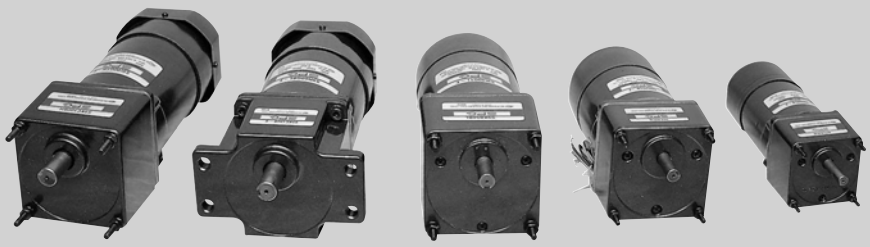
ELECTROMAGNETIC BRAKE MOTORS

INDEX



Characteristics of ELECTROMAGNETIC BRAKE MOTOR

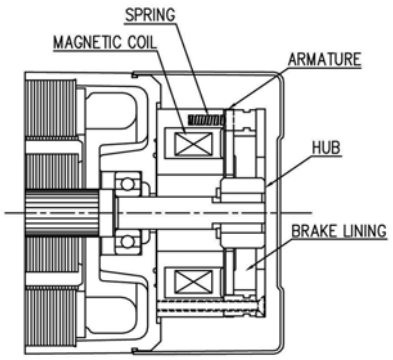
Overview of Electromagnetic Brake Motor

- 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.



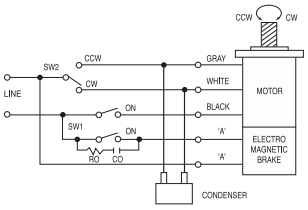
〈Fig.2〉 STRUCTURAL DIAGRAM OF THE ELECTROMAGNETIC BRAKE

(2) Characteristic of Electromagnetic Brake

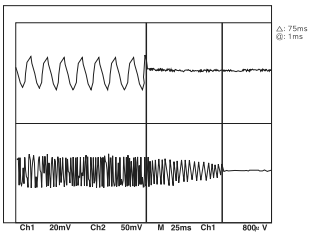
- The electromagnetic brake of AC non-excitation run type can be connected directly to the motor. When the power source is turned off, the motor stops instantaneously and the load is maintained. The retention force is 0.5 kgf · cm~ 10kgf · cm. This type of brake is best suited if a safer brake is required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

(3) Braking Time Difference by Connection Method

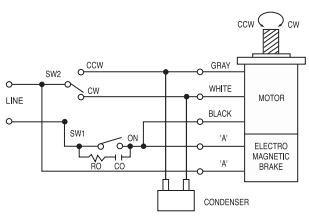
- The connection can be made as shown in 〈Fig. 2〉. However, the method shown in 〈Fig. 3〉 is also possible if a simpler connection method is sought for. In case of 〈Fig. 3〉, the braking time takes longer roughly by 50msec than that of 〈Fig. 2〉, resulting in the increased overrun.
  This is because the 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.



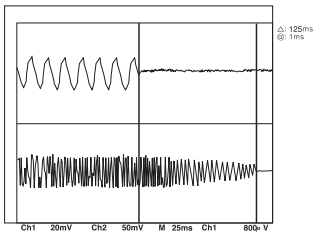
〈Fig.2〉 NORMAL CONNECTION



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



〈Fig.3〉 SIMPLIFIED CONNECTION



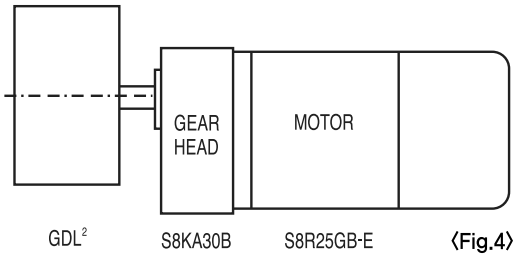
(Stop time is about 124.5msec.
SLIP is about 2.1 revolutions.
Model S8R25GA-E is used for measurement.

※ 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.

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

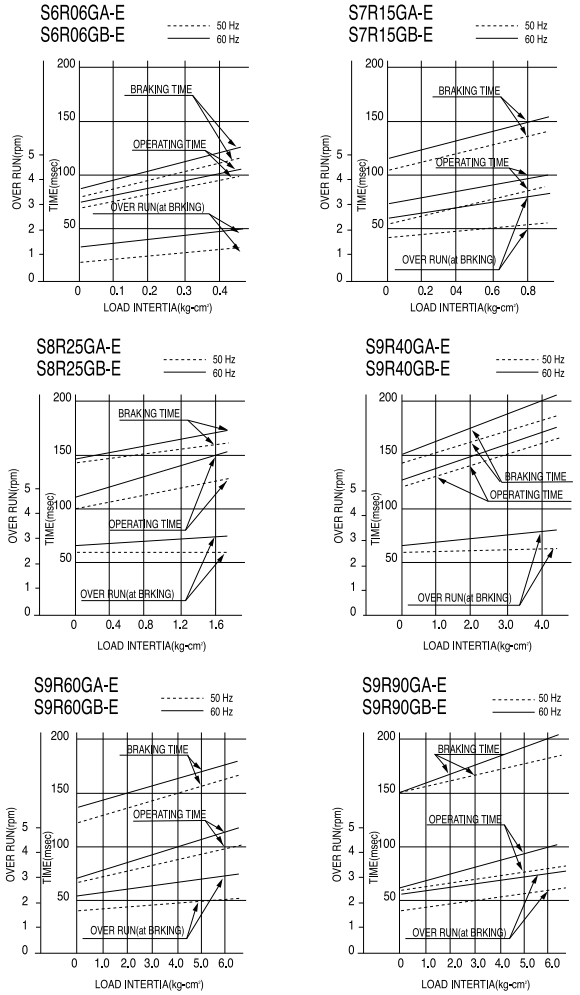
(2) OVER RUN

- 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.

