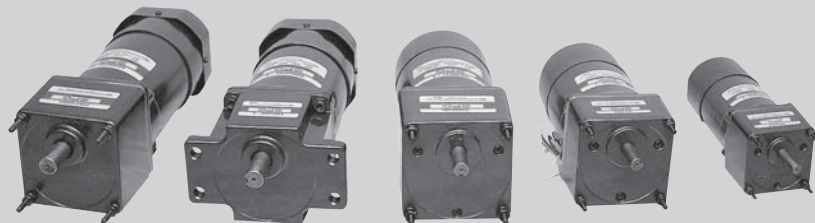


ELECTROMAGNETIC BRAKE MOTORS

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CODING SYSTEM

MOTOR

MAKER	SIZE	MOTOR TYPE	OUTPUT	SHAFT TYPE	VOLTAGE	GEAR TYPE	SPECIAL TYPE
S	9	I	40	G	B	H	E

S : SPG Co., Ltd.

SIZE

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

MOTOR TYPE

- I : Induction Motor
- R : Reversible Motor

OUTPUT

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

SHAFT TYPE

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

VOLTAGE

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

GEAR TYPE

- H : Heavy Impact
- L : Light Impact

SPECIAL TYPE

- 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)

CONTROLLER TYPE	VOLTAGE	OUTPUT
SR	B	01

SR SERIES

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

CONTROLLER TYPE

VOLTAGE

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

OUTPUT

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

SPEED CONTROLLER (SS PACK TYPE)

CONTROLLER TYPE	VOLTAGE	OUTPUT	RUN / STOP TYPE
SS	B	01	SRSS

SS SERIES

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

CONTROLLER TYPE

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

OUTPUT

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

RUN / STOP TYPE

SRSS : Slow Run Slow Stop

SPEED CONTROLLER (UNIT TYPE)

MAKER	CONTROLLER TYPE	OUTPUT	TYPE	VOLTAGE	T.G VOLTAGE
S	U	A	40	I B	V12

V12 : T.G Voltage 12V Type

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)

I : Induction Motor
 ※ NOTE) Unit Type of Speed Controller does not have Reversible Motor.(715 Type : No marking)

06 : 6W	25 : 25W	90 : 90W
715 : 15W(□70)	40 : 40W	120 : 120W
15 : 15W(□80)	60 : 60W	180 : 180W

A : Analogue Type
 D : Digital Type

U : Unit Type

S : SPG Co.,Ltd.

BRAKE PACK (CONTACT TYPE)

BRAKE TYPE	VOLTAGE	MOTOR TYPE
SB	B	IR

IR : 1Ø Motor
 I : 3Ø Motor

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

SB SERIES

GEAR HEAD

MAKER	SIZE	SHAFT TYPE	OUTPUT	GEAR RATIO	BEARING TYPE	SHAFT IMPACT TYPE	SPECIAL TYPE
S	9	K	C	36	B	H	S

S : Flange Type

※ H : Heavy Impact
 L : Light Impact

B : Ball bearing + Metal bearing(6W~40W)
 All Ball bearing(60W MIN)
 B1: All Ball bearing(6W~40W)
 M : Metal bearing(6W~40W)

Reduction Ratio(36:1/36)

T : 3W	C : 60W~120W
A : 6W~ 25W	D : 60W~120W
B : 40W	H : 150W~200W

S : Straight Type
 D : D-Cut Type
 K : Key Type

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

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

S : SPG Co.,Ltd.

BRAKE PACK (NON CONTACT TYPE)

BRAKE TYPE	VOLTAGE	SPECIAL TYPE
SB	B	NCR

NCR : Non Contact Relay
 ENCR : Brake type Non Contact Relay

A : 1Ø AC 110V	60Hz	(4Pole)
B : 1Ø AC 220V	60Hz	(4Pole)
C : 1Ø AC 100V	50/60Hz	(4Pole)
D : 1Ø AC 200V	50/60Hz	(4Pole)
X : 1Ø AC 220V~240V	50Hz	(4Pole)

SB SERIES

Characteristics of ELECTROMAGNETIC BRAKE MOTOR



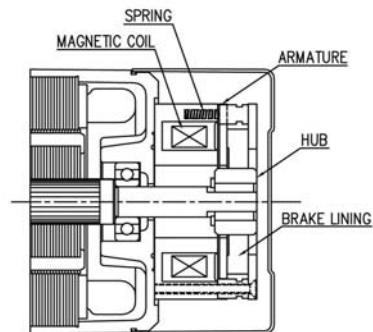
Overview of Electromagnetic Brake Motor

- 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.



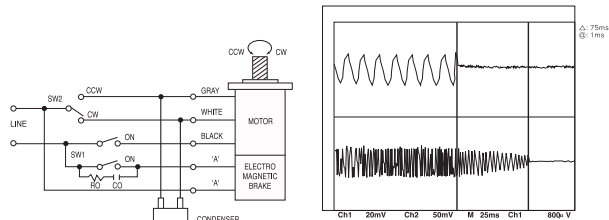
(Fig.2) STRUCTURAL DIAGRAM OF THE ELECTROMAGNETIC BRAKE

(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 $0.5 \text{ kgf} \cdot \text{cm} \sim 10 \text{ kgf} \cdot \text{cm}$. 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.

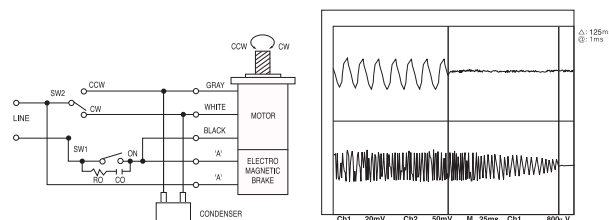
(3) Braking Time Difference by Connection Method

- 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

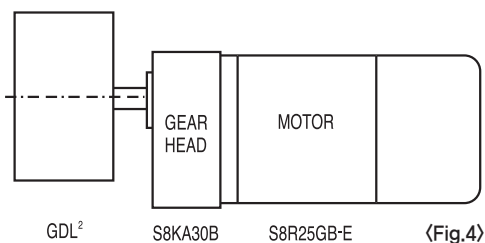
(Stop time is about 124.5msec.
SLIP is about 2.1 revolutions.
Model S8R25GA-E is used for measurement.)

- ※ 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 (mm)	Output (W)	Voltage (V)	Frequency (Hz)	Ampere (A)	Input (W)	BRAKE TORQUE		
						(kg · cm)	(N · m)	
□60	6	Single-phase 100(V)	50/60	0.06	3.0	0.5	0.05	
□70	15			0.07	3.0	1.0	0.1	
□80	15			Single-phase 200(V)	0.10	4.5	2.0	0.2
	25				0.10	4.5	2.0	0.2
□90	40	Three-phase 200(V)	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



(1) Take S8R25GB-E as an example and let it be combined with S8KA30B to drive the inertia body(GDL²=1000kgf · cm²). 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.

