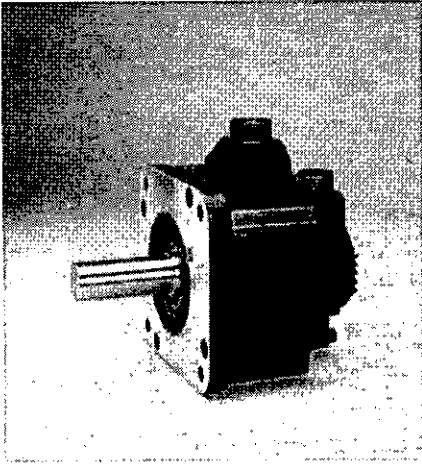


## High Speed Feed Series SGMG Servomotors (1500rpm) - With Incremental / Absolute Encoder

Rated Output: 0.45kW, 0.85kW, 1.3kW,  
1.8kW, 2.9kW, 4.4kW,  
5.5kW, 7.5kW, 11kW



For Additional Information	Page(s)
SGMG Ratings & Specifications	80
SGMG Speed/Torque Curves	81
SGMG Dimensions	82 - 87
SGMG Selection/Ordering Information	88 - 92
SGMG Optional CE Selection	93 - 95
SGDB Ratings & Specifications	129 - 130
SGDB Dimensions	131 - 137

### Design Features

#### 1. Compact

- Small sized motor  
Lightweight motor designed to have installation compatibility.  
Compatible with previous generation G series motors.  
Both length and mass have been reduced to 2/3 of previous generation.

#### 2. High Speed

- Acceleration performance  
Is double that of single motor.  
9 types of rated outputs ranging from 0.46 to 11.0kW.

#### 3. Enhanced Environmental Resistance

- Water resistance, IP67 standard (excluding shaft)
- Reinforced lead-out cable access
- Enhanced withstand load  
Motor output shaft bearing size is upgraded by one rank.

#### 4. Application Emphasis

- Chip mounters
- PCB drilling machines
- Robots
- Conveyors
- Packaging

#### 3. Certified International Standards

- UL Recognized (File #: E165827), CE compliance (option)



## Servomotor Ratings and Specifications

Time Rating: Continuous

Insulation: Class F

Vibration: 15µm or less

Withstand Voltage: 1500VAC

Insulation Resistance: 500VDC

10MΩ or more

Enclosure: Totally-enclosed, self-cooled

IP67 (except for shaft opening)

Ambient Temperature: 0 to 40°C

Ambient Humidity: 20 to 80%  
(non-condensing)

Rated Speed\*: 1500 rpm

Instantaneous Max Speed\*: 3000 rpm

Excitation: Permanent magnet

Drive Method: Direct drive

Mounting: Flange-mounted

MOTORS: SGMG-	Rated Output*	Rated Torque*		Instantaneous Peak Torque*		Rated Current*	Instantaneous Max. Current*
	kW (HP)	N·m	kgf·cm (lb·in)	N·m	kgf·cm (lb·in)	A (rms)	A (rms)
05A□A	0.45 (0.6)	2.84	29 (25)	8.92	91 (79)	3.8	11
09A□A	0.85 (1.1)	5.39	55 (48)	13.8	141 (122)	7.1	17
13A□A	1.3 (1.7)	8.34	85 (74)	23.3	238 (207)	10.7	28
20A□A	1.8 (2.4)	11.5	117 (102)	28.7	293 (254)	16.7	42
30A□A	2.9 (3.9)	18.6	190 (165)	45.1	460 (404)	23.8	56
44A□A	4.4 (5.9)	28.4	290 (252)	71.1	725 (630)	32.8	84
55A□A	5.5 (7.4)	35.0	357 (310)	87.6	894 (775)	42.1	110
75A□A	7.5 (10)	48.0	490 (425)	119	1210 (1050)	54.7	130
1AA□A	11 (15)	70.0	714 (620)	175	1790 (1550)	58.6	140



MOTORS: SGMG-	Torque Constant		Moment of Inertia		Holding Brake		Allowable Load Inertia	Rated Power Rate*	Rated Angular Acceleration*	Inertia Time Constant	Inductance Time Constant
	N·mA (rms)	kgf·cm/A (lb·in/A) (rms)	kg·m <sup>2</sup> × 10 <sup>-4</sup>	gf·cm·s <sup>2</sup> (lb·in·s <sup>2</sup> × 10 <sup>-3</sup> )	Torque	Inertia					
	N·mA (rms)	kgf·cm/A (lb·in/A) (rms)	kg·m <sup>2</sup> × 10 <sup>-4</sup>	gf·cm·s <sup>2</sup> (lb·in·s <sup>2</sup> × 10 <sup>-3</sup> )	N·m	kg·m <sup>2</sup>	kg·m <sup>2</sup> × 10 <sup>-4</sup>	kW/s	rad/s <sup>2</sup>	ms	ms
05A□A	0.82	8.4 (7.3)	7.24	7.39 (6.41)	4.41	1.85	36.2	11.2	3930	5.0	5.1
09A□A	0.83	8.4 (7.3)	13.9	14.2 (12.3)	12.7		69.5	20.9	3880	3.1	5.3
13A□A	0.84	8.6 (7.4)	20.5	20.9 (18.2)			103	33.8	4060	2.8	6.3
20A□A	0.73	7.5 (6.5)	31.7	32.3 (28.1)	43.1	7.75	159	41.5	3620	2.1	12.5
30A□A	0.83	8.5 (7.3)	46.0	46.9 (40.7)			230	75.3	4050	1.9	12.5
44A□A	0.91	9.2 (8.0)	67.5	68.9 (59.8)			338	120	4210	1.3	15.7
55A□A	0.88	9.0 (7.8)	89.0	90.8 (78.8)	72.6	7.75	445	137	3930	1.3	16.4
75A□A	0.93	9.4 (8.2)	125	127 (111)			625	184	3850	1.1	18.4
1AA□A	1.25	12.8 (11)	281	287 (249)			84.3	13.2	1405	174	2490

\* These items and torque-speed characteristics quoted in combination with and SGDB Servo Amplifier at an armature winding temperature of 20°C.

