
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 4.4 | 5.2 | 7.3 | 8.7 | 10.9 | 13.1 | 14.6 | 18.2 | 21.9 | 26.2 | 26.3 | 32.9 | 39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.431 | 0.510 | 0.715 | 0.853 | 1.068 | 1.284 | 1.431 | 1.784 | 2.146 | 2.568 | 2.577 | 3.224 | 3.861 | 4.635 | 5.155 | 5.821 | 6.987 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

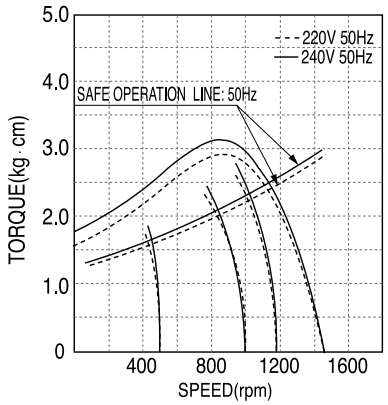
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S8R25GA-S12 S8R25GA-S24
S8R25GA-S12(TP) S8R25GA-S24(TP)
S8R25GA-S12CE S8R25GA-S24CE
S8R25GB-S12 S8R25GB-S24
S8R25GB-S12(TP) S8R25GB-S24(TP)
S8R25GB-S12CE S8R25GB-S24




▲ S8R25GC-S12 S8R25GC-S24
S8R25GC-S12(TP) S8R25GC-S24(TP)
S8R25GC-S12CE S8R25GC-S24CE
S8R25GD-S12 S8R25GD-S24
S8R25GC-S12 S8R25GC-S24(TP)
S8R25GD-S12CE S8R25GD-S24CE

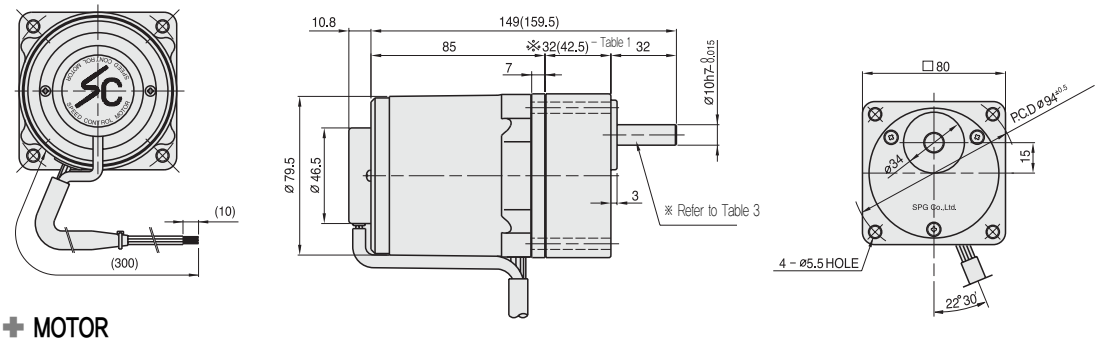



▲ S8R25GX-S12 S8R25GX-S24
S8R25GX-S12CE S8R25GX-S24CE

# DIMENSIONS

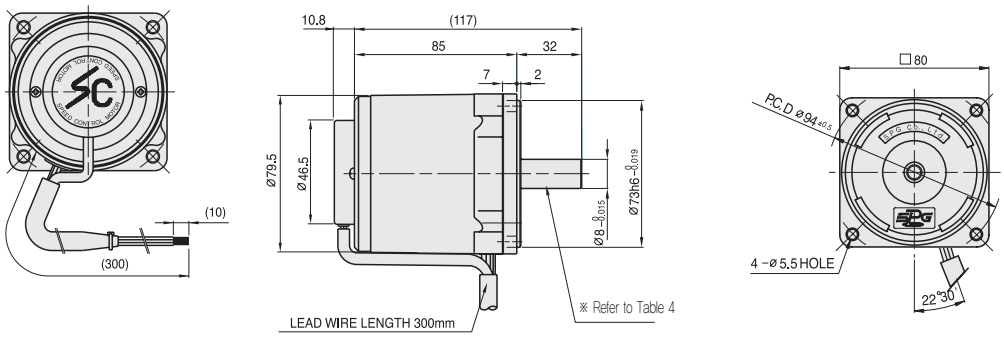
## ✚ GEARED MOTOR

※MOTOR MODEL : S8R(15, 25)G□-S12, S8R(15,25)G□-S24
※HEAD MODEL : S8□A3□~S8□A200□



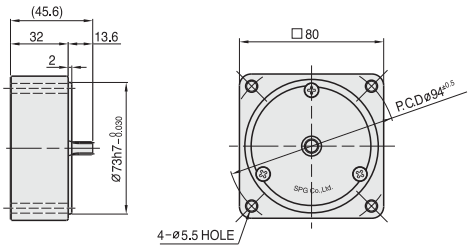

## ✚ MOTOR

• MOTOR MODEL : S8R(15,25)□□-S12, S8R(15,25)□□-S24

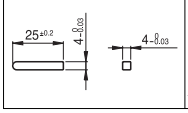
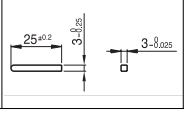



## ✚ INTER-DECIMAL GEAR HEAD

• MODEL : S8GX10B




## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |



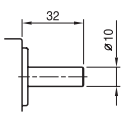
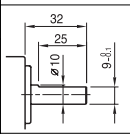
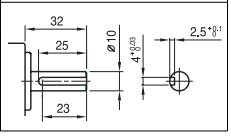
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

## ✚ WEIGHT - (Table2)

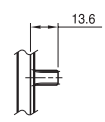
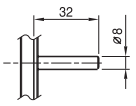
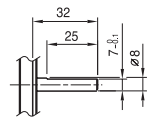
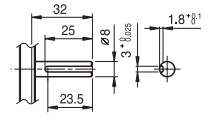
| PART | | WEIGHT(kg) |
|---|---|---|
| 15W MOTOR | | 1.6 |
| 25W MOTOR | | 1.6 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S8SA3□ ~S8SA200□ |  |
| D-CUT TYPE<br>S8DA3□ ~S8DA200□ |  |
| KEY TYPE<br>S8KA3□ ~S8KA200□ |  |



## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S8R15G□-S12<br>S8R25G□-S12<br>S8R15G□-S24<br>S8R25G□-S24 |  |
| STRAIGHT TYPE<br>S8R15S□-S12<br>S8R25S□-S12<br>S8R15S□-S24<br>S8R25S□-S24 |  |
| D-CUT TYPE<br>S8R15D□-S12<br>S8R25D□-S12<br>S8R15D□-S24<br>S8R25D□-S24 |  |
| KEY TYPE<br>S8R15K□-S12<br>S8R25K□-S12<br>S8R15K□-S24<br>S8R25K□-S24 |  |



# 40W

## REVERSIBLE SPEED CONTROL MOTOR
## □90㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9R40GA( )-S12<br>S9R40GA( )-S12(TP)<br>S9R40GA( )-S12CE | SRA02<br>SRA02CE | 4 | 40 | 1Ø 110 | 60 | 30min. | 90-1700 | 2.80 | 0.280 | 1.10 | 0.110 | 3.50 | 0.350 | 15.0 |
| | S9R40GB( )-S12<br>S9R40GB( )-S12(TP)<br>S9R40GB( )-S12CE | SRB02<br>SRB02CE | 4 | 40 | 1Ø 220 | 60 | 30min. | 90-1700 | 2.80 | 0.280 | 1.10 | 0.110 | 3.50 | 0.350 | 4.0 |
| | S9R40GC( )-S12<br>S9R40GC( )-S12(TP)<br>S9R40GC( )-S12CE | SRC02<br>SRC02CE | 4 | 40 | 1Ø 100 | 50 | 30min. | 90-1400 | 3.00 | 0.300 | 1.10 | 0.110 | 3.00 | 0.300 | 15.0 |
| | | | | | | 60 | | 90-1700 | 2.10 | 0.210 | | | | | |
| | S9R40GD( )-S12<br>S9R40GD( )-S12(TP)<br>S9R40GD( )-S12CE | SRD02<br>SRD02CE | 4 | 40 | 1Ø 200 | 50 | 30min. | 90-1400 | 3.00 | 0.300 | 0.95 | 0.095 | 3.00 | 0.300 | 4.0 |
| | | | | | | 60 | | 90-1700 | 2.10 | 0.210 | | | | | |
| | S9R40GX( )-S12<br>S9R40GX( )-S12CE | SRX02<br>SRX02CE | 4 | 40 | 1Ø 220 | 50 | 30min. | 90-1400 | 2.50 | 0.250 | 0.90 | 0.090 | 2.90 | 0.290 | 3.0 |
| | | | | | 1Ø 240 | | | | 3.80 | 0.380 | 0.90 | 0.090 | 3.30 | 0.330 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9R40GX-S12, S9R40GX-S12CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9R40GA( )-S24<br>S9R40GA( )-S24(TP)<br>S9R40GA( )-S24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 40 | 1Ø 110 | 60 | 30min. | 90-1700 | 2.80 | 0.280 | 1.10 | 0.110 | 3.50 | 0.350 | 15.0 |
| | S9R40GB( )-S24<br>S9R40GB( )-S24(TP)<br>S9R40GB( )-S24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 40 | 1Ø 220 | 60 | 30min. | 90-1700 | 2.80 | 0.280 | 1.10 | 0.110 | 3.50 | 0.350 | 4.0 |
| | S9R40GC( )-S24<br>S9R40GC( )-S24(TP)<br>S9R40GC( )-S24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 40 | 1Ø 100 | 50 | 30min. | 90-1400 | 3.00 | 0.300 | 1.10 | 0.110 | 3.00 | 0.300 | 15.0 |
| | | | | | | 60 | | 90-1700 | 2.10 | 0.210 | | | | | |
| | S9R40GD( )-S24<br>S9R40GD( )-S24(TP)<br>S9R40GD( )-S24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 40 | 1Ø 200 | 50 | 30min. | 90-1400 | 3.00 | 0.300 | 0.95 | 0.095 | 3.00 | 0.300 | 4.0 |
| | | | | | | 60 | | 90-1700 | 2.10 | 0.210 | | | | | |
| | S9R40GX( )-S24<br>S9R40GX( )-S24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 40 | 1Ø 220 | 50 | 30min. | 90-1400 | 2.50 | 0.250 | 0.90 | 0.090 | 2.90 | 0.290 | 3.0 |
| | | | | | 1Ø 240 | | | | 3.80 | 0.380 | 0.90 | 0.090 | 3.30 | 0.330 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9R40GX-S24, S9R40GX-S24CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

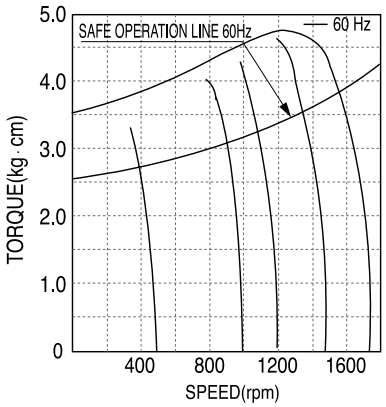
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KB□B( ) | kg-cm | 8.3 | 9.9 | 13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4 | 41.3 | 49.6 | 49.6 | 62.1 | 74.5 | 89.4 | 99.3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.813 | 0.970 | 1.352 | 1.617 | 2.029 | 2.430 | 2.695 | 3.371 | 4.047 | 4.861 | 4.861 | 6.086 | 7.301 | 8.761 | 9.731 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

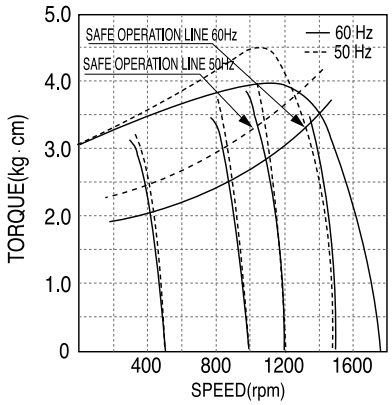
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KB□B( ) | kg-cm | 6.8 | 8.2 | 11.3 | 13.6 | 17.0 | 20.4 | 22.7 | 28.4 | 34.0 | 40.8 | 40.9 | 51.1 | 61.3 | 73.6 | 81.8 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.666 | 0.804 | 1.107 | 1.333 | 1.666 | 1.999 | 2.225 | 2.783 | 3.332 | 3.998 | 4.008 | 5.008 | 6.007 | 7.213 | 8.016 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

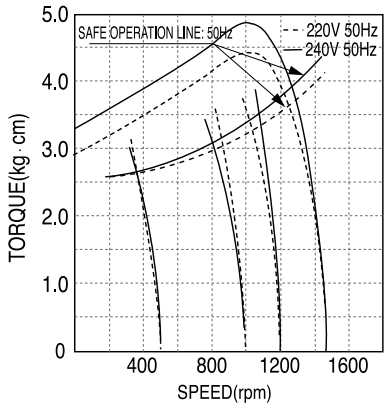
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.




▲ S9R40GA()-S12 S9R40GA()-S24
S9R40GA()-S12(TP) S9R40GA()-S24(TP)
S9R40GA()-S12CE S9R40GA()-S24CE
S9R40GB()-S12 S9R40GB()-S24
S9R40GB()-S12(TP) S9R40GB()-S24(TP)
S9R40GB()-S12CE S9R40GB()-S24




▲ S9R40GC()-S12 S9R40GC()-S24
S9R40GC()-S12(TP) S9R40GC()-S24(TP)
S9R40GC()-S12CE S9R40GC()-S24CE
S9R40GD()-S12 S9R40GD()-S24
S9R40GC()-S12 S9R40GC()-S24(TP)
S9R40GD()-S12CE S9R40GD()-S24CE

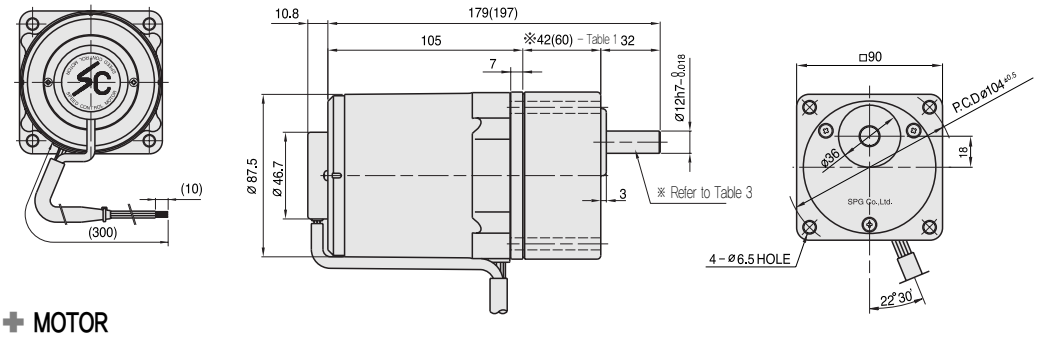



▲ S9R40GX()-S12 S9R40GX()-S24
S9R40GX()-S12CE S9R40GX()-S24CE

# DIMENSIONS

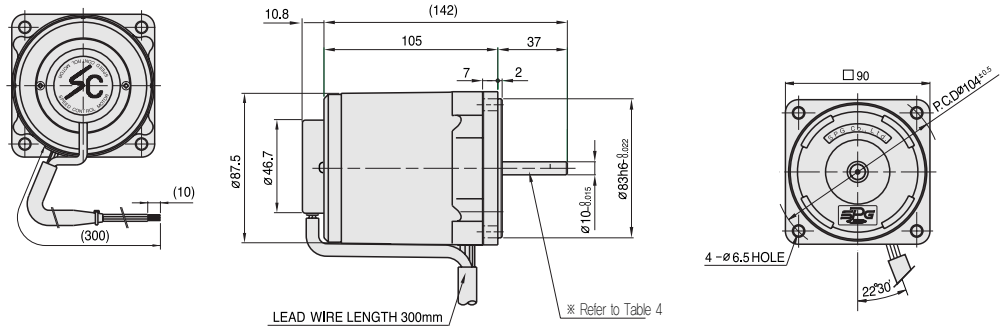
## ✚ GEARED MOTOR

※MOTOR MODEL : S9R40G□□-S12, S9R40G□□-S24
※HEAD MODEL : S9□B3□~S9□B200□□



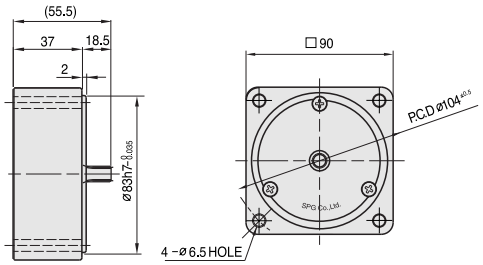

## ✚ MOTOR

• MOTOR MODEL : S9R40□□□-S12, S9R40□□□-S24

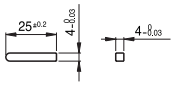
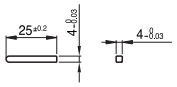



## ✚ INTER-DECIMAL GEAR HEAD

• MODEL : S9GX10B(H,L)




## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

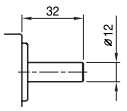
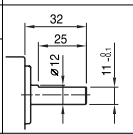
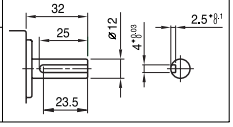
## ✚ ※26(35) - (Table 1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S9□B3□ ~ S9□B18□ | 42 |
| S9□B20□ ~ S9□B200□ | 60 |

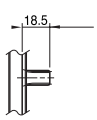
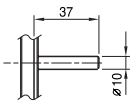
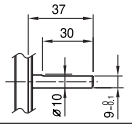
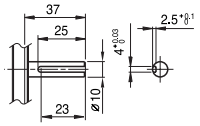
## ✚ WEIGHT - (Table 2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.48 |
| DECIMAL GEAR HEAD | | 0.60 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□□ ~S9□B40□□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

## ✚ SPEC for output shaft of gearhead - (Table 3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SB3□ ~S9SB200□ |  |
| D-CUT TYPE<br>S9DB3□ ~S9DB200□ |  |
| KEY TYPE<br>S9KB3□ ~S9KB200□ |  |

## ✚ SPEC for output shaft of motor - (Table 4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R40G□□-S12<br>S9R40G□□-S24 |  |
| STRAIGHT TYPE<br>S9R40S□□-S12<br>S9R40S□□-S24 |  |
| D-CUT TYPE<br>S9R40D□□-S12<br>S9R40D□□-S24 |  |
| KEY TYPE<br>S9R40K□-S12<br>S9R40K□-S24 |  |


SPG
MOTOR

# SPEED CONTROL ELECTROMAGNETIC BRAKE MOTOR (E · S MOTOR)

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# 6W

## E · S MOTOR □60㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 60 | S6R06GA-ES12<br>S6R06GA-ES12CE | SRA01<br>SRA01CE | 4 | 6 | 1Ø 110 | 60 | 30min. | 90-1700 | 0.62 | 0.062 | 0.45 | 0.045 | 0.55 | 0.055 | 3.0 |
| | S6R06GB-ES12<br>S6R06GB-ES12CE | SRB01<br>SRB01CE | 4 | 6 | 1Ø 220 | 60 | 30min. | 90-1700 | 0.62 | 0.062 | 0.45 | 0.045 | 0.55 | 0.055 | 0.8 |
| | S6R06GC-ES12<br>S6R06GC-ES12CE | SRC01<br>SRC01CE | 4 | 6 | 1Ø 100 | 50<br>60 | 30min. | 90-1400<br>90-1700 | 0.56 | 0.056 | 0.38 | 0.038 | 0.50 | 0.050 | 3.0 |
| | S6R06GD-ES12<br>S6R06GD-ES12CE | SRD01<br>SRD01CE | 4 | 6 | 1Ø 200 | 50<br>60 | 30min. | 90-1400<br>90-1700 | 0.55 | 0.055 | 0.38 | 0.038 | 0.50 | 0.050 | 0.8 |
| | S6R06GX-ES12<br>S6R06GX-ES12CE | SRX01<br>SRX01CE | 4 | 6 | 1Ø 220<br>1Ø 240 | 50 | 30min. | 90-1400 | 0.47<br>0.52 | 0.047<br>0.052 | 0.38<br>0.38 | 0.038<br>0.038 | 0.45<br>0.52 | 0.045<br>0.052 | 0.7 |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SOCKET SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 60 | S6R06GA-ES24<br>S6R06GA-ES24CE | SSA01-SRSS<br>SSA03-SRSS | 4 | 6 | 1Ø 110 | 60 | 30min. | 90-1700 | 0.62 | 0.062 | 0.45 | 0.045 | 0.55 | 0.055 | 3.0 |
| | S6R06GB-ES24<br>S6R06GB-ES24CE | SSB01-SRSS<br>SSB03-SRSS | 4 | 6 | 1Ø 220 | 60 | 30min. | 90-1700 | 0.62 | 0.062 | 0.45 | 0.045 | 0.55 | 0.055 | 0.8 |
| | S6R06GC-ES24<br>S6R06GC-ES24CE | SSC01-SRSS<br>SSC03-SRSS | 4 | 6 | 1Ø 100 | 50<br>60 | 30min. | 90-1400<br>90-1700 | 0.56 | 0.056 | 0.38 | 0.038 | 0.50 | 0.050 | 3.0 |
| | S6R06GD-ES24<br>S6R06GD-ES24CE | SSD01-SRSS<br>SSD03-SRSS | 4 | 6 | 1Ø 200 | 50<br>60 | 30min. | 90-1400<br>90-1700 | 0.55 | 0.055 | 0.38 | 0.038 | 0.50 | 0.050 | 0.8 |
| | S6R06GX-ES24<br>S6R06GX-ES24CE | SSX01-SRSS<br>SSX03-SRSS | 4 | 6 | 1Ø 220<br>1Ø 240 | 50 | 30min. | 90-1400 | 0.47<br>0.52 | 0.047<br>0.052 | 0.38<br>0.38 | 0.038<br>0.038 | 0.45<br>0.52 | 0.045<br>0.052 | 0.7 |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ "L" or "H" type does not apply to motors under 40W.

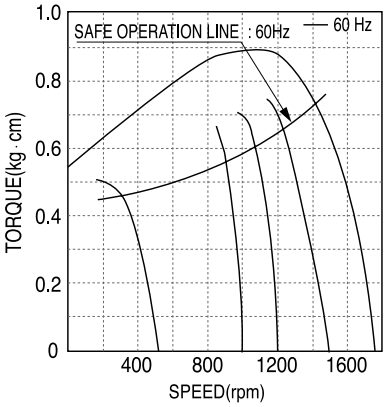
## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 | 6 |
| S6DA□B | kg-cm | 1.3 | 1.5 | 2.1 | 2.6 | 3.2 | 3.9 | 4.3 | 5.4 | 6.4 | 7.7 | 7.7 | 9.7 | 11.6 | 13.9 | 15.5 | 17.5 | 21.0 | 26.2 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.127 | 0.147 | 0.206 | 0.255 | 0.314 | 0.382 | 0.421 | 0.529 | 0.627 | 0.755 | 0.755 | 0.951 | 1.137 | 1.362 | 1.519 | 1.715 | 2.058 | 2.568 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

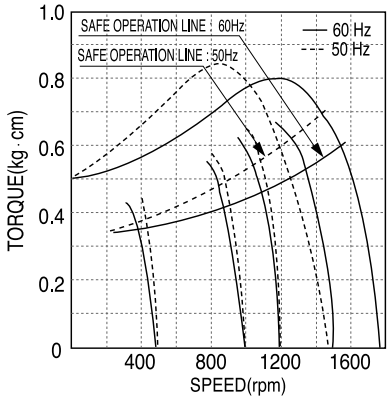
## 60Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 | 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 | 7.2 |
| S6DA□B | kg-cm | 1.0 | 1.3 | 1.7 | 2.1 | 2.6 | 3.1 | 3.5 | 4.4 | 5.2 | 6.3 | 6.3 | 7.8 | 9.4 | 11.3 | 12.6 | 14.2 | 17.0 | 21.3 | 25.5 | 28.4 | 30.0 | 30.0 | 30.0 | 30.0 | 30.0 |
| | N·m | 0.098 | 0.127 | 0.167 | 0.206 | 0.255 | 0.304 | 0.343 | 0.431 | 0.510 | 0.617 | 0.617 | 0.764 | 0.921 | 1.107 | 1.235 | 1.392 | 1.666 | 2.087 | 2.499 | 2.783 | 2.942 | 2.942 | 2.942 | 2.942 | 2.942 |

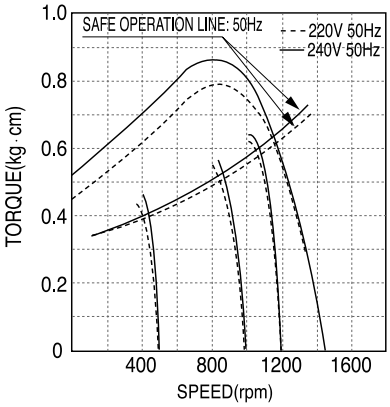
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 30 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S6R06GA-ES12 S6R06GA-ES24
S6R06GA-ES12CE S6R06GA-ES24CE
S6R06GB-ES12 S6R06GB-ES24
S6R06GB-ES12CE S6R06GB-ES24




▲ S6R06GC-ES12 S6R06GC-ES24
S6R06GC-ES12CE S6R06GC-ES24CE
S6R06GD-ES12 S6R06GD-ES24
S6R06GD-ES12CE S6R06GD-ES24CE

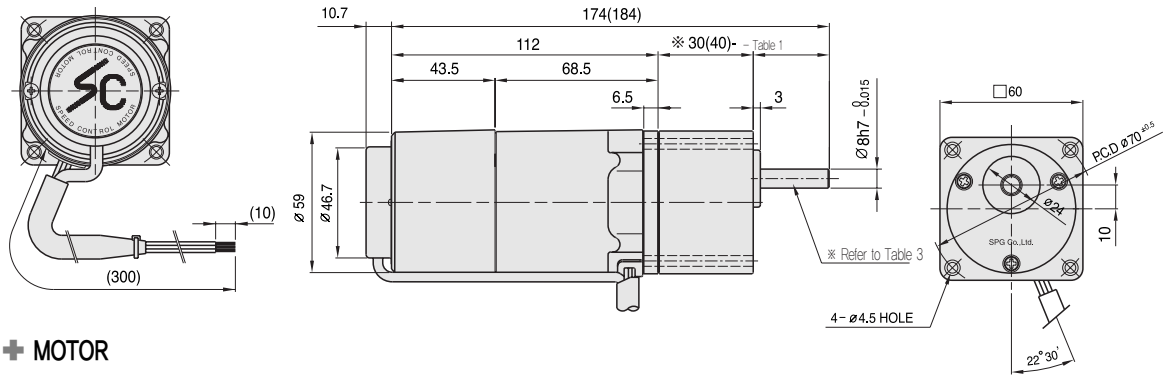



▲ S6R06GX-ES12 S6R06GX-ES24
S6R06GX-ES12CE S6R06GX-ES24CE

# DIMENSIONS

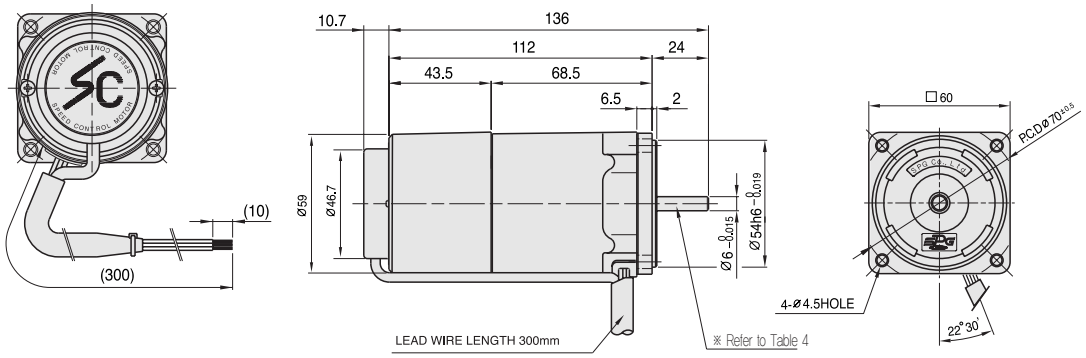
## ✚ GEARED MOTOR

※MOTOR MODEL : S6R06G□-ES12, S6R06G□-ES24
※HEAD MODEL : S6□A3□~S6□A250□



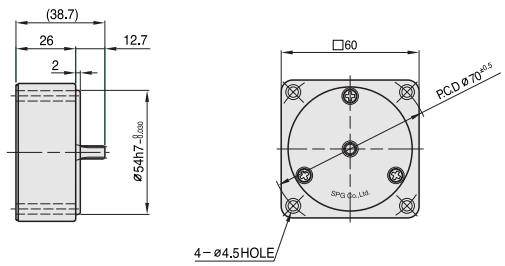

## ✚ MOTOR

※MOTOR MODEL : S6R06□□-ES12, S6R06□□-ES24

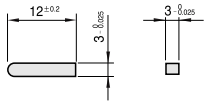



## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S6GX10B




## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



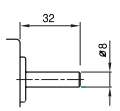
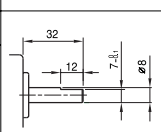
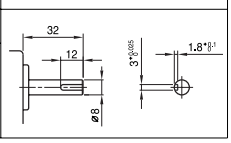
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S6□A3□ ~ S6□A18□ | 30 |
| S6□A20□ ~ S6□A250□ | 40 |

## ✚ WEIGHT - (Table2)

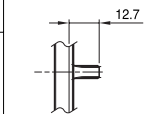
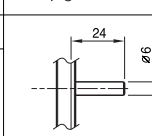
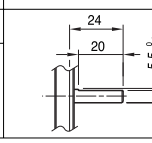
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.00 |
| DECIMAL GEAR HEAD | | 0.18 |
| GEAR HEAD | S6□A3□ ~S6□A18□ | 0.24 |
| | S6□A20□ ~S6□A40□ | 0.30 |
| | S6□A50□ ~S6□A250□ | 0.33 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S6SA3□ ~S6SA250□ |  |
| D-CUT TYPE<br>S6DA3□ ~S6DA250□ |  |
| KEY TYPE<br>S6KA3□ ~S6KA250□ |  |



## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S6R06G□-ES12<br>S6R06G□-ES24 |  |
| STRAIGHT TYPE<br>S6R06S□-ES12<br>S6R06S□-ES24 |  |
| D-CUT TYPE<br>S6R60D□-ES12<br>S6R60D□-ES24 |  |