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

GDL² : Fly wheel effect of load [kgf · cm²]
 GDM² : Fly wheel effect at motor shaft [kgf · cm²]
 i : Ratio of gearhead

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

$$i = \frac{GD^2}{4g} \text{ [kgf} \cdot \text{cm}^2] \quad g : 9,80665 \text{ [m/s}^2]$$

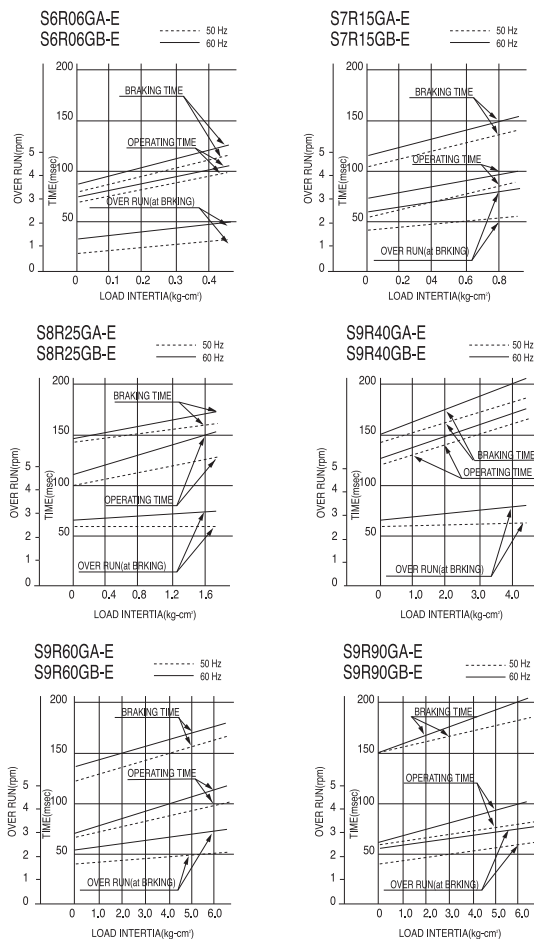
(2) OVER RUN

• 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.

$$Ng = \frac{Nm}{i^2} = \frac{2.5}{30} = 0.08 \text{ revolutions(28.8}^\circ)$$

(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 Braking 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°C or less increase measured by thermometer after rated operation.
Insulation Class	Class B(130°C)
Overheat Protection Device	Built-in thermal protector (automatic return type) : Open 120°C±5°C Close 76°C±15°C
Ambient Temperature	-10°C ~ 40°C
Ambient Humidity	85% maximum(non condensing)



6W

ELECTROMAGNETIC BRAKE MOTOR
 60mm LEAD WIRE TYPE

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

- ❖ 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		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
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	6
	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
S6DA□B	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

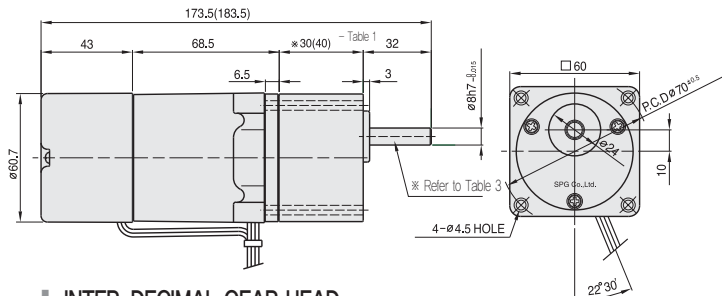
GEAR RATIO		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200	250
MODEL	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9	7.2
	kg-cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8	9.4	11.3	12.6	14.2	17.0	21.3	25.5	28.4	30.0	30.0	30.0	30.0	30.0
S6DA□B	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

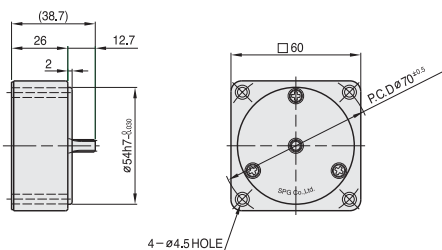
+ GEARED MOTOR

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



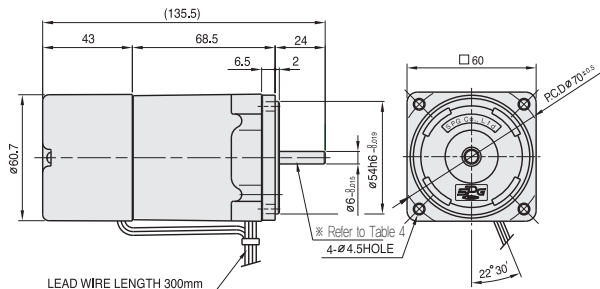
+ INTER-DECIMAL GEAR HEAD

* MODEL : S6GX10B



+ MOTOR

* MOTOR MODEL : S6R06□□-E



+ 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□	

+ *26(35) - (Table 1)

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

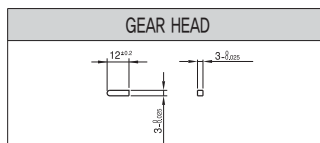
+ WEIGHT - (Table 2)

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

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

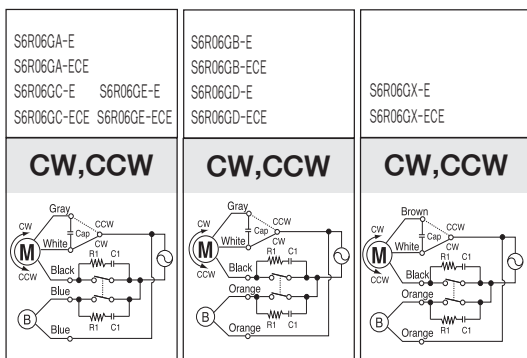
MODEL	TYPES OF OUTPUT SHAFT
GEAR TYPE	
S6R06G□-E	
STRAIGHT TYPE	
S6R06S□-E	
D-CUT TYPE	
S6R06D□-E	

+ KEY SPEC



SCHEMATIC DIAGRAMS

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



R1 = 10 ~ 200 Ω (Min. 1/4W)

C1 = 0.1 ~ 0.33 μF (AC125WV or AC250WV)



15W

ELECTROMAGNETIC BRAKE MOTOR

□ 70mm LEAD WIRE TYPE

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

- ❖ 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		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
	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
S7KA□B	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

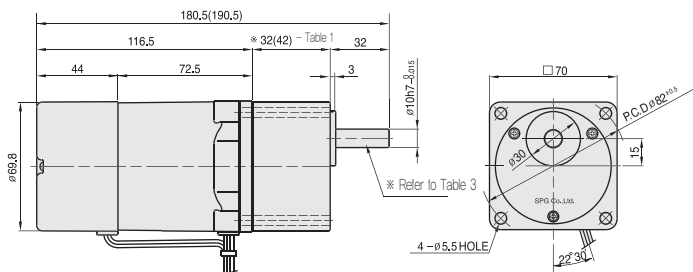
60Hz

GEAR RATIO		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
	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
S7KA□B	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.