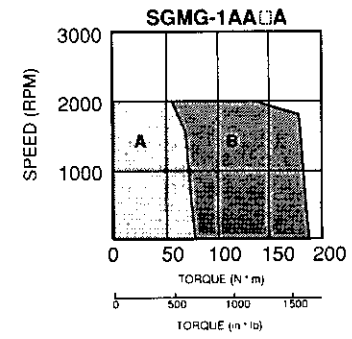
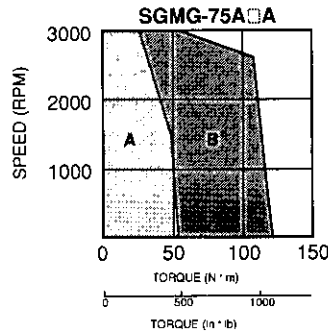
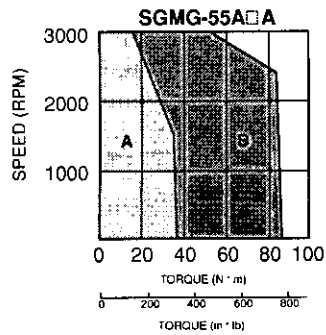
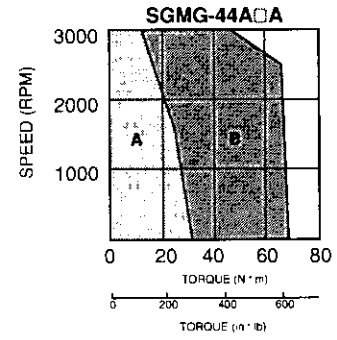
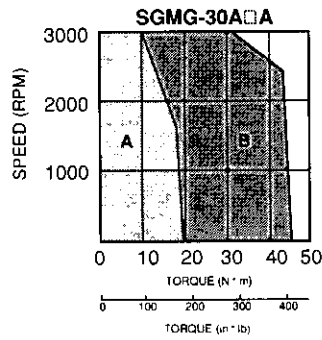
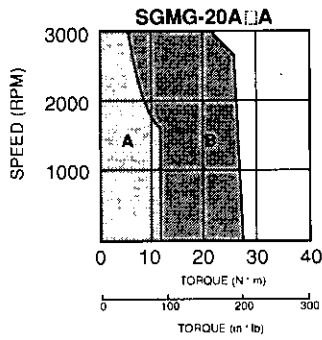
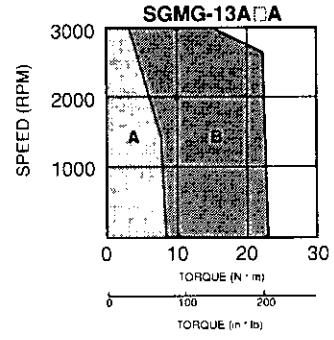
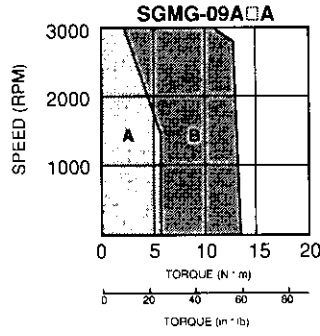
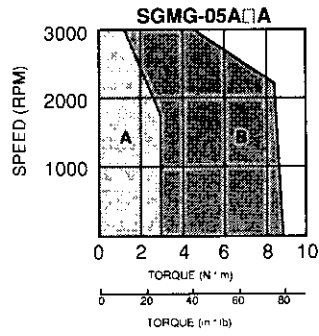
Note: These characteristics can be obtained when the following heat sinks (steel plates) are used for cooling purposes:

Type 05A□A to 13A□A: 400 × 400 × 20 (mm) (15.75 × 15.75 × 0.79 (in))

Type 20A□A to 75A□A: 550 × 550 × 30 (mm) (21.65 × 21.65 × 1.18 (in))

Type 1AA□A: 650 × 650 × 35 (mm) (25.59 × 25.59 × 1.38 (in))

# Speed / Torque Curves



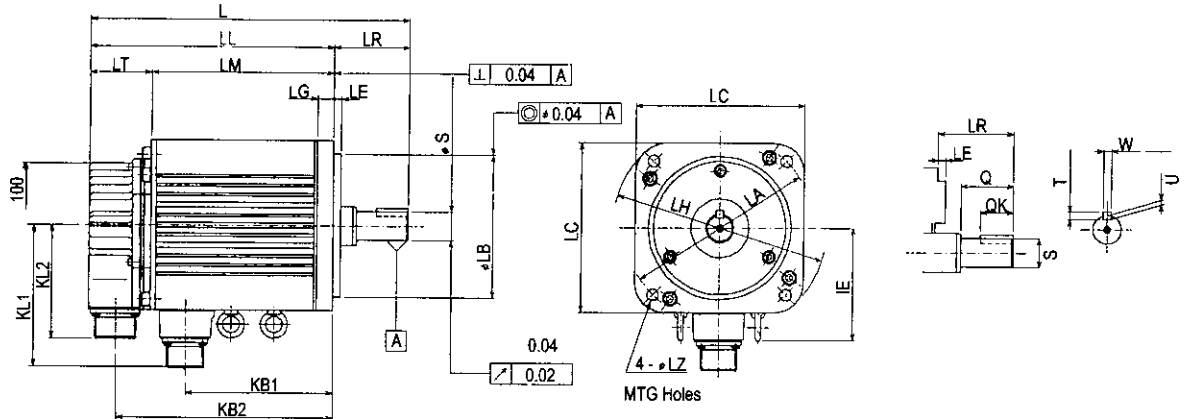
**A** : CONTINUOUS DUTY ZONE

**B** : INTERMITTENT DUTY ZONE



## Dimensions in inches (mm)

### (1) 8192 PPR Incremental Encoder

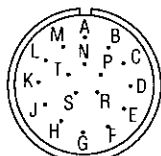


Type SGMG-	Flange Dimensions										Shaft End Dimension						Approx. M <sub>t</sub> lb (kg)							
	L	LL	LM	LR	LT	KB1	KB2	IE	KL1	KL2	LA	LB	LC	LE	LG	LH		LZ	S	Q	QK	W	T	U
05A2AB	7.72 (196)	5.43 (138)	3.62 (92)	2.28 (58)	1.81 (46)	2.56 (65)	4.61 (117)	-	4.29 (109)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.75 (19) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	12.1 (5.5)
09A2AB	8.62 (219)	6.34 (161)	4.53 (115)	2.28 (58)	1.81 (46)	3.46 (88)	5.51 (140)	-	4.29 (109)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.75 (19) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	16.5 (7.5)
13A2AB	9.57 (243)	7.28 (185)	5.47 (139)	2.28 (58)	1.81 (46)	4.41 (112)	6.46 (164)	-	4.29 (109)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.87 (22) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.24 (6)	0.24 (6)	0.14 (3.5)	21.2 (9.6)
20A2AB	9.65 (245)	6.54 (166)	4.69 (119)	3.11 (79)	1.85 (47)	3.5 (89)	5.71 (145)	-	5.51 (140)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	30.9 (14)
30A2AB	10.67 (271)	7.56 (192)	5.71 (145)	3.11 (79)	1.85 (47)	4.53 (115)	6.73 (171)	-	5.51 (140)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	39.7 (18)
44A2AB	12.01 (305)	8.9 (226)	7.05 (179)	3.11 (79)	1.85 (47)	5.87 (149)	8.07 (205)	-	5.51 (140)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	50.7 (23)
55A2AB	14.69 (373)	10.24 (260)	8.39 (213)	4.45 (113)	1.85 (47)	6.85 (174)	9.41 (239)	4.92 (125)	5.91 (150)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	3.54 (90)	0.47 (12)	0.31 (8)	0.20 (5)	66.1 (30)
75A2AB	17.6 (447)	13.15 (334)	11.3 (287)	4.45 (113)	1.85 (47)	9.76 (248)	12.32 (313)	4.92 (125)	5.91 (150)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	3.54 (90)	0.47 (12)	0.31 (8)	0.20 (5)	88.2 (40)
1AA2AB	17.87 (454)	13.31 (338)	11.46 (291)	4.45 (116)	1.85 (47)	9.88 (251)	12.48 (317)	5.59 (142)	6.61 (168)	3.46 (88)	9.25 (235)	7.87 (200) <sub>0.048</sub>	8.66 (220)	0.16 (4)	0.71 (18)	10.63 (270)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	3.54 (90)	0.47 (12)	0.31 (8)	0.20 (5)	126.8 (57.5)