# 15W

## E · S MOTOR □70㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 70 | S7R15GA-ES12<br>S7R15GA-ES12(TP)<br>S7R15GA-ES12CE | SRA02<br>SRA02CE | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 1.40 | 0.140 | 0.70 | 0.070 | 1.30 | 0.130 | 6.0 |
| | S7R15GB-ES12<br>S7R15GB-ES12(TP)<br>S7R15GB-ES12CE | SRB02<br>SRB02CE | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 1.40 | 0.140 | 0.70 | 0.070 | 1.30 | 0.130 | 1.5 |
| | S7R15GC-ES12<br>S7R15GC-ES12(TP)<br>S7R15GC-ES12CE | SRC02<br>SRC02CE | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 1.10 | 0.110 | 0.60 | 0.060 | 1.00 | 0.100 | 6.0 |
| | | | | | | 60 | | 90-1700 | 0.90 | 0.090 | | | | | |
| | S7R15GD-ES12<br>S7R15GD-ES12(TP)<br>S7R15GD-ES12CE | SRD02<br>SRD02CE | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 1.10 | 0.110 | 0.60 | 0.060 | 1.00 | 0.100 | 1.5 |
| | | | | | | 60 | | 90-1700 | 0.90 | 0.090 | | | | | |
| | S7R15GX-ES12<br>S7R15GX-ES12CE | SRX02<br>SRX02CE | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 1.00 | 0.100 | 0.55 | 0.055 | 0.90 | 0.090 | 1.2 |
| | | | | | 1Ø 240 | | | | 1.15 | 0.115 | 0.60 | 0.060 | 1.00 | 0.100 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S7R15GX-ES12, S7R15GX-ES12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 70 | S7R15GA-ES24<br>S7R15GA-ES24(TP)<br>S7R15GA-ES24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 1.40 | 0.140 | 0.70 | 0.070 | 1.30 | 0.130 | 6.0 |
| | S7R15GB-ES24<br>S7R15GB-ES24(TP)<br>S7R15GB-ES24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 1.40 | 0.140 | 0.70 | 0.070 | 1.30 | 0.130 | 1.5 |
| | S7R15GC-ES24<br>S7R15GC-ES24(TP)<br>S7R15GC-ES24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 1.10 | 0.110 | 0.60 | 0.060 | 1.00 | 0.100 | 6.0 |
| | | | | | | 60 | | 90-1700 | 0.90 | 0.090 | | | | | |
| | S7R15GD-ES24<br>S7R15GD-ES24(TP)<br>S7R15GD-ES24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 1.10 | 0.110 | 0.60 | 0.060 | 1.00 | 0.100 | 1.5 |
| | | | | | | 60 | | 90-1700 | 0.90 | 0.090 | | | | | |
| | S7R15GX-ES24<br>S7R15GX-ES24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 1.00 | 0.100 | 0.55 | 0.055 | 0.90 | 0.090 | 1.2 |
| | | | | | 1Ø 240 | | | | 1.15 | 0.115 | 0.60 | 0.060 | 1.00 | 0.100 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S7R15GX-ES24, S7R15GX-ES24CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

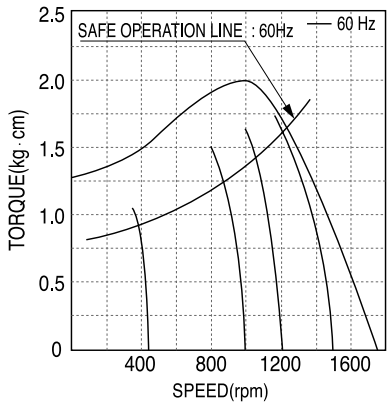
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S7KA□B | kg-cm | 3.2 | 3.9 | 5.4 | 6.5 | 8.1 | 9.7 | 10.8 | 13.5 | 16.2 | 19.4 | 19.4 | 24.2 | 29.1 | 34.9 | 38.8 | 43.6 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.314 | 0.382 | 0.530 | 0.637 | 0.794 | 0.951 | 1.059 | 1.324 | 1.587 | 1.902 | 1.902 | 2.373 | 2.854 | 3.423 | 3.805 | 4.276 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

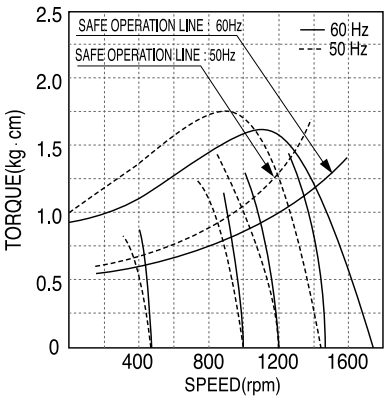
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S7KA□B | kg-cm | 3.0 | 3.6 | 5.1 | 6.1 | 7.6 | 9.1 | 10.1 | 12.7 | 15.2 | 18.2 | 18.2 | 22.8 | 27.3 | 32.8 | 36.5 | 41.0 | 49.2 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 |
| | N·m | 0.294 | 0.353 | 0.500 | 0.598 | 0.745 | 0.892 | 0.990 | 1.245 | 1.491 | 1.785 | 1.785 | 2.236 | 2.677 | 3.217 | 3.579 | 4.021 | 4.825 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 | 4.900 |

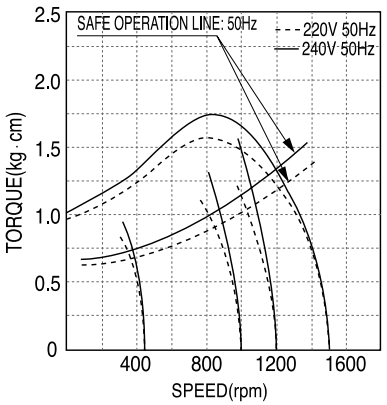
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S7R15GA-ES12 S7R15GA-ES24
S7R15GA-ES12(TP) S7R15GA-ES24(TP)
S7R15GA-ES12CE S7R15GA-ES24CE
S7R15GB-ES12 S7R15GB-ES24
S7R15GB-ES12(TP) S7R15GB-ES24(TP)
S7R15GB-ES12CE S7R15GB-ES24CE




▲ S7R15GC-ES12 S7R15GC-ES24
S7R15GC-ES12(TP) S7R15GC-ES24(TP)
S7R15GC-ES12CE S7R15GC-ES24CE
S7R15GD-ES12 S7R15GD-ES24
S7R15GD-ES12(TP) S7R15GD-ES24(TP)
S7R15GD-ES12CE S7R15GD-ES24CE

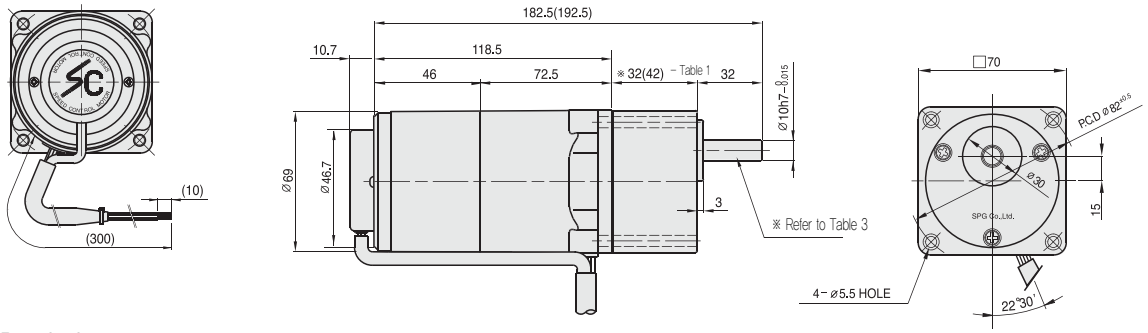



▲ S7R15GX-ES12 S7R15GX-ES24
S7R15GX-ES12CE S7R15GX-ES24CE

# DIMENSIONS

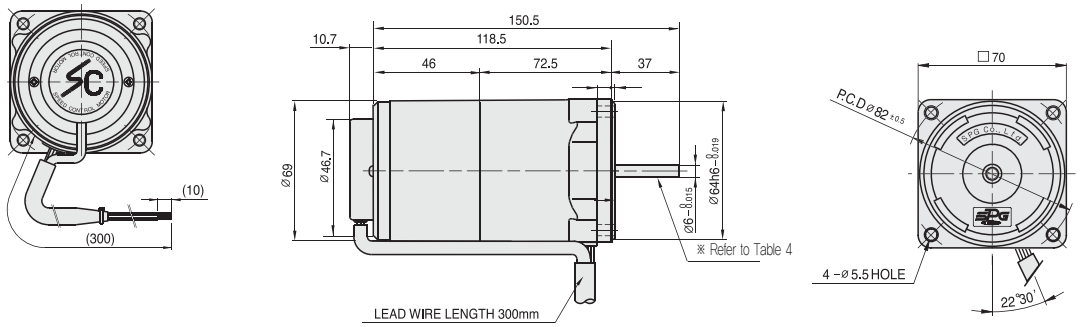
## ✚ GEARED MOTOR

※MOTOR MODEL : S7R15G□-ES12, S7R15G□-ES24
※HEAD MODEL : S7□A3□~S7□A200□



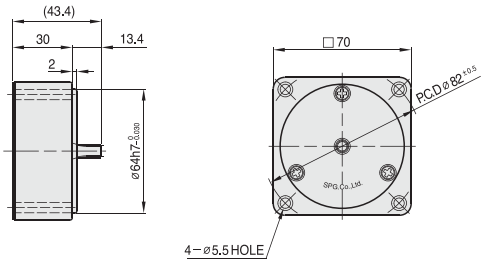

## ✚ MOTOR

※MOTOR MODEL : S7R15□□-ES12, S7R15□□-ES24

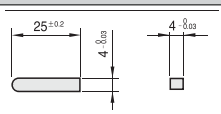



## ✚ INTER-DECIMAL GEAR HEAD

※ MODEL : S7GX10B




## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



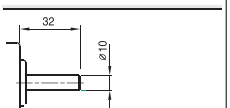
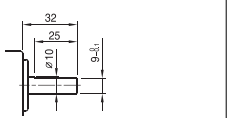
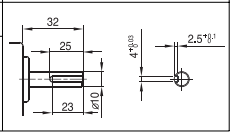
## ✚ ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S7□A3□ ~ S7□A18□ | 32 |
| S7□A20□ ~ S7□A200□ | 42 |

## ✚ WEIGHT - (Table2)

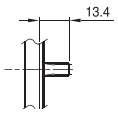
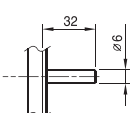
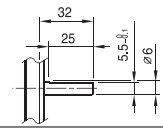
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 1.04 |
| DECIMAL GEAR HEAD | | 0.32 |
| GEAR HEAD | S7□A3□ ~S7□A18□ | 0.38 |
| | S7□A20□ ~S7□A40□ | 0.47 |
| | S7□A50□ ~S7□A200□ | 0.52 |

## ✚ SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S7SA3□ ~S7SA200□ | |
| D-CUT TYPE |  |
| S7DA3□ ~S7DA200□ | |
| KEY TYPE |  |
| S7KA3□ ~S7KA200□ | |



## ✚ SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE |  |
| S7R15G□-ES12 S7R15G□-ES24 | |
| STRAIGHT TYPE |  |
| S7R15S□-ES12 S7R15S□-ES24 | |
| D-CUT TYPE |  |
| S7R15D□-ES12 S7R15D□-ES24 | |



# 15W

## E · S MOTOR □80㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8R15GA-ES12<br>S8R15GA-ES12(TP)<br>S8R15GA-ES12CE | SRA02<br>SRA02CE | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 1.45 | 0.145 | 0.60 | 0.060 | 0.90 | 0.090 | 6.0 |
| | S8R15GB-ES12<br>S8R15GB-ES12(TP)<br>S8R15GB-ES12CE | SRB02<br>SRB02CE | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 1.45 | 0.145 | 0.55 | 0.055 | 0.90 | 0.090 | 1.5 |
| | S8R15GC-ES12<br>S8R15GC-ES12(TP)<br>S8R15GC-ES12CE | SRC02<br>SRC02CE | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 1.32 | 0.132 | 0.50 | 0.050 | 0.75 | 0.075 | 6.0 |
| | | | | | | 60 | | 90-1700 | 1.15 | 0.115 | | | | | |
| | S8R15GD-ES12<br>S8R15GD-ES12(TP)<br>S8R15GD-ES12CE | SRD02<br>SRD02CE | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 1.32 | 0.132 | 0.50 | 0.050 | 0.75 | 0.075 | 1.5 |
| | | | | | | 60 | | 90-1700 | 1.15 | 0.115 | | | | | |
| | S8R15GX-ES12 | SRX02<br>SRX02CE | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 1.35 | 0.135 | 0.50 | 0.050 | 0.75 | 0.075 | 1.2 |
| | S8R15GX-ES12CE | | | | 1Ø 240 | | | | 1.44 | 0.144 | 0.50 | 0.050 | 0.86 | 0.086 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8R15GX-ES12, S8R15GX-ES12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8R15GA-ES24<br>S8R15GA-ES24(TP)<br>S8R15GA-ES24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 15 | 1Ø 110 | 60 | 30min. | 90-1700 | 1.45 | 0.145 | 0.60 | 0.060 | 0.90 | 0.090 | 6.0 |
| | S8R15GB-ES24<br>S8R15GB-ES24(TP)<br>S8R15GB-ES24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 15 | 1Ø 220 | 60 | 30min. | 90-1700 | 1.45 | 0.145 | 0.55 | 0.055 | 0.90 | 0.090 | 1.5 |
| | S8R15GC-ES24<br>S8R15GC-ES24(TP)<br>S8R15GC-ES24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 15 | 1Ø 100 | 50 | 30min. | 90-1400 | 1.32 | 0.132 | 0.50 | 0.050 | 0.75 | 0.075 | 6.0 |
| | | | | | | 60 | | 90-1700 | 1.15 | 0.115 | | | | | |
| | S8R15GD-ES24<br>S8R15GD-ES24(TP)<br>S8R15GD-ES24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 15 | 1Ø 200 | 50 | 30min. | 90-1400 | 1.32 | 0.132 | 0.50 | 0.050 | 0.75 | 0.075 | 1.5 |
| | | | | | | 60 | | 90-1700 | 1.15 | 0.115 | | | | | |
| | S8R15GX-ES24 | SSX02-SRSS<br>SSX03-SRSS | 4 | 15 | 1Ø 220 | 50 | 30min. | 90-1400 | 1.35 | 0.135 | 0.50 | 0.050 | 0.75 | 0.075 | 1.2 |
| | S8R15GX-ES24CE | | | | 1Ø 240 | | | | 1.44 | 0.144 | 0.50 | 0.050 | 0.86 | 0.086 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8R15GX-ES24, S8R15GX-ES24CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

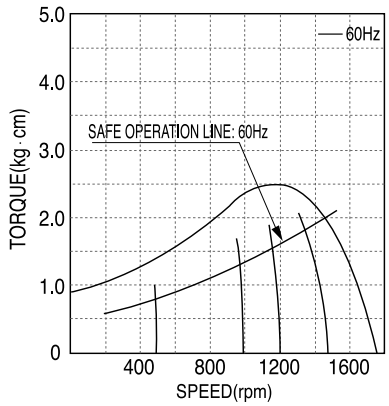
## 50Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 3.4 | 4.1 | 5.7 | 6.8 | 8.5 | 10.2 | 11.3 | 14.2 | 17.0 | 20.4 | 20.4 | 25.6 | 30.7 | 36.8 | 40.9 | 46.2 | 55.4 | 69.2 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N·m | 0.333 | 0.402 | 0.559 | 0.666 | 0.833 | 1.000 | 1.107 | 1.392 | 1.666 | 1.999 | 1.999 | 2.509 | 3.009 | 3.606 | 4.008 | 4.530 | 5.433 | 6.786 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

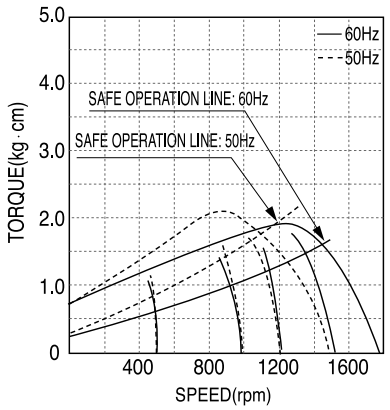
## 60Hz

| MODEL | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 2.9 | 3.5 | 4.9 | 5.8 | 7.3 | 8.7 | 9.7 | 12.2 | 14.6 | 17.5 | 17.5 | 21.9 | 26.3 | 31.5 | 35.0 | 39.6 | 47.5 | 59.4 | 71.3 | 79.2 | 80 | 80 | 80 | 80 |
| | N·m | 0.284 | 0.343 | 0.481 | 0.568 | 0.715 | 0.853 | 0.951 | 1.196 | 1.432 | 1.715 | 1.715 | 2.146 | 2.577 | 3.087 | 3.430 | 3.881 | 4.658 | 5.825 | 6.992 | 7.767 | 7.840 | 7.840 | 7.840 | 7.840 |

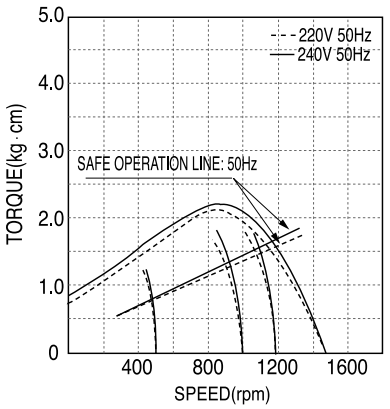
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S8R15GA-ES12 S8R15GA-ES24
S8R15GA-ES12(TP) S8R15GA-ES24(TP)
S8R15GA-ES12CE S8R15GA-ES24CE
S8R15GB-ES12 S8R15GB-ES24
S8R15GB-ES12(TP) S8R15GB-ES24(TP)
S8R15GB-ES12CE S8R15GB-ES24CE




▲ S8R15GC-ES12 S8R15GC-ES24
S8R15GC-ES12(TP) S8R15GC-ES24(TP)
S8R15GC-ES12CE S8R15GC-ES24CE
S8R15GD-ES12 S8R15GD-ES24
S8R15GD-ES12(TP) S8R15GD-ES24(TP)
S8R15GD-ES12CE S8R15GD-ES24CE




▲ S8R15GX-ES12 S8R15GX-ES24
S8R15GX-ES12CE S8R15GX-ES24CE



# 25W

## E · S MOTOR □80㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 80 | S8R25GA-ES12<br>S8R25GA-ES12(TP)<br>S8R25GA-ES12CE | SRA02<br>SRA02CE | 4 | 25 | 1Ø 110 | 60 | 30min. | 90-1700 | 2.45 | 0.245 | 0.90 | 0.090 | 1.90 | 0.190 | 10.0 |
| | S8R25GB-ES12<br>S8R25GB-ES12(TP)<br>S8R25GB-ES12CE | SRB02<br>SRB02CE | 4 | 25 | 1Ø 220 | 60 | 30min. | 90-1700 | 2.45 | 0.245 | 0.90 | 0.090 | 1.90 | 0.190 | 2.5 |
| | S8R25GC-ES12<br>S8R25GC-ES12(TP)<br>S8R25GC-ES12CE | SRC02<br>SRC02CE | 4 | 25 | 1Ø 100 | 50 | 30min. | 90-1400 | 2.25 | 0.225 | 0.75 | 0.075 | 1.75 | 0.175 | 10.0 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S8R25GD-ES12<br>S8R25GD-ES12(TP)<br>S8R25GD-ES12CE | SRD02<br>SRD02CE | 4 | 25 | 1Ø 200 | 50 | 30min. | 90-1400 | 2.25 | 0.225 | 0.75 | 0.075 | 1.75 | 0.175 | 2.5 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S8R25GX-ES12<br>S8R25GX-ES12CE | SRX02<br>SRX02CE | 4 | 25 | 1Ø 220 | 50 | 30min. | 90-1400 | 2.30 | 0.230 | 0.75 | 0.075 | 1.75 | 0.175 | 2.0 |
| | | | | | 1Ø 240 | | | | 2.45 | 0.245 | 0.75 | 0.075 | 1.860 | 0.186 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8R25GX-ES12, S8R25GX-ES12CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | kg-cm) | (N-m) | kg-cm) | (N-m) | kg-cm) | (N-m) | (μF) |
| 80 | S8R25GA-ES24<br>S8R25GA-ES24(TP)<br>S8R25GA-ES24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 25 | 1Ø 110 | 60 | 30min. | 90-1700 | 2.45 | 0.245 | 0.90 | 0.090 | 1.90 | 0.190 | 10.0 |
| | S8R25GB-ES24<br>S8R25GB-ES24(TP)<br>S8R25GB-ES24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 25 | 1Ø 220 | 60 | 30min. | 90-1700 | 2.45 | 0.245 | 0.90 | 0.090 | 1.90 | 0.190 | 2.5 |
| | S8R25GC-ES24<br>S8R25GC-ES24(TP)<br>S8R25GC-ES24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 25 | 1Ø 100 | 50 | 30min. | 90-1400 | 2.25 | 0.225 | 0.75 | 0.075 | 1.75 | 0.175 | 10.0 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S8R25GD-ES24<br>S8R25GD-ES24(TP)<br>S8R25GD-ES24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 25 | 1Ø 200 | 50 | 30min. | 90-1400 | 2.25 | 0.225 | 0.75 | 0.075 | 1.75 | 0.175 | 2.5 |
| | | | | | | 60 | | 90-1700 | 2.00 | 0.200 | | | | | |
| | S8R25GX-ES24<br>S8R25GX-ES24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 25 | 1Ø 220 | 50 | 30min. | 90-1400 | 2.30 | 0.230 | 0.75 | 0.075 | 1.75 | 0.175 | 2.0 |
| | | | | | 1Ø 240 | | | | 2.45 | 0.245 | 0.75 | 0.075 | 1.860 | 0.186 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S8R25GX-ES24, S8R25GX-ES24CE is thermally protected type with TP mounted.
❖ "L" or "H" type does not apply to motors under 40W.

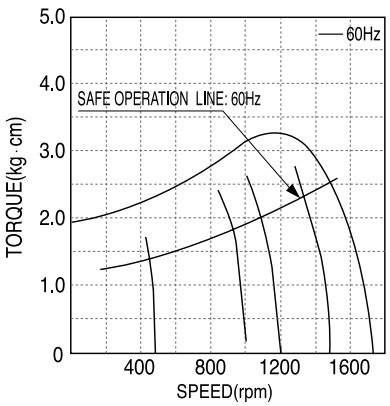
## 50Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S8KA□B | kg-cm | 5.3 | 6.4 | 8.9 | 10.7 | 13.4 | 16.0 | 17.8 | 22.3 | 26.7 | 32.1 | 32.1 | 40.2 | 48.2 | 57.8 | 64.2 | 72.6 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.519 | 0.627 | 0.872 | 1.049 | 1.313 | 1.568 | 1.744 | 2.185 | 2.617 | 3.146 | 3.146 | 3.940 | 4.724 | 5.664 | 6.292 | 7.115 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

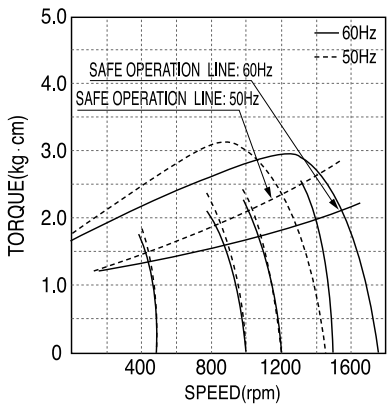
## 60Hz

| GEAR RATIO / MODEL | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S8KA□B | kg-cm | 4.4 | 5.2 | 7.3 | 8.7 | 10.9 | 13.1 | 14.6 | 18.2 | 21.9 | 26.2 | 26.3 | 32.9 | 39.4 | 47.3 | 52.6 | 59.4 | 71.3 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 | 80.0 |
| | N·m | 0.431 | 0.510 | 0.715 | 0.853 | 1.068 | 1.284 | 1.431 | 1.784 | 2.146 | 2.568 | 2.577 | 3.224 | 3.861 | 4.635 | 5.155 | 5.821 | 6.987 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 | 7.840 |

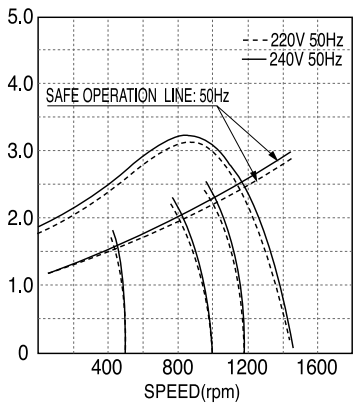
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ "L" or "H" type does not apply to motors under 40W.




▲ S8R25GA-ES12 S8R25GA-ES24
S8R25GA-ES12(TP) S8R25GA-ES24(TP)
S8R25GA-ES12CE S8R25GA-ES24CE
S8R25GB-ES12 S8R25GB-ES24
S8R25GB-ES12(TP) S8R25GB-ES24(TP)
S8R25GB-ES12CE S8R25GB-ES24CE




▲ S8R25GC-ES12 S8R25GC-ES24
S8R25GC-ES12(TP) S8R25GC-ES24(TP)
S8R25GC-ES12CE S8R25GC-ES24CE
S8R25GD-ES12 S8R25GD-ES24
S8R25GD-ES12(TP) S8R25GD-ES24(TP)
S8R25GD-ES12CE S8R25GD-ES24CE

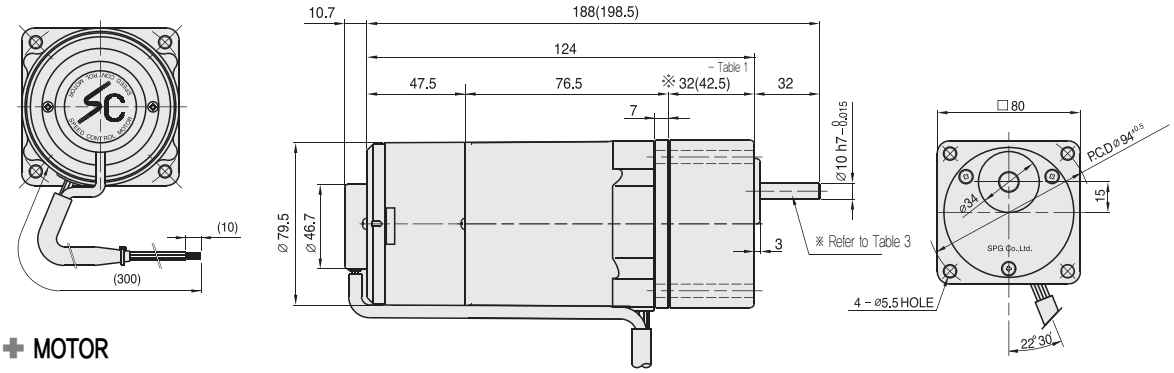



▲ S8R25GX-ES12 S8R25GX-ES24
S8R25GX-ES12CE S8R25GX-ES24CE

# DIMENSIONS

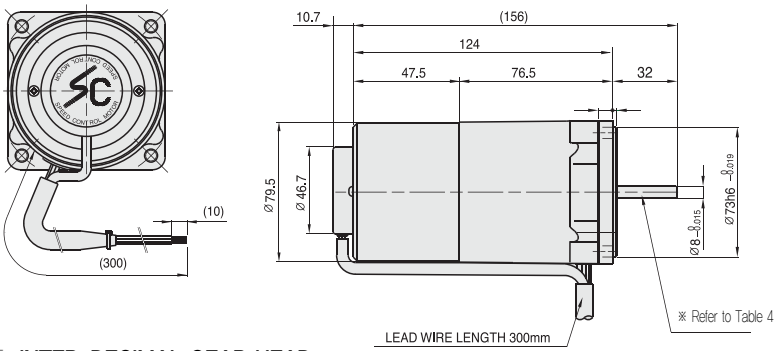
## ✚ GEARED MOTOR

※MOTOR MODEL : S8R(15,25)G□-ES12, S8R(15,25)G□-ES24
※HEAD MODEL : S8□A3□~S8□A200□



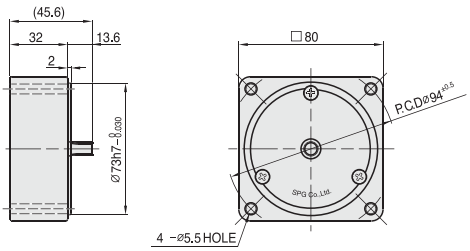

## ✚ MOTOR

※MOTOR MODEL : S8R(15,25)□□-ES12, S8R(15,25)□□-ES24




## ✚ INTER-DECIMAL GEAR HEAD

※MODEL : S9GX10B(H,L)



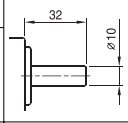
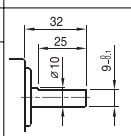
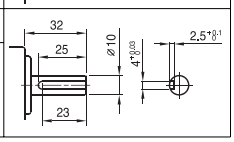

## ✚ ※26(35) - (Table 1)

| GEAR RATIO | SIZE(㎜) |
|---|---|
| S8□A3□ ~ S8□A18□ | 32 |
| S8□A20□ ~ S8□A200□ | 42.5 |

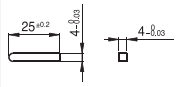
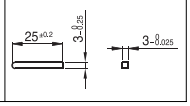
## ✚ WEIGHT - (Table 2)

| PART | | WEIGHT(kg) |
|---|---|---|
| 15W MOTOR | | 2.00 |
| 25W MOTOR | | 2.00 |
| DECIMAL GEAR HEAD | | 0.43 |
| GEAR HEAD | S8□A3□ ~S8□A18□ | 0.43 |
| | S8□A20□ ~S8□A40□ | 0.57 |
| | S8□A50□ ~S8□A200□ | 0.61 |

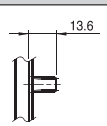
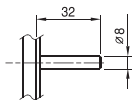
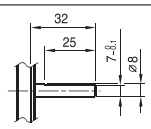
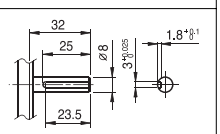
## ✚ SPEC for output shaft of gearhead - (Table 3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S8SA3□ ~S8SA200□ | |
| D-CUT TYPE |  |
| S8DA3□ ~S8DA200□ | |
| KEY TYPE |  |
| S8KA3□ ~S8KA200□ | |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## ✚ SPEC for output shaft of motor - (Table 4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE |  |
| S8R15G□-ES12<br>S8R25G□-ES12<br>S8R15G□-ES24<br>S8R25G□-ES24 | |
| STRAIGHT TYPE |  |
| S8R15S□-ES12<br>S8R25S□-ES12<br>S8R15S□-ES24<br>S8R25S□-ES24 | |
| D-CUT TYPE |  |
| S8R15D□-ES12<br>S8R25D□-ES12<br>S8R15D□-ES24<br>S8R25D□-ES24 | |
| KEY TYPE |  |
| S8R15K□-ES12<br>S8R15K□-ES24<br>S8R15K□-ES12<br>S8R15K□-ES24 | |