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

(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 Breaking Time

GENERAL SPECIFICATION OF ELECTROMAGNETIC BRAKE 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 50/60Hz 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 S6R06GA-ECE	4	6	1Ø 110	60	30min.	0.23	1500	0.40	0.040	0.65	0.065	3.0
	S6R06GB-E 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

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

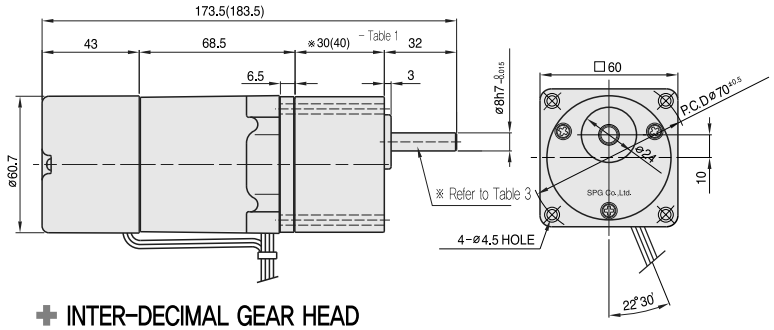
MODEL \ GEAR RATIO		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200	250
	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9	7.2
S6DA□B	kg.-cm	1.0	1.3	1.7	2.1	2.6	3.1	3.5	4.4	5.2	6.3	6.3	7.8	9.4	11.3	12.6	14.2	17.0	21.3	25.5	28.4	30.0	30.0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

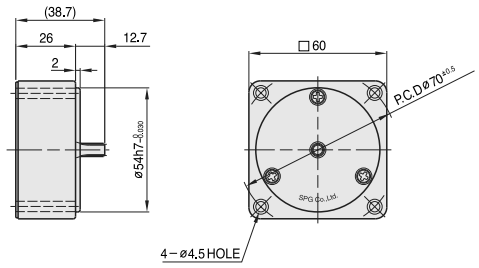
✚ GEARED MOTOR

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



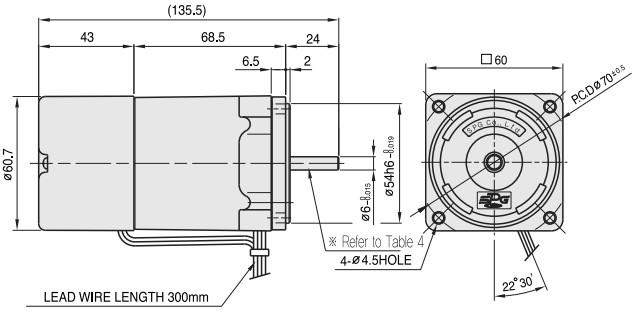
✚ INTER-DECIMAL GEAR HEAD

※MODEL : S6GX10B



✚ MOTOR

※MOTOR MODEL : S6R06□□-E



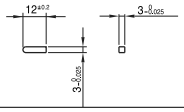
✚ ※26(35) - (Table1)

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

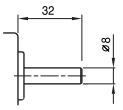
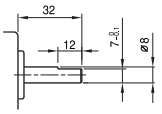
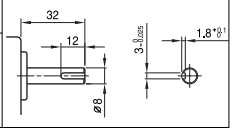
✚ WEIGHT - (Table2)

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

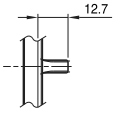
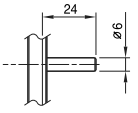
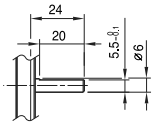
✚ KEY SPEC

GEAR HEAD


✚ SPEC for output shaft of gearhead - (Table3)

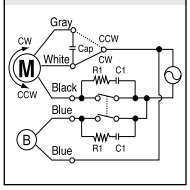
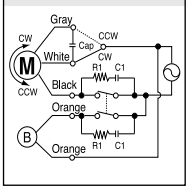
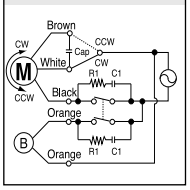
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE S6SA3□ ~S6SA250□	
D-CUT TYPE S6DA3□ ~S6DA250□	
KEY TYPE S6KA3□ ~S6KA250□	

✚ SPEC for output shaft of motor - (Table4)

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

SCHEMATIC DIAGRAMS

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

S6R06GA-E S6R06GA-ECE S6R06GC-E S6R06GE-E S6R06GC-ECE S6R06GE-ECE	S6R06GB-E S6R06GB-ECE S6R06GD-E S6R06GD-ECE	S6R06GX-E S6R06GX-ECE
CW,CCW	**CW,CCW**	**CW,CCW**
		

R_1 = 10~200 Ω (Min.1/4W)
C_1 = 0.1~0.33 μF (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 S7R15GA-E(TP) S7R15GA-ECE	4	15	1Ø 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	1Ø 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	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 S7R15GD-E(TP) 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 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 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

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

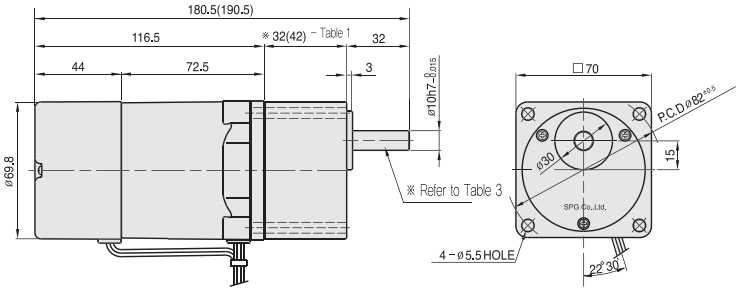
MODEL \ GEAR RATIO		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
S7KA□B	kg-cm	3.0	3.6	5.1	6.1	7.6	9.1	10.1	12.7	15.2	18.2	18.2	22.8	27.3	32.8	36.5	41.0	49.2	50.0	50.0	50.0	50.0	50.0	50.0	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