- Note:
- Incremental Encoder (8192 PPR) is used as a detector.
  - SGMG-05A2A to 44A2A do not contain eyebolts.
  - Dimensions are the same when using other incremental encoders.
  - Tolerances on the dimensions LB of flange type and S of shaft extensions are based on JIS (Japanese Industrial Standard) B0401 "Limits and Fits for Engineering."
  - There are no dimensional changes on the CE products.

#### Connector Wiring on the Incremental Encoder

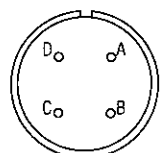
Receptacle: MS3102A20-29P  
 Applicable Plug: (To be prepared by customer)  
 Plug: MS3108B20-29S (L Type)  
 MS3106B20-29S (Straight Type)  
 Cable Clamp: MS3057-12A



Connector Wiring on the Incremental Encoder		
A	Channel A Output	K
B	Channel A Output	L
C	Channel B Output	M
D	Channel B Output	N
E	Channel C Output	P
F	Channel C Output	R
G	0V	S
H	+5 VDC	T
J	FG (Frame Ground)	

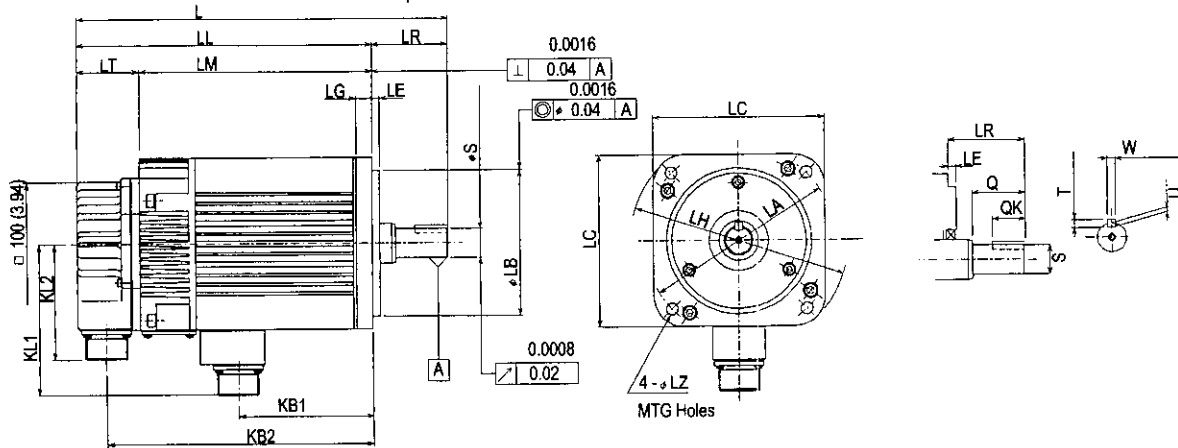
Note: The above-mentioned detector side specifications are common to all the motors with incremental encoders.

Connector Wiring on the Motor Side	
A	U Phase
B	V Phase
C	W Phase
D	Ground Terminal



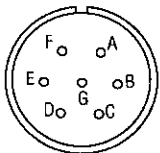
## (2) 8192 PPR Incremental Encoder, With Brake

• 0.5 to 4.4kW (0.7 to 5.9HP)



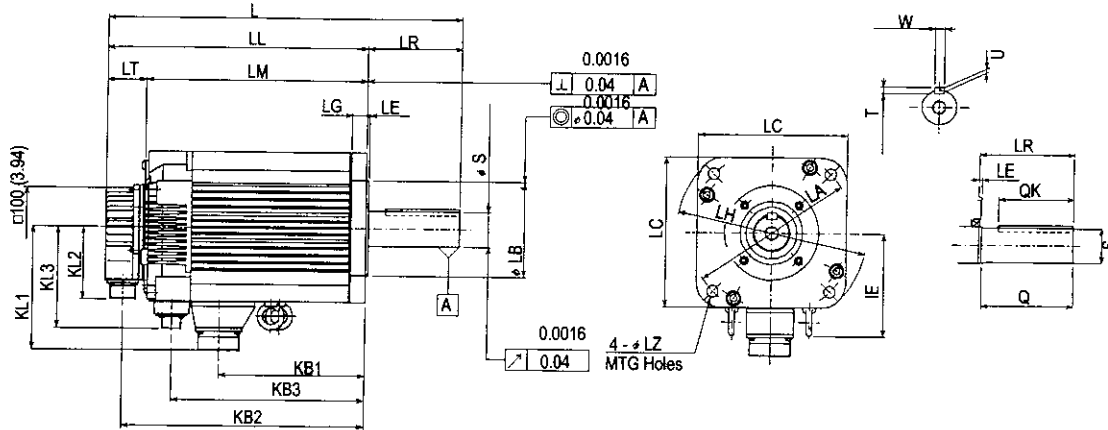
Type SGMG	L	LL	LM	LR	LT	KB1	KB2	KL1	KL2	Flange Dimensions							Shaft End Dimension					Approx. Mass lb (kg)	
										LA	LB	LC	LE	LG	LH	LZ	S	Q	QK	W	T		U
05A2ABC	9.21 (234)	6.93 (176)	5.08 (129)	2.28 (58)	1.85 (47)	2.2 (56)	6.1 (155)	4.72 (120)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.75 (19) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	16.5 (7.5)
09A2ABC	10.12 (257)	7.83 (199)	5.98 (152)	2.28 (58)	1.85 (47)	3.11 (79)	7.01 (178)	4.72 (120)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.75 (19) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	21.2 (9.6)
13A2ABC	11.06 (281)	8.78 (223)	6.93 (176)	2.28 (58)	1.85 (47)	4.06 (103)	7.95 (202)	4.72 (120)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.87 (22) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.24 (6)	0.24 (6)	0.14 (3.5)	26.5 (12)
20A2ABC	11.65 (296)	8.54 (217)	6.89 (170)	3.11 (79)	1.85 (47)	3.11 (79)	7.72 (196)	5.75 (146)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	41.9 (19)
30A2ABC	12.68 (322)	9.57 (243)	7.72 (196)	3.11 (79)	1.85 (47)	4.13 (105)	8.74 (222)	5.75 (146)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	51.8 (23.5)
44A2ABC	14.02 (356)	10.91 (277)	9.06 (230)	3.11 (79)	1.85 (47)	5.47 (139)	10.08 (256)	5.75 (146)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	62.8 (28.5)

- Note:
1. Incremental Encoder (8192 PPR) is used as a detector.
  2. Dimensions are the same when using other incremental encoders.
  3. Tolerances on the dimensions LB of flange type and S of shaft extensions are based on JIS (Japanese Industrial Standard) B0401 "Limits and Fits for Engineering."
  4. There are no dimensional changes on the CE products.