# 40W

## E · S MOTOR □90㎜ LEAD WIRE TYPE

## SPECIFICATION SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9R40GA( )-ES12<br>S9R40GA( )-ES12(TP)<br>S9R40GA( )-ES12CE | SRA02<br>SRA02CE | 4 | 40 | 1Ø 110 | 60 | 30min. | 90-1700 | 3.00 | 0.300 | 1.20 | 0.120 | 3.75 | 0.375 | 15.0 |
| | S9R40GB( )-ES12<br>S9R40GB( )-ES12(TP)<br>S9R40GB( )-ES12CE | SRB02<br>SRB02CE | 4 | 40 | 1Ø 220 | 60 | 30min. | 90-1700 | 3.00 | 0.300 | 1.20 | 0.120 | 3.75 | 0.375 | 4.0 |
| | S9R40GC( )-ES12<br>S9R40GC( )-ES12(TP)<br>S9R40GC( )-ES12CE | SRC02<br>SRC02CE | 4 | 40 | 1Ø 100 | 50 | 30min. | 90-1400 | 3.10 | 0.310 | 1.00 | 0.100 | 3.20 | 0.320 | 15.0 |
| | | | | | | 60 | | 90-1700 | 2.20 | 0.220 | | | | | |
| | S9R40GD( )-ES12<br>S9R40GD( )-ES12(TP)<br>S9R40GD( )-ES12CE | SRD02<br>SRD02CE | 4 | 40 | 1Ø 200 | 50 | 30min. | 90-1400 | 3.10 | 0.310 | 1.00 | 0.100 | 3.20 | 0.320 | 4.0 |
| | | | | | | 60 | | 90-1700 | 2.20 | 0.220 | | | | | |
| | S9R40GX( )-ES12<br>S9R40GX( )-ES12CE | SRX02<br>SRX02CE | 4 | 40 | 1Ø 220 | 50 | 30min. | 90-1400 | 2.50 | 0.250 | 1.20 | 0.120 | 3.20 | 0.320 | 3.0 |
| | | | | | 1Ø 240 | | | | 3.10 | 0.310 | 1.20 | 0.120 | 3.50 | 0.321 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ SR type controller model with "CE" appeared at the end of motor model name indicates that the product acquired CE MARK certification.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9R40GX-ES12, S9R40GX-ES12CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

## SPECIFICATION OF SS TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9R40GA( )-ES24<br>S9R40GA( )-ES24(TP)<br>S9R40GA( )-ES24CE | SSA02-SRSS<br>SSA03-SRSS | 4 | 40 | 1Ø 110 | 60 | 30min. | 90-1700 | 3.00 | 0.300 | 1.20 | 0.120 | 3.75 | 0.375 | 15.0 |
| | S9R40GB( )-ES24<br>S9R40GB( )-ES24(TP)<br>S9R40GB( )-ES24CE | SSB02-SRSS<br>SSB03-SRSS | 4 | 40 | 1Ø 220 | 60 | 30min. | 90-1700 | 3.00 | 0.300 | 1.20 | 0.120 | 3.75 | 0.375 | 4.0 |
| | S9R40GC( )-ES24<br>S9R40GC( )-ES24(TP)<br>S9R40GC( )-ES24CE | SSC02-SRSS<br>SSC03-SRSS | 4 | 40 | 1Ø 100 | 50 | 30min. | 90-1400 | 3.10 | 0.310 | 1.00 | 0.100 | 3.20 | 0.320 | 15.0 |
| | | | | | | 60 | | 90-1700 | 2.20 | 0.220 | | | | | |
| | S9R40GD( )-ES24<br>S9R40GD( )-ES24(TP)<br>S9R40GD( )-ES24CE | SSD02-SRSS<br>SSD03-SRSS | 4 | 40 | 1Ø 200 | 50 | 30min. | 90-1400 | 3.10 | 0.310 | 1.00 | 0.100 | 3.20 | 0.320 | 4.0 |
| | | | | | | 60 | | 90-1700 | 2.20 | 0.220 | | | | | |
| | S9R40GX( )-ES24<br>S9R40GX( )-ES24CE | SSX02-SRSS<br>SSX03-SRSS | 4 | 40 | 1Ø 220 | 50 | 30min. | 90-1400 | 2.50 | 0.250 | 1.20 | 0.120 | 3.20 | 0.320 | 3.0 |
| | | | | | 1Ø 240 | | | | 3.10 | 0.310 | 1.20 | 0.120 | 3.50 | 0.321 | |

❖ CE marked at the end of motor model name indicates that it is thermally protected type which has received CE.
❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9R40GX-ES24, S9R40GX-ES24CE is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

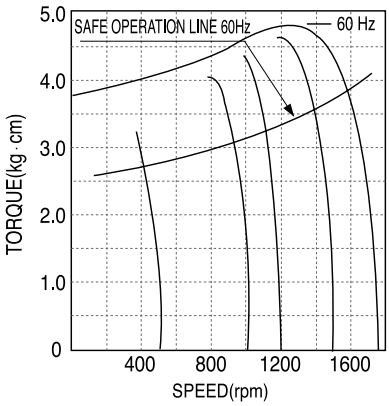
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KB□B( ) | kg-cm | 8.3 | 9.9 | 13.8 | 16.5 | 20.7 | 24.8 | 27.5 | 34.4 | 41.3 | 49.6 | 49.6 | 62.1 | 74.5 | 89.4 | 99.3 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N·m | 0.813 | 0.970 | 1.352 | 1.617 | 2.029 | 2.430 | 2.695 | 3.371 | 4.047 | 4.861 | 4.861 | 6.086 | 7.301 | 8.761 | 9.731 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 |

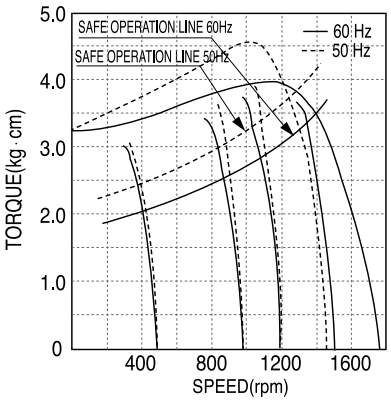
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KB□B( ) | kg-cm | 6.8 | 8.2 | 11.3 | 13.6 | 17.0 | 20.4 | 22.7 | 28.4 | 34.0 | 40.8 | 40.9 | 51.1 | 61.3 | 73.6 | 81.8 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 9.800 |
| | N·m | 0.666 | 0.804 | 1.107 | 1.333 | 1.666 | 1.999 | 2.225 | 2.783 | 3.332 | 3.998 | 4.008 | 5.008 | 6.007 | 7.213 | 8.016 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 9.800 | 100 |

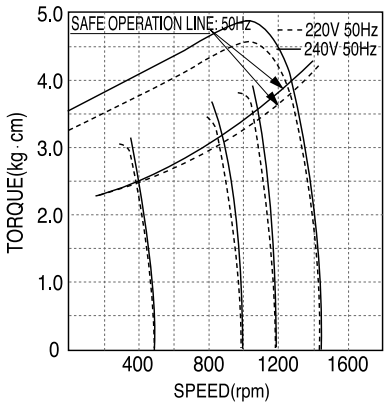
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9R40GA()-ES12 S9R40GA()-ES24
S9R40GA()-ES12(TP) S9R40GA()-ES24(TP)
S9R40GA()-ES12CE S9R40GA()-ES24CE
S9R40GB()-ES12 S9R40GB()-ES24
S9R40GB()-ES12(TP) S9R40GB()-ES24(TP)
S9R40GB()-ES12CE S9R40GB()-ES24CE




▲ S9R40GC()-ES12 S9R40GC()-ES24
S9R40GC()-ES12(TP) S9R40GC()-ES24(TP)
S9R40GC()-ES12CE S9R40GC()-ES24CE
S9R40GD()-ES12 S9R40GD()-ES24
S9R40GD()-ES12(TP) S9R40GD()-ES24(TP)
S9R40GD()-ES12CE S9R40GD()-ES24CE

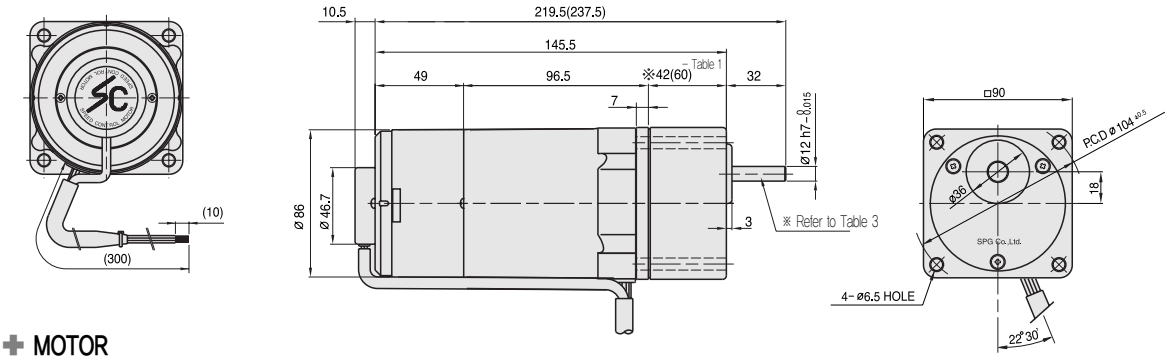



▲ S9R40GX()-ES12 S9R40GX()-ES24
S9R40GX()-ES12CE S9R40GX()-ES24CE

# DIMENSIONS

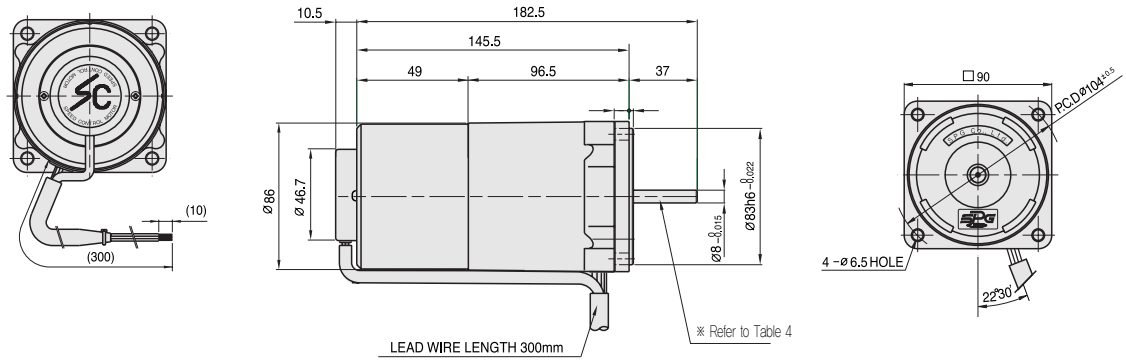
## GEARED MOTOR

※MOTOR MODEL : S9R40G□□-ES12, S9R40G□□-ES24
※HEAD MODEL : S9□B3□~S9□B200□□



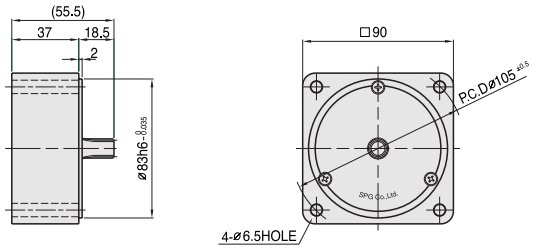

## MOTOR

※MOTOR MODEL : S9R40□□□-ES12, S9R40□□□-ES24




## INTER-DECIMAL GEAR HEAD

※MODEL : S9GX10B(H,L)



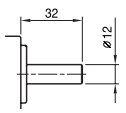
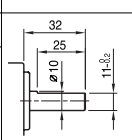
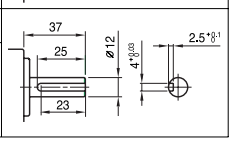

## ※26(35) - (Table1)

| GEAR RATIO | SIZE(mm) |
|---|---|
| S9□B3□□ ~ S9□B18□□ | 42 |
| S9□B20□□ ~ S9□B200□□ | 60 |

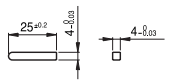
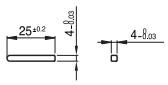
## WEIGHT - (Table2)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 2.87 |
| DECIMAL GEAR HEAD | | 0.60 |
| GEAR HEAD | S9□B3□□ ~S9□B18□□ | 0.73 |
| | S9□B20□□ ~S9□B40□□ | 1.03 |
| | S9□B50□□ ~S9□B200□□ | 1.13 |

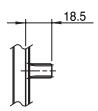
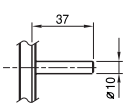
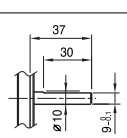
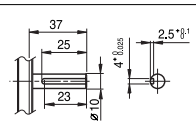
## SPEC for output shaft of gearhead - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SB3□□ ~S9SB200□□ |  |
| D-CUT TYPE<br>S9DB3□□ ~S9DB200□□ |  |
| KEY TYPE<br>S9KB3□□ ~S9KB200□□ |  |

## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

## SPEC for output shaft of motor - (Table4)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R40G□-ES12<br>S9R40G□-ES24 |  |
| STRAIGHT TYPE<br>S9R40S□-ES12<br>S9R40S□-ES24 |  |
| D-CUT TYPE<br>S9R40D□-ES12<br>S9R40D□-ES24 |  |
| KEY TYPE<br>S9R40K□-ES12<br>S9R40K□-ES24 |  |



# 60W

## E · S MOTOR □90㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9R60GA( )-ES12<br>S9R60GA( )-ES12CE | SRA02<br>SRA02CE | 4 | 60 | 1Ø 110 | 60 | 30min. | 90-1700 | 5.50 | 0.550 | 3.92 | 0.392 | 6.10 | 0.610 | 25.0 |
| | S9R60GB( )-ES12<br>S9R60GB( )-ES12CE | SRB02<br>SRB02CE | 4 | 60 | 1Ø 220 | 60 | 30min. | 90-1700 | 5.50 | 0.550 | 3.92 | 0.392 | 6.10 | 0.610 | 6.0 |
| | S9R60GC( )-ES12<br>S9R60GC( )-ES12CE | SRC02<br>SRC02CE | 4 | 60 | 1Ø 100 | 50 | 30min. | 90-1400 | 5.11 | 0.511 | 3.61 | 0.361 | 6.04 | 0.604 | 25.0 |
| | | | | | | 60 | | 90-1700 | 4.42 | 0.442 | | | | | |
| | S9R60GD( )-ES12<br>S9R60GD( )-ES12CE | SRD02<br>SRD02CE | 4 | 60 | 1Ø 200 | 50 | 30min. | 90-1400 | 5.11 | 0.511 | 3.61 | 0.361 | 6.04 | 0.604 | 6.0 |
| | | | | | | 60 | | 90-1700 | 4.42 | 0.442 | | | | | |
| | S9R60GX( )-ES12<br>S9R60GX( )-ES12CE | SRX02<br>SRX02CE | 4 | 60 | 1Ø 220 | 50 | 30min. | 90-1400 | 5.25 | 0.525 | 3.01 | 0.301 | 6.02 | 0.602 | 5.0 |
| | | | | | 1Ø 240 | | | | 5.90 | 0.590 | 3.25 | 0.325 | 6.32 | 0.632 | |

❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted
S9R60GX-ES12 is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

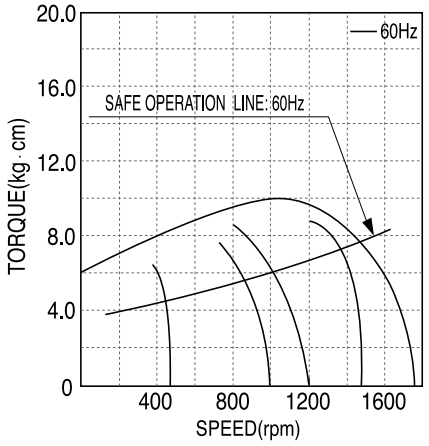
## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

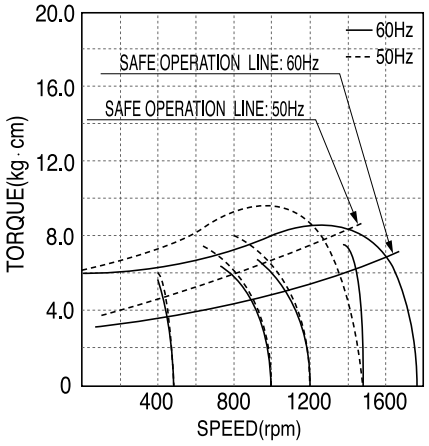
## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

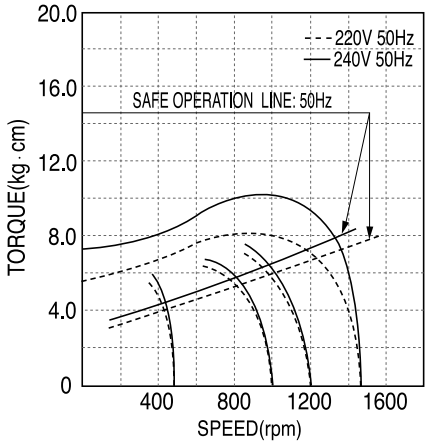
❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible TORQUE of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9R60GA()-ES12 S9R60GB()-ES12
S9R60GA()-ES12(TP) S9R60GB()-ES12(TP)




▲ S9R60GC()-ES12 S9R60GD()-ES12
S9R60GC()-ES12(TP) S9R60GD()-ES12(TP)

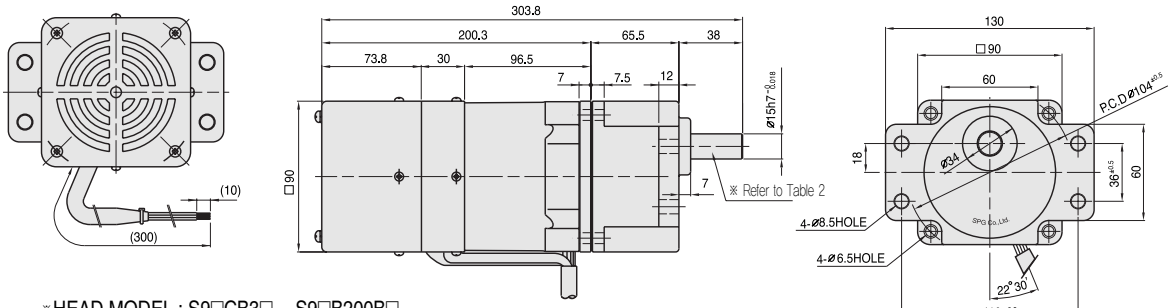



▲ S9R60GX()-ES12

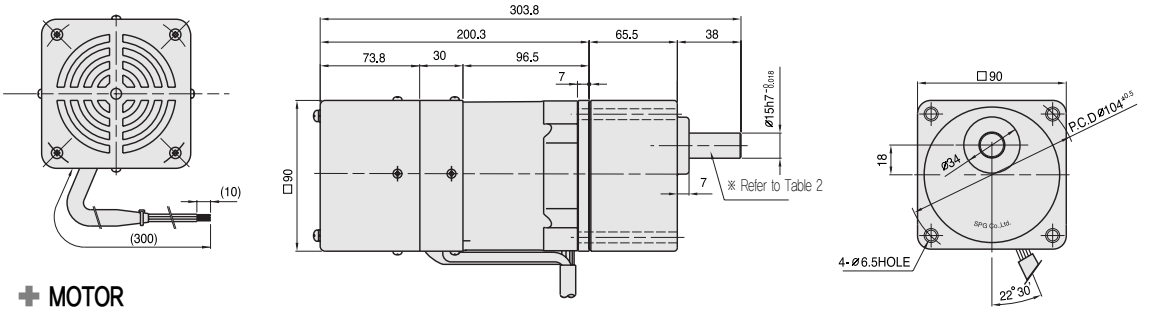
# DIMENSIONS

## ✚ GEARED MOTOR

※MOTOR MODEL : S9R60G□□-ES12
※HEAD MODEL : S9□C3B□~S9□C200B□-S

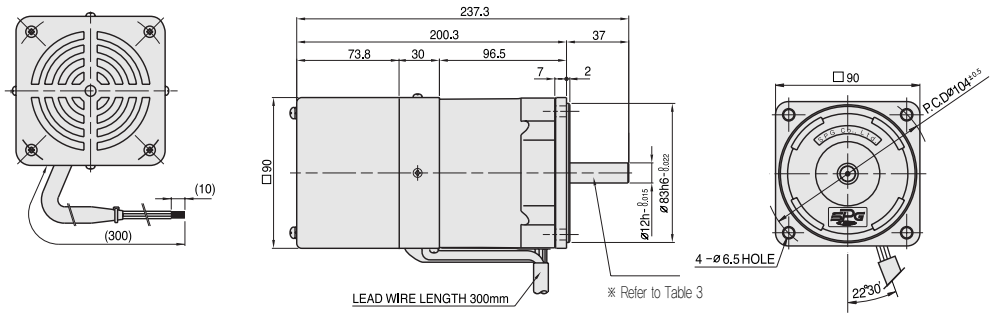



※HEAD MODEL : S9□CB3□ ~ S9□B200B□



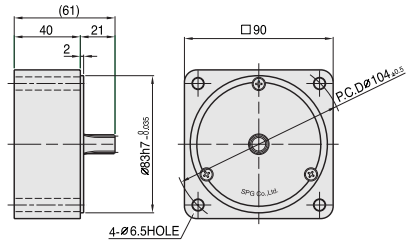

## ✚ MOTOR

※MOTOR MODEL : S9R60□□□-ES12




## ✚ INTER-DECIMAL GEAR HEAD

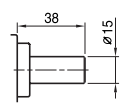
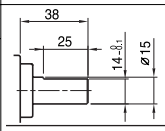
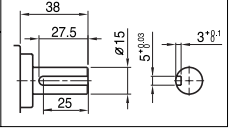
※MODEL : S9GX10B(H,L)



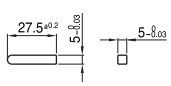
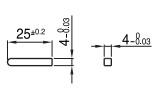

## ✚ WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.45 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

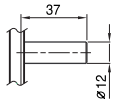
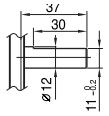
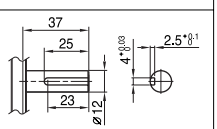
## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9SDC3B□ ~S9SDC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |

## ✚ KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

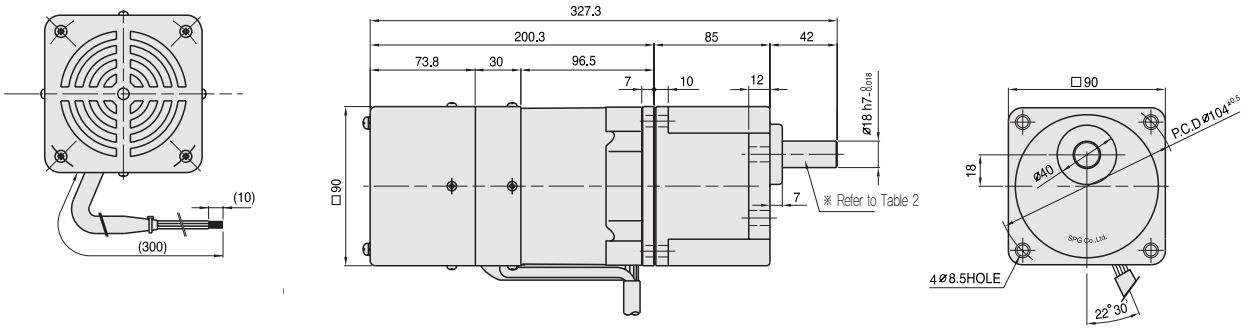
## ✚ SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R60G□-ES12 |  |
| STRAIGHT TYPE<br>S9R60S□-ES12 |  |
| D-CUT TYPE<br>S9R60D□-ES12 |  |
| KEY TYPE<br>S9R60K□-ES12 |  |

# DIMENSIONS

## ✚ GEARED MOTOR

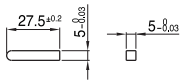
※MOTOR MODEL : S9R60G□H-ES12
※HEAD MODEL : S9□D3B□~S9□D200B




## ✚ WEIGHT - (Table1)

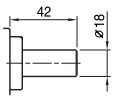
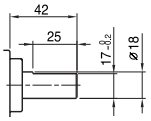
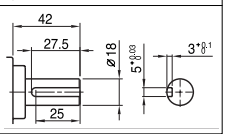
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.45 |
| DECIMAL GEAR HEAD | | 1.65 |
| GEAR HEAD | S9□D3B□ ~S9□D10B□ | 1.65 |
| | S9□D12.5B□ ~S9□D20B□ | 1.80 |
| | S9□D25B□ ~S9□D60B□ | 1.90 |
| | S9□D75B□ ~S9□D200B□ | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE |  |
| S9SD3B□ ~S9SD200B□ | |
| D-CUT TYPE |  |
| S9DD3B□ ~S9DD200B□ | |
| KEY TYPE |  |
| S9KD3B□ ~S9KD200B□ | |



## 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 12.2 | 14.6 | 20.3 | 24.3 | 30.4 | 36.5 | 40.5 | 45.6 | 54.8 | 65.7 | 73.0 | 82.5 | 99.0 | 119 | 132 | 165 | 198 | 221 | 266 | 295 | 300 | 300 | 300 | 300 |
| | N·m | 1.196 | 1.431 | 1.989 | 2.381 | 2.989 | 3.577 | 3.969 | 4.469 | 5.370 | 6.439 | 7.154 | 8.085 | 9.702 | 11.66 | 12.94 | 16.17 | 19.40 | 21.67 | 26.09 | 28.93 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 9.72 | 11.7 | 16.2 | 19.4 | 24.3 | 29.2 | 32.4 | 36.5 | 43.8 | 52.6 | 58.4 | 66.0 | 79.2 | 95.0 | 106 | 132 | 158 | 177 | 212 | 236 | 283 | 300 | 300 | 300 |
| | N·m | 0.953 | 1.147 | 1.588 | 1.901 | 2.381 | 2.862 | 3.175 | 3.577 | 4.292 | 5.155 | 5.723 | 6.468 | 7.762 | 9.310 | 10.39 | 12.94 | 15.48 | 17.35 | 20.79 | 23.14 | 27.75 | 29.42 | 29.42 | 29.42 |

❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor.
Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable.



# 90W

## E · S MOTOR □90㎜ LEAD WIRE TYPE

## SPECIFICATION OF SR TYPE SPEED CONTROL MOTORS

| SIZE mm sq. | Motor Type | Controller Type | Poles | Output | Voltage | Freq. | Duty | Speed Range | Permissible Torque at 1200rpm | | Permissible Torque at 90rpm | | Starting Torque | | Cap. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | (W) | (V) | (Hz) | | (rpm) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (kg-cm) | (N-m) | (μF) |
| 90 | S9R90GA( )-ES12<br>S9R90GA( )-ES12(CE) | SRA02<br>SRA02CE | 4 | 90 | 1Ø 110 | 60 | 30min. | 90-1700 | 8.02 | 0.802 | 5.42 | 0.542 | 7.65 | 0.765 | 30.0 |
| | S9R90GB( )-ES12<br>S9R90GB( )-ES12(CE) | SRB02<br>SRB02CE | 4 | 90 | 1Ø 220 | 60 | 30min. | 90-1700 | 8.02 | 0.802 | 5.42 | 0.542 | 7.65 | 0.765 | 8.0 |
| | S9R90GC( )-ES12<br>S9R90GC( )-ES12(CE) | SRC02<br>SRC02CE | 4 | 90 | 1Ø 100 | 50 | 30min. | 90-1400 | 7.22 | 0.722 | 4.92 | 0.492 | 6.90 | 0.690 | 30.0 |
| | | | | | | 60 | | 90-1700 | 6.32 | 0.632 | | | | | |
| | S9R90GD( )-ES12<br>S9R90GD( )-ES12(CE) | SRD02<br>SRD02CE | 4 | 90 | 1Ø 200 | 50 | 30min. | 90-1400 | 7.22 | 0.722 | 4.92 | 0.492 | 6.90 | 0.690 | 8.0 |
| | | | | | | 60 | | 90-1700 | 6.32 | 0.632 | | | | | |
| | S9R90GX( )-ES12<br>S9R90GX( )-ES12(CE) | SRX02<br>SRX02CE | 4 | 90 | 1Ø 220 | 50 | 30min. | 90-1400 | 5.98 | 0.598 | 3.79 | 0.379 | 5.90 | 0.590 | 6.0 |
| | | | | | 1Ø 240 | | | | 6.35 | 0.635 | 4.09 | 0.409 | 7.20 | 0.720 | |

❖ TP marked at the end of the motor model name indicates that it is standard motor with Thermal Protector mounted.
S9R90GX( )-ES12 is thermally protected type with TP mounted.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with gearhead 'L' and 'H' should be used with gearhead 'H'.

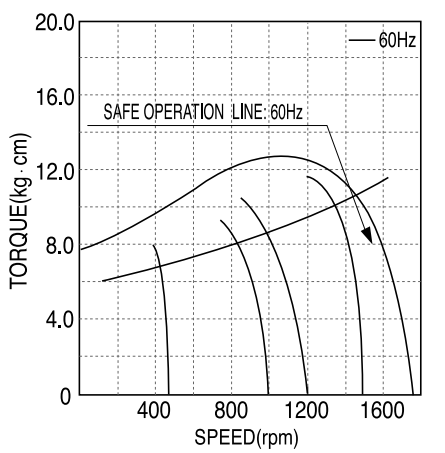
### 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KC□B( ) | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

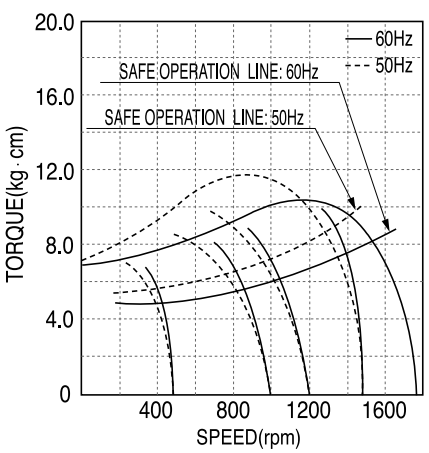
### 60Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KC□B( ) | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| S9KC□B( )-S | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 | 19.60 |

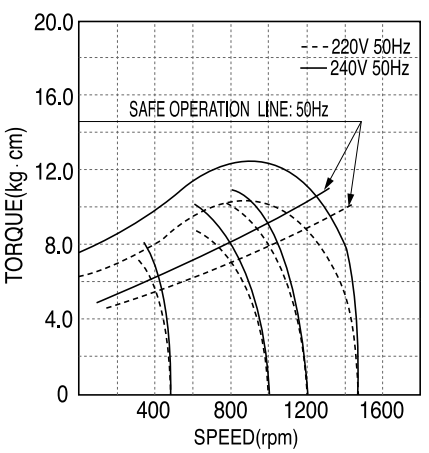
❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible TORQUE of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 200 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ ( ) is for marking 'L' type or 'H'. 'L' should be used with motor 'L' and 'H' should be used with motor 'H'.