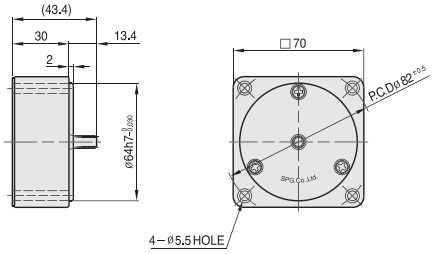
GEARED MOTOR

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



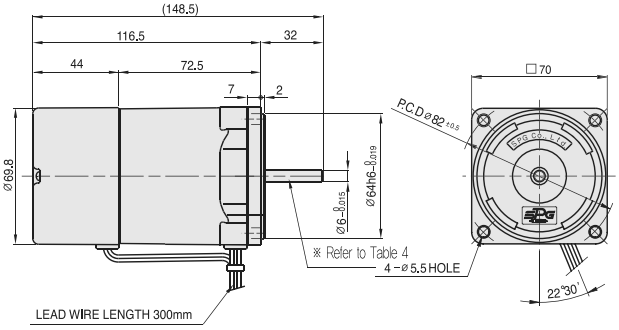
INTER-DECIMAL GEAR HEAD

※MODEL : S7GX10B



MOTOR

※ MOTOR MODEL : S7R15□□-E



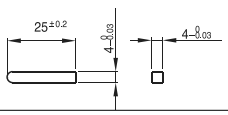
※26(35) - (Table 1)

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

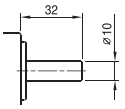
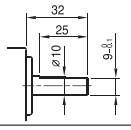
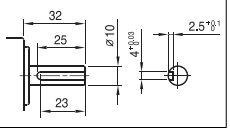
WEIGHT - (Table 2)

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

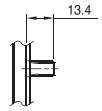
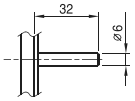
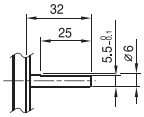
KEY SPEC

GEAR HEAD


SPEC for output shaft of gearhead - (Table 3)

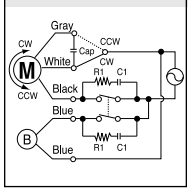
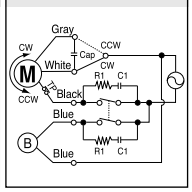
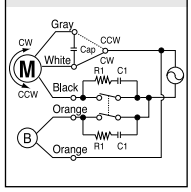
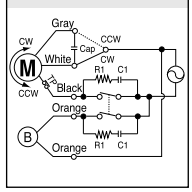
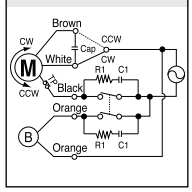
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE S7SA3□ ~S7SA200□	
D-CUT TYPE S7DA3□ ~S7DA200□	
KEY TYPE S7KA3□ ~S7KA200□	

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.

S7R15GA-E S7R15GC-E	S7R15GA-ECE S7R15GC-ECE S7R15GE-E S7R15GE-ECE	S7R15GB-E S7R15GD-E	S7R15GB-ECE S7R15GD-ECE	S7R15GX-E S7R15GX-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)

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 S8R15GA-E(TP) S8R15GA-ECE	4	15	1Ø 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	1Ø 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	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 S8R15GD-E(TP) 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 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 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

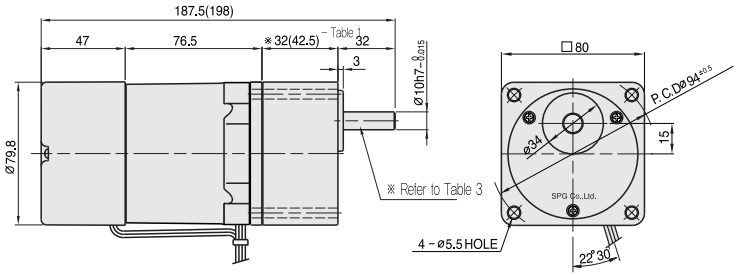
GEAR RATIO / MODEL		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
S8KA□B	kg-cm	2.9	3.5	4.9	5.8	7.3	8.7	9.7	12.2	14.6	17.5	17.5	21.9	26.3	31.5	35.0	39.6	47.5	59.4	71.3	79.2	80	80	80	80
	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

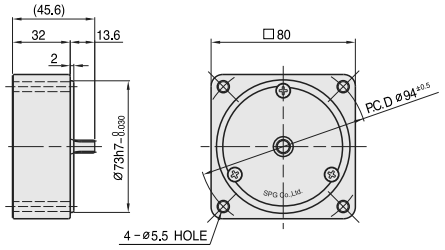
GEARED MOTOR

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



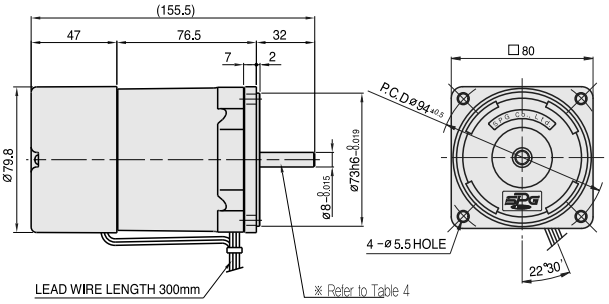
INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B



MOTOR

※MOTOR MODEL : S8R15□□-E



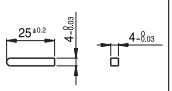
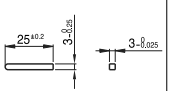
※26(35) - (Table1)

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

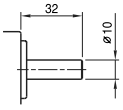
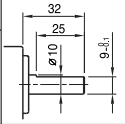
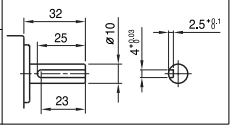
WEIGHT - (Table2)