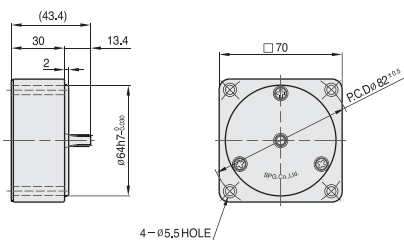
DIMENSIONS

- +** GEARED MOTOR * MOTOR MODEL : S7156G□-E
 * HEAD MODEL : S7□A3□~S7□A200□



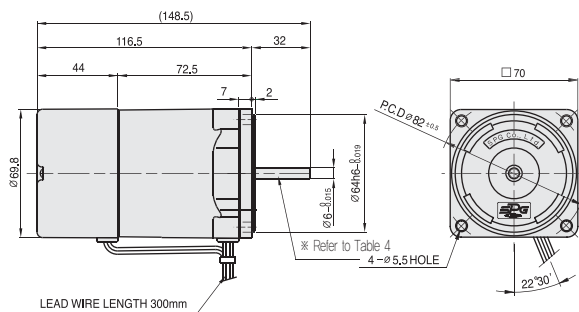
- +** INTER-DECIMAL GEAR HEAD

* MODEL : S7GX10B



- +** MOTOR

* MOTOR MODEL : S7R15□□-E



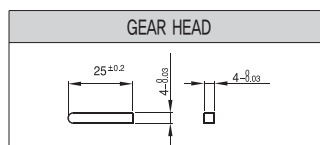
- +** *26(35) - (Table 1)

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

- +** WEIGHT - (Table 2)

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



- +** SPEC for output shaft of gearhead - (Table 3)

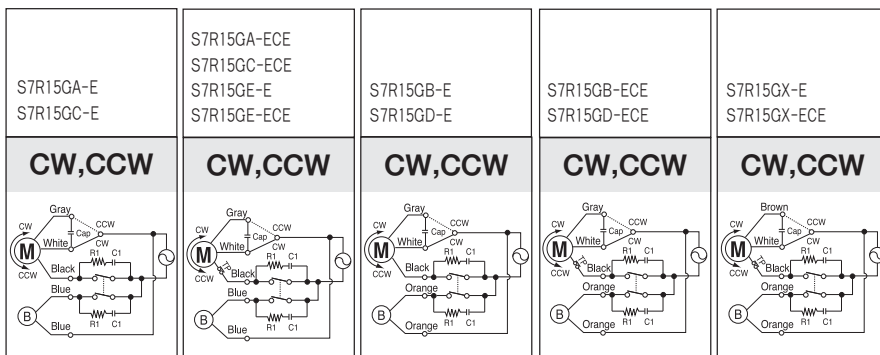
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE	
S7SA3□ ~ S7SA200□	
D-CUT TYPE	
S7DA3□ ~ S7DA200□	
KEY TYPE	
S7KA3□ ~ S7KA200□	

- +** SPEC for output shaft of motor - (Table 4)

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

SCHEMATIC DIAGRAMS

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



R_i = 10 ~ 200 Ω (Min. 1/4W)

C_i = 0.1 ~ 0.33 μF (AC125WV or AC250WV)



15W

ELECTROMAGNETIC BRAKE MOTOR
 80mm LEAD WIRE TYPE

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

- ❖ 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

MODEL	GEAR RATIO	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
S8KA□B	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
	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

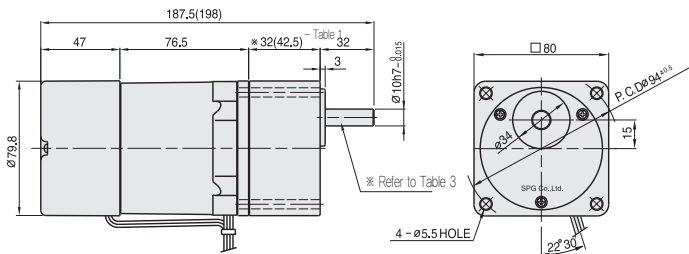
MODEL	GEAR RATIO	GEAR RATIO																							
		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
S8KA□B	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
	kg-cm	2.9	3.5	4.9	5.8	7.3	8.7	9.7	12.2	14.6	17.5	17.5	21.9	26.3	31.5	35.0	39.6	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

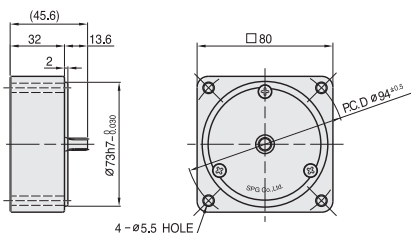
+ GEARED MOTOR

- ※ MOTOR MODEL : S8R15G□-E
- ※ HEAD MODEL : S8□A3□-S8□A20□



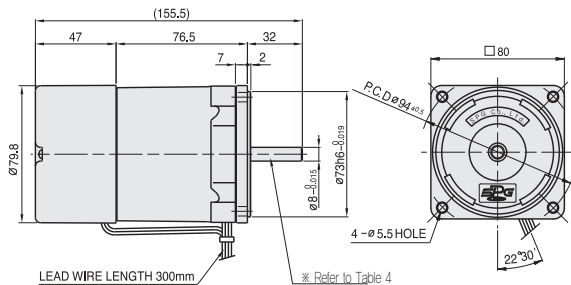
+ INTER-DECIMAL GEAR HEAD

- ※ MODEL : S8GX10B



+ MOTOR

- ※ MOTOR MODEL : S8R15□□-E



+ SPEC for output shaft of gearhead - (Table3)

MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE	
S8SA3□ ~S8SA20□	
D-CUT TYPE	
S8DA3□ ~S8DA20□	
KEY TYPE	
S8KA3□ ~S8KA20□	

+ ※26(35) - (Table1)

GEAR RATIO	SIZE(mm)
S8□A3□ ~ S8□A18□	32
S8□A20□ ~ S8□A20□	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

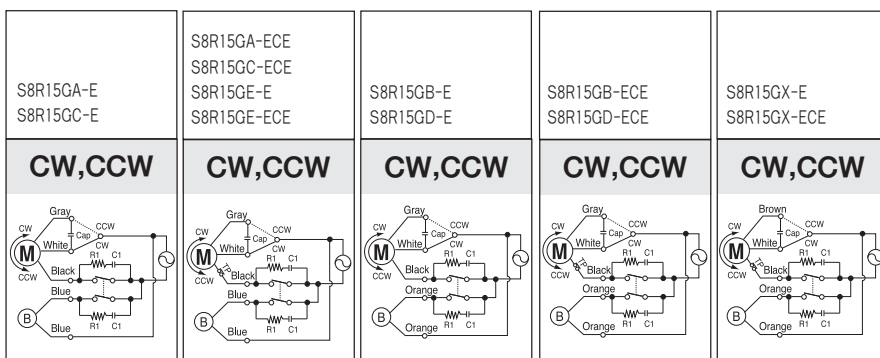
GEAR HEAD	MOTOR

+ SPEC for output shaft of motor - (Table4)