▲ S9R90GA()-ES12 S9R90GB()-ES12
S9R90GA()-ES12(TP) S9R90GB()-ES12(TP)




▲ S9R90GC()-ES12 S9R90GD()-ES12
S9R90GC()-ES12(TP) S9R90GD()-ES12(TP)

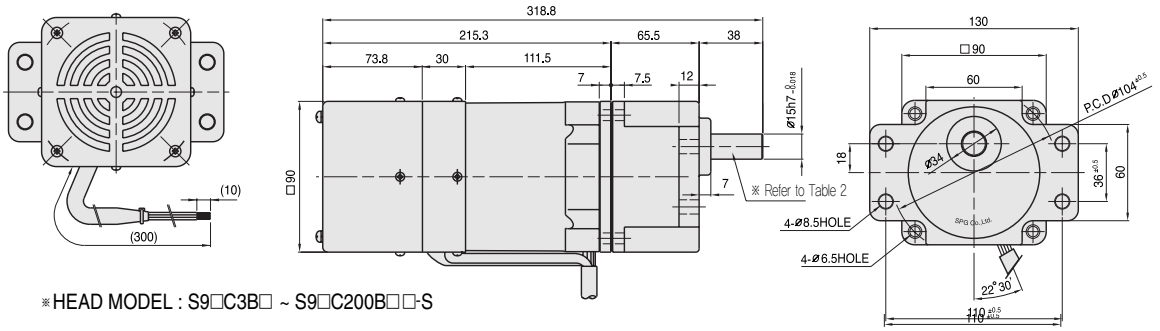



▲ S9R90GX()-ES12

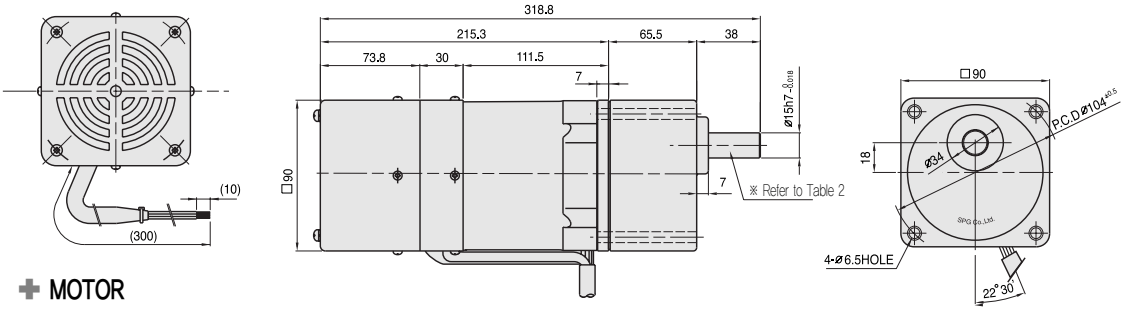
# DIMENSIONS

## GEARED MOTOR

※MOTOR MODEL : S9R90G□□-ES12
※HEAD MODEL : S9□C3B□-S~S9□C200B□-S

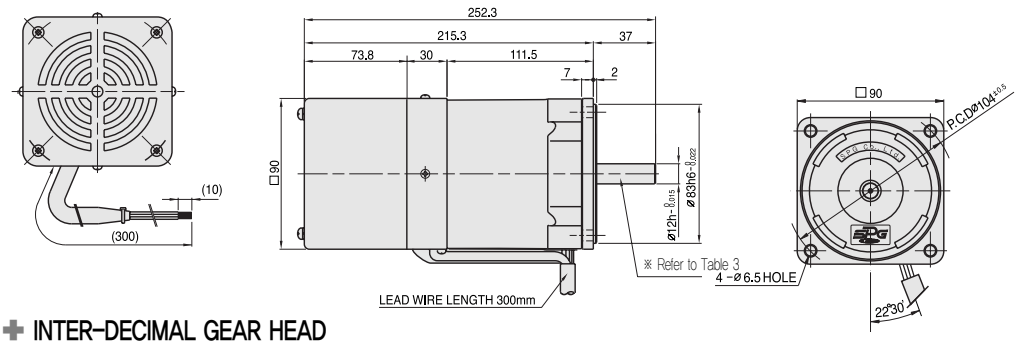



※HEAD MODEL : S9□C3B□ ~ S9□C200B□□-S



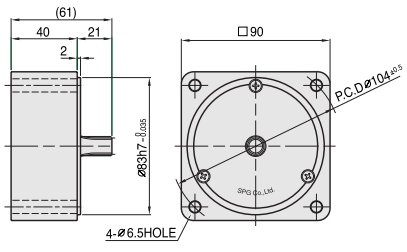

## MOTOR

※MOTOR MODEL : S9R90□□□-ES12




## INTER-DECIMAL GEAR HEAD

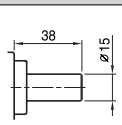
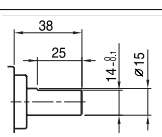
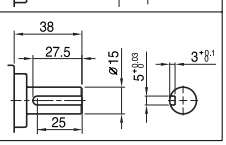
※MODEL : S9GX10B(H,L)



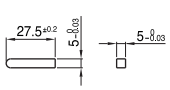

## WEIGHT - (Table1)

| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.97 |
| DECIMAL GEAR HEAD | | 0.65 |
| GEAR HEAD | S9□C3B□ ~S9□C10B□ | 1.21 |
| | S9□C12.5B□ ~S9□C20B□ | 1.30 |
| | S9□C25B□ ~S9□C60B□ | 1.40 |
| | S9□C75B□ ~S9□C200B□ | 1.45 |

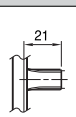
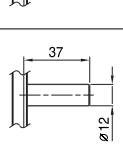
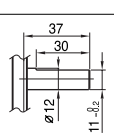
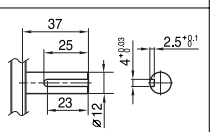
## SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE<br>S9SC3B□ ~S9SC200B□ |  |
| D-CUT TYPE<br>S9DC3B□ ~S9DC200B□ |  |
| KEY TYPE<br>S9KC3B□ ~S9KC200B□ |  |

## KEY SPEC

| GEAR HEAD | MOTOR |
|---|---|
|  |  |

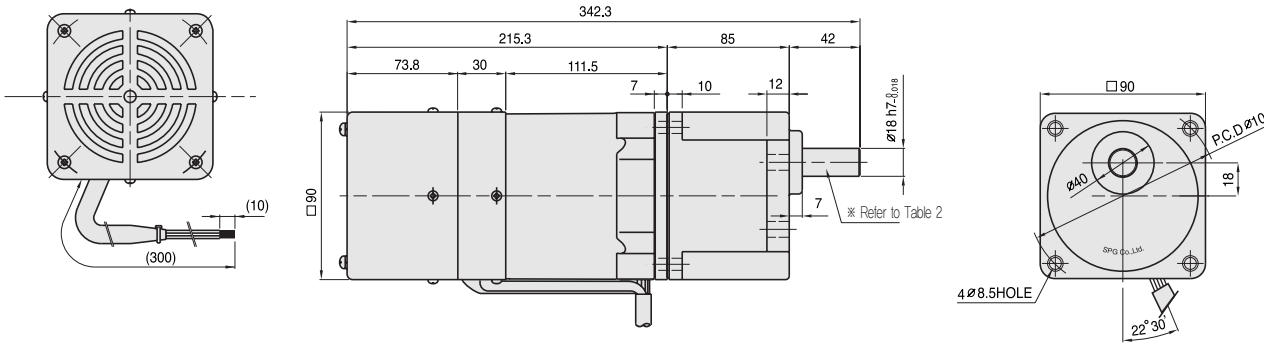
## SPEC for output shaft of motor - (Table3)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| GEAR TYPE<br>S9R90G□-ES12 |  |
| STRAIGHT TYPE<br>S9R90S□-ES12 |  |
| D-CUT TYPE<br>S9R90D□-ES12 |  |
| KEY TYPE<br>S9R90K□-ES12 |  |

# DIMENSIONS

## ✚ GEARED MOTOR

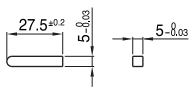
※MOTOR MODEL : S9R90G□H-ES12
※HEAD MODEL : S9□D3B□~S9□D200B




## ✚ WEIGHT - (Table1)

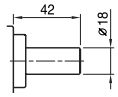
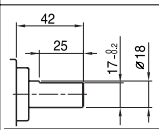
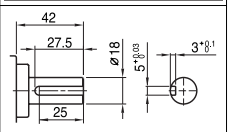
| PART | | WEIGHT(kg) |
|---|---|---|
| MOTOR | | 3.97 |
| GEAR HEAD | S9□D3B□ ~S9□D10B□ | 1.65 |
| | S9□D12.5B□ ~S9□D20B□ | 1.80 |
| | S9□D25B□ ~S9□D60B□ | 1.90 |
| | S9□D75B□ ~S9□D200B□ | 1.95 |

## ✚ KEY SPEC

| GEAR HEAD |
|---|
|  |



## ✚ SPEC for output shaft of gearhead - (Table2)

| MODEL | TYPES OF OUTPUT SHAFT |
|---|---|
| STRAIGHT TYPE | |
| S9SD3B□ ~S9SD200B□ |  |
| D-CUT TYPE | |
| S9DD3B□ ~S9DD200B□ |  |
| KEY TYPE | |
| S9KD3B□ ~S9KD200B□ |  |



## 50Hz

| | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 500 | 416 | 300 | 250 | 200 | 166 | 150 | 120 | 100 | 83 | 75 | 60 | 50 | 41 | 37 | 30 | 25 | 20 | 16 | 15 | 12 | 10 | 8 | 7.5 |
| S9KD□B | kg-cm | 18.2 | 21.9 | 30.4 | 36.5 | 45.6 | 54.7 | 60.8 | 68.4 | 82.1 | 98.6 | 110 | 124 | 149 | 178 | 198 | 248 | 297 | 300 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.784 | 2.146 | 2.979 | 3.577 | 4.469 | 5.361 | 5.958 | 6.703 | 8.046 | 9.663 | 10.78 | 12.15 | 14.60 | 17.44 | 19.40 | 24.32 | 29.13 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

## 60Hz

| | GEAR RATIO | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 10 | 12.5 | 15 | 18 | 20 | 25 | 30 | 36 | 40 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 | 200 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 180 | 144 | 120 | 100 | 90 | 72 | 60 | 50 | 45 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 | 9 |
| S9KD□B | kg-cm | 14.6 | 17.5 | 24.3 | 29.2 | 36.5 | 43.7 | 48.6 | 54.8 | 65.7 | 78.8 | 87.6 | 99.0 | 119 | 143 | 158 | 198 | 238 | 266 | 300 | 300 | 300 | 300 | 300 | 300 |
| | N·m | 1.431 | 1.715 | 2.381 | 2.862 | 3.577 | 4.675 | 4.763 | 5.370 | 6.439 | 7.722 | 8.585 | 9.702 | 11.66 | 14.01 | 15.48 | 19.40 | 23.34 | 26.09 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 | 29.42 |

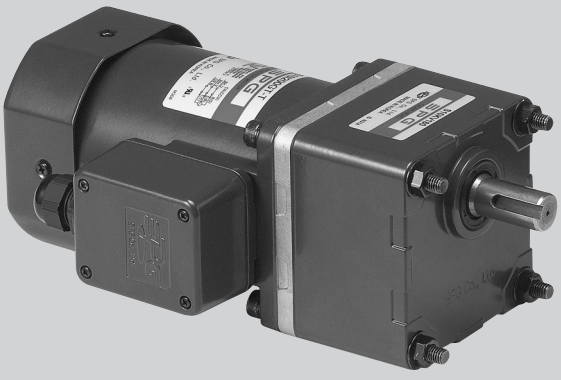
❖ The code in □ of gearhead model is for gear ratio.
❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio. The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ Only "H" type is applicable.


SPG
MOTOR

# 200W □104 MOTOR & GEAR HEAD

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# 200W

## □104 MOTOR & GEAR HEAD

## □ Characteristics of 104 MOTOR & GEAR HEAD

- Large output and high strength applicable
  : Maximum Permissible TORQUE is 400 kgf · cm, It is applied to BALL BEARING, NEEDLE BEARING of high strength.
- Improvement of strength and noise through precise processing of GEAR BOX.
- Improvement of security for TERMINAL BOX TYPE MOTOR(IP54).
- Applicable in America, Europe & S.E Asia (Basic Type)
- Insulation Class : B Class (130℃).

## □104 MOTOR CODING SYSTEM

| MAKER MODEL | SIZE | TYPE | OUTPUT | SHAFT TYPE | VOLTAGE | | SPECIAL TYPE |
|---|---|---|---|---|---|---|---|
| S | 10 | I | 200 | G | B | - | T |

S : SPG Co., Ltd.

10 : □104(㎜)

I : Induction Motor

200 : 200W

EX) G : GEAR TYPE
D : D-cut Type
K : Key Type

| | | | |
|---|---|---|---|
| A : | 1ØAC 100V | 50/60Hz | (4Pole) |
| | 1ØAC 110/115V | 60Hz | (4Pole) |
| B : | 1ØAC 200V | 50/60Hz | (4Pole) |
| | 1ØAC 220V | 60Hz | (4Pole) |
| | 1ØAC 230V | 50/60Hz | (4Pole) |
| T : | 3ØAC 200V | 50/60Hz | (4Pole) |
| | 3ØAC 220V | 50/60Hz | (4Pole) |
| | 3ØAC 230V | 60Hz | (4Pole) |

EX) T : Terminal Box Type
(Terminal Block Type)

## □104 GEAR HEAD CODING SYSTEM

| MAKER MODEL | SIZE | SHAFT TYPE | OUTPUT | GEAR RATIO | | SPECIAL TYPE |
|---|---|---|---|---|---|---|
| S | 10 | K | V | 180 | - | □□□ |

S : SPG Co., Ltd.

10 : □104㎜

S : Straight type
D : D-cut type
K : Key type

V : □104 200W

3~180 : Reduction Ratio

| Type | | Poles | Output (W) | Voltage (V) | Freq. (Hz) | Duty | Rated Load | | | Starting Touque (kgf-cm) | Capacitor ($\mu$F) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TERMINAL BOX | LEAD WIRE | | | | | | Current (A) | Speed (rpm) | Torque (kgf-cm) | | |
| S10I200□A-T | S10I200□A | 4 | 200 | 1Ø 100 | 50 | CONT. | 3.45 | 1250 | 15.6 | 8.8 | 47 |
| | | | | | 60 | | 3.05 | 1550 | 12.6 | 8.8 | |
| | | | | 1Ø 100 | 60 | | 2.85 | 1550 | 12.6 | 8.8 | 40 |
| | | | | 1Ø 115 | | | 2.85 | 1600 | 12.2 | 9.8 | |
| S10I200□B-T | S10I200□B | 4 | 200 | 1Ø 200 | 50 | CONT. | 1.65 | 1250 | 15.6 | 8.8 | 12 |
| | | | | | 60 | | 1.57 | 1550 | 12.6 | 8.8 | |
| | | | | 1Ø 220 | 60 | | 1.40 | 1550 | 12.6 | 8.8 | 10 |
| | | | | 1Ø 230 | 50 | | 1.66 | 1300 | 15.0 | 9.8 | |
| | | | | | 60 | | 1.36 | 1600 | 12.2 | 9.8 | |
| S10I200□T-T | S10I200□T | 4 | 200 | 3Ø 200 | 50 | CONT. | 1.10 | 1250 | 15.6 | 15.6 | – |
| | | | | | 60 | | 1.05 | 1500 | 13.0 | 13.0 | |
| | | | | 3Ø 220 | 50 | | 1.05 | 1300 | 15.0 | 15.0 | |
| | | | | | 60 | | 0.95 | 1550 | 12.6 | 12.6 | |
| | | | | 3Ø 230 | 60 | | 0.95 | 1600 | 12.2 | 12.2 | |

## 50Hz

| GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 12.5 | 15 | 18 | 25 | 30 | 36 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 500 | 417 | 300 | 250 | 200 | 167 | 120 | 100 | 83 | 60 | 50 | 42 | 30 | 25 | 20 | 17 | 15 | 12.5 | 10 | 8.3 |
| S10KV□ | kg-cm | 41 | 49 | 68 | 82 | 103 | 123 | 163 | 196 | 235 | 327 | 392 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| | N·m | 4.1 | 4.9 | 6.8 | 8.2 | 10.3 | 12.3 | 16.3 | 19.6 | 23.5 | 32.7 | 39.2 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| | Efficiency | 90% | | | | | | 86% | | | | | | 81% | | | | | | | |

## 60Hz

| GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 12.5 | 15 | 18 | 25 | 30 | 36 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 144 | 120 | 100 | 72 | 60 | 50 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| S10KV□ | kg-cm | 34 | 41 | 57 | 69 | 86 | 103 | 137 | 164 | 197 | 273 | 328 | 393 | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 400 |
| | N·m | 3.4 | 4.1 | 5.7 | 6.9 | 8.6 | 10.3 | 13.7 | 16.4 | 19.7 | 27.3 | 32.8 | 39.3 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| | Efficiency | 90% | | | | | | 86% | | | | | | 81% | | | | | | | |

❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output shaft of the motor. Others indicate rotation in the opposite direction.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
The actual rotation speed can be 2~20% less than displayed value depending on the load.
❖ The efficiency referenced may vary when applied.

## PERMISSIBLE LOAD INERTIA MOMENT

| DIVISION | PERMISSIBLE LOAD INERTIA MOMENT IN OUTPUT SHAFT | | REMARK |
|---|---|---|---|
| | J($\times 10^{-4}$kg-m$^2$) | GD$^2$(kgf-cm$^2$) | |
| MOTOR | 2 | 8 | $J_G$ : Permissible load inertia on the gear head output shaft.<br>$J_M$ : Permissible load inertia on the motor shaft.<br>i : Gear Ratio |
| GEAR HEAD | JG = JM X i$^2$ (Gear ratio 1/3~1/50)<br>JG = JM X 2500 (Gear ratio 1/60 or higher) | | |

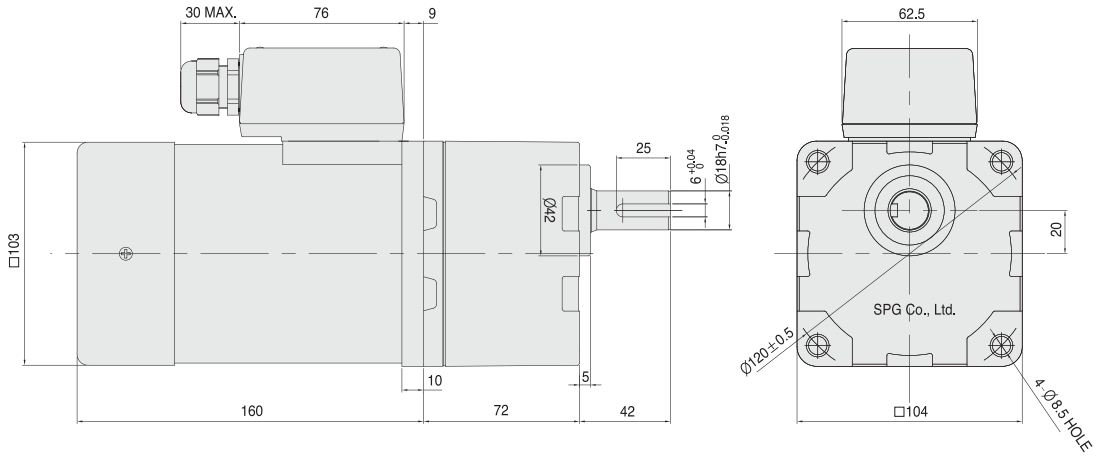
## PERMISSIBLE OVERHUNG, TRUHST LOAD

| DIVISION | | PERMISSIBLE OVERHUNG LOAD, N (kgf) | | PERMISSIBLE THRUST LOAD N (kgf) |
|---|---|---|---|---|
| | | DISTANCE FROM FRONT EDGE OF SHAFT (SPINDLE) | | |
| | | 10㎜ | 20㎜ | |
| MOTOR | | 320(32) | 350(35) | – |
| GEAR HEAD | GEAR RATIO 1/3~36 | 550(55) | 800(80) | 200(20) |
| | GEAR RATIO 1/50~180 | 650(65) | 1000(100) | |

# DIMENSIONS : TERMINAL BOX TYPE

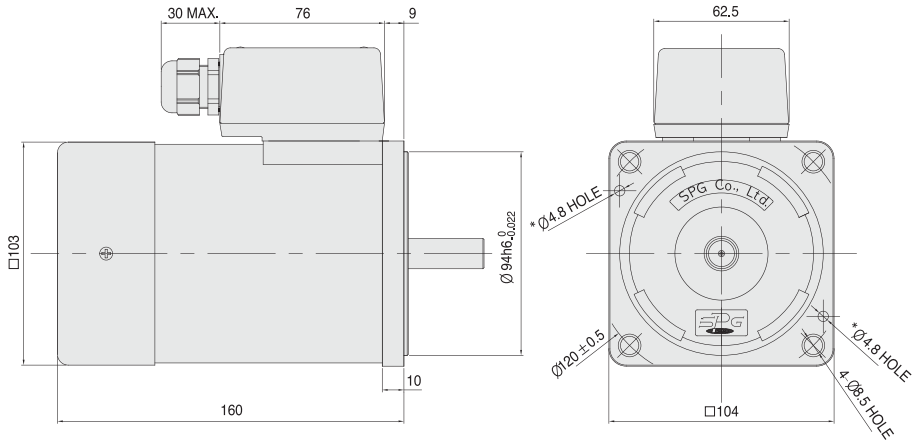
## ✚ GEARED MOTOR

※ MOTOR MODEL : S10I200□□ -T
※ GEAR HEAD MODEL : S10KV□

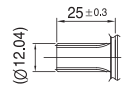
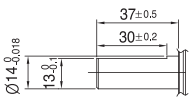
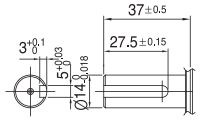



## ✚ MOTOR

※ MOTOR MODEL : S10I200□□ -T



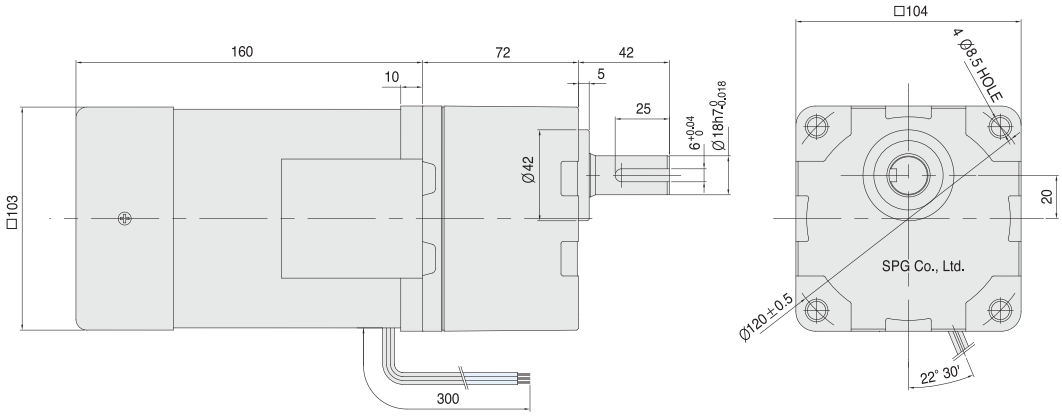

## ✚ SPEC for ott shaft of Motor

| | |
|---|---|
| |   |
| |   |
| |   |

# DIMENSIONS : LEAD WIRE TYPE

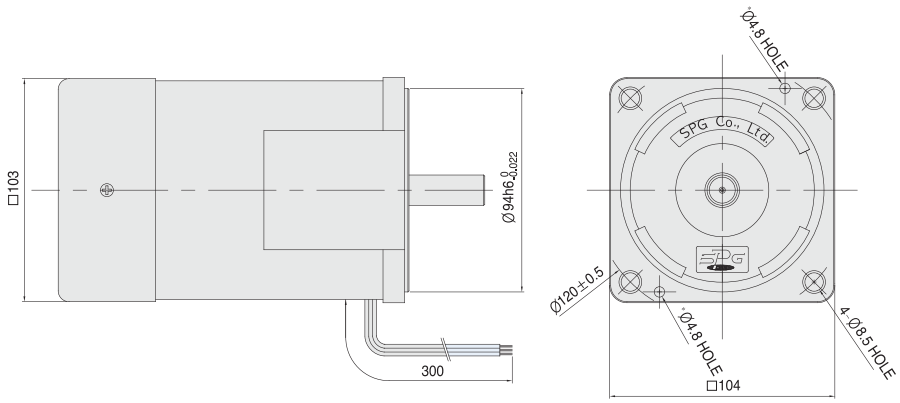
## ✚ GEARED MOTOR

※ MOTOR MODEL : S10I200□□
※ GEAR HEAD MODEL : S10KV□

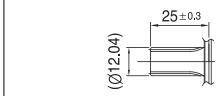
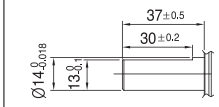
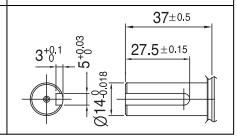



## ✚ MOTOR

※ MOTOR MODEL : S10I200□□

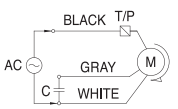
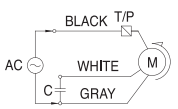
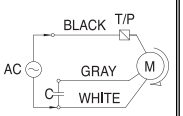
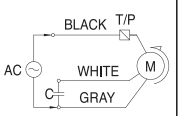
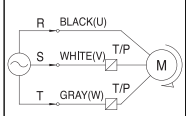
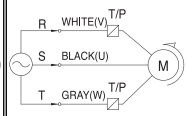



## ✚ SPEC for ott shaft of Motor

| | |
|---|---|
| |   |
| |   |
| |   |

# SCHEMATIC DIAGRAMS

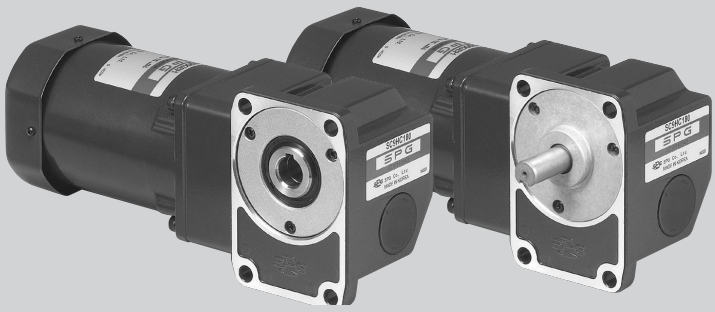
The direction of motor rotation is as viewed from the front shaft end of the motor.

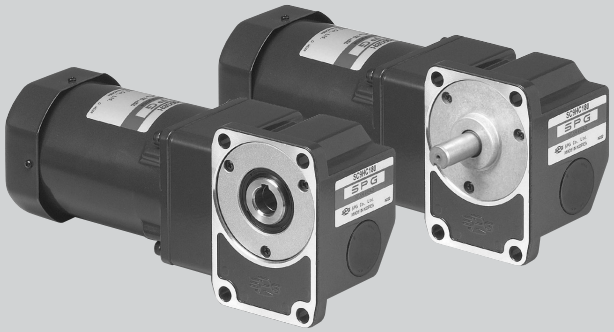
| MODE : S10I200□A S10I200□A-T<br>POER : AC 1Ph. 100 50/60H 110/115 60H | | MODE : S10I200□B S10I200□B-T<br>POER : AC 1Ph. 200 50/60H 220 60H<br>230 50/60H | | MODE : S10I200□T S10I200□T-T<br>POER : AC 3Ph. 200 50/60H 220 50/60H<br>230 60H | |
|---|---|---|---|---|---|
| **CW** | **CCW** | **CW** | **CCW** | **CW** | **CCW** |
|   |   |   |   |   |   |

# RIGHT ANGLE GEAR HEAD

## INDEX

RIGHT ANGLE GEAR HEAD ..... 279





# RIGHT ANGLE GEAR HEAD

□80 □ 0 , 2 40 0 0

## Characteristics of RIGHT ANGLE GEAR HEAD

- Can be installed to a motor at a right angle using worm gears and special helical gears.
- Space saving of maximum 50% compared to existing suare boxes.
- Can be assembled and applied with SPG standard motors.
- Ratio can be selected in between 1/3 and 1/180, and is shown in the cover of the gear head.

## RIGHT ANGLE GEAR HEAD CODING SYSTEM

| MAKER MODEL | SIZE | SHAFT TYPE | OUTPUT | GEAR RATIO | | SPECIAL TYPE |
|---|---|---|---|---|---|---|
| SC | 9 | K | C | 180 | - | □□□ |
| | **8** : □80㎜<br>: □ 0㎜ | **K** : Key type<br>**H** : Hollow shaft | **A** : 25W<br>**B** : 40W<br>**C** : 60W/0W | **3~180** : Reduction Ratio | | |

**SC : SPG Crossi Gear Head**

## SPECIFICATION OF RIGHT ANGLE GEAR HEAD

| T P E | RATIO | MAXIMUM PERMISSIBLE TORUE | | PERMISSIBLE OVERHUNG LOAD | | | | PERMISSIBLE THRUST LOAD | |
|---|---|---|---|---|---|---|---|---|---|
| | | kgf | N m | DISTANCE FROM FRONT EDGE OF SHAFT 10mm | | DISTANCE FROM FRONT EDGE OF SHAFT 20mm | | | |
| | | | | kgf | N | kgf | N | kgf | N |
| SC8HA□ | 3～180 | 80 | 8 | 25 | 250 | 22 | 220 | 10 | 100 |
| SC9HB□ | 3～180 | 100 | 10 | 35 | 350 | 31 | 310 | 20 | 200 |
| SC9HC□ | 3～180 | 200 | 20 | 56 | 560 | 50 | 500 | 250 | 250 |
| SC8A□ | 3～18<br>25～180 | 80 | 8 | 10<br>20 | 100<br>200 | 15<br>30 | 150<br>300 | 10 | 100 |
| SC9B□ | 3～18<br>25～180 | 100 | 10 | 25<br>30 | 250<br>300 | 35<br>45 | 350<br>450 | 20 | 200 |
| SC9C□ | 3～9<br>12.5～25<br>30～180 | 200 | 20 | 40<br>45<br>50 | 400<br>450<br>500 | 50<br>60<br>70 | 500<br>600<br>700 | 25 | 250 |

❖ is the distance from the flange mounting surface.
❖ The code in of gearhead model is gear ratio.
❖ Self Locking isn t working.