Connector Wiring on the Motor Side			
A	U Phase	E	Brake Terminal
B	V Phase	F	Brake Terminal
C	W Phase	G	-
D	FG (Frame Ground)		

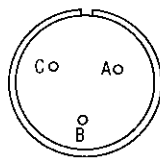
• 5.5 to 11kW (7.4 to 15HP)



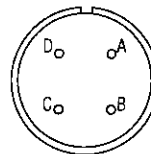
Type SGMG-	L	LL	LM	LR	LT	KB1	KB2	KB3	IE	KL1	KL2	KL3	Flange Dimensions						Shaft End Dimension						Appro. Mass lb	
													LA	LB	LC	LE	LG	LH	LZ	S	Q	QK	W	T		U
55A2AAC	16.69 (424)	12.24 (311)	10.39 (264)	4.45 (113)	1.85 (47)	6.85 (174)	11.42 (290)	9.09 (231)	4.92 (125)	5.91 (150)	3.46 (88)	4.84 (123)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	77.2 (35)
75A2AAC	19.61 (498)	15.16 (385)	13.31 (338)	4.45 (113)	1.85 (47)	9.76 (248)	14.33 (364)	12.01 (305)	4.92 (125)	5.91 (150)	3.46 (88)	4.84 (123)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	100.3 (45.5)
1AA2AAC	19.65 (499)	15.08 (383)	13.39 (340)	4.57 (116)	4.69 (43)	10.16 (258)	14.25 (362)	12.4 (315)	5.59 (142)	6.61 (168)	3.46 (88)	5.59 (142)	9.25 (235)	7.87 (200) <sub>0.046</sub>	8.66 (220)	0.16 (4)	0.71 (18)	10.63 (270)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	0.98 (25)	0.24 (6)	0.24 (6)	0.14 (3.5)	143.3 (65)

- Note:
1. Incremental Encoder (8192 PPR) is used as a detector.
  2. Dimensions are the same when using other incremental encoders.
  3. Tolerances on the dimensions LB of flange type and S of shaft extensions are based on JIS (Japanese Industrial Standard) B0401 "Limits and Fits for Engineering."
  4. There are no dimensional changes on the CE products.

### Connector Wiring on Brake, Motor Side

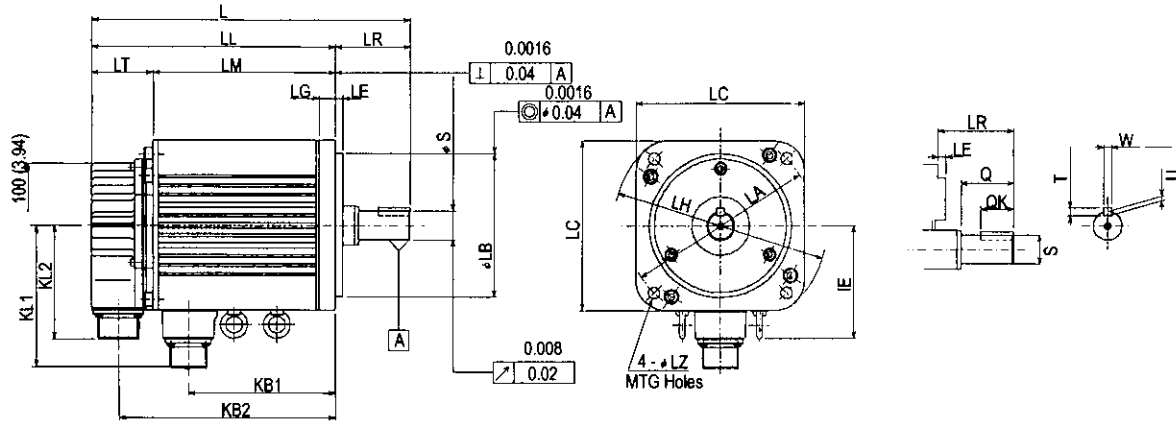


A	Brake Terminal
B	Brake Terminal
C	-



A	U Phase
B	V Phase
C	W Phase
D	FG (Frame Ground)

## (3) 8192 PPR Absolute Encoder (15 bit)

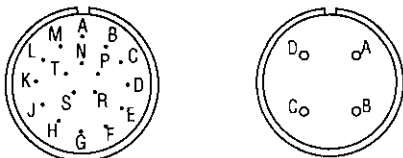


Type SGMG-	L	LL	LM	LR	LT	KB1	KB2	IE	KL1	KL2	Flange Dimensions						Shaft End Dimension						Approx. Mass lb (kg)		
											LA	LB	LC	LE	LG	LH	LZ	S	Q	QK	W	T		U	
05ASAB	8.27 (210)	5.98 (152)	3.62 (92)	2.28 (58)	2.36 (60)	2.56 (65)	5.16 (131)	-	4.29 (109)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.75 (19) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	0.12 (3)	13 (5.9)
09ASAB	9.17 (233)	6.89 (175)	4.53 (115)	2.28 (58)	2.36 (60)	3.46 (88)	6.06 (154)	-	4.29 (109)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.75 (19) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	0.12 (3)	17.6 (8.0)
13ASAB	10.12 (257)	7.83 (199)	5.47 (139)	2.28 (58)	2.36 (60)	4.41 (112)	7.01 (178)	-	4.29 (109)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.87 (22) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.24 (6)	0.24 (6)	0.14 (3.5)	0.14 (3.5)	22 (10)
20ASAB	10.2 (259)	7.09 (180)	4.69 (119)	3.11 (79)	2.4 (61)	3.5 (89)	6.26 (159)	-	5.51 (140)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	0.20 (5)	30.9 (14)
30ASAB	11.22 (285)	8.11 (206)	5.71 (145)	3.11 (79)	2.4 (61)	4.53 (115)	7.28 (185)	-	5.51 (140)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	0.20 (5)	40.8 (18.5)
44ASAB	12.56 (319)	9.45 (240)	7.05 (179)	3.11 (79)	2.4 (61)	5.87 (149)	8.62 (219)	-	5.51 (140)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	0.20 (5)	52.9 (24)
55ASAB	15.24 (387)	10.79 (274)	8.39 (213)	4.45 (113)	2.4 (61)	6.85 (174)	9.96 (253)	4.92 (125)	5.91 (150)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	3.54 (90)	0.47 (12)	0.31 (8)	0.20 (5)	0.20 (5)	66.1 (30)
75ASAB	18.15 (461)	13.7 (348)	11.3 (287)	4.45 (113)	2.4 (61)	9.76 (248)	12.87 (327)	4.92 (125)	5.91 (150)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	3.54 (90)	0.47 (12)	0.31 (8)	0.20 (5)	0.20 (5)	88.2 (40)
1AASAB	18.43 (468)	13.86 (352)	11.46 (291)	4.57 (116)	2.4 (61)	9.88 (251)	13.03 (331)	5.59 (142)	6.61 (168)	3.46 (88)	9.25 (235)	7.87 (200) <sub>0.045</sub>	8.66 (220)	0.16 (4)	0.71 (18)	10.63 (270)	0.53 (13.5)	1.65 (42) <sub>0.016</sub>	4.33 (110)	3.54 (90)	0.47 (12)	0.31 (8)	0.20 (5)	0.20 (5)	127.9 (58)