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

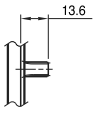
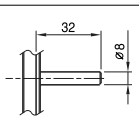
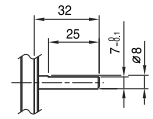
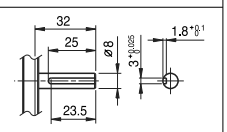
KEY SPEC

GEAR HEAD	MOTOR
	

SPEC for output shaft of gearhead - (Table3)

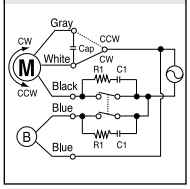
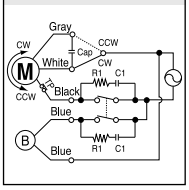
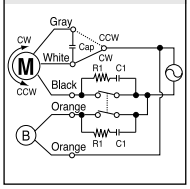
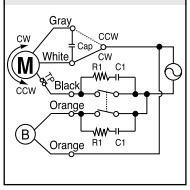
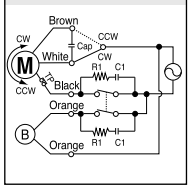
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE S8SA3□ ~S8SA200□	
D-CUT TYPE S8DA3□ ~S8DA200□	
KEY TYPE S8KA3□ ~S8KA200□	

SPEC for output shaft of motor - (Table4)

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

SCHEMATIC DIAGRAMS

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

S8R15GA-E S8R15GC-E	S8R15GA-ECE S8R15GC-ECE S8R15GE-E S8R15GE-ECE	S8R15GB-E S8R15GD-E	S8R15GB-ECE S8R15GD-ECE	S8R15GX-E 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 S8R25GA-E(TP) S8R25GA-ECE	4	25	1Ø 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	1Ø 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	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 S8R25GD-E(TP) 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 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 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 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 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 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

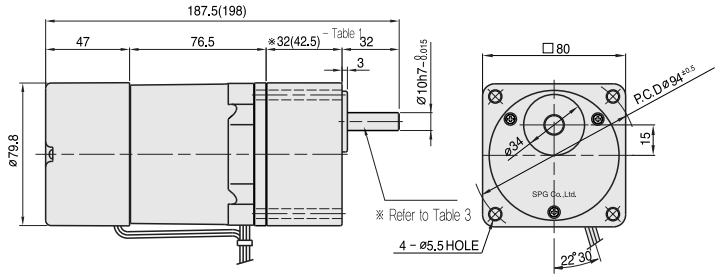
GEAR RATIO / MODEL		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
S8KA□B	kg-cm	4.4	5.2	7.3	8.7	10.9	13.1	14.6	18.2	21.9	26.2	26.3	32.9	39.4	47.3	52.6	59.4	71.3	80.0	80.0	80.0	80.0	80.0	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

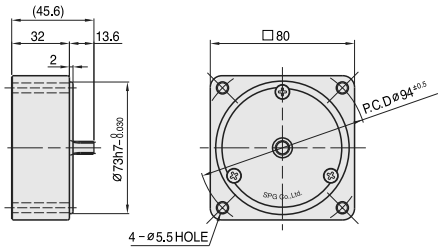
GEARED MOTOR

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



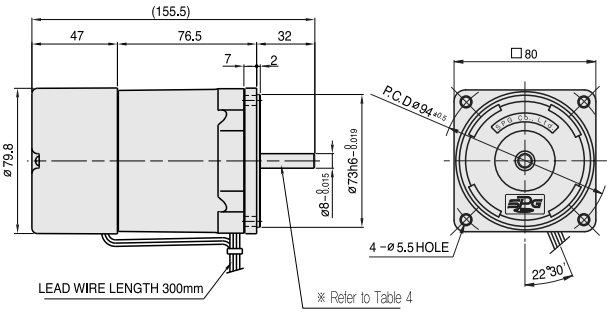
INTER-DECIMAL GEAR HEAD

※MODEL : S8GX10B



MOTOR

※MOTOR MODEL : S8R25□□-E



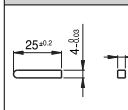
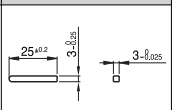
※26(35) - (Table 1)

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

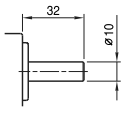
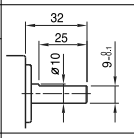
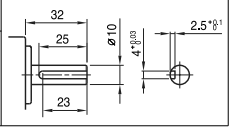
WEIGHT - (Table 2)

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

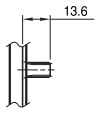
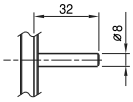
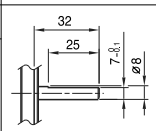
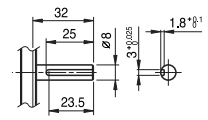
KEY SPEC

GEAR HEAD	MOTOR
	

SPEC for output shaft of gearhead - (Table 3)

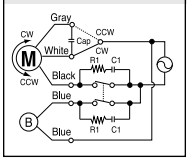
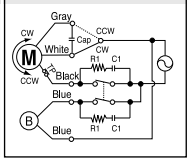
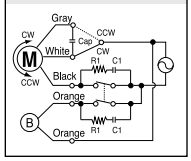
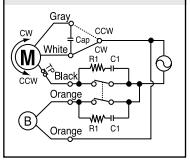
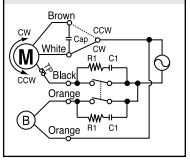
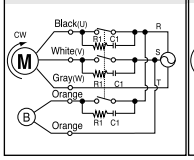
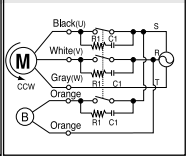
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE	
S8SA3□ ~S8SA200□	
D-CUT TYPE	
S8DA3□ ~S8DA200□	
KEY TYPE	
S8KA3□ ~S8KA200□	