## TRANSFER EFFICIENCY

| Model \ Gear Ratio | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 12.5 | 15 | 18 | 25 | 30 | 36 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SCKA□ SCHA□ | 50% | | | | | | 60% | | | | | | | | | | | | | |
| SCKB□ SCHB□ | 68% | | | | | | | | | 60% | | | | | | | | | | |
| SCKC□ SCHC□ | 68% | | | | | | | | | | 60% | | | | | | | 50% | | |

❖ The efficiency referenced may vary when applied.

## PERMISSIBLE TOR U E

### 50Hz

| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 12.5 | 15 | 18 | 25 | 30 | 36 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 144 | 120 | 100 | 72 | 60 | 50 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| SCKA□ SCHA□ (2W) | kg-cm | 3.2 | 3.8 | 5.3 | 6.3 | 7.9 | 9.5 | 15.8 | 18.9 | 22.7 | 31.5 | 37.8 | 45.4 | 63 | 75.6 | 80 | 80 | 80 | 80 | 80 | 80 |
| | N-m | 0.32 | 0.38 | 0.53 | 0.63 | 0.79 | 0.95 | 1.58 | 1.89 | 2.27 | 3.15 | 3.78 | 4.58 | 6.30 | 7.56 | 8 | 8 | 8 | 8 | 8 | 8 |
| SCKB□ SCHB□ (40W) | kg-cm | 6.4 | 7.7 | 10.7 | 12.9 | 16.1 | 19.3 | 26.8 | 32.1 | 38.6 | 47.3 | 56.7 | 68 | 94.5 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N-m | 0.64 | 0.77 | 1.07 | 1.29 | 1.61 | 1.93 | 2.68 | 3.21 | 3.86 | 4.73 | 5.67 | 6.8 | 9.45 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| SCKC□ SCHC□ (0W) | kg-cm | 9.4 | 11.3 | 15.6 | 18.8 | 23.5 | 28.2 | 39.1 | 46.9 | 56.3 | 78.2 | 82.8 | 99.4 | 138 | 165.6 | 200 | 200 | 200 | 200 | 200 | 200 |
| | N-m | 0.94 | 1.13 | 1.56 | 1.88 | 2.35 | 2.82 | 3.91 | 4.69 | 5.63 | 7.82 | 8.28 | 9.94 | 13.8 | 16.56 | 20 | 20 | 20 | 20 | 20 | 20 |
| SCKC□ SCHC□ (0W) | kg-cm | 14.1 | 16.9 | 23.5 | 28.2 | 35.2 | 42.2 | 58.7 | 70.4 | 84.5 | 117.3 | 124.2 | 149 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| | N-m | 1.41 | 1.69 | 2.35 | 2.82 | 3.52 | 4.22 | 5.87 | 7.04 | 8.45 | 11.73 | 12.42 | 14.9 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |

### 60Hz

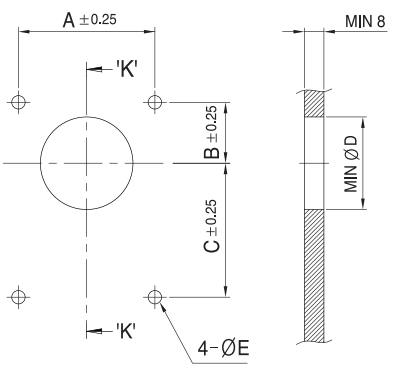
| MODEL \ GEAR RATIO | | 3 | 3.6 | 5 | 6 | 7.5 | 9 | 12.5 | 15 | 18 | 25 | 30 | 36 | 50 | 60 | 75 | 90 | 100 | 120 | 150 | 180 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | rpm | 600 | 500 | 360 | 300 | 240 | 200 | 144 | 120 | 100 | 72 | 60 | 50 | 36 | 30 | 24 | 20 | 18 | 15 | 12 | 10 |
| SCKA□ SCHA□ (2W) | kg-cm | 25 | 3 | 4.1 | 5 | 6.2 | 7.4 | 12.4 | 14.9 | 17.8 | 24.8 | 29.7 | 35.6 | 49.5 | 59.4 | 74.3 | 80 | 80 | 80 | 80 | 80 |
| | N-m | 0.25 | 0.3 | 0.41 | 0.5 | 0.62 | 0.74 | 1.24 | 1.49 | 1.78 | 2.48 | 2.97 | 3.56 | 4.95 | 5.94 | 7.43 | 8 | 8 | 8 | 8 | 8 |
| SCKB□ SCHB□ (40W) | kg-cm | 5.1 | 6.1 | 8.5 | 10.2 | 12.8 | 15.3 | 21.3 | 25.5 | 30.6 | 37.5 | 45 | 54 | 75 | 90 | 100 | 100 | 100 | 100 | 100 | 100 |
| | N-m | 0.51 | 0.61 | 0.85 | 1.02 | 1.28 | 1.53 | 2.13 | 2.55 | 3.06 | 3.75 | 4.5 | 5.4 | 7.5 | 9 | 10 | 10 | 10 | 10 | 10 | 10 |
| SCKC□ SCHC□ (0W) | kg-cm | 8 | 9.5 | 13.3 | 15.9 | 19.9 | 23.9 | 33.2 | 39.8 | 47.7 | 66.3 | 70.2 | 84.2 | 117 | 140.4 | 175.5 | 200 | 200 | 200 | 200 | 200 |
| | N-m | 0.8 | 0.95 | 1.33 | 1.59 | 1.99 | 2.39 | 3.32 | 3.98 | 4.77 | 6.63 | 7.02 | 8.42 | 11.7 | 14.04 | 17.5 | 20 | 20 | 20 | 20 | 20 |
| SCKC□ SCHC□ (0W) | kg-cm | 11.4 | 13.7 | 19 | 22.8 | 28.6 | 34.3 | 47.6 | 57.1 | 68.5 | 95.2 | 100.8 | 121 | 168 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| | N-m | 1.14 | 1.37 | 19 | 2.28 | 2.86 | 3.43 | 4.76 | 5.71 | 6.85 | 9.52 | 10.08 | 12.1 | 16.8 | 20 | 20 | 20 | 20 | 20 | 20 | 20 |

❖ Basically, all output shaft rotates in an opposite way to that of a motor.
❖ Rpm is based on synchronous speed (50Hz: 1500rpm, 60Hz: 1800rpm) divided by gear ratio.
❖ The actual rotation speed can be 2~20% less than displayed value depending on the load.

## Diesios of the earhead oti srface

| TYPE | MODEL | A | B | C | D | E |
|---|---|---|---|---|---|---|
| Hollow shaft | SC8HA□ | 56 | 25 | 55 | Ø16 | Ø5.5 |
| | SCHB□ | 58 | 33 | 5 | Ø16 | Ø6.5 |
| | SCHC□ | 60 | 33 | 6 | Ø18 | Ø8.5 |
| Solid shaft | SC8KA□ | 56 | 25 | 55 | Ø35 | Ø5.5 |
| | SCKB□ | 58 | 33 | 5 | Ø35 | Ø6.5 |
| | SCKC□ | 60 | 33 | 6 | Ø35 | Ø8.5 |

❖ The code in of gearhead model is gear ratio.



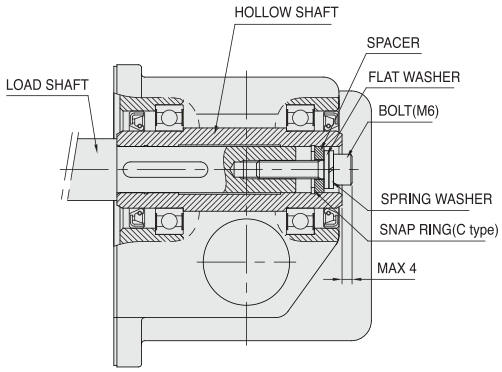

SECTION K K

## Moti oad shaft to hoo shaft riht ae earhead

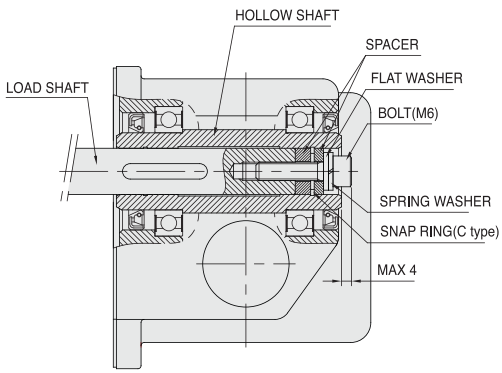
Eae of oti the oad) For steed oad shaft, isert the oad shaft a the a ito the hoo shaft. For straiht oad shaft, isert the oad shaft a the a to the sa ri. If the oad shaft is ot o eoh, se sacer to eiiate a sace etee the oad shaft ad the sa ri. Refer to the eo tae for the diesioa reatioshi etee the oad shaft ad the hoo shaft. Note that if the etrsio of the ot is ore tha 4, the safet coer accessor) caot e istaed.

| MODEL | ler diaeter ad toerace of hoo shaft | Shaft diaeter ad toerace recoeded of oad shaft |
|---|---|---|
| SC8HA□ | Ø15H8 $^{0.02}_{0}$ | Ø15h $^{0}_{-0.018}$ |
| SCHB□ | Ø15H8 $^{0.02}_{0}$ | Ø15h $^{0}_{-0.018}$ |
| SCHC□ | Ø1H8 $^{0.02}_{0}$ | Ø1 h $^{0}_{-0.018}$ |

❖ The code in of gearhead model is gear ratio.



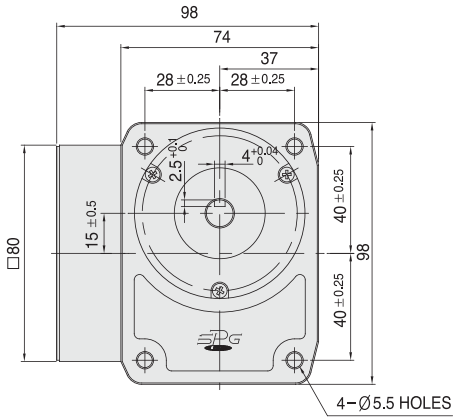

(Stepped load shaft)

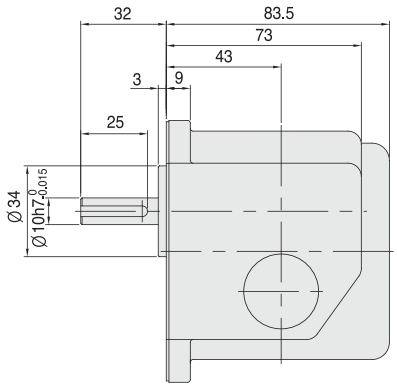



(Straight load shaft)

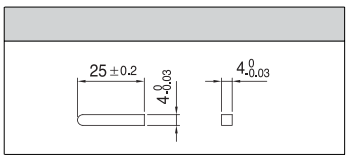
# DIMENSIONS : SOLID SHAFT

## SC8KA□ eiht : 1. )

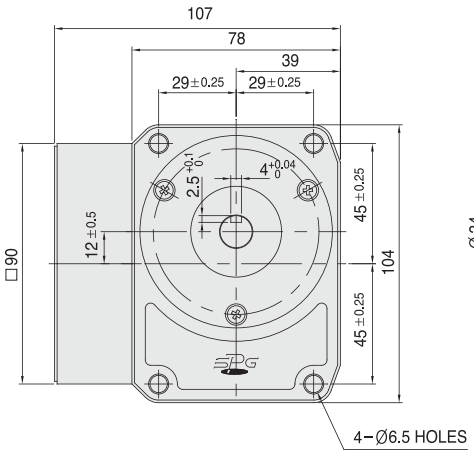


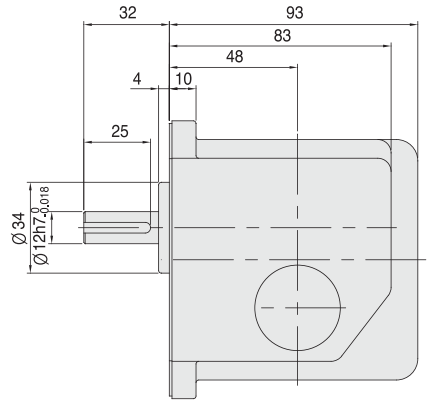




✚ KEY SPEC

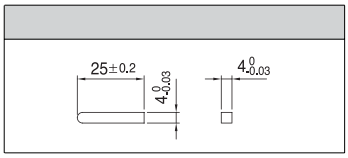



## SCKB□ eiht : 2.0 )

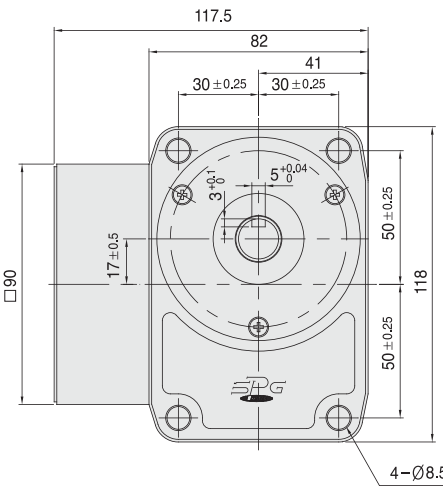


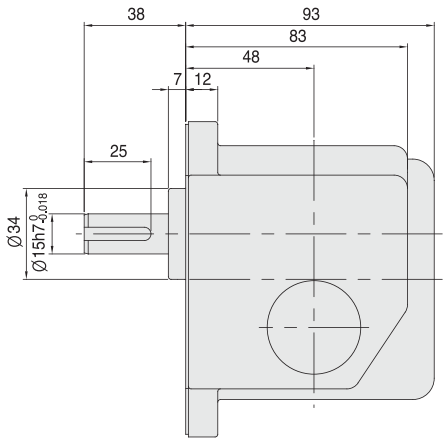




✚ KEY SPEC

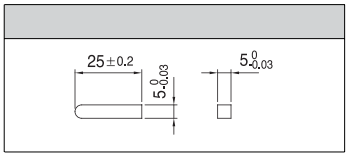



## SCKC□ eiht : 2. )



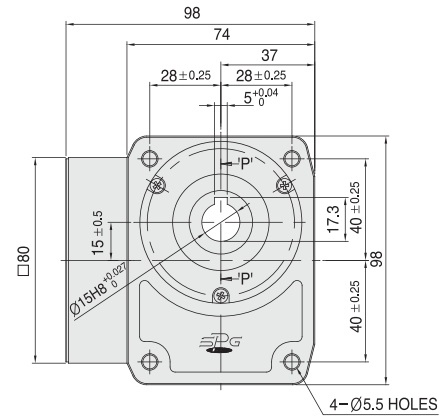



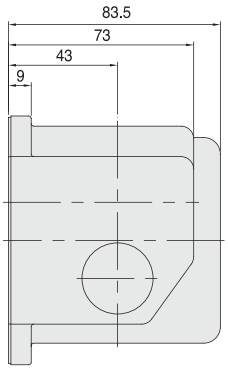

✚ KEY SPEC

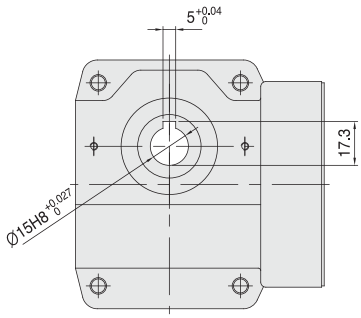


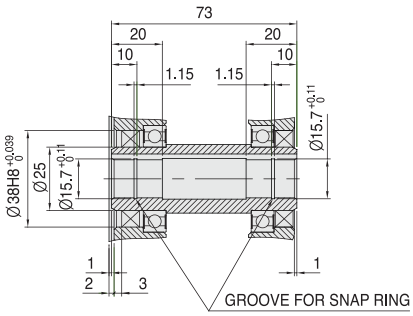
# DIMENSIONS : HOLLOW SHAFT

## SC8HA□ eiht : 1. )



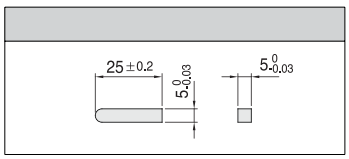



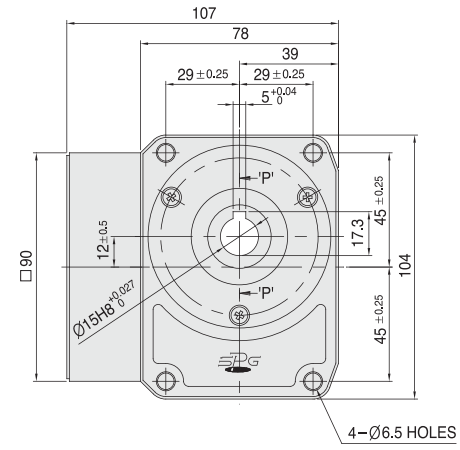



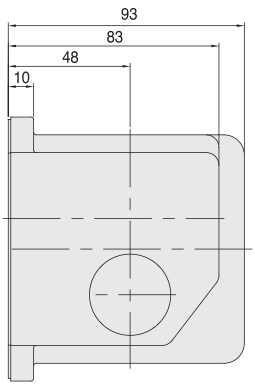

SECTION P P DETAIL OF OUTPUT SHAFT)

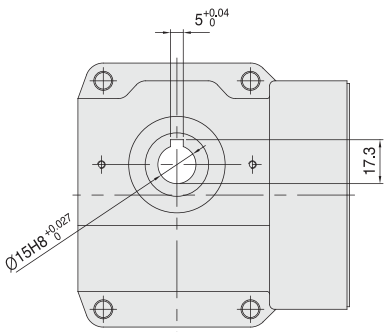
✚ KEY SPEC

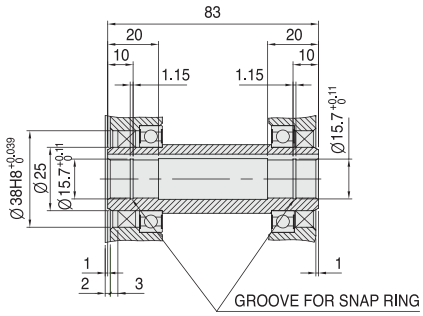



## SCHB□ eiht : 2.0 )



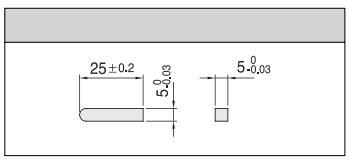



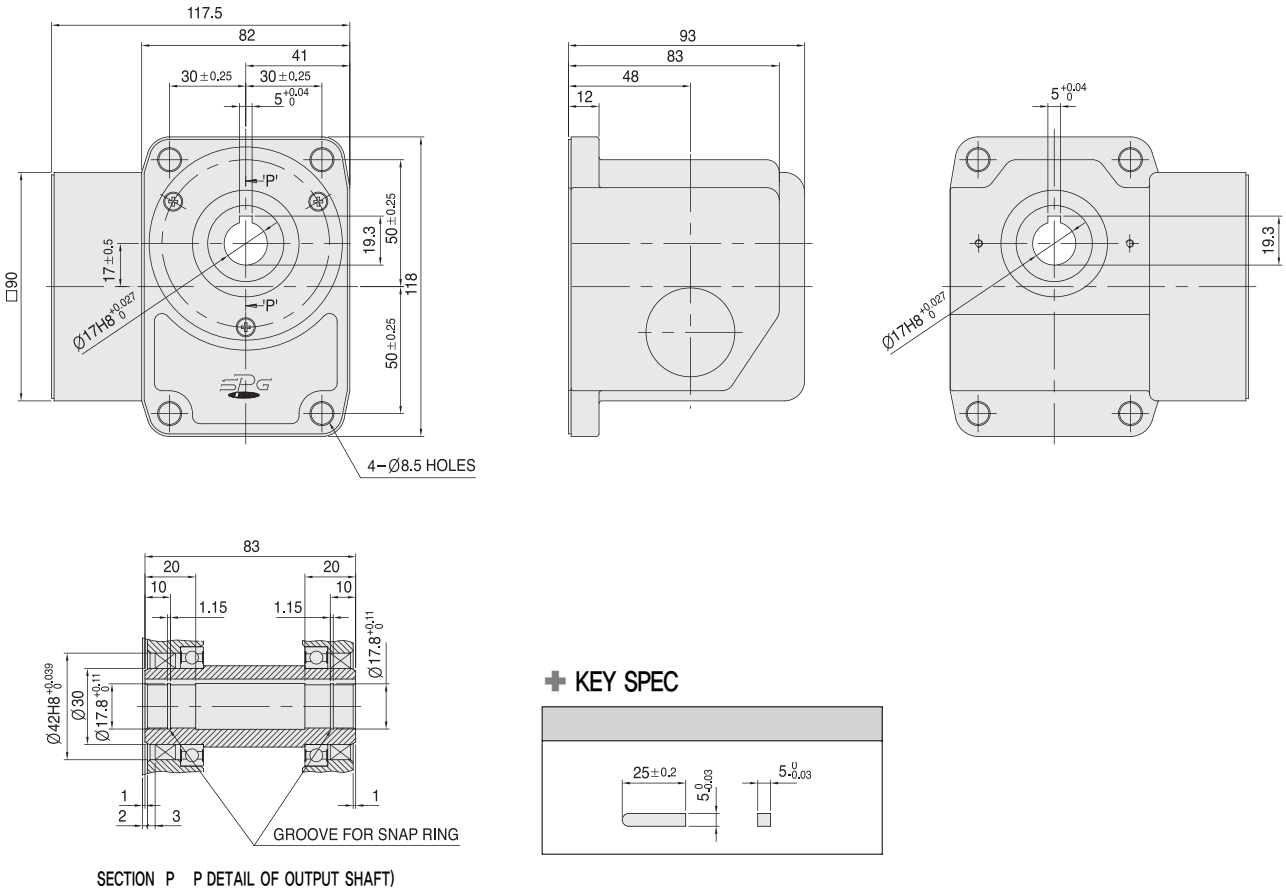

SECTION P P DETAIL OF OUTPUT SHAFT)

✚ KEY SPEC



# DIMENSIONS : HOLLOW SHAFT

SCHC□ eiht : 2. )




SECTION P P DETAIL OF OUTPUT SHAFT)

# BRAKE PACK

## INDEX


CHARACTERISTICS OF BRAKE PACK ..... 286

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# BRAKE PACK




## 1. Characteristics of Brake Pack

1) The electronic brake can stop the motor instantaneously.
   - The motor stops instantaneously within 0.1 second.
   - The braking current flows for about 0.4 seconds. Afterwards, the motor's power source shuts off automatically. (The brake pack has no holding torque.)
2) This is an electronic circuit that is used as an instant stop brake when used with induction motors and is also used as an instant reversible brake pack when used with reversible motors.
3) Unlike mechanical brakes (electromagnetic brakes), an electronic brake does not have a mechanical friction point, therefore has longer life cycle and stronger breaking torque. Thus it is suitable for the inching operation of the motor.

## 2. Usage of Brake Pack

### (1) How to Change Rotational Direction of Motor

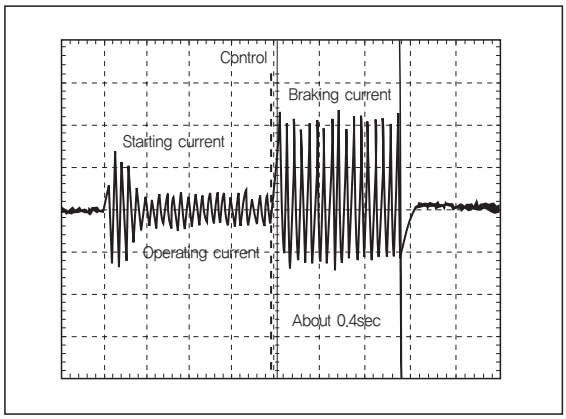
1) When changing the rotational direction of the induction motor, the stoppage of the motor must be confirmed before changing the rotational direction.
2) When changing the rotational direction of the three-phase induction motor, the stoppage of the motor must be confirmed before changing the rotational direction.
   The power source T is fixed and does not change.
3) When stopping the motor instantaneously by using the brake pack, a large surge of braking current occurs for about 0.4 seconds. At this time, if an attempt is made to change the rotational direction of the motor, the big sparks are generated between the relay contact points, reducing the life cycle of the motor.Therefore, do not attempt to change the rotational direction of the motor for 0.5 seconds after the motor is stopped instantaneously.

### (2) Use of Power Relay

1) If the brake pack with a contact point is going to be used, the power relay ils required to switch between operation and brake. When opening and closing the power relay, the sparks are generated between contact points, either reducing the life cycle or causing the radio noise interference.
2) In such a case, use a CR circuit to absorb the surge voltage occurred between the relay contact points.
3) If the CR circuit for absorbing the surge voltage is connected and employed, the fluctuation of spark voltage and frequency is alleviated, preventing both weakening of the contact points and interfering of the radio noise.
4) When used with reversible motors, use CR circuit to absorb surge voltage to protect the contact point of the switch used to change the rotational direction.

### (3) FUSE

1) When stopping the motor instantaneously with the brake pack, a large surge of current occurs for about 0.4 seconds.
2) Therefore, when connecting the fuse to the power switch, check the breaking current value and use the appropriate quantity of the fuse.
3) To find out the braking current value of the corresponding motor, refer to the specifications of each brake pack.

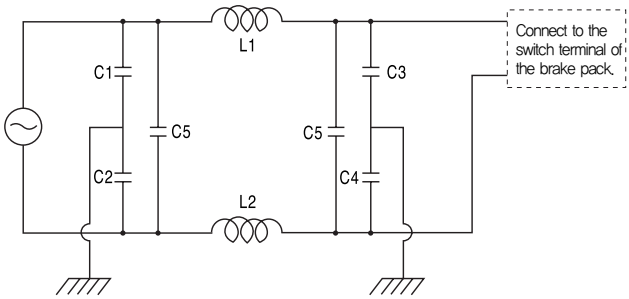



### (4) Motor Temperature Rise and Maximum Continuous Operation

1) Even if the brake pack is adjusted to a short cycle, the motor can make an accurate stop instantaneously.
2) Shorter the operation cycle, higher the the temperture rises. So the limitation must be given for the continuous operation.
3) Stopping and starting the motor makes the current flow more frequently compared to a rated operation resulting in a faster increase of the motor temperature.
4) Thus if it is operated for shot cycle, be careful with the temperature increase.
5) Make sure to keep the temperature of the motor's housing surface 90℃ or less while the motor is operating.

### (5) Noise Solution

1) When using the motor in a place where a large external noise may occur due to opening and closing of a large power, such noise may cause the thyristor to malfunction and the motor may vibrate when it stops.
2) The source of such noise includes high-powered motors, solenoid, high frequency quencher, and electrical welding machine.




3) One effective solution to the external noise problem is to connect the noise filter to the power line of the brake pack as shown in the figure.
4) The brake pack SBS-ICE type has a built-in filter to address the noise problem associated with the power source line.
5) Also, when stopping the motor instantaneously with the brake pack, a little radio noise may be experienced because the braking current is controlled by the phase.
It is recommended to connect the noise filter as shown in the figure above, because it gives minimal influence on the other device.

## 3. Cautions for Using Brake Pack

### (1) Installation

1) Use it in a place where an ambient temperature ranges from 0℃ to +40℃ and an ambient humidity is less than 85%.
2) Avoid direct sunlight, moistened or oily place. If the motor is going to be used in such a place, install a cover for it.
3) Avoid places with vibrations, shocks, a lot of dusts, flammable or caustic gas, and the like.

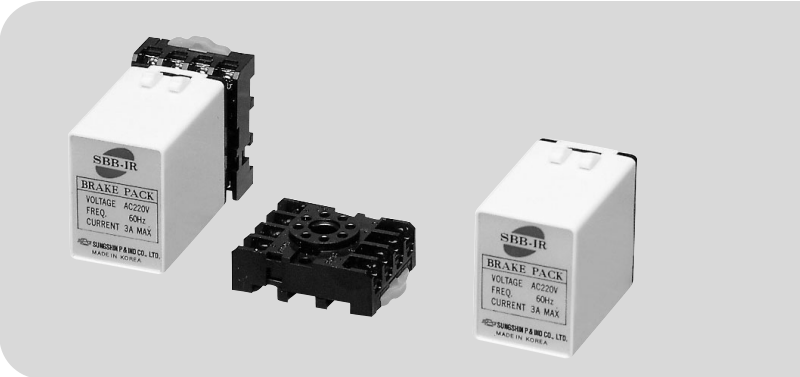
### (2) Wiring

1) Connection socket must be used and do not directly solder the main body.
2) Check the terminal number when connecting the socket.
3) When inserting the brake pack into the socket groove, turn off the power and check the pin number before inserting.
4) When connecting the noise filter, install it as close as possible to the brake pack. Do not forget to ground the earth terminal.
5) The wiring for the switching signal between operating and braking should be short, separating it from the motor lead line or any other power line.

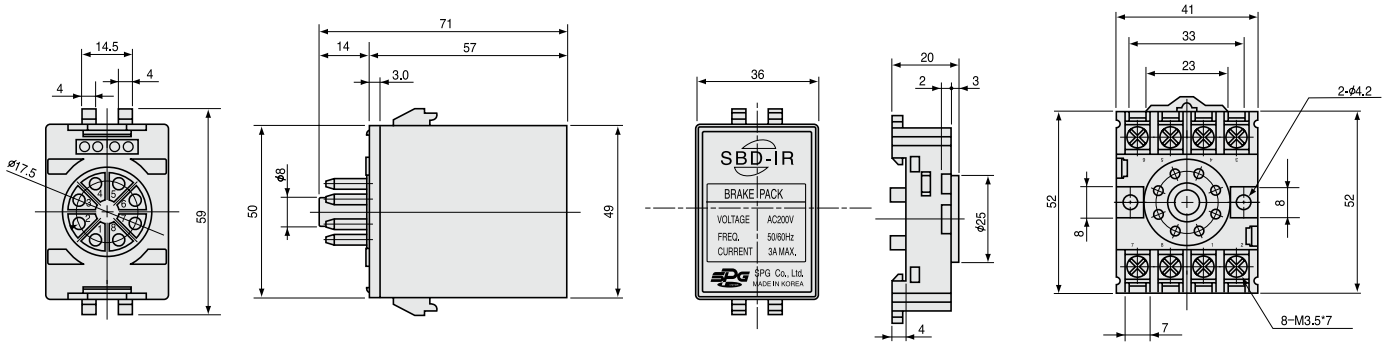
### (3) Others

1) If the motor is actually loaded, use the motor while its surface temperature is 90℃ or less. Especially, frequent repetition of instantaneous stop and start increases the motor temperature.
2) If the motor is not going to run for a long period of time, turn the power source off.
3) Do not use AC power source to start or stop the motor.
The surge voltage generated from the switch may damage the product.

# BRAKE PACK
## : CONTACT TYPE




## ✚ DIMENSIONS




❖ BREAK PACK is an electronic braking circuit to stop single and three phase motor instantaneously.
❖ Applicable to inching, etc, since it can give a dynamical braking function at short cycle.