- Note:
1. Absolute Encoder (8192 PPR) is used as a detector.
  2. SGMG-05A2A to 44A2A do not contain eyebolts.
  3. Dimensions are the same when using other absolute encoders.
  4. Tolerances on the dimensions LB of flange type and S of shaft extensions are based on JIS (Japanese Industrial Standard) B0401 "Limits and Fits for Engineering."
  5. There are no dimensional changes on the CE products.

### Connector Specifications

Receptacle: MS3102A20-29P  
 Applicable Plug: (To be prepared by customer)  
 Plug: MS3108B20-29S (L Type)  
 MS3106B20-29S (Straight Type)  
 Cable Clamp: MS3057-12A



Pin	Channel A Output	Channel B Output	Channel Z (C) Output	Channel Z (C) Output	0V	+5 VDC	FG (Frame Ground)
A	Channel A Output	K	-	-	-	-	-
B	Channel A Output	L	-	-	-	-	-
C	Channel B Output	M	-	-	-	-	-
D	Channel B Output	N	-	-	-	-	-
E	Channel Z (C) Output	P	-	-	-	-	-
F	Channel Z (C) Output	R	Reset	-	-	-	-
G	0V	S	0V (battery)	-	-	-	-
H	+5 VDC	T	3.6V (battery)	-	-	-	-
J	FG (Frame Ground)	-	-	-	-	-	-

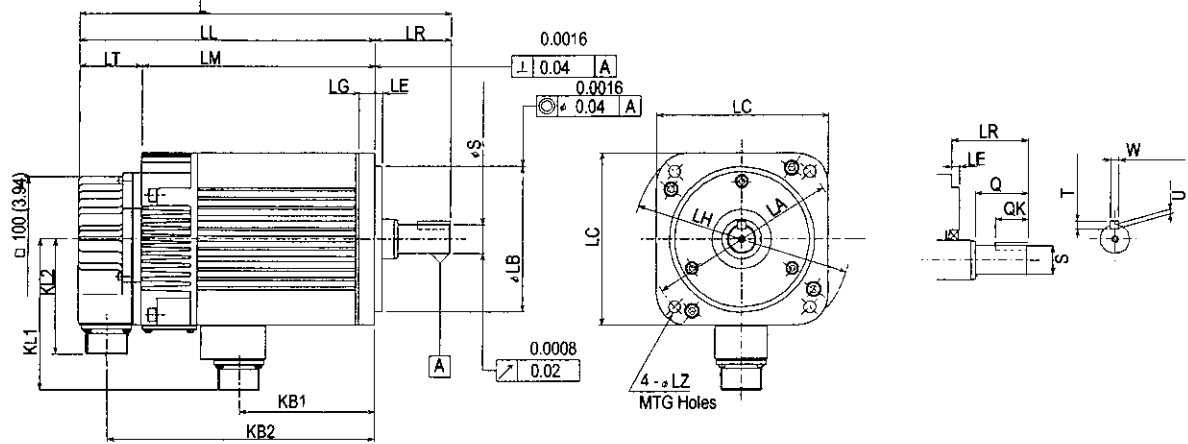
Note: The above-mentioned detector side specifications are common to all the motors with incremental encoders.

Pin	Phase
A	U Phase
B	V Phase
C	W Phase
D	FG (Frame Ground)



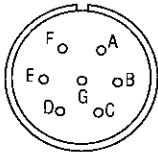
## (4) 8192 PPR Absolute Encoder (15 bit), with Brake

- 0.5 to 4.4kW (0.7 to 5.9HP)



Type SGMG-	L	LL	LM	LR	LT	KB1	KB2	KL1	KL2	Flange Dimensions								Shaft End Dimension					Approx. Mass lb (kg)
										LA	LB	LC	LE	LG	LH	LZ	S	Q	QK	W	T	U	
06ASABC	248 (9.76)	190 (7.5)	5.08 (129)	2.28 (58)	61 (2.4)	22 (56)	169 (6.7)	4.72 (120)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.75 (19) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	17.4 (7.9)
09ASABC	271 (10.7)	213 (8.4)	5.98 (152)	2.28 (58)	61 (2.4)	3.11 (79)	192 (7.6)	4.72 (120)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.75 (19) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.20 (5)	0.20 (5)	0.12 (3)	22 (9.6)
13ASABC	295 (11.6)	237 (9.3)	6.93 (176)	2.28 (58)	61 (2.4)	4.06 (103)	216 (8.5)	4.72 (120)	3.46 (88)	5.71 (145)	4.33 (110) <sub>0.035</sub>	5.12 (130)	0.24 (6)	0.47 (12)	6.5 (165)	0.35 (9)	0.87 (22) <sub>0.013</sub>	1.57 (40)	0.98 (25)	0.24 (6)	0.24 (6)	0.14 (3.5)	26.5 (12)
20ASABC	310 (12)	231 (9.1)	6.69 (170)	3.11 (79)	61 (2.4)	3.11 (79)	210 (8.3)	5.75 (146)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	43 (19)
30ASABC	336 (13)	257 (10)	7.72 (196)	3.11 (79)	61 (2.4)	4.13 (105)	236 (9.3)	5.75 (146)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	51.8 (23.5)
44ASABC	370 (15)	291 (11.5)	9.06 (230)	3.11 (79)	61 (2.4)	5.47 (139)	270 (10.6)	5.75 (146)	3.46 (88)	7.87 (200)	4.5 (114.3) <sub>0.025</sub>	7.09 (180)	0.13 (3.2)	0.71 (18)	9.06 (230)	0.53 (13.5)	1.38 (35) <sub>0.01</sub>	2.99 (76)	2.36 (60)	0.39 (10)	0.31 (8)	0.20 (5)	64 (29)