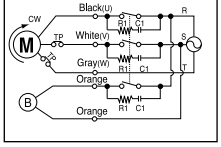
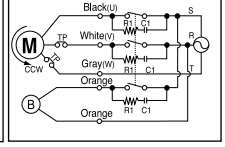
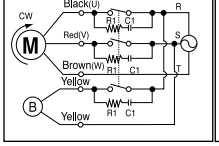
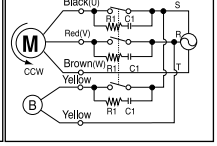
SPEC for output shaft of motor - (Table 4)

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 S8R25GC-E	S8R25GA-ECE S8R25GC-ECE S8R25GE-E S8R25GE-ECE	S8R25GB-E S8R25GD-E	S8R25GB-ECE S8R25GD-ECE	S8R25GX-E S8R25GX-ECE	S8I25GU-E 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 S9R40GA( )-E(TP) S9R40GA( )-ECE	4	40	1Ø 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	1Ø 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	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 S9R40GD( )-E(TP) 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 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 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 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 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 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

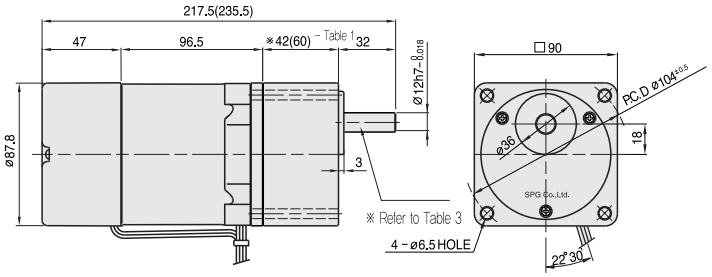
GEAR RATIO / MODEL		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
S9KB□B( )	kg-cm	6.8	8.2	11.3	13.6	17.0	20.4	22.7	28.4	34.0	40.8	40.9	51.1	61.3	73.6	81.8	100	100	100	100	100	100	100	100	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

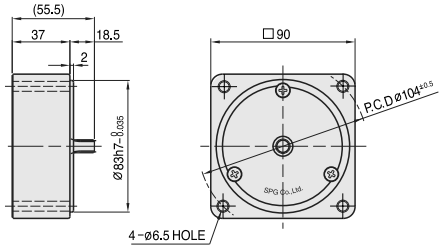
GEARED MOTOR

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



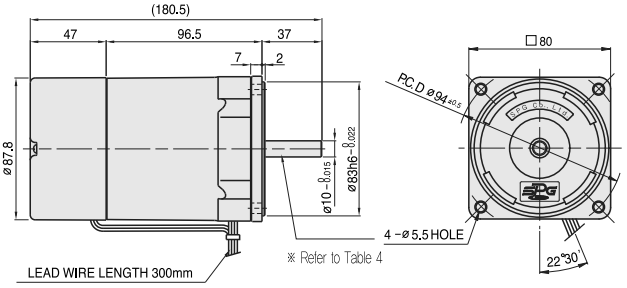
INTER-DECIMAL GEAR HEAD

※ MODEL : S9GX10B(H,L)



MOTOR

※MOTOR MODEL : S9R40□□□-E



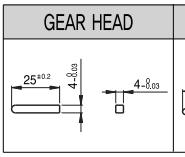
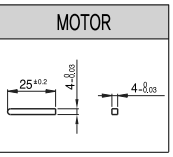
※26(35) - (Table1)

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

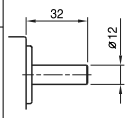
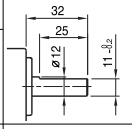
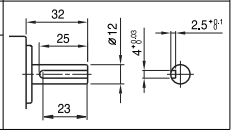
WEIGHT - (Table2)

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

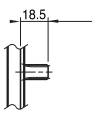
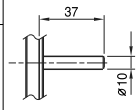
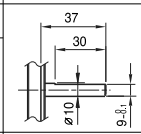
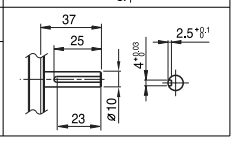
KEY SPEC

GEAR HEAD	MOTOR
	

SPEC for output shaft of gearhead - (Table3)

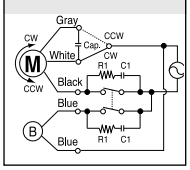
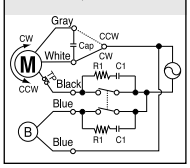
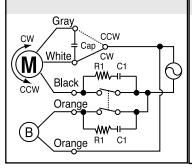
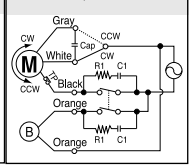
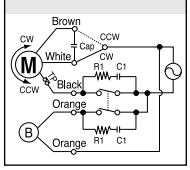
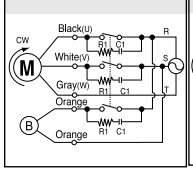
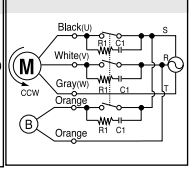
MODEL	TYPES OF OUTPUT SHAFT
STRAIGHT TYPE	
S9SB3□□ ~S9SB200□□	
D-CUT TYPE	
S9DB3□□ ~S9DB200□□	
KEY TYPE	
S9KB3□□ ~S9KB200□□	

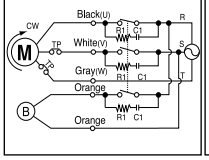
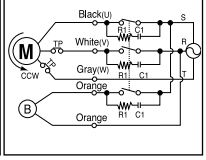
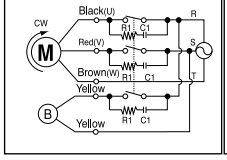
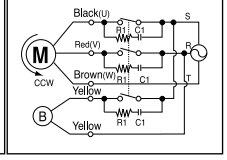
SPEC for output shaft of motor - (Table4)