# 1 SBA-IR, SBC-IR

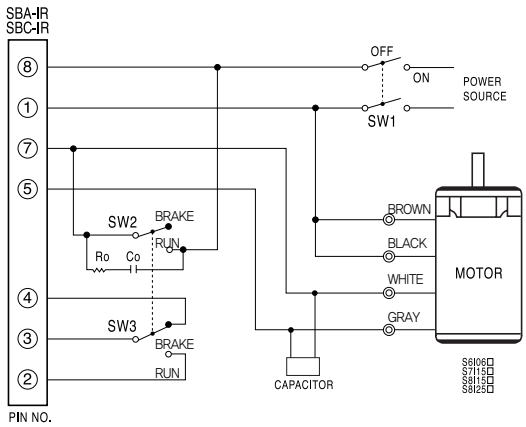
### SPECIFICATION

| MODEL | SBA-IR | SBC-IR |
|---|---|---|
| Voltage & Frequency | Single – phas 110V±10%, 60Hz | Single – phas 100V±10%, 50/60Hz |
| Applicated Motor | ● INDUCTION MOTOR 90W or less<br>(external resistance needed for operating 90W)<br>● REVERSIBLE MOTOR 60W or less<br>(external resistance needed for operating 60W) | |
| Permissible Braking | 3A or less | |
| Braking Current Time | About 0.4sec | |
| Ambient Temp | –10℃~+50℃ | |
| Ambient Humidity | 85% or less (No condensing) | |
| Insulation Resistance | 100㏁ or more when 500V DC megger is applied between the power terminal and signal input terminal<br>at ambient temperature and humidity after brake pack | |
| Dielectric Strength | Sufficient to withstand 1500V 50/60Hz applied between the power terminal and signal input terminal<br>at ambient temperature and humidity after brake pack running at rated speed for 1mi | |

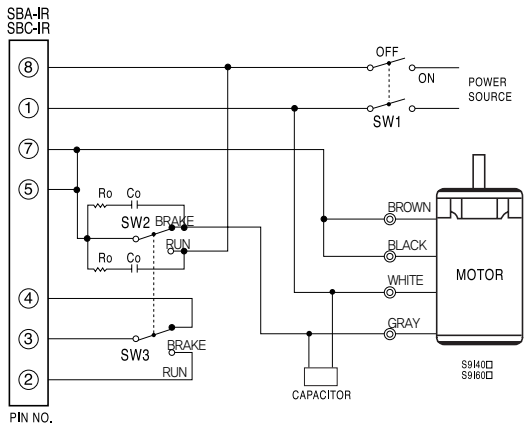
1. Connections differ with types and output power of the motors.
   • A Diagram : Motors with output power 25W or less.
   • B Diagram : Motors with output power 40W ~ 60W.
   • B Diagram + External Resistor 30Ω 50W : 90W induction motor, 60W reversible motor.
2. Be careful since there is high voltage on some terminals.

# ✚ SCHEMATIC DIAGRAM OF INDUCTION MOTOR

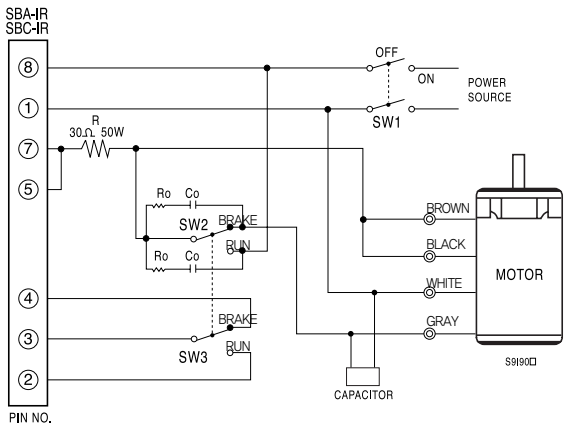
### ▼ A Diagram




### ▼ B Diagram

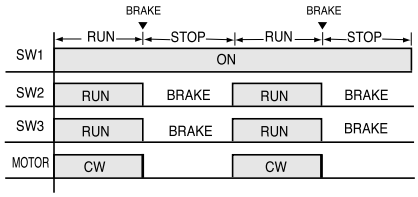



### ▼ B Diagram + External Resistor 30Ω 50W




■ The capacity(50W) of braking external resistance is to brake once every 10seconds. When the motor is operated in a shorter cycle bigger capacity is required.

| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 125V 5A or more | |
| SW2 | AC 125V 5A or more | Should be operating at same time |
| SW3 | DC 20V 10mA | |
| R : braking current | 30Ω 50W (EXTERNAL RESISTOR FOR BRAKING) | B DIAGRAM+EXTERNAL RESISTOR 30Ω50W |
| Ro,Co (SPARK KILLER) | Ro=5~200Ω Co=0.1~0.2μF 125WV | |




## OPERATION/INSTANTANEOUS STOP

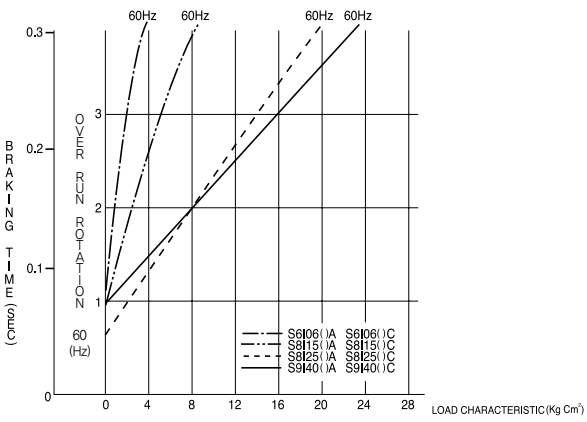
■ When switch SW2, SW3 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

## DIRECTION OF ROTATION

■ These diagrams all refer CW rotation as viewed from shaft end of the motor. To rotate the motor in a counter clock wise, exchange gray and brown wire. Do not change direction of rotation 0.4 seconds after braking operation.

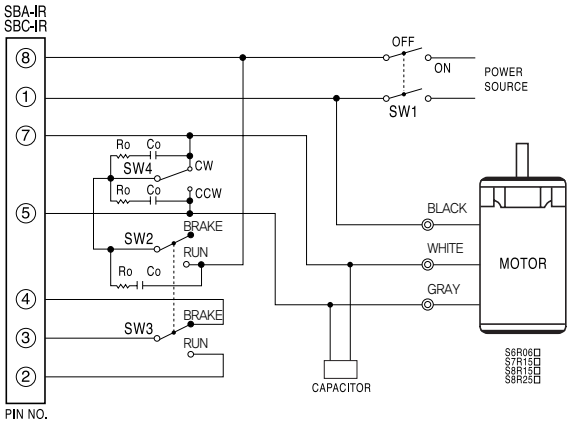
## EXAMPLE OF BRAKING CHARACTERISTIC

Braking characteristics of induction motor are shown as below..

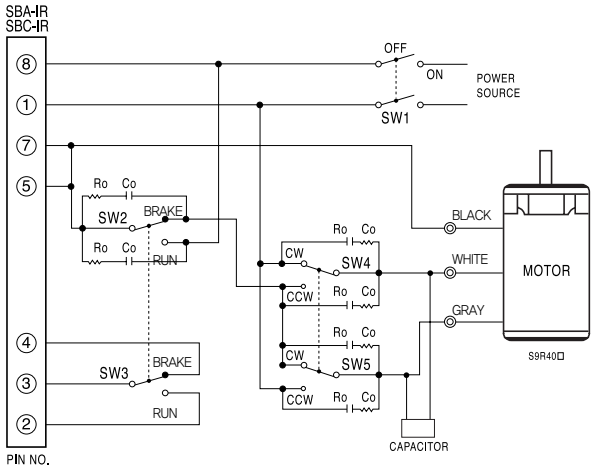


# ✚ SCHEMATIC DIAGRAM OF REVERSIBLE MOTOR

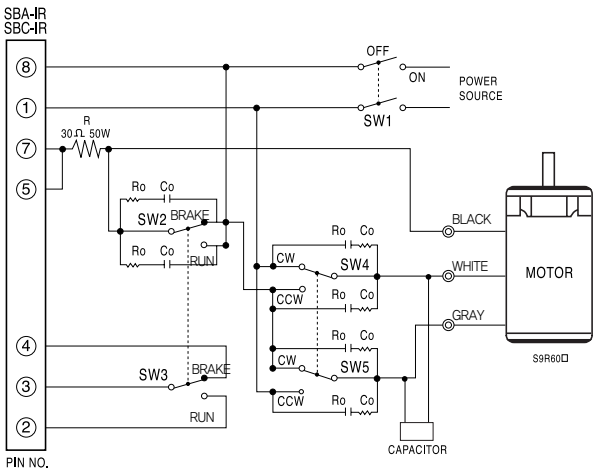
### ▼ A Diagram




### ▼ B Diagram

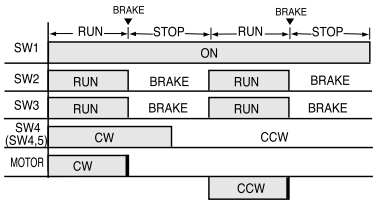



### ▼ B Diagram + External Resistor 30Ω 50W




■ The capacity(50W) of braking external resistance is to brake once every 10seconds. When the motor is operated in a shorter cycle bigger capacity is required.

| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 125V 5A or more | |
| SW2 | AC 125V 5A or more | Should be operating at same time |
| SW3 | DC 20V 10mA | |
| SW4, 5 | AC 125V 5A or more | |
| R : braking current | 30Ω 50W (EXTERNAL RESISTOR FOR BRAKING) | B DIAGRAM+EXTERNAL RESISTOR 30Ω50W |
| Ro,Co (SPARK KILLER) | Ro=5~200Ω Co=0.1~0.2μF 125WV | |




## OPERATION/INSTANTANEOUS STOP

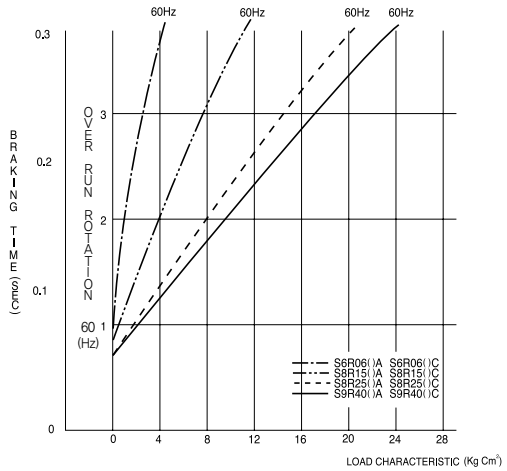
■ When switch SW2, SW3 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

## DIRECTION OF ROTATION

■ These diagrams all refer clockwise(CW) rotation as viewed from the front shaft end of the motor. Do not reverse the rotation for 0.4sec. after braking. While braking, set SW4, SW5 should be accessed to connect to CW or CCW.

## EXAMPLE OF BRAKING CHARACTERISTIC

Braking characteristics of induction motor are shown as below.




## OPERATION CYCLE AND LIMIT FOR CONTINUOUS OPERATION

Even when brake pack SBA-IR or SBC-IR is used in short operating cycles such as inching operation, the motor can be stopped instantaneously.
However, if the motor is operated in a cycle shorter than 0.5sec for running and stopping, this will be like repeating starting and instantaneous stopping, and will cause rise of temperature. The temperature of the motor case should be maintained 90℃ or less regardless of operating cycles.

# 2 SBB-IR, SBD-IR

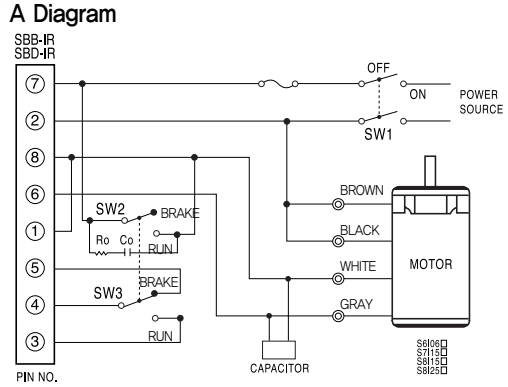
## SPECIFICATION

| MODEL | SBB-IR | SBD-IR |
|---|---|---|
| Voltage & Frequency | Single - phas 220V±10%, 60Hz | Single - phas 200V±10%, 50/60Hz |
| Applicated Motor | ● INDUCTION MOTOR 90W or less<br>(external resistance needed for operating 90W)<br>● REVERSIBLE MOTOR 60W or less | |
| Permissible Braking | 3A and less | |
| Braking Current Time | About 0.4sec | |
| Ambient Temp | -10℃~+50℃ | |
| Ambient Humidity | 85% or less (No condensing) | |
| Insulation Resistance | 100㏁ or more when 500V DC megger is applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack | |
| Dielectric Strength | Sufficient to withstand 1500V 50/60Hz applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack running at rated speed for 1min | |

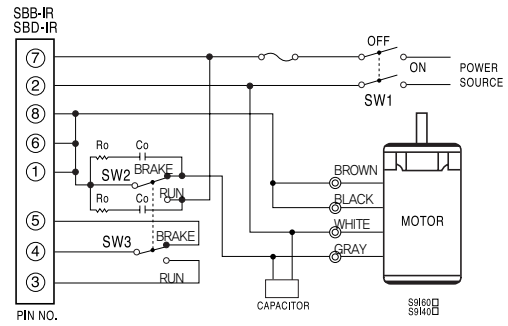
1. Connections differ with types and output power of the motors.
   • A Diagram : Motors with output power 25W or less • B Diagram : Motors with output power 40W ~ 60W.
   • B connection and external braking resistor with external resistance of 50Ω 20W is required for motors over 60W
2. Be careful since there is high voltage on some terminals.

# ✚ SCHEMATIC DIAGRAM OF INDUCTION MOTOR

▼ A Diagram

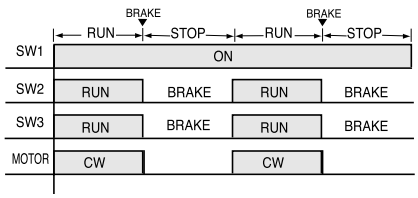



▼ B Diagram




■ The capacity(20W) of braking external resistance is to brake once every 10seconds. When the motor is operated in a shorter cycle bigger capacity is Required.

| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 125V 5A or more | |
| SW2 | AC 125V 5A or more | Should be operating at same time |
| SW3 | DC 20V 10mA | |
| R : braking current | 50Ω 20W (EXTERNAL RESISTOR FOR BRAKING) | B DIAGRAM+EXTERNAL RESISTOR 30Ω50W |
| Ro,Co (SPARK KILLER) | Ro=5~200Ω Co=0.1~0.2μF 125WV | |




## OPERATION/INSTANTANEOUS STOP

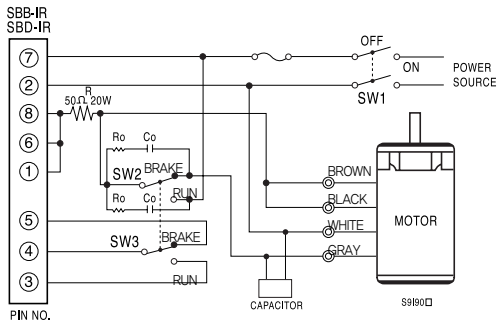
■ When switch SW2, SW3 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

## DIRECTION OF ROTATION

■ These diagrams all refer clockwise(CW) rotation as viewed from the front shaft end of the motor. To rotate counter-clockwise(CCW), change gray wire to brown. Do not reverse the rotation for 0.4sec. after braking.

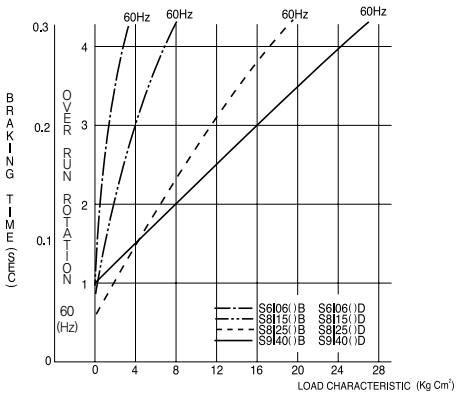
### ▼ B Diagram + External Resistor 50Ω 20W

■ The capacity(20W) of braking external resistance is to brake once every 10 seconds. When the motor is operated in a shorter cycle bigger capacity is required.



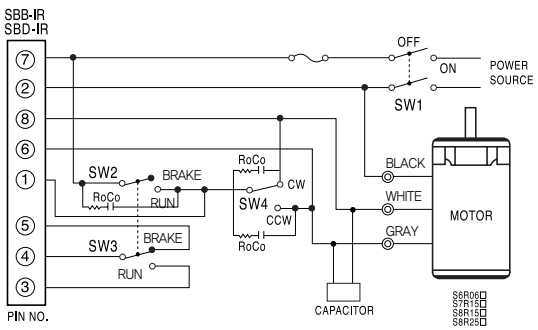

## EXAMPLE OF BRAKING CHARACTERISTIC

Braking characteristics of induction motor are shown as below.

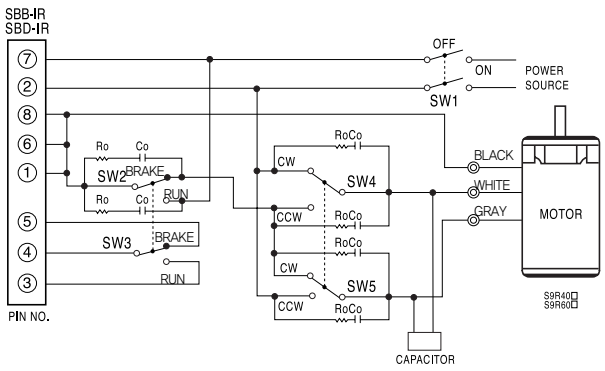



# ✚ SCHEMATIC DIAGRAM OF REVERSIBLE MOTOR

### ▼ A Diagram




### ▼ B Diagram




| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 250V 5A or more | |
| SW2 | AC 250V 5A or more | Should be operating at same time |
| SW3 | DC 20V 10mA | |
| SW4, 5 | AC 250V 5A or more | |
| Ro,Co (SPARK KILLER) | Co = 0.1~0.2μF 125WV | |

## RUN/INSTANTANEOUS STOP

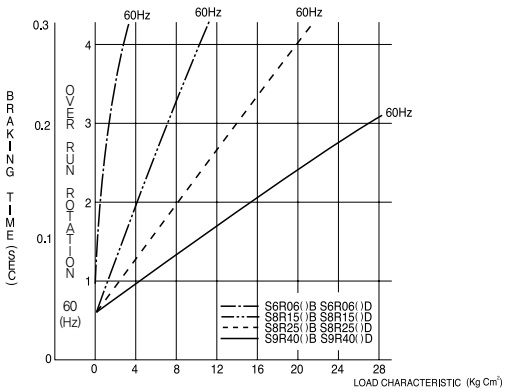
■ When switch SW2, SW3 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

## DIRECTION OF ROTATION

■ These diagrams all refer clockwise(CW) rotation as viewed from the front shaft end of the motor. Do not reverse the rotation for 0.4sec. after braking. While braking, set SW4 SW5 to be accessible to connect to CW or CCW.

## EXAMPLE OF BRAKING CHARACTERISTIC

Braking characteristics of induction motor are shown as below.




## OPERATION CYCLE AND LIMIT FOR CONTINUOUS OPERATION

Even when brake pack SBB-IR or SBD-IR is used in short operating cycles such as inching operation, the motor can be stopped instantaneously. However, if the motor is operated in a cycle shorter than 0.5sec for running and stopping, this will be like repeating starting and instantaneous stopping, and will cause rise of temperature. The temperature of the motor case should be maintained 90℃ or less regardless of operating cycles.

# 3 SBX-IR

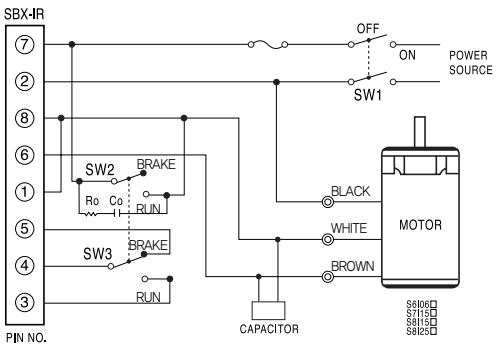
## SPECIFICATION

| MODEL | SBX-IR |
|---|---|
| Voltage & Frequency | Single – phas 200~240V, 50Hz |
| Applicated Motor | ● INDUCTION MOTOR 90W or less<br>(external resistance needed for operating 90W)<br>● REVERSIBLE MOTOR 60W or less |
| Permissible Braking | 3A or less |
| Braking Current Time | About 0.4sec |
| Ambient Temp | -10℃~+50℃ |
| Ambient Humidity | 85% or less (No condensing) |
| Insulation Resistance | 100㏁ or more when 500V DC megger is applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack |
| Dielectric Strength | Sufficient to withstand 1500V 50/60Hz applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack running at rated speed for 1min |

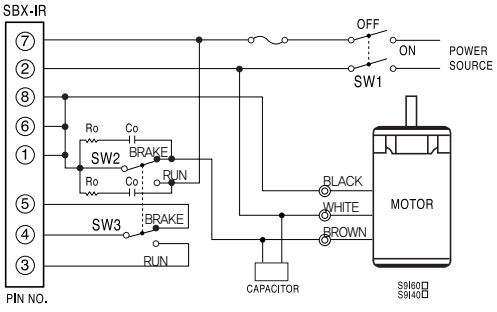
1. Connections differ with types and output power of the motors.
   - A Diagram : Motors with output power 25W or less
   - B Diagram : Motors with output power 40W ~ 60W.
   - B connection and external braking resistor with external resistance of 50Ω 20W is required for motors over 60W
2. Be careful since there is high voltage on some terminals.

# ✚ SCHEMATIC DIAGRAM OF INDUCTION MOTOR

▼ A Diagram

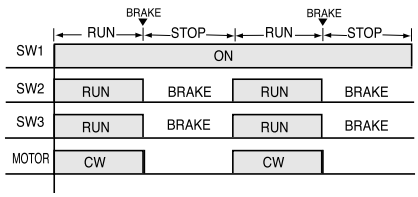



▼ B Diagram




■ The capacity(20W) of braking external resistance is to brake once every 10seconds. When the motor is operated in a shorter cycle bigger capacity is required.

| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 250V 5A or more | |
| SW2 | AC 250V 5A or more | Should be operating at same time |
| SW3 | DC 20V 10mA | |
| R : braking current | 50Ω 20W (EXTERNAL RESISTOR FOR BRAKING) | B DIAGRAM+EXTERNAL RESISTOR 30Ω50W |
| Ro,Co (SPARK KILLER) | Ro=5~200Ω Co=0.1~0.2μF 125WV | |




## OPERATION/INSTANTANEOUS STOP

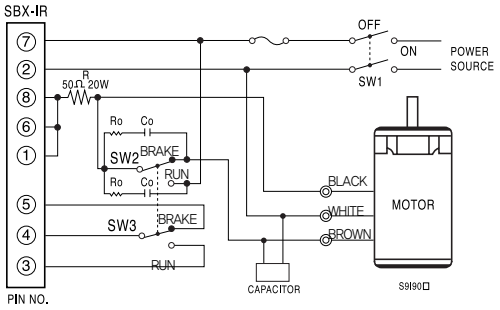
■ When switch SW2, SW3 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

## DIRECTION OF ROTATION

■ These diagrams all refer clockwise(CW) rotation as viewed from the front shaft end of the motor. To rotate counter-clockwise(CCW), change gray wire to brown. Do not reverse the rotation for 0.4sec. after braking.

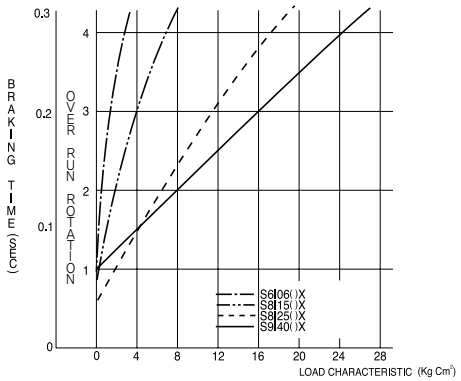
### ▼ B Diagram + External Resistor 50Ω 20W

■ The capacity(20W) of braking external resistance is to brake once every 10 seconds. When the motor is operated in a shorter cycle bigger capacity is required.



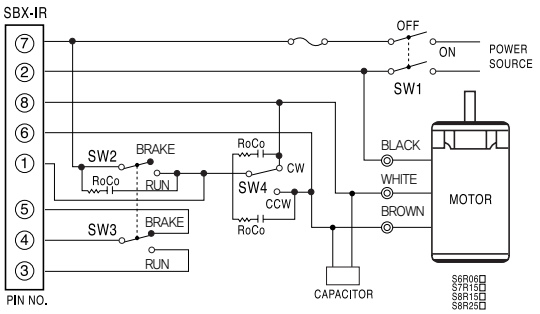

## EXAMPLE OF BRAKING CHARACTERISTIC

Braking characteristics of induction motor are shown as below.

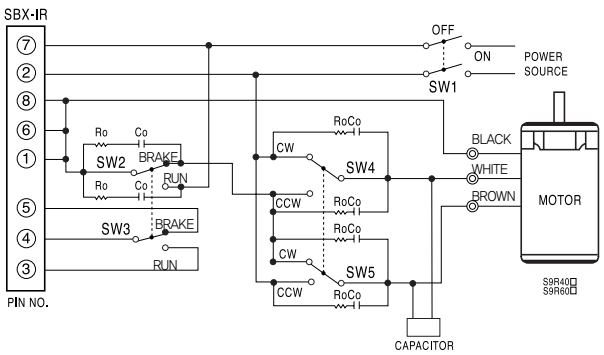



# ✚ SCHEMATIC DIAGRAM OF REVERSIBLE MOTOR

### ▼ A Diagram




### ▼ B Diagram




| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 250V 5A or more | |
| SW2 | AC 250V 5A or more | Should be operating at same time |
| SW3 | DC 20V 10mA | |
| SW4, 5 | AC 250V 5A or more | |
| Ro,Co (SPARK KILLER) | Co = 0.1~0.2μF 125WV | |

## RUN/INSTANTANEOUS STOP

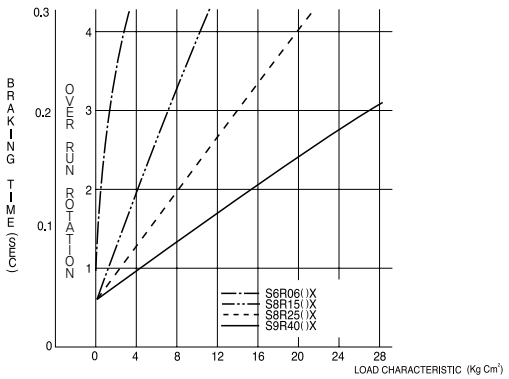
■ When switch SW2, SW3 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

## DIRECTION OF ROTATION

■ These diagrams all refer clockwise(CW) rotation as viewed from the front shaft end of the motor. Do not reverse the rotation for 0.4sec. after braking. While braking, set SW4 SW5 to be accessible to connect to CW or CCW.

## EXAMPLE OF BRAKING CHARACTERISTIC

Braking characteristics of induction motor are shown as below.




## OPERATION CYCLE AND LIMIT FOR CONTINUOUS OPERATION

Even when brake pack SBX – IR is used in short operating cycles such as inching operation, the motor can be stopped instantaneously. However, if the motor is operated in a cycle shorter than 0.5sec for running and stopping, this will be like repeating starting and instantaneous stopping, and will cause rise of temperature. The temperature of the motor case should be maintained 90℃ or less regardless of operating cycles.

# 4 SBU-I, SBT-I

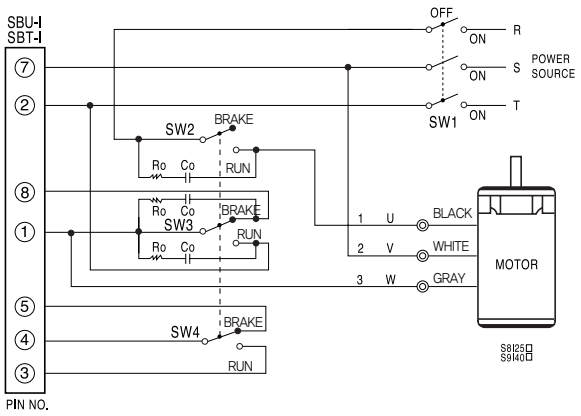
## SPECIFICATION

| MODEL | SBU-IR | SBT-IR |
|---|---|---|
| Voltage & Frequency | Three phase 200V±10%, 50/60Hz | Three phase 220V±10%, 50/60Hz |
| Applicated Motor | ● INDUCTION MOTOR 90W or less<br>(external resistance needed for operating 60w~90W) | |
| Permissible Braking | 3A or less | |
| Braking Current Time | About 0.4sec | |
| Ambient Temp | -10℃~+50℃ | |
| Ambient Humidity | 85% or less (No condensing) | |
| Insulation Resistance | 100MΩ or more when 500V DC megger is applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack | |
| Dielectric Strength | Sufficient to withstand 1500V 50/60Hz applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack running at rated speed for 1min | |

1. Connection of brake pack is different according to the output and usage of motor.
   - A Diagram : Motors with output power 25W or less
   - B Diagram : Motors with output torque over 60W or motors with output torque less than 40W with short cycle braking (more than once per 5 seconds)
2. Be careful since there is a high voltage on some terminals.

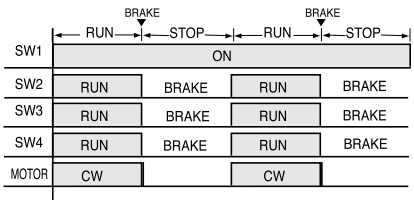
# ✚ SCHEMATIC DIAGRAM OF INDUCTION MOTOR

▼ A Diagram




※ Note : Use external resistor R(30Ω, 20W)

| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 250V 5A or more | |
| SW2 | AC 250V 5A or more | Should be operating at same time |
| SW3 | DC 20V 10mA | |
| R:braking current | 30Ω 50W (EXTERNAL RESISTOR FOR BRAKING) | B DIAGRAM+EXTERNAL RESISTOR 30Ω20W |
| Ro,Co (SPARK KILLER) | Ro=5~200Ω Co=0.1~0.2μF 250WV | |




## OPERATION/INSTANTANEOUS STOP

■ When switch SW2, SW3 and SW4 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

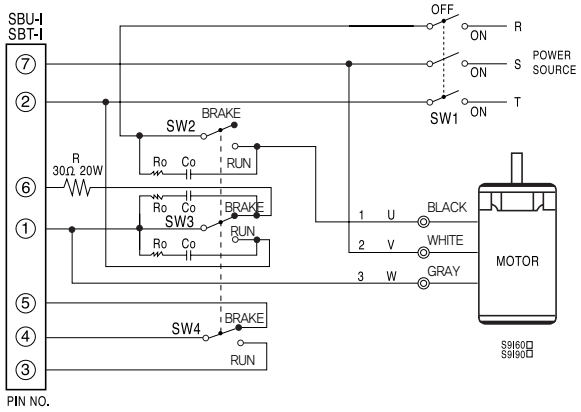
## DIRECTION OF ROTATION

■ These diagrams all refer clockwise(CW) rotation as viewed from the front shaft end of the motor. To rotate the motor in a counter-clockwise(CCW), exchange U and V phase. Do not change the rotating direction for 0.4seconds after operating brake function.