MODEL	TYPES OF OUTPUT SHAFT
GEAR TYPE	
S8R15G□-E	
STRAIGHT TYPE	
S8R15S□-E	
D-CUT TYPE	
S8R15□□-E	
KEY TYPE	
S8R15K□-E	

SCHEMATIC DIAGRAMS

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



R₁ = 10 ~ 200 Ω (Min. 1/4W)

C₁ = 0.1 ~ 0.33 μF (AC125WV or AC250WV)



25W

ELECTROMAGNETIC BRAKE MOTOR

□ 80mm LEAD WIRE TYPE

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

MODEL	GEAR RATIO	rpm																							
		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
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

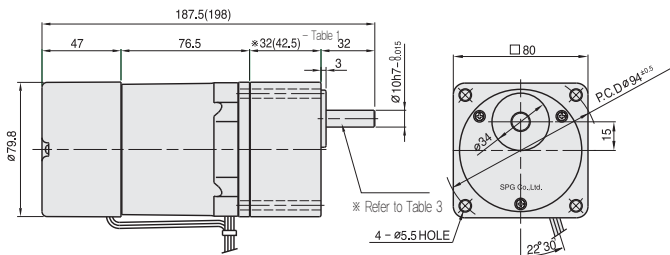
60Hz

MODEL	GEAR RATIO	rpm																							
		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
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

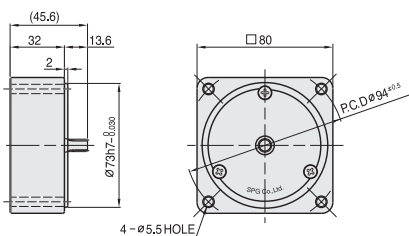
- ❖ The code in □ of gearhead model is for gear ratio.
- ❖ It is the permissible torque of the assembled motor and gearhead.
- ❖ The permissible torque of the motor and inter-decimal gearhead is 80 kg-cm.
- ❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as 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

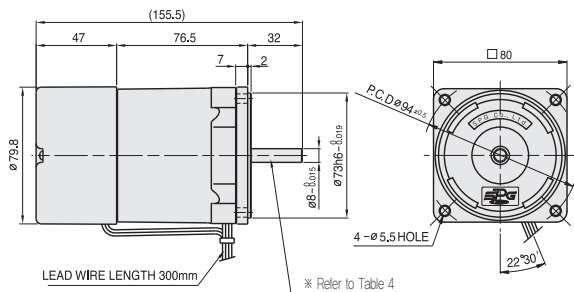
+ GEARED MOTOR * MOTOR MODEL : S8R25G□-E
 * HEAD MODEL : S8□A3□-S8□A20□



+ INTER-DECIMAL GEAR HEAD
 * MODEL : S8GX10B



+ MOTOR * MOTOR MODEL : S8R25□□-E



+ SPEC for output shaft of gearhead - (Table3)

MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE	
S8SA3□ ~S8SA20□	
D-CUT TYPE	
S8DA3□ ~S8DA20□	
KEY TYPE	
S8KA3□ ~S8KA20□	

+ *26(35) - (Table 1)

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

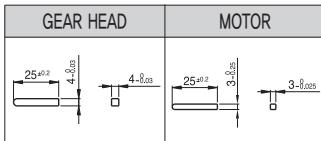
+ WEIGHT - (Table 2)

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

+ SPEC for output shaft of motor - (Table4)

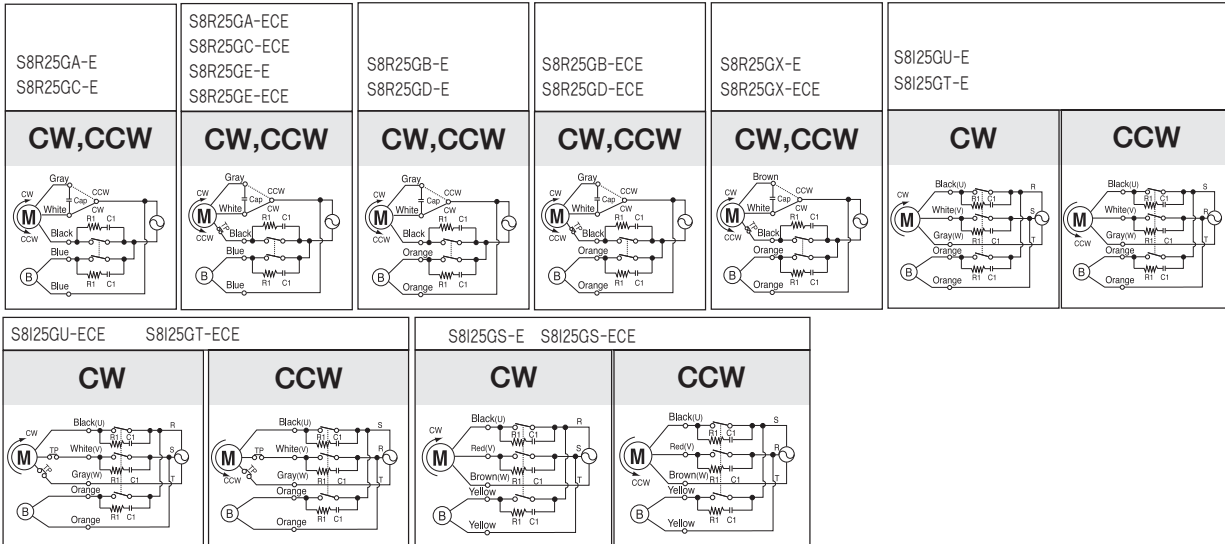
MODEL	TYPES OF OUTPUT SHAFT
GEAR TYPE	
S8R25G□-E	
STRAIGHT TYPE	
S8R25S□-E	
D-CUT TYPE	
S8R25D□-E	
KEY TYPE	
S8R25K□-E	

+ KEY SPEC



SCHEMATIC DIAGRAMS

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



R1 = 10 ~ 200 Ω (Min1/4W) C1 = 0.1 ~ 0.33μF (AC125WV or AC250WV)