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

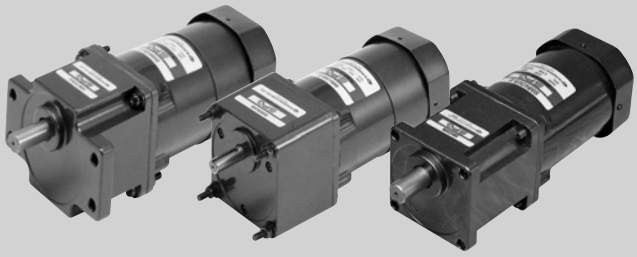
SCHEMATIC DIAGRAMS

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

S9R40GA-E S9R40GC-E	S9R40GA-ECE S9R40GC-ECE S9R40GE-E S9R40GE-ECE	S9R40GB-E S9R40GD-E	S9R40GB-ECE S9R40GD-ECE	S9R40GX-E S9R40GX-ECE	S9I40GU-E S9I40GT-E	
CW,CCW	**CW,CCW**	**CW,CCW**	**CW,CCW**	**CW,CCW**	**CW**	**CCW**
						

S9I40GU-ECE	S9I40GT-ECE	S9I40GS-E S9I40GS-ECE	
CW	**CCW**	**CW**	**CCW**
			

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 S9R60GA( )-E(TP) S9R60GA( )-ECE	4	60	1Ø 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	1Ø 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	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 S9R60GD( )-E(TP) 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 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 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 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 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 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

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

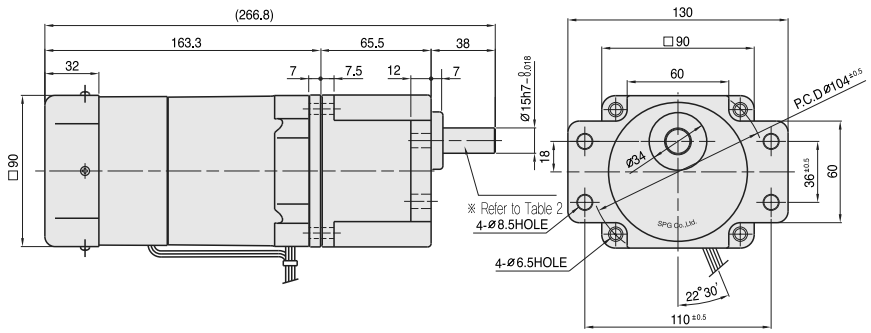
GEAR RATIO / MODEL		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
S9KC□B( )	kg-cm	9.72	11.7	16.2	19.4	24.3	29.2	32.4	36.5	43.8	52.6	58.4	66.0	79.2	95.0	106	132	158	177	200	200	200	200	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'.

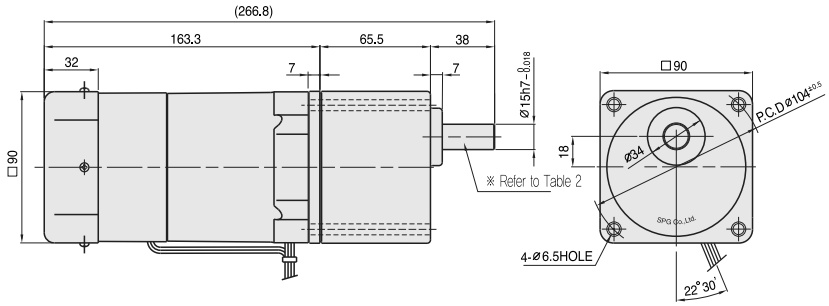
DIMENSIONS

✚ GEARED MOTOR

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

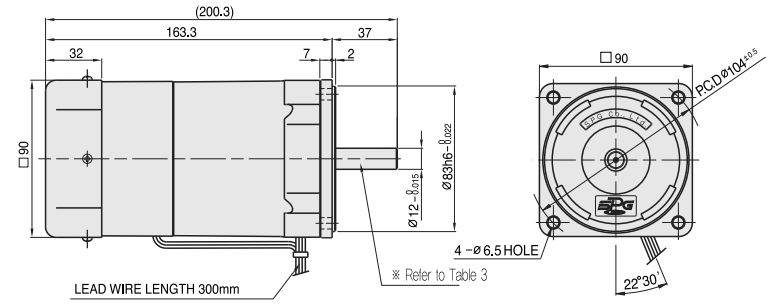


※HEAD MODEL : S9□C3B□-S~S9□C200B□



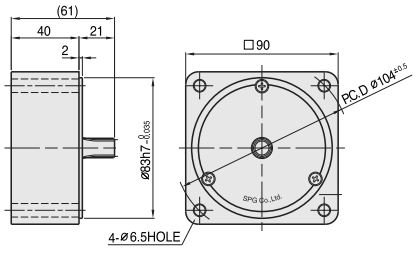
✚ MOTOR

※MOTOR MODEL : S9R60□□□-E



✚ INTER-DECIMAL GEAR HEAD

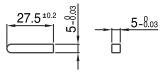
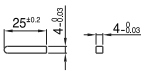
※MODEL : S9GX10B(H,L)-S



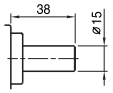
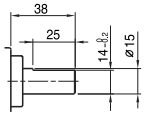
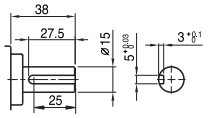
✚ WEIGHT - (Table1)

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

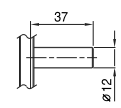
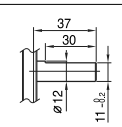
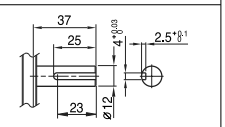
✚ KEY SPEC

GEAR HEAD	MOTOR
	

✚ SPEC for output shaft of gearhead - (Table2)