# ✚ SCHEMATIC DIAGRAM OF INDUCTION MOTOR

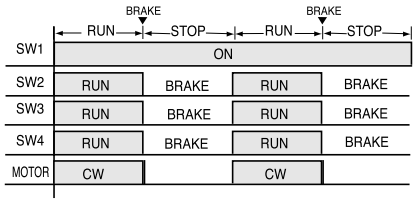
- Short cycle braking
- Output of 60W~90W

▼ B Diagram




※ Note : Use external resistor R(30Ω, 20W)

| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 250V 5A or more | |
| SW2, 3 | AC 250V 5A or more | Should be operating at same time |
| SW4 | DC 20V 10mA | |
| R:braking current | 30Ω 20W (EXTERNAL RESISTOR FOR BRAKING) | B DIAGRAM+EXTERNAL RESISTOR 30Ω20W |
| Ro,Co (SPARK KILLER) | Ro=5~200Ω Co=0.1~0.2μF 250WV | |




## OPERATION/INSTANTANEOUS STOP

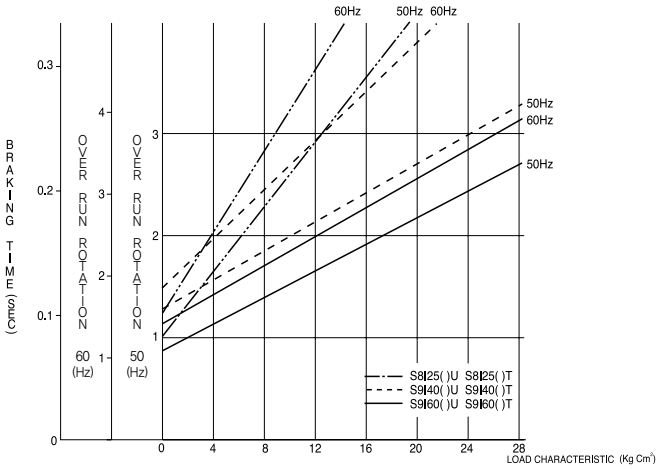
■ When switch SW2, SW3 and SW4 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

## DIRECTION OF ROTATION

■ These diagrams all refer clockwise(CW) rotation as viewed from the front shaft end of the motor. To rotate the motor in a counter-clockwise(CCW), exchange U and V phase. Do not change the direction of rotation for 0.4seconds after operating brake function.

## EXAMPLE OF BRAKING CHARACTERISTIC

Braking characteristics of induction motor are as shown below.




## SWITCH STANDARD AND CONTACT POINT PROTECTION

■ Use power relay with wide contact point. If relay with narrow contact point is used on SW2 and SW3, circuit elements may be damaged by spark.(Contact point capacity AC 250V, over 7A) Use CR circuit for absorbing surge voltage to keep out spark.

※ Ro : 5~200Ω 1/4W over B
Co : 0.1~0.2μF over 250WV

## OPERATION CYCLE AND LIMIT FOR CONTINUOUS OPERATION

■ Even when three-phase brake pack is used in short operating cycles such as inching operation, the motor can be stopped instantaneously. However, consider maximum load condition because for three phase motor, temperature may be changed according to the given load. When motor repeats starting and stopping in short cycle of more than one instantaneous stop per 5 seconds, the motor's temperature rises rapidly.
The temperature of the motor case should be maintained 90℃ or less regardless of operating cycles.

# 5 SBS-ICE

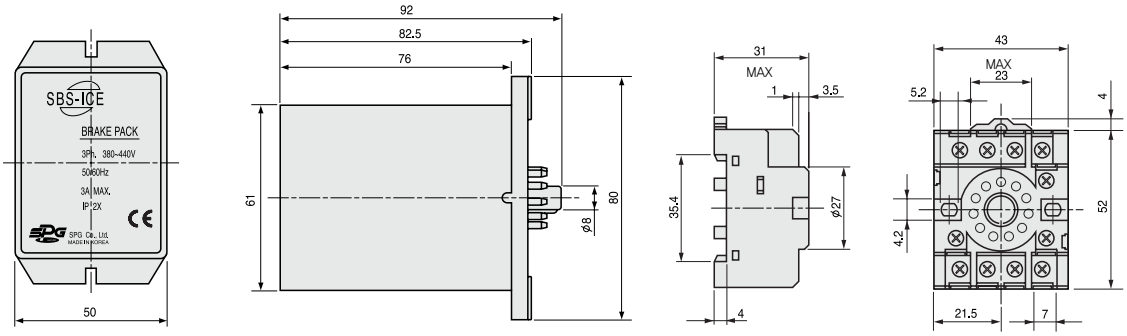
■ Take certification CE Mark
(FILE NO. E9766429E01. Certifi-organization : TÜV Rheinland)

## SPECIFICATION

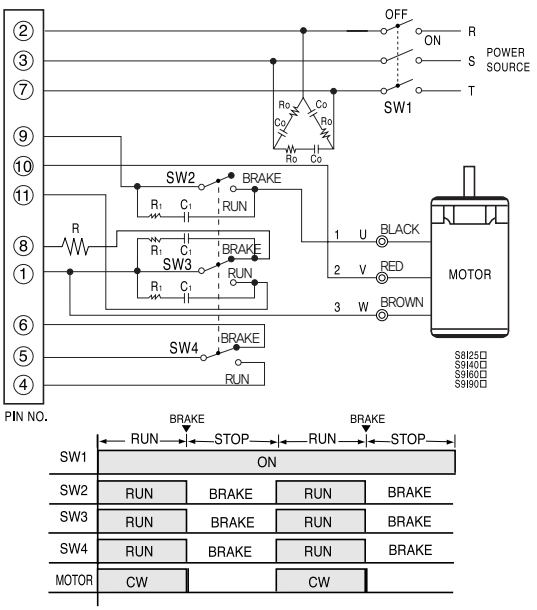
| MODEL | SBS – ICE |
|---|---|
| Voltage & Frequency | Three-phase AC380-440V±10%, 50/60Hz |
| Applicated Motor | ● INDUCTION MOTOR 25W~90W<br>(external resistance needed) |
| Permissible Braking | 3A or less |
| Braking Current Time | About 0.4sec |
| Ambient Temp | -10℃~+50℃ |
| Ambient Humidity | 85% or less (No condensing) |
| Insulation Resistance | 100MΩ or more when 500V DC megger is applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack |
| Dielectric Strength | Sufficient to withstand 1800V 50/60Hz applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack running at rated speed for 1min |

■ Caution
1. Connection of brake pack is different according to the output and usage of motor. 2. Be careful since there is high voltage on some terminals.

## + DIMENSIONS




## + SCHEMATIC DIAGRAM OF INDUCTION MOTOR




※ Note : Use external resistor R

| SWITCH NO. | SWITCH CONTACT | REMARK |
|---|---|---|
| SW1 | AC 500V 5A or more | |
| SW2, SW3 | AC 500V 7A or more | Should be operating at same time |
| SW4 | DC 20V 10mA | |
| R | 50Ω 10W | Motor output 25~40W |
| | 50Ω 20W | Motor output 60~90W |
| R1, C1 | R1 : 5 ~ 200Ω C1 : 0.1 ~ 0.2μF, 500VAC | |
| Ro, Co | Ro : 27Ω, higher model than 5W<br>Co : 0.47μF, higher model than 500VAC | |

| Motor Output | Braking External Resistor |
|---|---|
| 25W~40W | 50Ω 10W |
| 60W~90W | 50Ω 20W |

## OPERATION/INSTANTANEOUS STOP

When switch SW2, SW3 and SW4 are flipped to "RUN", the motor begins to rotate. When these switches are flipped to "STOP", the motor stops instantaneously. Braking current runs through the motor winding for approximately 0.4 seconds and the power is cut automatically.

## DIRECTION OF ROTATION

These diagrams all refer clock wise(CW) rotation as viewed from the front shaft end of the motor. To rotate the motor in a counter clockwise(CCW), exchange U and V phase. Don't change the direction of rotation for 0.4seconds after operating brake function.

## SWITCH STANDARD AND CONTACT POINT PROTECTION

■ Use power relay with wide contact point. If relay with narrow contact point is used on SW2 and SW3, circuit elements may be damaged by spark. (Contact point capacity AC 250V, over 7A) Use CR circuit for absorbing surge voltage to keep out spark.
※ $R_1$ : 5~200Ω 1/4W over B
$C_1$ : 0.1~0.2μF over 500WV

■ Three-phase brake pack has noise filter inside. However, it can not remove noise perfectly. Please connect with Ro and Co.(See the Schematic Diagram) $R_o$, $C_o$ spec is as follow.
※ $R_o$ : 27Ω, 5W and more
$C_o$ : 0.47μF, 500VAC and more

## OPERATION CYCLE AND LIMIT FOR CONTINUOUS OPERATION

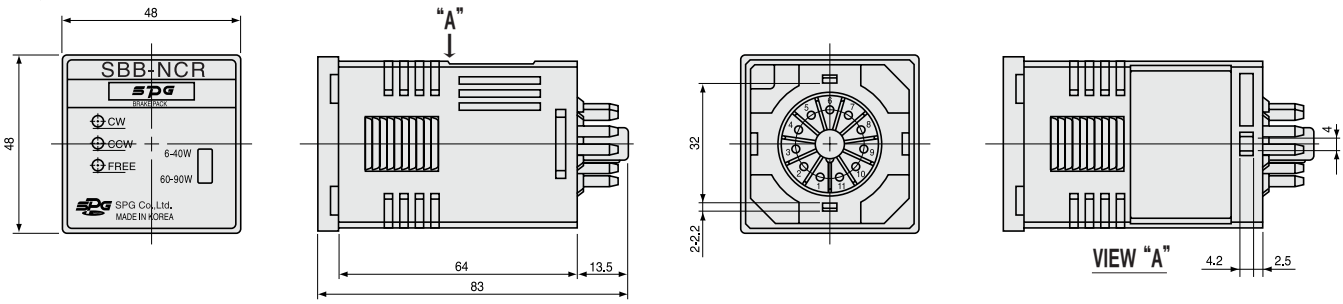
Even when three-phase brake pack is used in short operating cycles such as inching operation, the motor can be stopped instantaneously. However, consider maximum load condition because for three-phase motor, temperature may be changed according to the given load. When motor repeats starting and stopping in short cycle of more than one instantaneous stop per 5 seconds, Short cycle braking. The temperature of the motor case should be maintained 90℃ or less regardless of operating cycles.

# BRAKE PACK
## : NON CONTACT TYPE

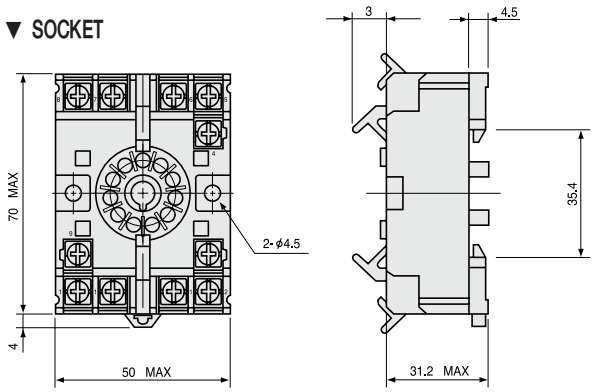



## ✚ DIMENSIONS

▼ BRAKE PACK




▼ SOCKET




### ● Feature

1. SBA-NCR, SBB-NCR, SBC-NCR, SBD-NCR, SBX-NCR are non contact type brake pack for induction motor. For reversible motor, there is a non contact type brake pack.
2. To control the motor, connecting socket(11pin) and direct current for signal (12-24V over 0.1A) as well as brake pack is needed.

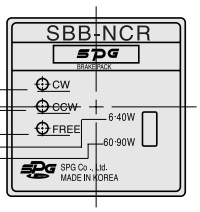
### SPECIFICATION

| MODEL | SBA-NCR | SBB-NCR | SBC-NCR | SBD-NCR | SBX-NCR |
|---|---|---|---|---|---|
| Voltage | Single-phase 110V±10% | Single phase 220V±10% | Single phase 100V±10% | Single phase 200V±10% | Single phase 200V~240±10% |
| Frequency | 60Hz | | 50/60Hz | | 50Hz |
| Applicated Motor | INDUCTION MOTOR & REVERSIBLE MOTOR (6~90W) | | | | |
| Signal Input | DC 12V~DC 24V(±10%)<br>PHOTO COUPLER INPUT<br>CW, CCW, FREE | | | | |
| Ambient Temp | -10℃~+40℃ | | | | |
| Ambient Humidity | 85% or less (No condensing) | | | | |
| Insulation Resistance | 100㏁ or more when 500V DC megger is applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack | | | | |
| Dielectric Strength | Sufficient to withstand 1500V 50/60Hz applied between the power terminal and signal input terminal at ambient temperature and humidity after brake pack running at rated speed for 1min | | | | |

## LED DISPLAY

**1. LED display**

| | |
|---|---|
| CW | Lights when CW signals are input |
| CCW | Lights when CCW signals are input |
| FREE | Lights when FREE signals are input |




**2. Switches for changing output of motor**

| | |
|---|---|
| 6~40W 60~90W | switch position of 6W~40W motor 6W, 15W, 25W, 40W |
| 6~40W 60~90W | switch position of 60W~90W motor 60W, 90W |

Set to 60W~90W when shipped.

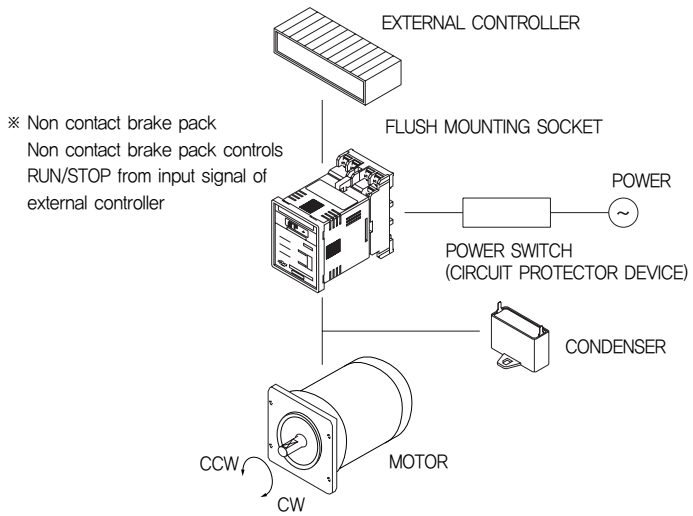
## APPLICATION MOTOR

| MODEL | VOLTAGE | MOTOR TYPE |
|---|---|---|
| SBA-NCR | SINGLE-PHASE 110V | INDUCTION MOTOR 6W~90W REVERSIBLE MOTOR 6W~90W |
| SBC-NCR | SINGLE-PHASE 100V | |
| SBB-NCR | SINGLE-PHASE 220V | |
| SBD-NCR | SINGLE-PHASE 200V | |
| SBX-NCR | SINGLE-PHASE 220V~240V | |
| SBA-ENCR | SINGLE-PHASE 110V | ELECTROMAGNETIC BRAKE MOTOR 6W~90W |
| SBC-ENCR | SINGLE-PHASE 100V | |
| SBB-ENCR | SINGLE-PHASE 220V | |
| SBD-ENCR | SINGLE-PHASE 200V | |
| SBX-ENCR | SINGLE-PHASE 220V~240V | |

## CONNECTION AND SETTING

1. 6~40W INDUCTION MOTOR, REVERSIBLE MOTOR change output switch to 6~40W
2. 60~90W INDUCTION MOTOR, REVERSIBLE MOTOR change output switch to 60~90W

## SYSTEM LAYOUT




## ● Notes on Operation

**1. Motor Operation Cycle**

If the motor is actually loaded, use the motor while its surface temperature is 90˚C or less . Especially, the frequent repetition of instantaneous stop and start raises the motor temperature.

| MOTOR OUTPUT | OPERATION CYCLE |
|---|---|
| 6~25W | more 2sec |
| 40~90W | more 4sec |

※ 1sec run / 1sec stop per 2sec cycle.
※ 2sec run / 2sec stop per 4sec cycle.

**2. Capacity of Protection**

If the motor brakes instantaneously, half-wave current flows about 0.2 ~ 0.4 seconds.
Refer to the table below when choosing the capacity of a protection circuit.

● Brake Current

Unit : [A]

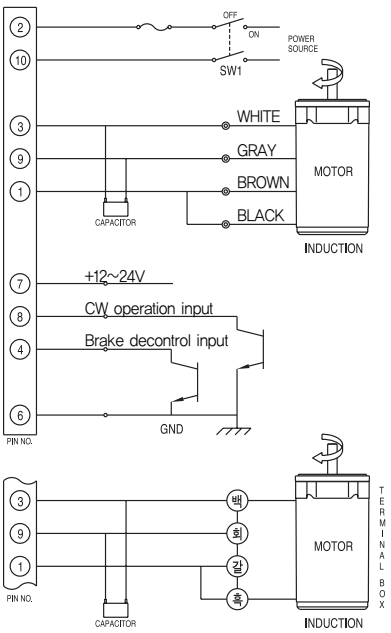
| MOTOR OUTPUT | 110V 60Hz | 220V 60Hz | 100V 50Hz | 100V 60Hz | 200V 50Hz | 200V 60Hz | 220/240V 50Hz |
|---|---|---|---|---|---|---|---|
| 6W | 1.2 | 0.4 | 1.2 | 1.2 | 0.5 | 0.4 | 0.6 |
| 15W | 3.1 | 1.5 | 3.1 | 3.1 | 1.7 | 1.5 | 1.7 |
| 25W | 7.5 | 3.3 | 7.4 | 7.4 | 3.4 | 3.2 | 3.5 |
| 40W | 12.0 | 4.2 | 12.2 | 12.2 | 5.4 | 4.2 | 6.6 |
| 60W | 11.8 | 6.4 | 14.2 | 11.6 | 8.1 | 6.2 | 8.4 |
| 90W | 16.5 | 7.9 | 17.4 | 16.4 | 10.4 | 8.0 | 10.6 |

# APPLICATION BRAKE PACK : SBA-NCR, SBB-NCR, SBC-NCR, SBD-NCR

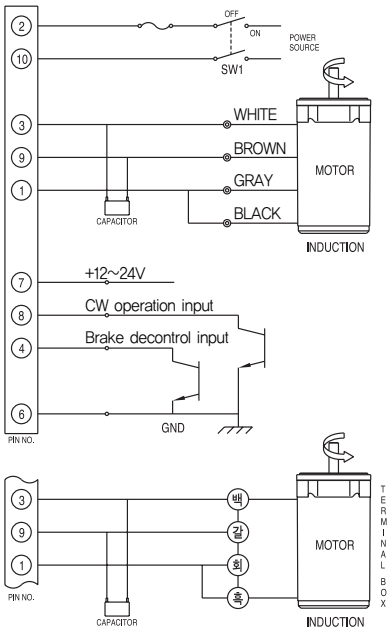
## ■ APPLICATION MOTOR

1ØINDUCTION MOTOR 6W
1ØINDUCTION MOTOR TERMINAL BOX TYPE 6W~90W

▽ CW operation input

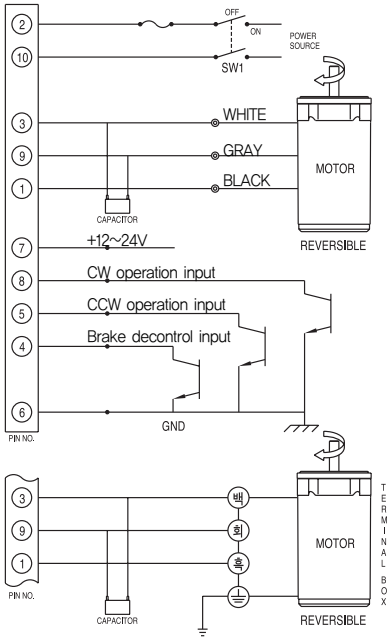



▽ CCW operation input




## ■ APPLICATION MOTOR

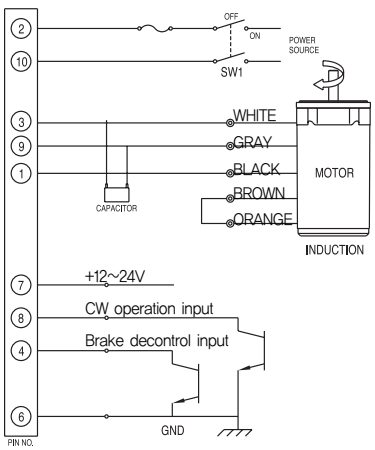
1ØREVERSIBLE MOTOR 6W
1ØREVERSIBLE MOTOR TERMINAL BOX TYPE 6W~90W



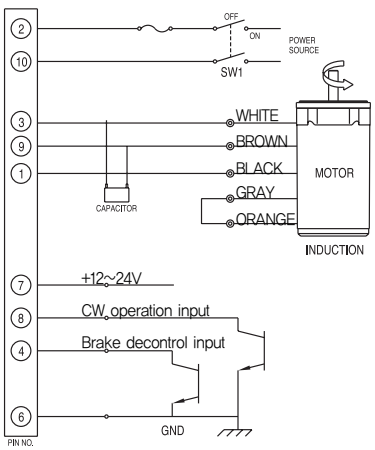

## ■ APPLICATION MOTOR

1ØINDUCTION MOTOR 15W~90W

▽ CW operation input




▽ CCW operation input

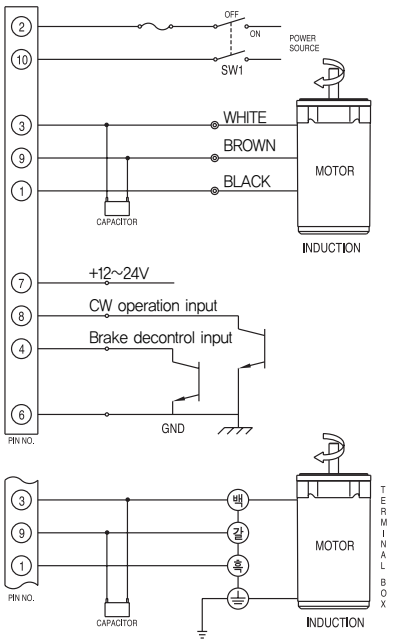


# APPLICATION BRAKE PACK : SBX-NCR

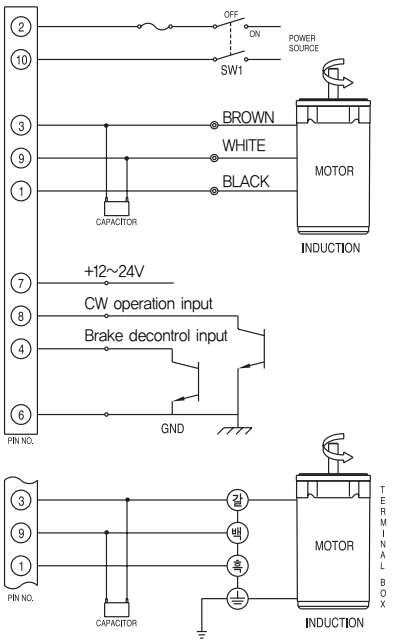
## ■ APPLICATION MOTOR

1ØINDUCTION MOTOR 6W~90W
1ØINDUCTION MOTOR TERMINAL BOX TYPE 6W~90W

▽ CW operation input

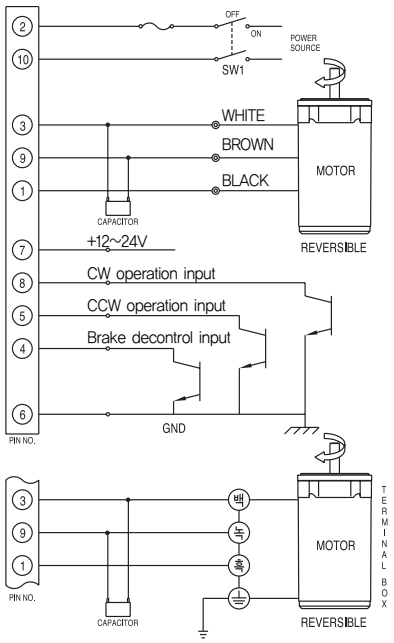



▽ CCW operation input




## ■ APPLICATION MOTOR

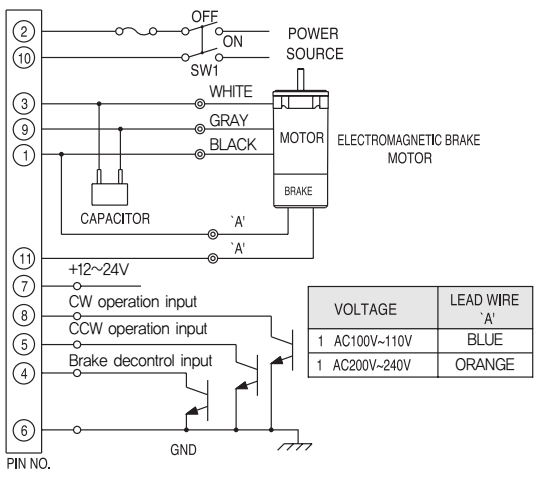
1ØREVERSIBLE MOTOR 6W~90W
1ØREVERSIBLE MOTOR TERMINAL BOX TYPE 6W~90W




# APPLICATION BRAKE PACK : SBA-ENCR, SBB-ENCR, SBC-ENCR, SBD-EN

## ■ APPLICATION MOTOR

1ØELECTROMAGNETIC BRAKE MOTOR 6W~90W

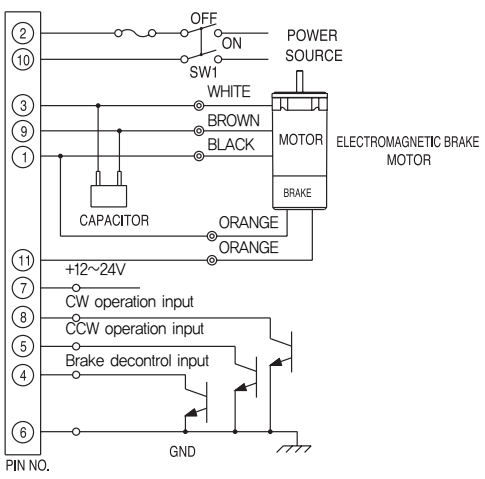



| VOLTAGE | LEAD WIRE `A' |
|---|---|
| 1 AC100V~110V | BLUE |
| 1 AC200V~240V | ORANGE |

# APPLICATION BRAKE PACK : SBX-ENCR

## ■ APPLICATION MOTOR

1ØELECTROMAGNETIC BRAKE MOTOR 6W~90W



## INPUT OF SIGNAL AND OPERATION

**① Input of CW**

When CW operation input is turned on, rotating direction is CW and when turned off, it will instantaneous stop. When connected as per diagram, it will turn CW and to turn CCW, change white and brown wire.

(for terminal box type  motors change ② and ③). (However, for 220V~240V, 50Hz motor, change white and brown wire.

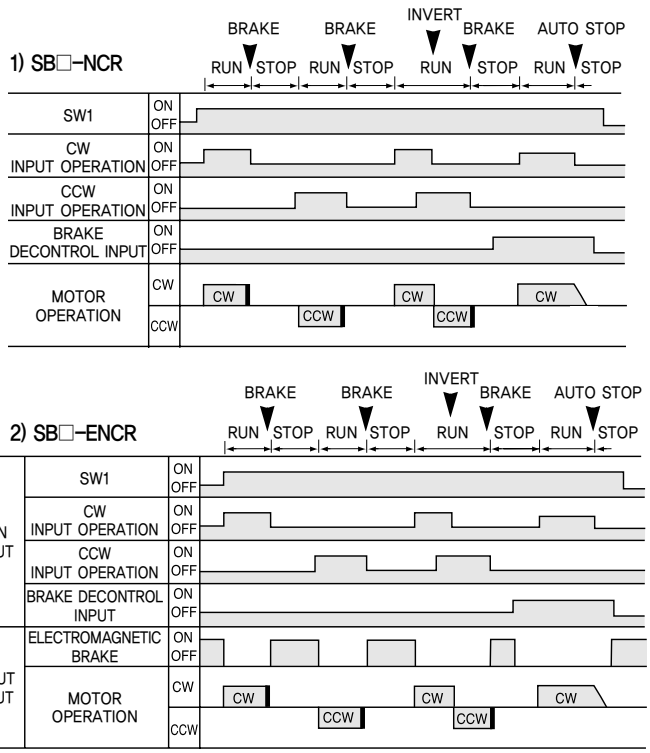
**② Input of anti-braking**

When anti-braking input is turned on, electromagnetic brake will not function, and if CW and CCW signal input is turn off, it will come to natural stop due to inertia force. If anti-braking input is off, electromagnetic brake will function and CW, CCW are off as well, motor will come to instantaneous stop. Electromagnetic brake will automatically terminate its function after stopping

## CAUTION

1. When connecting brake pack and external controller, shortest distance connection is highly recommended.
2. Wire with thickness of 0.75mm or more recommended.
3. AC lead wire(Terminal NO ①②③⑨⑩) and signal lead wire(④⑤⑥⑦⑧) have at least 10cm distance.
4. Be careful not to solder the brake pack's terminal pin directly.
5. When brake is to be connected, be sure to check the terminal number.
6. The power switch must be turned off when inserting the brake to a socket.
7. To prevent malfunctions, earth pin No.6 terminal when instant brake is required for CW or CCW operations.

8. Example of Operation




SPG
MOTOR

# DIGITAL SPEED INDICATOR

## INDEX

SID250 ..... 306



# DIGITAL SPEED INDICATOR

## Features of digital speed indicator

- It is rotating speed display that indicating the rotation speed of motor and the rotation speed of gear head's output shaft.
- Input voltage is free voltage from AC 100V to 240V.
- The reduction rate and multiplication magnification for gear head can be set.
- The returning speed for belt conveyor can be converted.
- RPM can be indicated according to the input of 12 pulse/ 15 pulse/ 24 pulse/ 30 pulse by 1 RPM.
  Application : UNIT / SR / SS / X-TOR Series
  ※ Not specified product.