40W

ELECTROMAGNETIC BRAKE MOTOR

□ 90mm LEAD WIRE TYPE

SIZE mm sq.	Type	Poles	Output (W)	Voltage (V)	Frequency (Hz)	Duty	Rated Load				Starting Torque		Capacitor (uF)
							Current (A)	Speed (rpm)	Torque (kg-cm) (N-m)		(kg-cm)	(N-m)	
90	S9R40GA()-E S9R40GA()-E(TP) S9R40GA()-ECE	4	40	1 ∅ 110	60	30min.	1.00	1600	2.50	0.250	4.00	0.400	15.0
	S9R40GB()-E S9R40GB()-E(TP) S9R40GB()-ECE	4	40	1 ∅ 220	60	30min.	0.48	1600	2.50	0.250	4.00	0.400	3.5
	S9R40GC()-E S9R40GC()-E(TP) S9R40GC()-ECE	4	40	1 ∅ 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 S9R40GD()-E(TP) S9R40GD()-ECE	4	40	1 ∅ 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 S9R40GE()-ECE	4	40	1 ∅ 100	50	30min.	0.85	1300	3.10	0.310	3.45	0.345	15.0
				60	1.00		1550	2.60	0.260				
				1 ∅ 115	60		0.86	1600	2.60	0.260			12.0
	S9R40GX()-E S9R40GX()-ECE	4	40	1 ∅ 220 1 ∅ 240	50	30min.	0.40 0.43	1250	3.20 3.40	0.320 0.340	3.30 4.00	0.330 0.400	3.0
	S9I40GU()-E S9I40GU()-ECE	4	40	3 ∅ 200	50 60	Cont.	0.36 0.33	1300 1550	3.10 2.60	0.310 0.260	6.30 5.20	0.630 0.520	—
	S9I40GT()-E S9I40GT()-ECE	4	40	3 ∅ 220	50 60	Cont.	0.39 0.33	1350 1600	3.00 2.50	0.300 0.250	7.60 6.10	0.760 0.610	—
	S9I40GS()-E S9I40GS()-ECE	4	40	3 ∅ 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	
				3 ∅ 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	
				3 ∅ 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	
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

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
S9KB□()	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

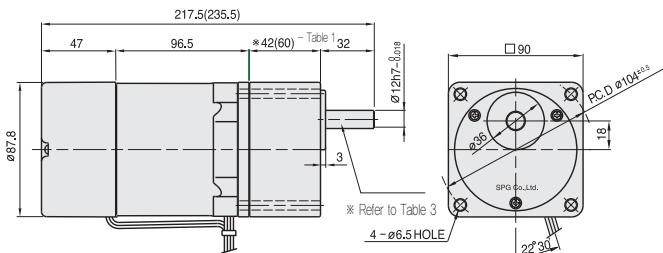
60Hz

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
S9KB□()	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

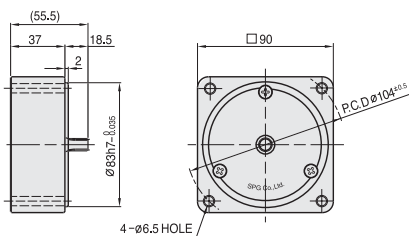
- ❖ The code in □ of gearhead model is for gear ratio.
- ❖ It is the permissible torque of the assembled motor and gearhead.
- ❖ The permissible torque of the motor and inter-decimal gearhead is 100 kg-cm.
- ❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as 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

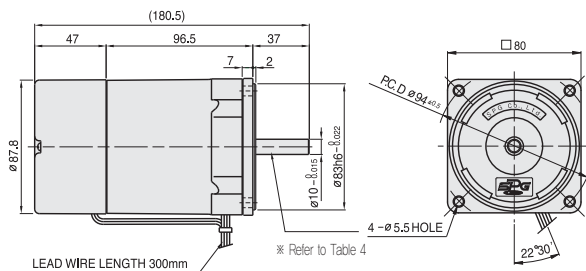
+ GEARED MOTOR ※ MOTOR MODEL : S9R40G□□-E
 ※ HEAD MODEL : S9□B3□□-S9□B200□□



+ INTER-DECIMAL GEAR HEAD
 ※ MODEL : S9GX10B(H,L)



+ MOTOR ※ MOTOR MODEL : S9R40□□□-E



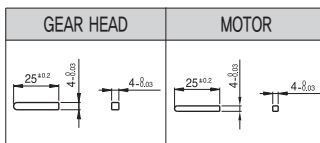
+ ※26(35) - (Table 1)

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

+ WEIGHT - (Table 2)

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



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

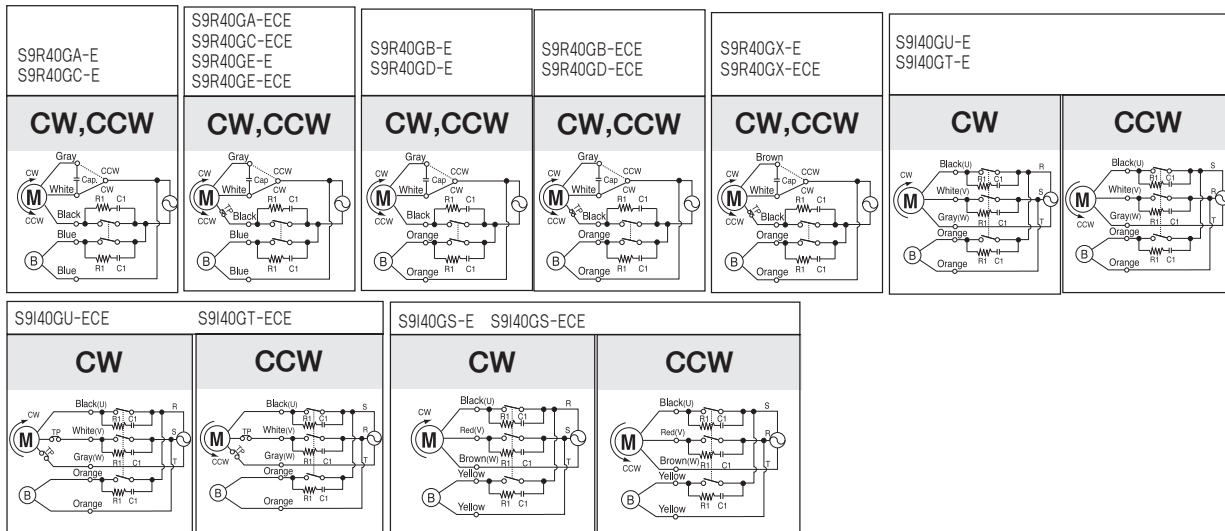
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE	
S9SB3□□ ~ S9SB200□□	
D-CUT TYPE	
S9DB3□□ ~ S9DB200□□	
KEY TYPE	
S9KB3□□ ~ S9KB200□□	

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

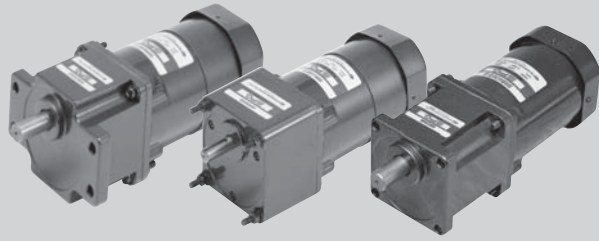
MODEL	TYPES OF OUTPUT SHAFT
GEAR TYPE	
S9R40G□□-E	
STRAIGHT TYPE	
S9R40S□□-E	
D-CUT TYPE	
S9R40□□-E	
KEY TYPE	
S9R40K□□-E	