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

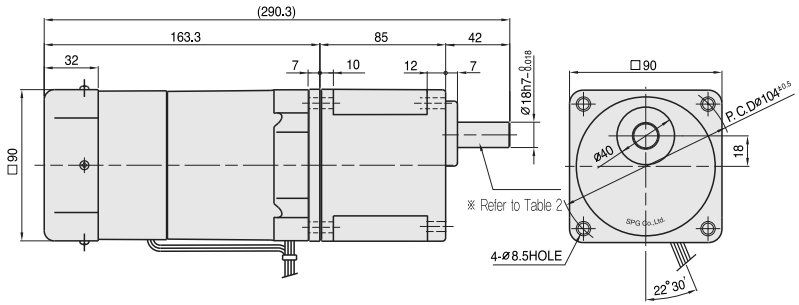
✚ SPEC for output shaft of motor - (Table3)

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

DIMENSIONS

✚ GEARED MOTOR

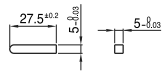
※MOTOR MODEL : S9R60G□H-E
※HEAD MODEL □ : S9□D3B~S9□D200B



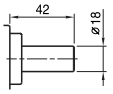
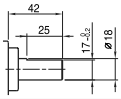
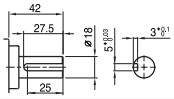
✚ WEIGHT - (Table1)

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

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

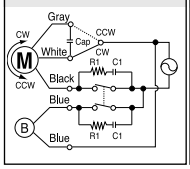
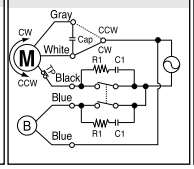
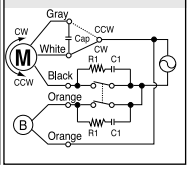
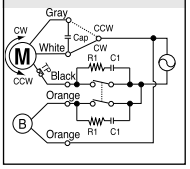
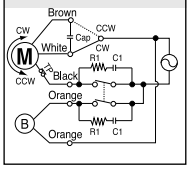
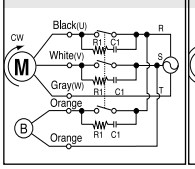
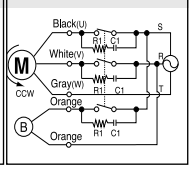
60Hz

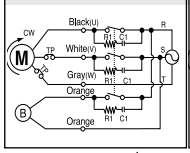
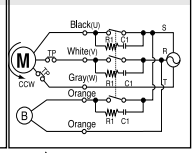
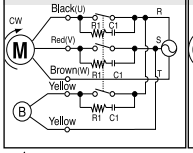
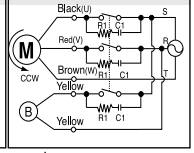
MODEL \ GEAR RATIO		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
S9KD□B	kg-	9.72	11.7	16.2	19.4	24.3	29.2	32.4	36.5	43.8	52.6	58.4	66.0	79.2	95.0	106	132	158	177	212	236	283	300	300	300
	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	S9R60GA-ECE S9R60GC-ECE S9R60GE-E S9R60GE-ECE	S9R60GB-E S9R60GD-E	S9R60GB-ECE S9R60GD-ECE	S9R60GX-E S9R60GX-ECE	S9I60GU-E S9I60GT-E	
CW,CCW	**CW,CCW**	**CW,CCW**	**CW,CCW**	**CW,CCW**	**CW**	**CCW**
						

S9I60GU-ECE S9I60GT-ECE		S9I60GS-E S9I60GS-ECE	
CW	**CCW**	**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 S9R90GA( )-E(TP) S9R90GA( )-ECE	4	90	1Ø 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	1Ø 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	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 S9R90GD( )-E(TP) 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 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 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 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 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 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

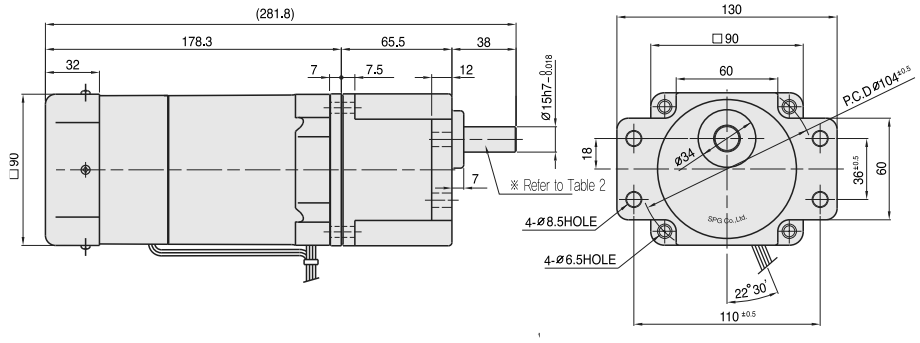
GEAR RATIO / MODEL		3	3.6	5	6	7.5	9	10	12.5	15	18	20	25	30	36	40	50	60	75	90	100	120	150	180	200
	rpm	600	500	360	300	240	200	180	144	120	100	90	72	60	50	45	36	30	24	20	18	15	12	10	9
S9KC□B( )	kg-cm	14.6	17.5	24.3	29.2	36.5	43.7	48.6	54.8	65.7	78.8	87.6	99.0	119	143	158	198	200	200	200	200	200	200	200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