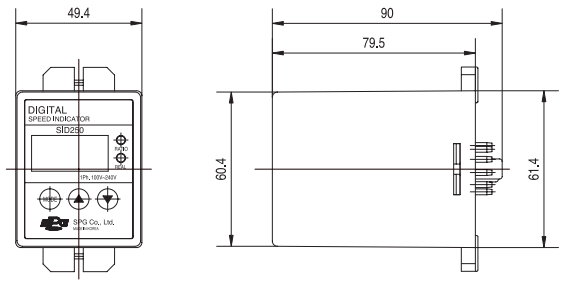

SID250

### SPECIFICATIONS

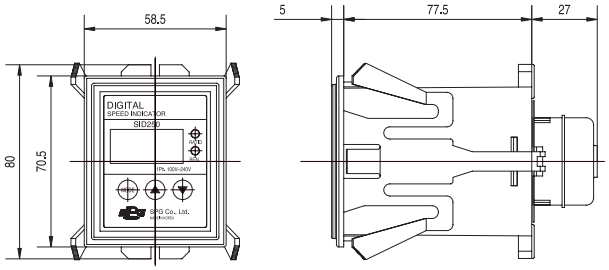
| Item \ Nomenclature | SID250 |
|---|---|
| Rated voltage | Single Phase 100V ~ 240V 50Hz/60Hz |
| Operating voltage range | Single Phase 85V ~ 264V 50Hz/60Hz |
| Consumption Voltage | 0.1A |
| Rotating speed indication | 4-DIGIT |
| Setting reduction rate | 116 types and multiplication magnification(0.005 unit) |
| Operating caution temperature | 0 ~ 40℃ |
| Weight | 200g |
| Insulated resistance | In the normal temperature and humidity, values measured by mega between power input terminal and FG, power input terminal and case, case and FG terminal, are above 100 MΩ. |
| Insulated internal pressure | In the normal temperature and humidity, power between power input terminal and FG, power input terminal and case, case and FG terminal, shall be approved for 1 minute. |

# ✚ DIMENSIONS

## DIGITAL SPEED INDICATOR



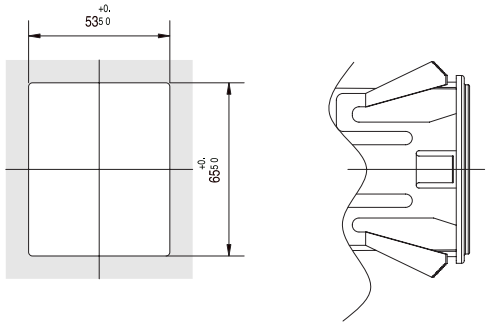

## FOR INSTALLING THE ADAPTOR




# ✚ Panel machining diagram

[unit:mm]

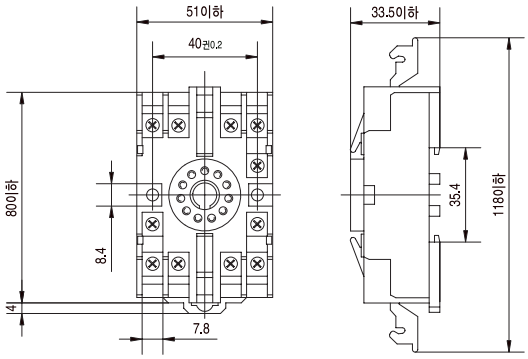
## Panel thickness : 1㎜~3.2㎜




# ✚ Socket for installing DIN rail

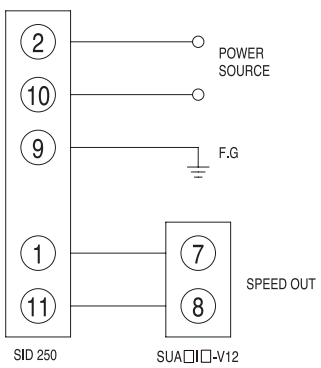
(Deliberately purchase)

## MODEL : SB11-H

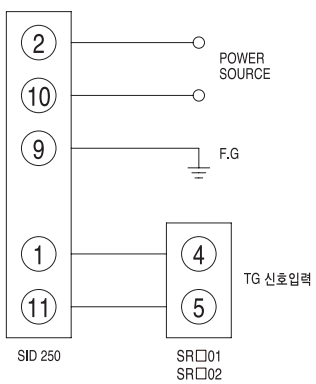



# ✚ Electrical Wiring

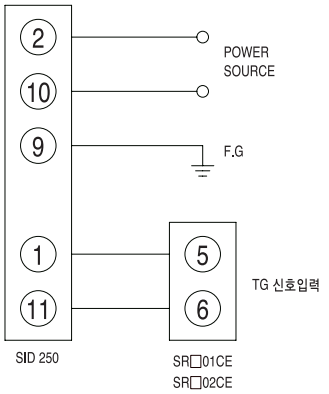
## UNIT Series



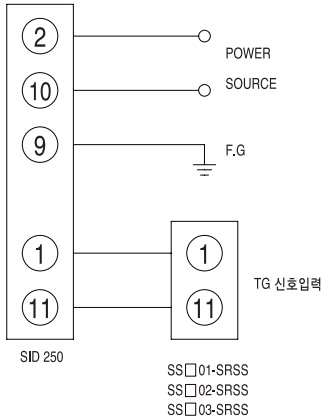

## SR Series



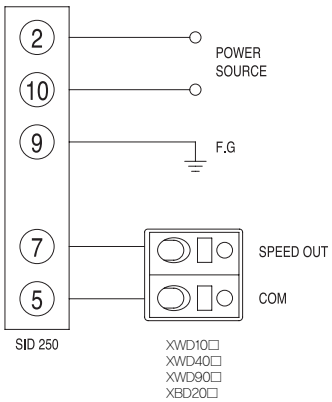
## SR CE Series



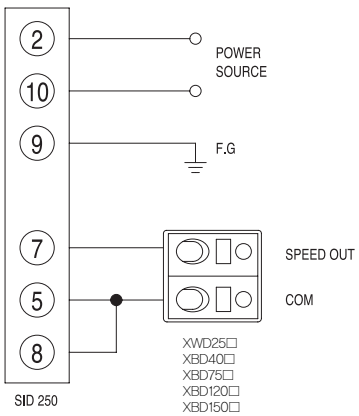

## SS Series



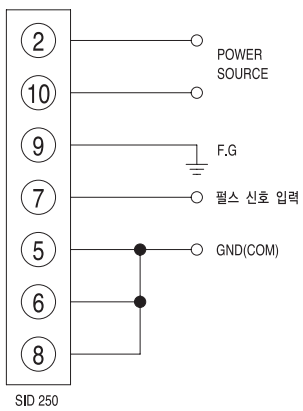

## X-TOR Series (12pulse / rpm)



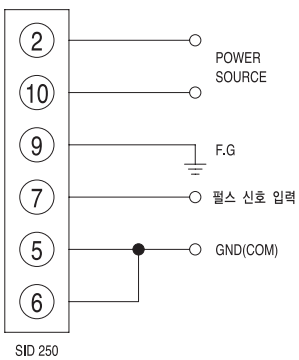

## X-TOR Series (15pulse / rpm)




## 12pulse signal input (open collector)




## 30pulse signal input (open collector)



# OPTION

## INDEX


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Extension Cable ..... 314

Surge Absorber ..... 314

External Speed Controller ..... 315

Braking External Resistor ..... 315

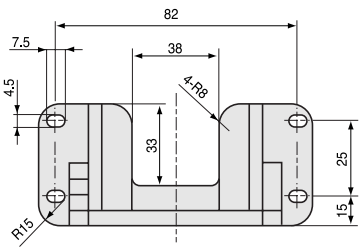


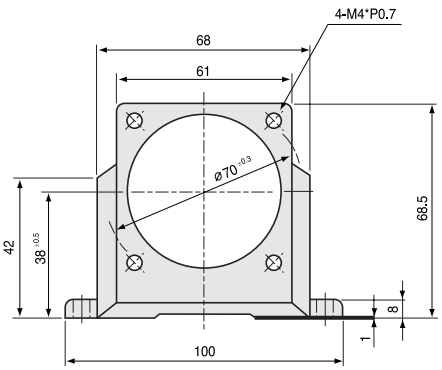

# ✚ Mounting Plate for Motor & Gearhead

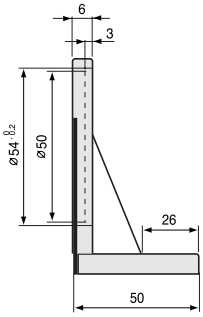


## □60mm






- **MODEL : SPL-6A**

  WEIGHT 45g, MATERIAL Al

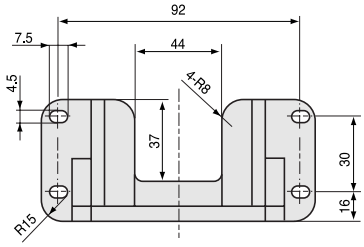
- **APPLICATION ITEMS**

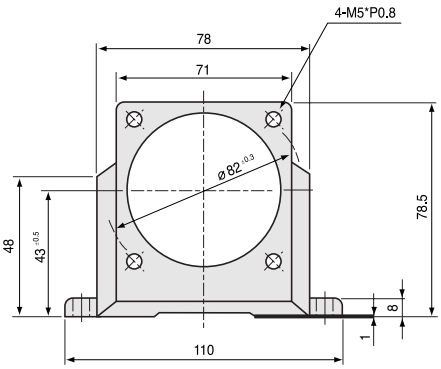
  GEARHEAD : S6□A

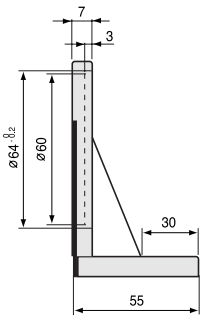
  MOTOR : S6□06

## □70mm






- **MODEL : SPL-7A**

  WEIGHT 75g, MATERIAL Al

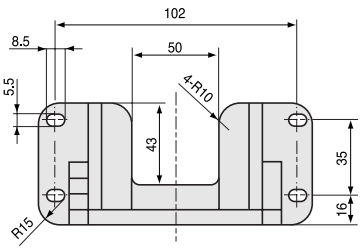
- **APPLICATION ITEMS**

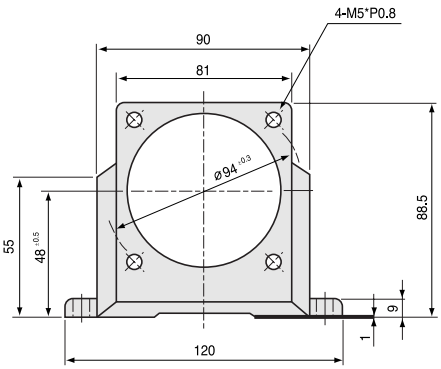
  GEARHEAD : S7□A

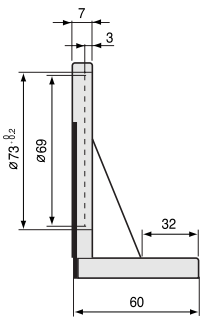
  MOTOR : S7□15

## □80mm






- **MODEL : SPL-8A**

  WEIGHT 120g, MATERIAL Al

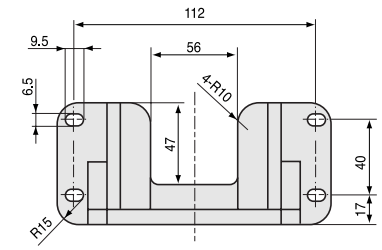
- **APPLICATION ITEMS**

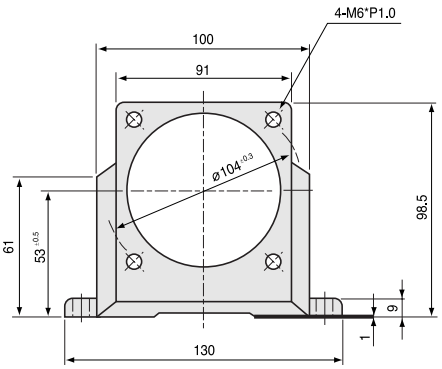
  GEARHEAD : S8□A

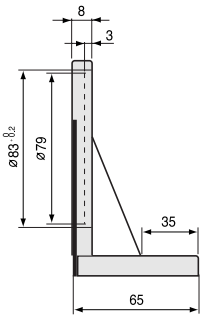
  MOTOR : S8□(15, 25)

## □90mm






- **MODEL : SPL-9A**

  WEIGHT 140g, MATERIAL Al

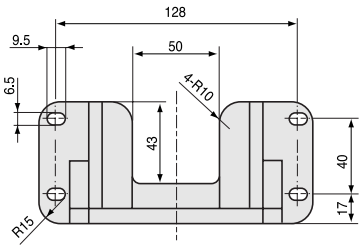
- **APPLICATION ITEMS**

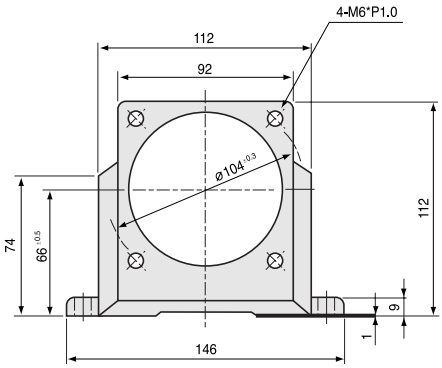
  GEARHEAD : S9□A

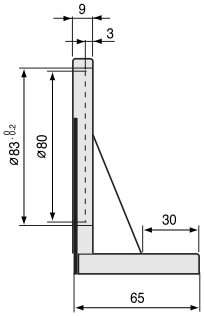
  MOTOR : S9□40~200

## □90mm






- **MODEL : SPL-9SA**

  WEIGHT 270g, MATERIAL Al

- **APPLICATION ITEMS**

  GEARHEAD : S9□C(L,H)

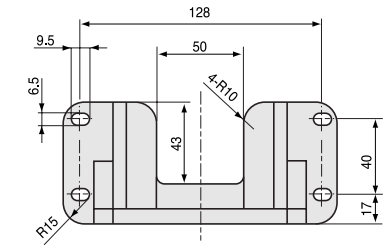
  GEARHEAD : S9□B(L,H)

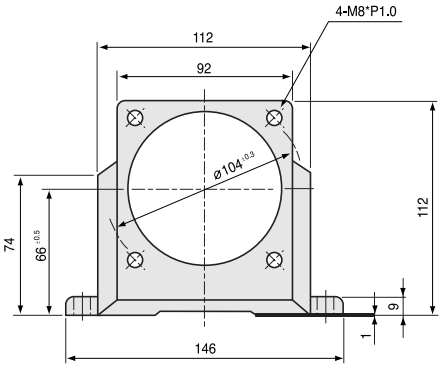
  MOTOR : S9□40~200(L, H)

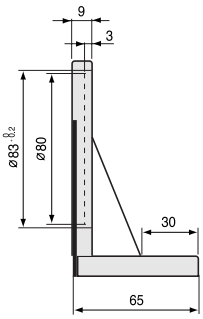
When needed stronger mounting plate.

## □90mm






- **MODEL : SPL-9SB**

  WEIGHT 270g, MATERIAL Al

- **APPLICATION ITEMS**

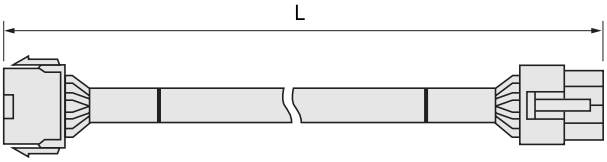
  GEARHEAD : S9□D□B, S9□H□B

# EXTENSION CABLE

- Use the extension cable between speed control motor and controller unit.
- Sold separately.
- Controller unit has 0.5m built-in cable. Additional purchase of extension cable is possible if required.
- Refer to the below table, for the length of extension cable and the name of model.



**DIMENSION** [Unit : mm]

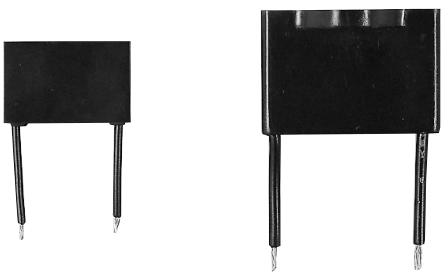



## MODEL NAME

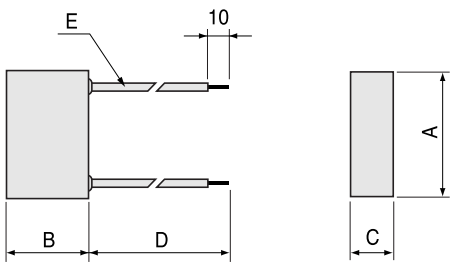
| MODEL NAME | LENGTH OF EXTENSION CABLE |
|---|---|
| SOEW-05 | 0.5m |
| SOEW-10 | 1.0m |
| SOEW-15 | 1.5m |
| SOEW-20 | 2.0m |
| SOEW-30 | 3.0m |
| SOEW-40 | 4.0m |
| SOEW-50 | 5.0m |

# SURGE ABSORBER

- Contact protector of relay switch used to operate direction of the motor and/or braking circuit.
- Sold separately.



**DIMENSION** [Unit : mm]




## MODEL Name and Dimension

| MODEL | VOLTAGE | RESISTANCE | CAPACITOR | DIMENSION (㎜) | | | | E (LEAD WIRE) |
|---|---|---|---|---|---|---|---|---|
| | | | | A | B | C | D | |
| SK1202-25 | AC 250V | 120Ω | 0.2uF | 26.0 | 16.5 | 8.5 | 200 | UL1007 AWG #22 |
| SK1202-50 | AC 500V | 120Ω | 0.2uF | 36.0 | 25.0 | 16.0 | 200 | UL1015 AWG #20 |

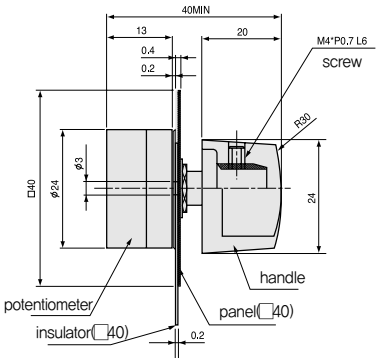
# EXTERNAL SPEED CONTROLLER

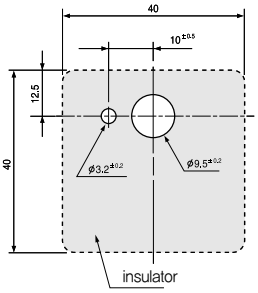
- Built-in 1 set of external speed controller in SS Type controller of speed control pack by parts.
- A speed controller is installed in SR Type controller, thus it can institute and control speed. Remote operation kits available for purchase.
- Additional speed controllers are available for purchase if multi-stage speed control is required.
- Sold separately






## DIMENSION [Unit : mm]



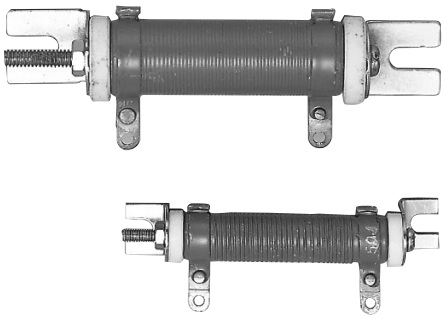

## MODEL NAME AND EXTERIOR DIMENSION

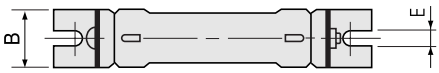
| MODEL NAME | CHARACTERISTIC |
|---|---|
| SVR10KH | 10KΩ, 1/4W · B Characteristic |
| SVR20KH | 20KΩ, 1/4W · B Characteristic |

※Note) SVR10KH (10KΩ, 1/4W · B SPEC) have only application to SS type speed controller which is 220~240V, 50Hz.

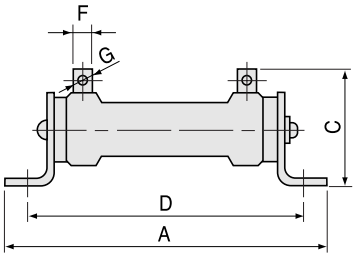
# BRAKING EXTERNAL RESISTOR

- It should be used for instantaneous function in speed control pack and high power motor(over 60W).
- sold separately






## DIMENSION [Unit : mm]




## MODEL NAME

| MODEL | RESISTANCE (Ω) | RATEDPOWER (W) | DIMENSION(㎜) | | | | | | | APPLICABLE PACK | OPERATING CONDITIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | A | B | C | D | E | F | G | | |
| SR05H10 | 5 | 10 | 77 | 14 | 26 | 67 | 3.5 | 5 | 2.2 | SR TYPE | INSTANTANEOUS STOP |
| SR10H10 | 10 | 10 | 77 | 14 | 26 | 67 | 3.5 | 5 | 2.2 | SS TYPE | INSTANTANEOUS STOP |
| SR50H10 | 50 | 10 | 77 | 14 | 26 | 67 | 3.5 | 5 | 2.2 | SBS-ICE | 25W, 40W |
| SR30H20 | 30 | 20 | 91 | 22 | 35 | 75 | 4.5 | 5 | 2.2 | SBT(U)-I | 60W, 90W |
| SR50H20 | 50 | 20 | 91 | 22 | 35 | 75 | 4.5 | 5 | 2.2 | SBB(D)-IR | 90W |
| | | | | | | | | | | SBS-ICE | 60W, 90W |
| SR30H50 | 30 | 50 | 139 | 32 | 55 | 113 | 6.2 | 7 | 2.8 | SBA(C)-IR | 60W, 90W |

# SPG Standard Certifications

## Electrical Insulation system

| System Designation | Insulation Class | Maximum Temperature | UL File No. | Used | Notes |
|---|---|---|---|---|---|
| SM-1 | Class B | 130℃ | E162261 | Indoor/Outdoor(Enclosed) | |
| SM-3 | Class F | 155℃ | E162261 | Indoor/Outdoor(Enclosed) | |
| SM-4 | Class B | 130℃ | E162261 | Indoor/Outdoor(Enclosed) | |
| SM-5 | Class B | 130℃ | E162261 | Indoor/Outdoor(Enclosed) | |
| SM-6 | Class F | 155℃ | E162261 | Indoor/Outdoor(Enclosed) | |
| SM-7 | Class F | 155℃ | E162261 | Indoor/Outdoor(Enclosed) | |
| SM-8 | Class H | 180℃ | E162261 | Indoor/Outdoor(Enclosed) | |
| SM-9 | Class H | 180℃ | E162261 | Indoor/Outdoor(Enclosed) | |

# AC Induction motor (Terminal Box Type : Induction motor model + "-T or -T1")

| Model | Protection Type | UL File No | EN Certificate | | CCC Certificate | IP Protection | Notes |
|---|---|---|---|---|---|---|---|
| | | | Certificate Mark | Certificate No. | | | |
| S6I03( )A | Z.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S6I03( )C | Z.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S6I03( )E | Z.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S6I06( )A | Z.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S6I06( )B | Z.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S6I06( )C | Z.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S6I06( )D | Z.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S6I06( )E | Z.P | E172722 | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S6I06( )X | Z.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S7I15( )A | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S7I15( )B | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S7I15( )C | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S7I15( )D | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S7I15( )E | T.P | E172720 | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S7I15( )X | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S8I15( )A | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S8I15( )B | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S8I15( )C | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S8I15( )D | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S8I15( )E | T.P | E172720 | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S8I15( )X | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S8I25( )A | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S8I25( )B | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S8I25( )C | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S8I25( )D | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S8I25( )E | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S8I25( )X | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S8I25( )U | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S8I25( )T | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S8I25( )S | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I40( )A | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I40( )B | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I40( )C | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I40( )D | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I40( )E | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I40( )X | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I40( )U | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I40( )T | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I40( )S | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |

# AC Induction motor (Terminal Box Type : Induction motor model + "-T or -T1")

| Model | Protection Type | UL File No | EN Certificate | | CCC Certificate | IP Protection | Notes |
|---|---|---|---|---|---|---|---|
| | | | Certificate Mark | Certificate No. | | | |
| S9I60( )A | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I60( )B | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I60( )C | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I60( )D | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I60( )E | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I60( )X | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I60( )U | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I60( )T | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I60( )S | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I90( )A | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I90( )B | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I90( )C | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I90( )D | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I90( )E | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I90( )X | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I90( )U | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I90( )T | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I90( )S | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I120( )A | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I120( )B | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I120( )C | T.P | - | TüV | B.08.04.39314.025 | 2004010401120757 | IP23/54 | |
| S9I120( )D | T.P | - | TüV | B.08.04.39314.025 | 2003010401089272 | IP23/54 | |
| S9I150( )U | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I150( )T | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I150( )S | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I180( )A | T.P | - | TüV | B.08.04.39314.025 | - | IP23/54 | |
| S9I180( )B | T.P | - | TüV | B.08.04.39314.025 | - | IP23/54 | |
| S9I180( )C | T.P | - | TüV | B.08.04.39314.025 | - | IP23/54 | |
| S9I180( )D | T.P | - | TüV | B.08.04.39314.025 | - | IP23/54 | |
| S9I180( )U | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I180( )T | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |
| S9I180( )S | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23/54 | |

# AC Reversible motor (Terminal Box Type : Reversible motor model + "-T or -T1")

| Model | Protection Type | UL File No | EN Certificate | | CCC Certificate | IP Protection | Notes |
|---|---|---|---|---|---|---|---|
| | | | Certificate Mark | Certificate No. | | | |
| S6R06( )A | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )B | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )C | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )D | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )E | Z.P | E172722 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )X | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )A | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )B | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )C | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )D | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )X | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )A | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )B | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )C | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )D | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )X | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )A | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )B | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )C | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )D | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )X | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )A | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )B | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )C | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )D | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )X | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )A | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )B | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )C | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )D | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )X | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )A | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )B | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )C | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )D | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )X | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |

# AC Electromagnetic Brake motor

| Model | Protection Type | UL File No | EN Certificate | | CCC Certificate | IP Protection | Notes |
|---|---|---|---|---|---|---|---|
| | | | Certificate Mark | Certificate No. | | | |
| S6R06( )A-E | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )B-E | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )C-E | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )D-E | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )E-E | Z.P | E172722 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S6R06( )X-E | Z.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )A-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )B-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )C-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )D-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )E-E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S7R15( )X-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )A-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )B-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )C-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )D-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )E-E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R15( )X-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )A-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )B-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )C-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )D-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )E-E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8R25( )X-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S8I25( )U-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S8I25( )T-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S8I25( )S-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S9R40( )A-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )B-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )C-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )D-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )E-E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R40( )X-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9I40( )U-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S9I40( )T-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S9I40( )S-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |

# AC Electromagnetic Brake motor

| Model | Protection Type | UL File No | EN Certificate | | CCC Certificate | IP Protection | Notes |
|---|---|---|---|---|---|---|---|
| | | | Certificate Mark | Certificate No. | | | |
| S9R60( )A-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )B-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )C-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )D-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )E-E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R60( )X-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9I60( )U-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S9I60( )T-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S9I60( )S-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S9R90( )A-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )B-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )C-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )D-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )E-E | T.P | E172720 | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9R90( )X-E | T.P | - | TüV | B.08.06.39314.027 | 2007010401240888 | IP23 | |
| S9I90( )U-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S9I90( )T-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |
| S9I90( )S-E | T.P | - | TüV | B.08.04.39314.025 | 2003010401089270 | IP23 | |

# AC Speed Control Induction motor

| Model | Protection Type | UL File No | EN Certificate | | CCC Certificate | IP Protection | Notes |
|---|---|---|---|---|---|---|---|
| | | | Certificate Mark | Certificate No. | | | |
| S6I06( )A-V12 | Z.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S6I06( )B-V12 | Z.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S6I06( )C-V12 | Z.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S6I06( )D-V12 | Z.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S6I06( )E-V12 | Z.P | E172722 | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S6I06( )X-V12 | Z.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S7I15( )A-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S7I15( )B-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S7I15( )C-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S7I15( )D-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S7I15( )E-V12 | T.P | E172720 | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S7I15( )X-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S8I15( )A-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S8I15( )B-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S8I15( )C-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S8I15( )D-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S8I15( )E-V12 | T.P | E172720 | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S8I15( )X-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S8I25( )A-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S8I25( )B-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S8I25( )C-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S8I25( )D-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S8I25( )E-V12 | T.P | E172720 | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S8I25( )X-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I40( )A-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I40( )B-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I40( )C-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I40( )D-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I40( )E-V12 | T.P | E172720 | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I40( )X-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I60( )A-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I60( )B-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I60( )C-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I60( )D-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I60( )E-V12 | T.P | E172720 | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I60( )X-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I90( )A-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I90( )B-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I90( )C-V12 | T.P | - | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I90( )D-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I90( )E-V12 | T.P | E172720 | TüV | B.08.07.39314.029 | 2004010401120757 | IP23 | |
| S9I90( )X-V12 | T.P | - | TüV | B.08.07.39314.029 | 2003010401089272 | IP23 | |
| S9I180( )B-V12 | T.P | - | TüV | B.08.07.39314.029 | - | IP23 | |

# AC Speed Controller

| Model | UL File No | CE-LVD Certificate | | 1) CE-EMCD Certificate<br>2) FCC Verification | | Notes |
|---|---|---|---|---|---|---|
| | | Agency | Certificate No. | Agency | Certificate No. | |
| SUA□IA-V12 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SUA□IB-V12 | E190517 | TüV | N8.08.10.29314.032 | 1) DEMKO | EMC15568-08-02 | |
| SUA□IC-V12 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SUA□ID-V12 | E190517 | TüV | N8.08.10.29314.032 | 1) DEMKO | EMC15568-08-02 | |
| SUA□IX-V12 | E190517 | TüV | N8.08.10.29314.032 | 1) DEMKO | EMC15568-08-02 | |
| SUD□IA-V12 | E190517 | TüV | N8.08.10.29314.032 | 2) UL | 08CA54110-FCC | |
| SUD□IB-V12 | E190517 | TüV | N8.08.10.29314.032 | 1) DEMKO<br>2) UL | EMC15568-08-01<br>08CA54104-FCC | |
| SUD□IC-V12 | E190517 | TüV | N8.08.10.29314.032 | 2) UL | 08CA54110-FCC | |
| SUD□ID-V12 | E190517 | TüV | N8.08.10.29314.032 | 1) DEMKO<br>2) UL | EMC15568-08-02<br>08CA54110-FCC | |
| SUD□IX-V12 | E190517 | TüV | N8.08.10.29314.032 | 1) DEMKO<br>2) UL | EMC15568-08-01<br>08CA54104-FCC | |
| SRA01 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRA02 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRB01 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRB02 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRC01 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRC02 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRD01 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRD02 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRX01 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SRX02 | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSA01-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSA02-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSB01-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSB02-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSC01-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSC02-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSD01-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSD02-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSX01-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SSX02-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SHA03-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SHB03-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SHC03-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SHD03-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |
| SHX03-SRSS | E190517 | TüV | N8.08.10.29314.032 | | | |