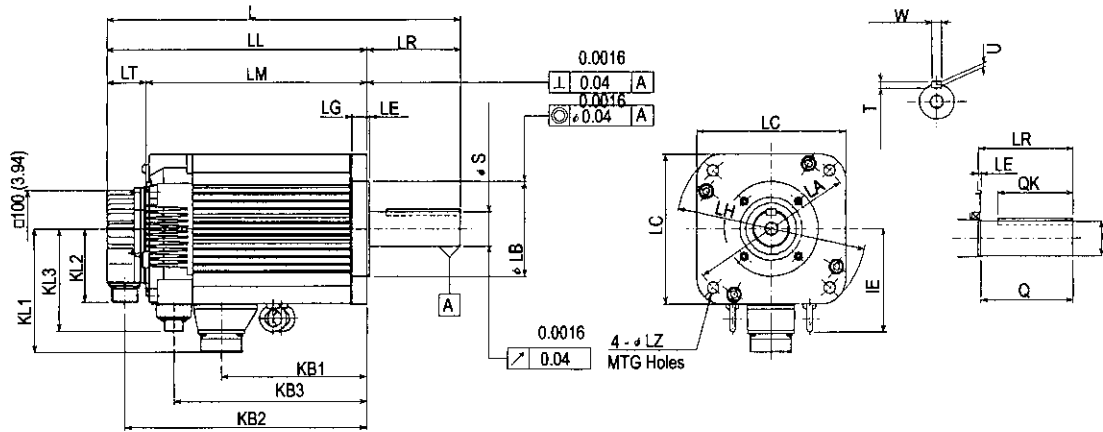
- Note:
- Incremental Encoder (8192 PPR) is used as a detector.
  - Dimensions are the same when using other incremental encoders.
  - Tolerances on the dimensions LB of flange type and S of shaft extensions are based on JIS (Japanese Industrial Standard) B0401 "Limits and Fits for Engineering."
  - There are no dimensional changes on the C€ products.



Connector Wiring on the Motor Side			
A	U Phase	E	Brake Terminal
B	V Phase	F	Brake Terminal
C	W Phase	G	-
D	FG (Frame Ground)		



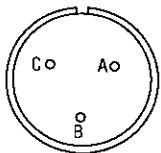
• 5.5 to 11kW (7.4 to 15HP)



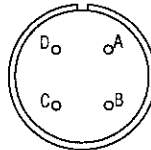
Type SGMG-	L	LL	LM	LR	LT	KB1	KB2	KB3	IE	KL1	KL2	KL3	Flange Dimensions										Shaft End Dimension			Approx. Mass (kg)	
													LA	LB	LC	LE	LF1	LF2	LG	LH	LJ1	LJ2	LZ	S	SI		Q
55ASABC	438 (17.24)	325 (12.80)	264 (10.39)	113 (4.45)	61 (1.85)	174 (6.85)	304 (11.97)	231 (9.09)	125 (4.92)	150 (5.91)	88 (3.46)	123 (4.84)	200 (7.87)	114.3 (4.5) <sub>0.025</sub>	180 (7.09)	3.2 (0.13)	3 (0.12)	0.5 (0.02)	18 (0.71)	230 (9.06)	76 (2.99)	62 (2.44)	13.5 (0.53)	42 (1.65) <sub>0.016</sub>	45 (1.77)	110 (4.33)	36 (79.4)
75ASABC	512 (20.2)	399 (15.7)	338 (13.31)	113 (4.45)	61 (1.85)	248 (9.76)	378 (14.88)	305 (12.01)	125 (4.92)	150 (5.91)	88 (3.46)	123 (4.84)	200 (7.87)	114.3 (4.5) <sub>0.025</sub>	180 (7.09)	3.2 (0.13)	3 (0.12)	0.5 (0.02)	18 (0.71)	230 (9.06)	76 (2.99)	62 (2.44)	13.5 (0.53)	42 (1.65) <sub>0.016</sub>	45 (1.77)	110 (4.33)	50 (110.2)
1AASABC	513 (20.2)	397 (15.6)	340 (13.39)	116 (4.57)	57 (1.69)	258 (10.16)	376 (14.80)	315 (12.4)	142 (5.59)	168 (6.61)	88 (3.46)	142 (5.59)	235 (9.25)	200 (7.87) <sub>0.046</sub>	220 (8.66)	4 (0.16)	4 (0.16)	-	18 (0.71)	270 (10.63)	62 (2.44)	-	13.5 (0.53)	42 (1.65) <sub>0.016</sub>	45 (1.77)	110 (4.33)	65.5 (144.4)

- Note:
1. Absolute Encoder (8192 PPR) is used as a detector.
  2. SGMG-05A2A to 44A2A do not contain eyebolts.
  3. Dimensions are the same when using other absolute encoders.
  4. Tolerances on the dimensions LB of flange type and S of shaft extensions are based on JIS (Japanese Industrial Standard) B0401 "Limits and Fits for Engineering."
  5. There are no dimensional changes on the CE products.

Connector Wiring on Brake, Motor Side



A	Brake Terminal
B	Brake Terminal
C	-

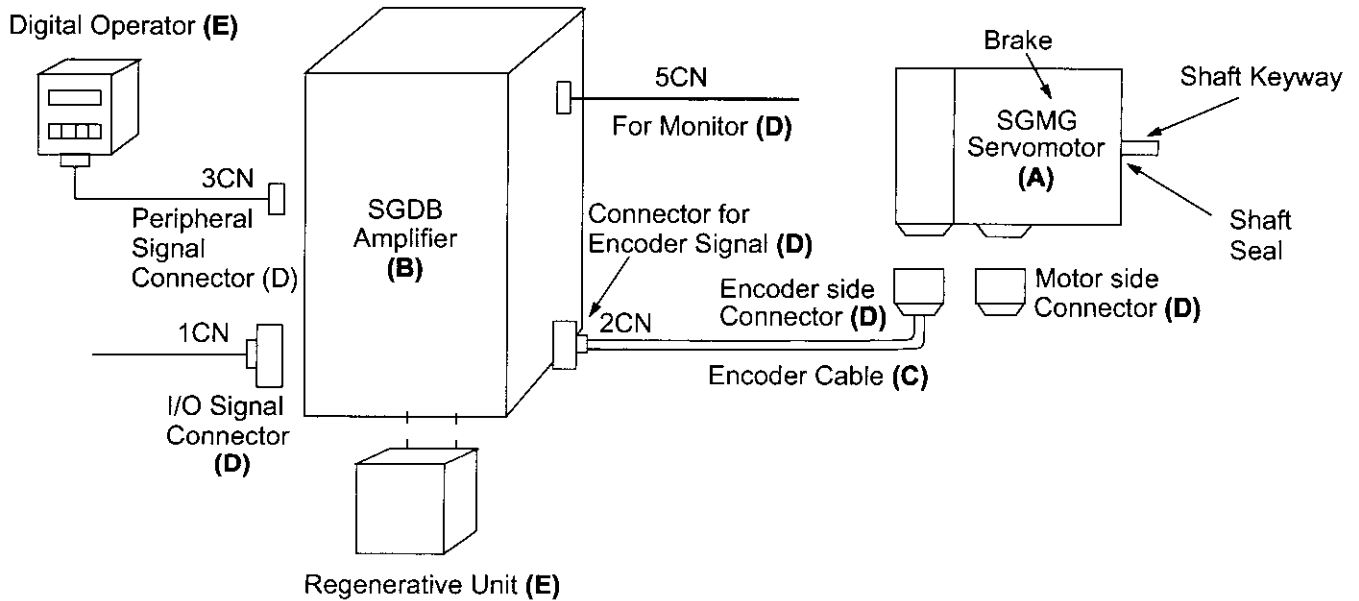


A	U Phase
B	V Phase
C	W Phase
D	FG (Frame Ground)