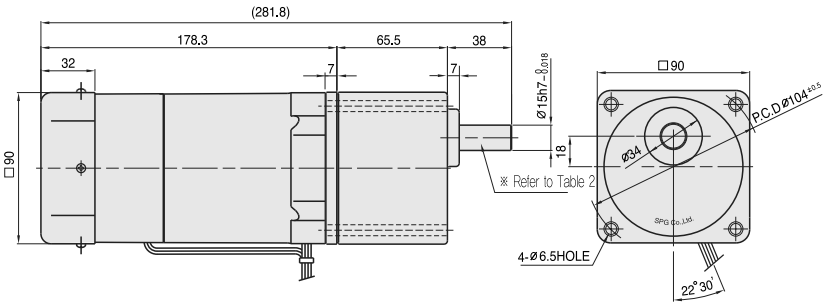
DIMENSIONS

GEARED MOTOR

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

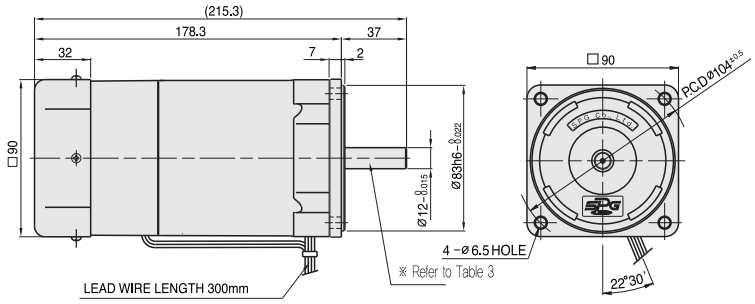


※HEAD MODEL : S9□C3B□~S9□C200B□



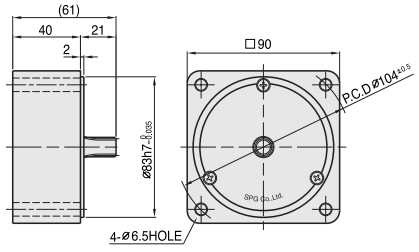
MOTOR

※MOTOR MODEL : S9R90□□□-E



INTER-DECIMAL GEAR HEAD

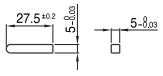
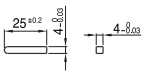
※MODEL : S9GX10B(H,L)-S



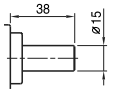
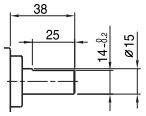
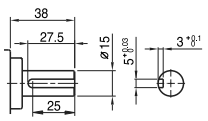
WEIGHT - (Table1)

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

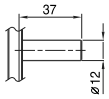
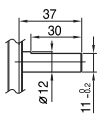
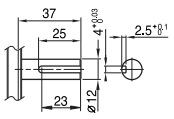
KEY SPEC

GEAR HEAD	MOTOR
	

SPEC for output shaft of gearhead - (Table2)

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

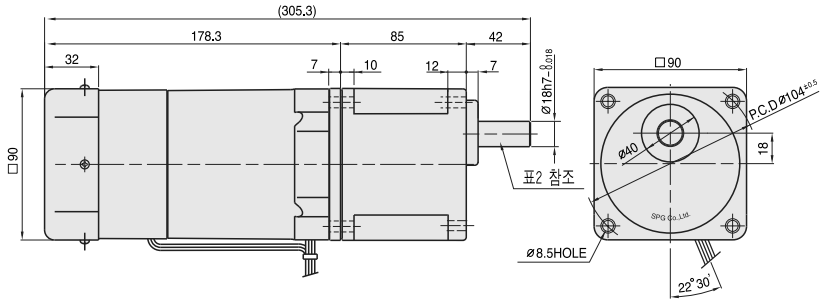
SPEC for output shaft of motor - (Table3)

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

DIMENSIONS

✚ GEARED MOTOR

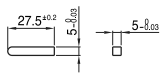
※MOTOR MODEL : S9R90G□H
※HEAD MODEL : S9□D3B~S9□D200B



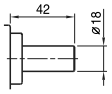
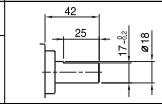
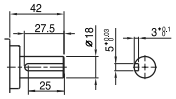
✚ WEIGHT - (Table1)

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

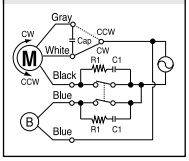
❖ The code in □ of gearhead model is for gear ratio. ❖ It is the permissible torque of the assembled motor and gearhead.
❖ The permissible torque of the motor and inter-decimal gearhead is 300 kg-cm.
❖ ■ color indicates that the output shaft of the geared motor rotates in the same direction as the output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

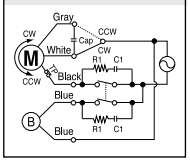
S9R90GA-E
S9R90GC-E

CW,CCW



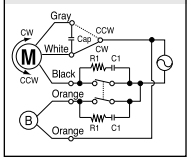
S9R90GA-ECE
S9R90GC-ECE
S9R90GE-E
S9R90GE-ECE

CW,CCW



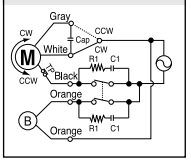
S9R90GB-E
S9R90GD-E

CW,CCW



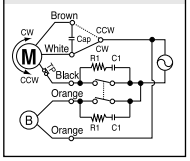
S9R90GB-ECE
S9R90GD-ECE

CW,CCW



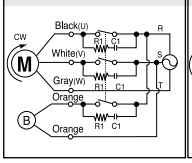
S9R90GX-E
S9R90GX-ECE

CW,CCW

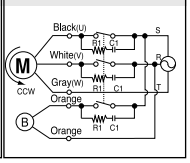


S9I90GU-E
S9I90GT-E

CW

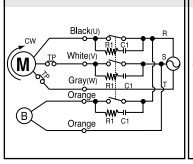


CCW

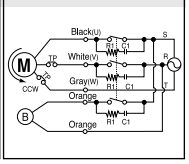


S9I90GU-ECE
S9I90GT-ECE

CW

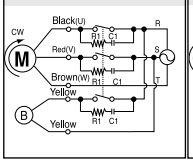


CCW

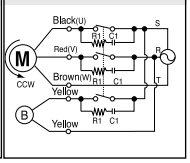


S9I90GS-E
S9I90GS-ECE

CW



CCW



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