SCHEMATIC DIAGRAMS

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



R1 = 10 ~ 200 Ω (Min. 1/4W) C1 = 0.1 ~ 0.33 μF (AC125WV or AC250WV)



60W

ELECTROMAGNETIC BRAKE MOTOR
 □ 90mm LEAD WIRE TYPE

SIZE mm sq.	Type	Poles	Output (W)	Voltage (V)	Frequency (Hz)	Duty	Rated Load				Starting Torque		Capacitor (uF)	
							Current (A)	Speed (rpm)	Torque (kg-cm) (N-m)		(kg-cm)	(N-m)		
90	S9R60GA()-E S9R60GA()-E(TP) S9R60GA()-ECE	4	60	1 ø 110	60	30min.	1.70	1550	3.90	0.390	7.00	0.700	25.0	
	S9R60GB()-E S9R60GB()-E(TP) S9R60GB()-ECE	4	60	1 ø 220	60	30min.	0.90	1550	3.90	0.390	7.00	0.700	6.5	
	S9R60GC()-E S9R60GC()-E(TP) S9R60GC()-ECE	4	60	1 ø 100	50 60	30min.	1.50 1.75	1250 1500	4.80 4.00	0.480 0.400	6.20	0.620	25.0	
	S9R60GD()-E S9R60GD()-E(TP) S9R60GD()-ECE	4	60	1 ø 200	50 60	30min.	0.75 0.90	1250 1500	4.80 4.00	0.480 0.400	6.20	0.620	6.5	
	S9R60GE()-E S9R60GE()-ECE	4	60	1 ø 100 1 ø 115	50 60	30min.	1.30 1.70 1.40	1300 1550 1600	4.80 4.00 3.90	0.480 0.400 0.390	5.80	0.580	25.0 20.0	
	S9R60GX()-E S9R60GX()-ECE	4	60	1 ø 220 1 ø 240	50	30min.	0.58 0.61	1300	4.60 4.90	0.460 0.490	6.00 7.00	0.600 0.700	5.0	
	S9I60GU()-E S9I60GU()-ECE	4	60	3 ø 200	50 60	Cont.	0.60 0.50	1300 1550	4.60 3.90	0.460 0.390	9.30 8.00	0.930 0.800	—	
	S9I60GT()-E S9I60GT()-ECE	4	60	3 ø 220	50 60	Cont.	0.80 0.57	1350 1600	4.40 3.90	0.440 0.390	11.35 9.30	1.135 0.930	—	
	S9I60GS()-E S9I60GS()-ECE	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						

- ❖ 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 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

MODEL	GEAR RATIO	rpm																							
		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
S9KC□()	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□()-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

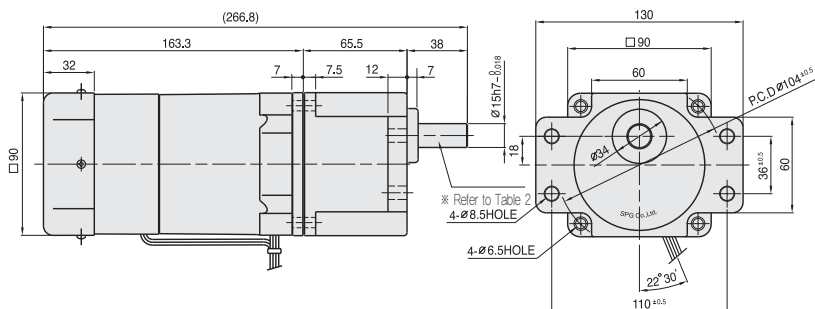
MODEL	GEAR RATIO	rpm																							
		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
S9KC□()	kg-cm	9.72	11.7	16.2	19.4	24.3	29.2	32.4	36.5	43.8	52.6	58.4	66.0	79.2	95.0	106	132	158	177	200	200	200	200	200	200
S9KC□()-S	N·m	0.953	1.147	1.588	1.901	2.381	2.862	3.175	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'.

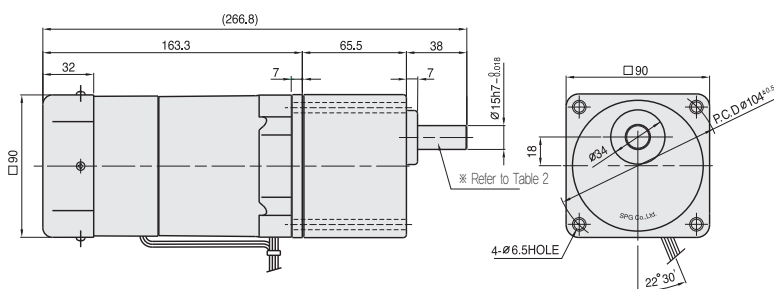
DIMENSIONS

+ GEARED MOTOR

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

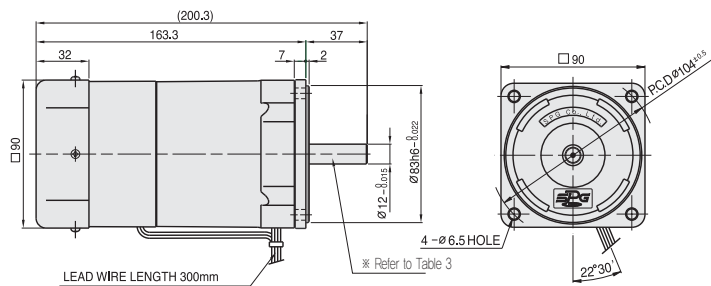


* HEAD MODEL : S9□C3B□-S-S9□C200B□



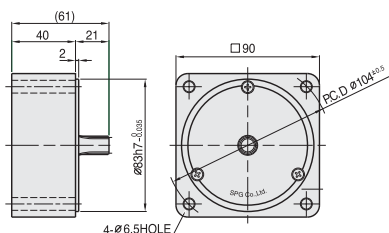
+ MOTOR

* MOTOR MODEL : S9R60□□□-E



+ INTER-DECIMAL GEAR HEAD

* MODEL : S9GX10B(H,L)-S



+ WEIGHT - (Table 1)

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 - (Table 2)

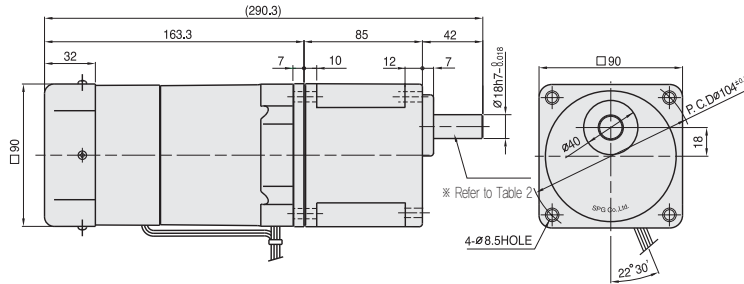
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE	
S9SC3B□ ~S9SC200B□	
D-CUT TYPE	
S9DC3B□ ~S9DC200B□	