# Selecting Your SGMG Sigma Servo System

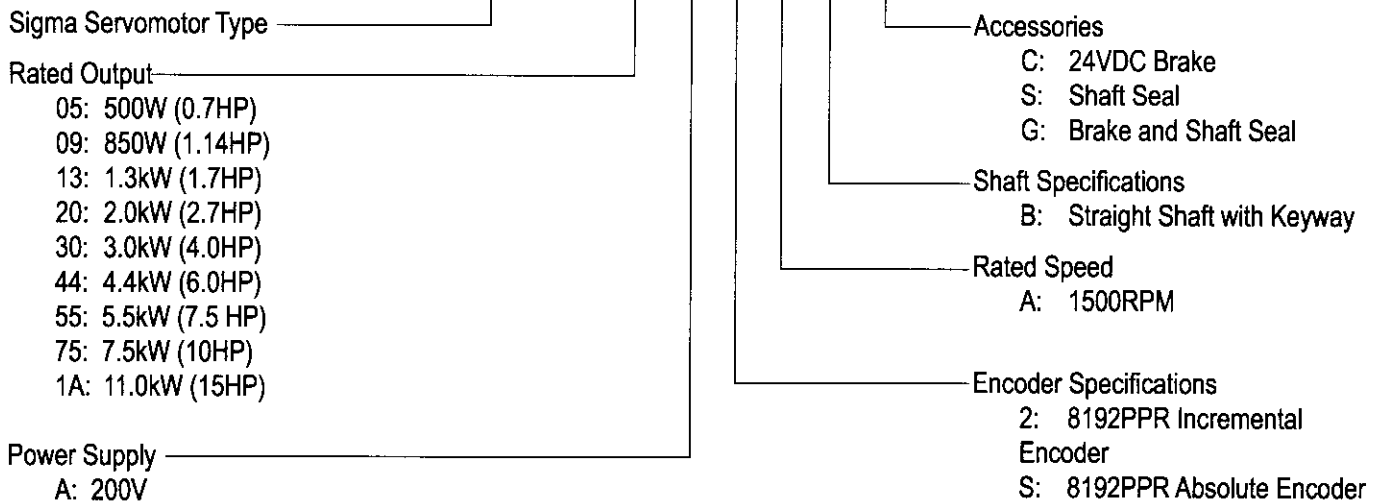
Use the diagram below to locate and identify the components of your system. Each item is letter-coded and cross-referenced in the option tables on the following pages.

## System Configuration



## Model Number Designation

**SGMG - 09 A 2 A B C**



Note: Bold items are Stock Products usually available from inventory. Contact your Yaskawa representative for delivery on all other items.

## Servomotor & Amplifier Selection

Use the table below to select the appropriate SGMG Sigma Servomotor and Amplifier.

Description	Peak Torque (in. lb.)	Rated Torque (in. lb.)	Motor Inertia (in. lb. sec <sup>2</sup> × 10 <sup>-3</sup> )	Motor MODEL # (A)	Amplifier MODEL # (B)* Analog/Digital Input SGDB-	Motor & Amplifier Item Class
200V 3-Phase  8192 PPR Incremental Encoder  Straight Shaft with Keyway  3,000 RPM max.  MS Connectors	79	25	6.41	SGMG-05A2AB	05ADG	Stock
				SGMG-05A2ABC		
	122	48	12.3	SGMG-09A2AB	10ADG	
				SGMG-09A2ABC		
	207	74	18.2	SGMG-13A2AB	15ADG	
				SGMG-13A2ABC		
	254	102	28.1	SGMG-20A2AB	20ADG	
				SGMG-20A2ABC		
	404	165	40.7	SGMG-30A2AB	30ADG	
				SGMG-30A2ABC		
	630	252	59.8	SGMG-44A2AB	44ADG	
				SGMG-44A2ABC		
	776	310	78.8	SGMG-55A2AB	60ADG Requires Regenerative Unit (E)	
				SGMG-55A2ABC		
	1050	425	111	SGMG-75A2AB	75ADG Requires Regenerative Unit (E)	
				SGMG-75A2ABC		
1550	620	249	SGMG-1AA2AB	1AADG Requires Regenerative Unit (E)		
			SGMG-1AA2ABC			

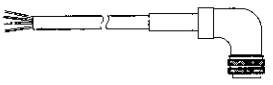
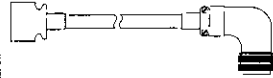
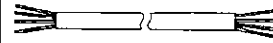
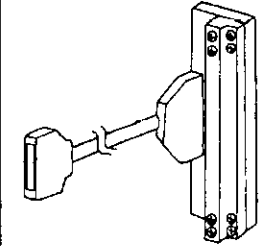
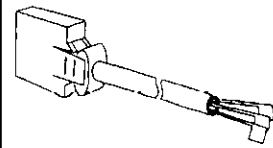
Note: 24VDC brakes for SGMG Sigma servomotors are standard. Contact a local source for 24VDC power supplies. For technical information, request manual number TSE-S800-16 from your Yaskawa representative.

\* For more detailed SGDB amplifier specifications and dimensions, refer to page 127.



## Pre-wired Cable Selection

Use the table below to select Pre-wired Cables for your SGMG Sigma Servomotor.