+ SPEC for output shaft of motor - (Table 3)

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

DIMENSIONS

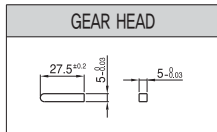
+ GEARED MOTOR * MOTOR MODEL : S9R60□H-E
 * HEAD MODEL □ : S9□D3B~S9□D200B



+ 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	
S9K□B	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
	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

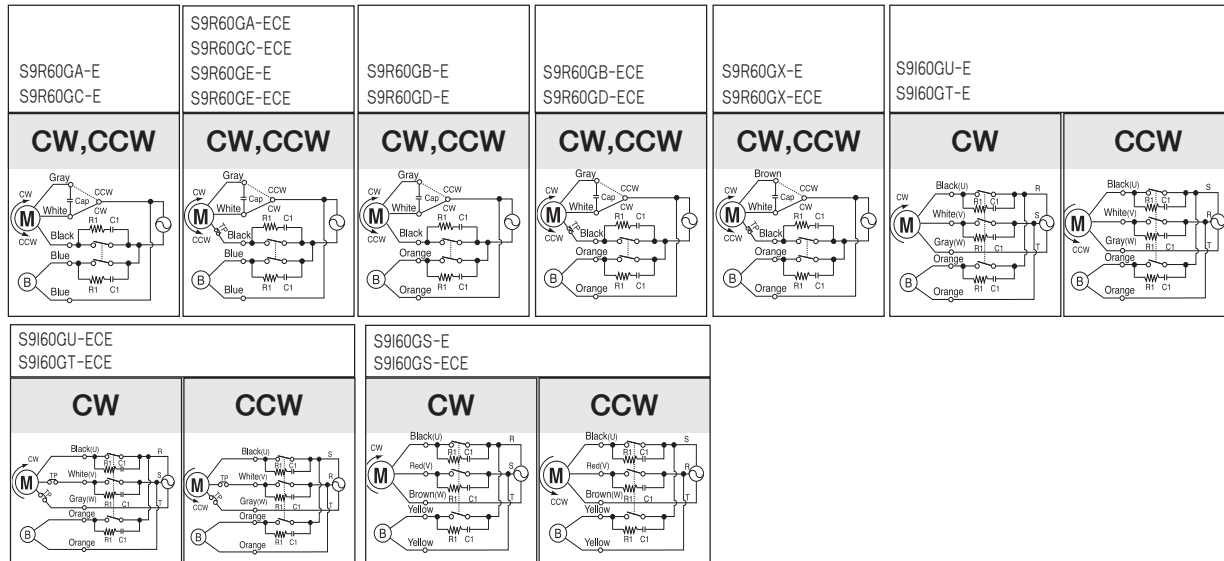
60Hz

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	
S9K□B	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
	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
	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

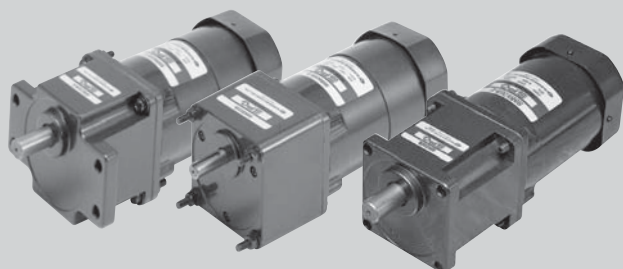
- ❖ The code in □ of gearhead model is for gear ratio. ❖ It is the ambient torque of the assembled motor and gearhead.
- ❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
- ❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the 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.



R₁ = 10 ~ 200 Ω (Min. 1/4W) C₁ = 0.1 ~ 0.33 μF (AC125VW or AC250VW)



90W

ELECTROMAGNETIC BRAKE MOTOR

□ 90mm LEAD WIRE TYPE

SIZE mm sq.	Type	Poles	Output (W)	Voltage (V)	Frequency (Hz)	Duty	Rated Load				Starting Torque		Capacitor (uF)
							Current (A)	Speed (rpm)	Torque (kg-cm) (N-m)		(kg-cm)	(N-m)	
90	S9R90GA()-E S9R90GA()-E(TP) S9R90GA()-ECE	4	90	1 ∅ 110	60	30min.	2.20	1550	5.80	0.580	8.90	0.890	30.0
	S9R90GB()-E S9R90GB()-E(TP) S9R90GB()-ECE	4	90	1 ∅ 220	60	30min.	1.10	1550	5.80	0.580	8.90	0.890	7.5
	S9R90GC()-E S9R90GC()-E(TP) S9R90GC()-ECE	4	90	1 ∅ 100	50 60	30min.	2.00 2.25	1250 1500	7.20 6.00	0.720 0.600	7.00	0.700	30.0
	S9R90GD()-E S9R90GD()-E(TP) S9R90GD()-ECE	4	90	1 ∅ 200	50 60	30min.	0.90 1.10	1250 1500	7.20 6.00	0.720 0.600	7.00	0.700	7.5
	S9R90GE()-E S9R90GE()-ECE	4	90	1 ∅ 100 1 ∅ 115	50 60	30min.	1.80 2.10 1.90	1300 1550 1600	7.20 6.00 5.80	0.720 0.600 0.580	6.30 6.90	0.630 0.690	30.0 25.0
	S9R90GX()-E S9R90GX()-ECE	4	90	1 ∅ 220 1 ∅ 240	50	30min.	0.71 0.75	1300	6.90 7.20	0.690 0.720	6.80 8.60	0.680 0.860	6.0
	S9I90GU()-E S9I90GU()-ECE	4	90	3 ∅ 200	50 60	Cont.	0.63 0.60	1300 1550	6.90 6.00	0.690 0.600	10.60 8.90	1.060 0.890	—
	S9I90GT()-E S9I90GT()-ECE	4	90	3 ∅ 220	50 60	Cont.	0.68 0.55	1350 1600	6.80 5.70	0.680 0.570	13.00 10.50	1.300 1.050	—
	S9I90GS()-E S9I90GS()-ECE	4	90	3 ∅ 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	
				3 ∅ 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	
				3 ∅ 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	
	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	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□()	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	200	200
S9KC□()-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	19.60	19.60

60Hz

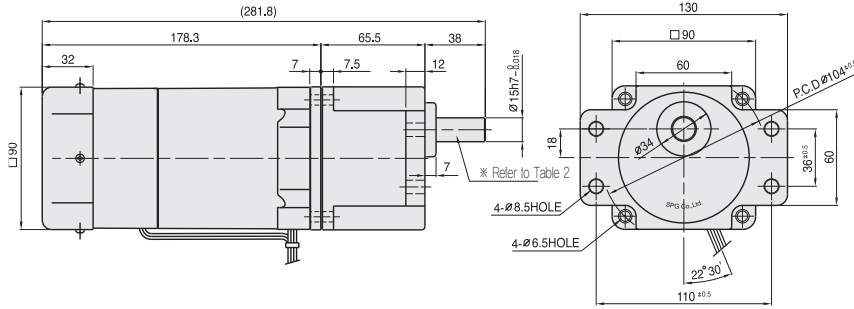
GEAR RATIO	3 3.6 5 6 7.5 9 10 12.5 15 18 20 25 30 36 40 50 60 75 90 100 120 150 180 200																									
	MODEL	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
S9KC□()	kg-cm	14.6	17.5	24.3	29.2	36.5	43.7	48.6	54.8	65.7	78.8	87.6	99.0	119	143	158	198	200	200	200	200	200	200	200	200	200
S9KC□()-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	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'.

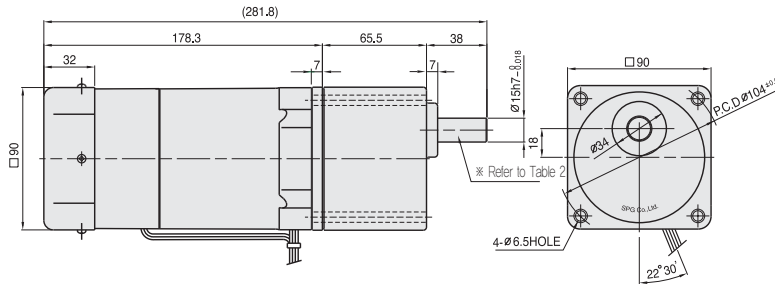
DIMENSIONS

+ GEARED MOTOR

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

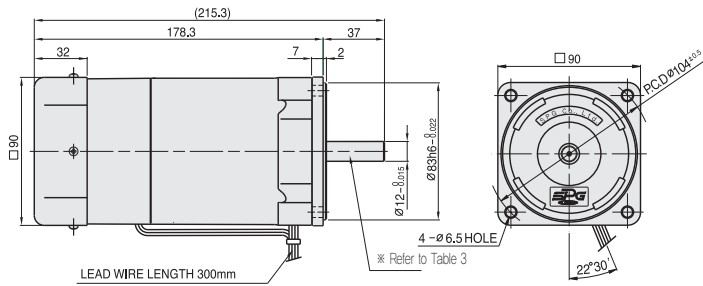


* HEAD MODEL : S9□C3B□~S9□C200B□



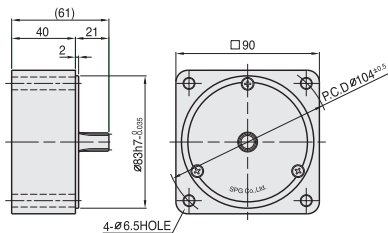
+ MOTOR

* MOTOR MODEL : S9R90□□□-E



+ INTER-DECIMAL GEAR HEAD

* MODEL : S9GX10B(H,L)-S



+ WEIGHT - (Table 1)

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 - (Table 2)

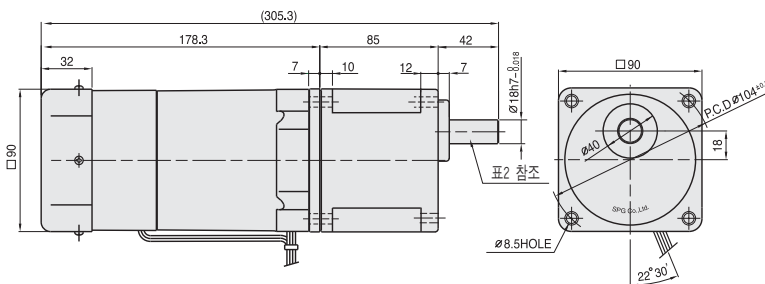
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE	
S9SC3B□ ~S9SC200B□	
D-CUT TYPE	
S9DC3B□ ~S9DC200B□	
KEY TYPE	
S9KC3B□ ~S9KC200B□	

+ SPEC for output shaft of motor - (Table 3)

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

DIMENSIONS

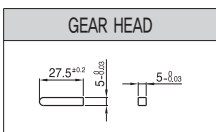
➤ GEARED MOTOR * MOTOR MODEL : S9R90G□H
* HEAD MODEL : S9□D3B~S9□D200B



➤ WEIGHT - (Table 1)

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



➤ 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 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	
S9KD□B	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
	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

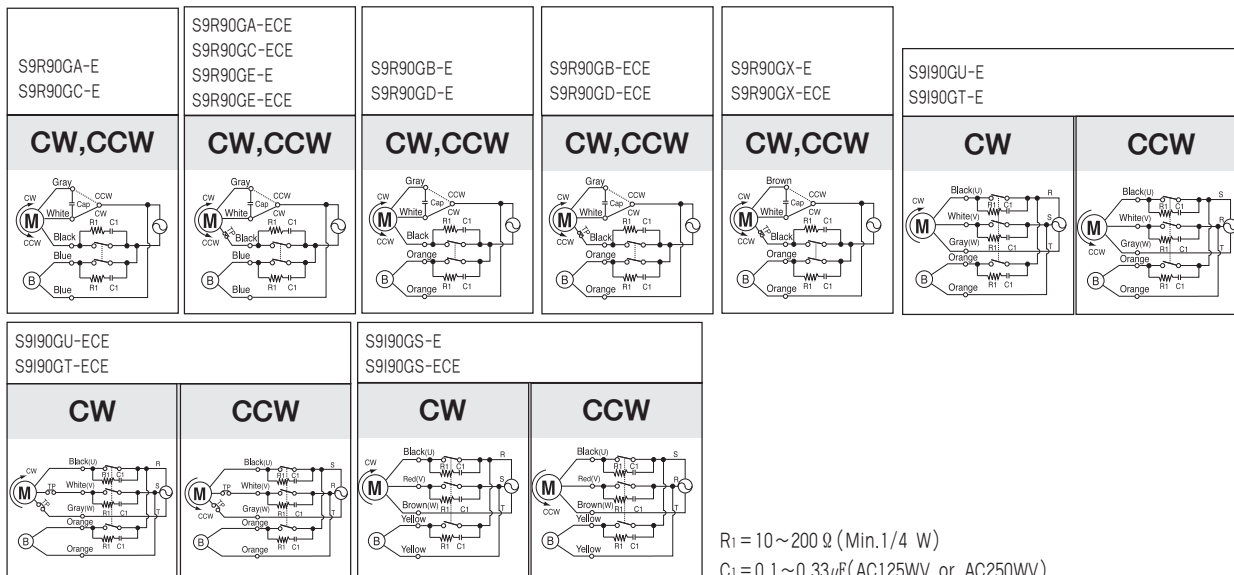
60Hz

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	
S9KD□B	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
	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.



R1 = 10 ~ 200 Ω (Min. 1/4 W)
C1 = 0.1 ~ 0.33 μF (AC125WV or AC250WV)