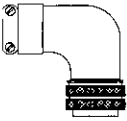
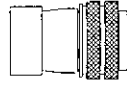


Cable Description (C)	Motor Size (kW)	Part Number		Comments	Item Class
		without Brake	with Brake		
Power Cable with Connectors 	0.5, 0.9, 1.3	B1E-□	B1BE-□	Use the following key to specify required cable length (last digit of part #): 1: 3 meters 2: 5 meters 3: 10 meters (standard) 4: 15 meters 5: 20 meters	
	2.0, 3.0	B2E-□	B2BE-□		
	4.4	B3E-□	B3BE-□		
	5.5, 7.5 *	B5E-□	B5E-□ B7BE-□		
	11 *	B6E-□	B6E-□ B7BE-□		
Encoder Cable (incremental or absolute) 	All	DE9407237-□E			
Encoder Cable Only for Solder Connections 		DP8409123		Up to 70 feet; for use with mating connector.	
Encoder Cable Only for Solder Connections		DP8409179		Over 70 feet; splice cable to accommodate connector.	Stock **
Input/Output 1CN Cable & Transition Terminal Block 		JUSP-TA50P		35 mm din rail mountable; the cable length is 0.5 meters.	
Input/Output 1CN Cable with Pigtail Leads 		DE9406969-□		Use the following key to specify required cable length (last digit of part #): 1: 1 meter (standard) 2: 2 meters 3: 3 meters	

\* When ordering these cables for motors with brakes, order the standard power cable and the additional cable for the brake.

\*\* Standard cable lengths are Stock items; non-standard cable lengths are Limited Stock items.

## Connector Selection

Use the table below to select Mating Connectors for your SGMG Sigma Servomotor.

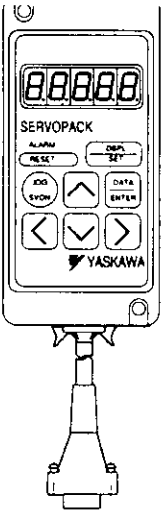
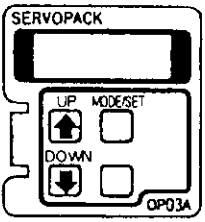

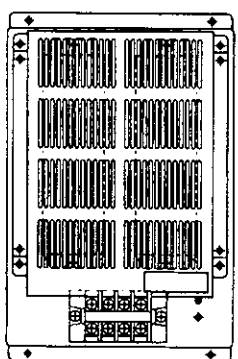
Connector Description (D)	Motor Size (kW)	Part Number		Comments	Item Class	
		without Brake	with Brake			
MS Connector for Motor Power Cable *		0.5, 0.9, 1.3	MS3106B18-10S	MS3106B20-15S	Straight-type connector L-type connector Cable clamp	Stock
			MS3108B18-10S MS3057-10A	MS3108B20-15S MS3057-12A		
			MS3106B22-22S	MS3106B24-10S		
MS Connector for Encoder Cable (incremental or absolute encoder)		2.0, 3.0, 4.4	MS3108B22-22S MS3057-12A	MS3108B24-10S MS3057-16A	Straight-type connector L-type connector Cable clamp	
			MS3106B32-17S	MS3106B32-17S+ MS3106A10SL-3S		
1CN Mating Connector		5.5, 7.5, 11	MS3108B32-17S MS3057-20A	MS3108B32-17S+ MS3108A10SL-3S MS3057-20A MS3057-4A	Straight-type connector L-type connector Cable clamp	
			MS3106B20-29S MS3108B20-29S MS3057-12A			Straight-type connector L-type connector Cable clamp
2CN Encoder Mating Connector		All	DE9406970		Can use 1CN for analog speed and torque monitor service checks.	
3CN Peripheral Mating Connector			DE9406973		-	
5CN Connector and 1m Cable with Pigtailed			Stock 9-pin male D-shell connector		Source locally.	-
			DE9404559		-	Stock

\* Choose either a straight or L-type connector and the associated cable clamp for a complete assembly. For example, L-type connector MS3108B18-10S is compatible with cable clamp MS3057-10A.



## Peripheral Device Selection

Use the table below to select Peripheral Devices for your SGMG Sigma Servomotor.

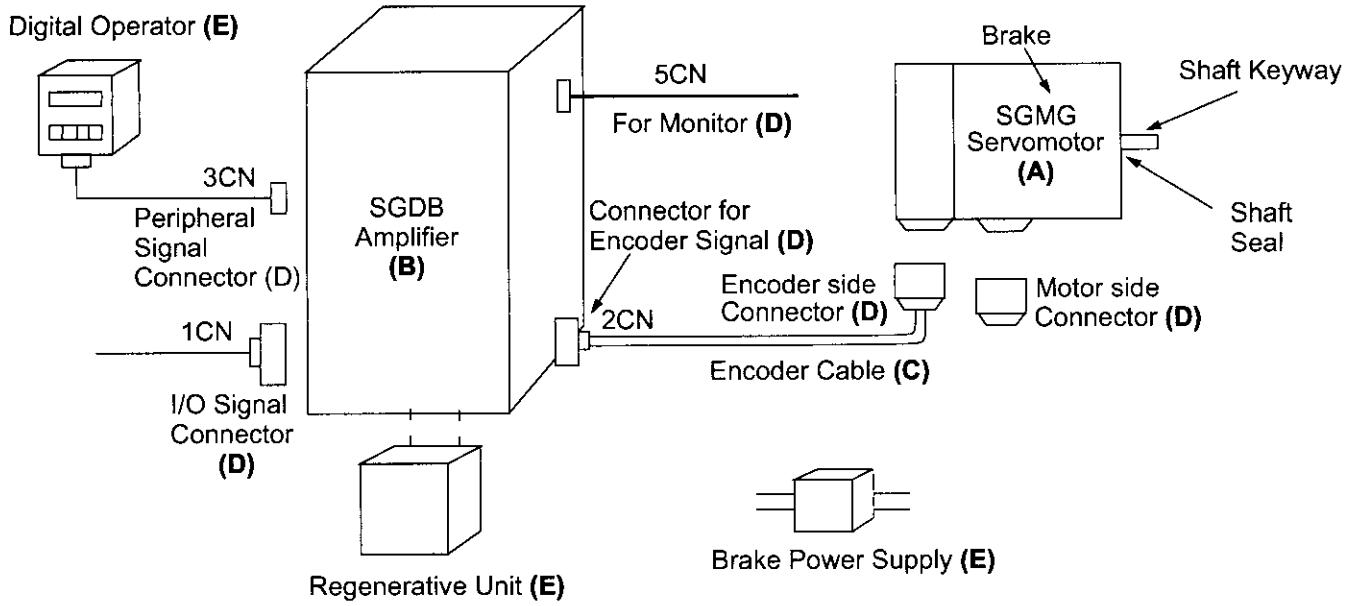
Component (E)	Image	Part Number	Description	Item Class
Hand-held Digital Operator Panel		JUSP-OP02A-1	Portable unit with built-in cable	Stock
Digital Operator Panel		JUSP-OP03A	Plugs into front of amplifier	Non-Stock
SVMON Software		SVMON	Programming software for DOS 3.3 on a 3.5" floppy disk	
Software Interface Cable		YS-11	Pre-wired 1.5 meter cable with 9-pin connector	
Regenerative Unit for 6.0 kW amplifier (880 watts)		JUSP-RA04	-	Stock
Regenerative Unit for 7.5 and 11.0kW amplifiers (1760 watts)		JUSP-RA05	-	



# Selecting Your SGMG Sigma Servo System

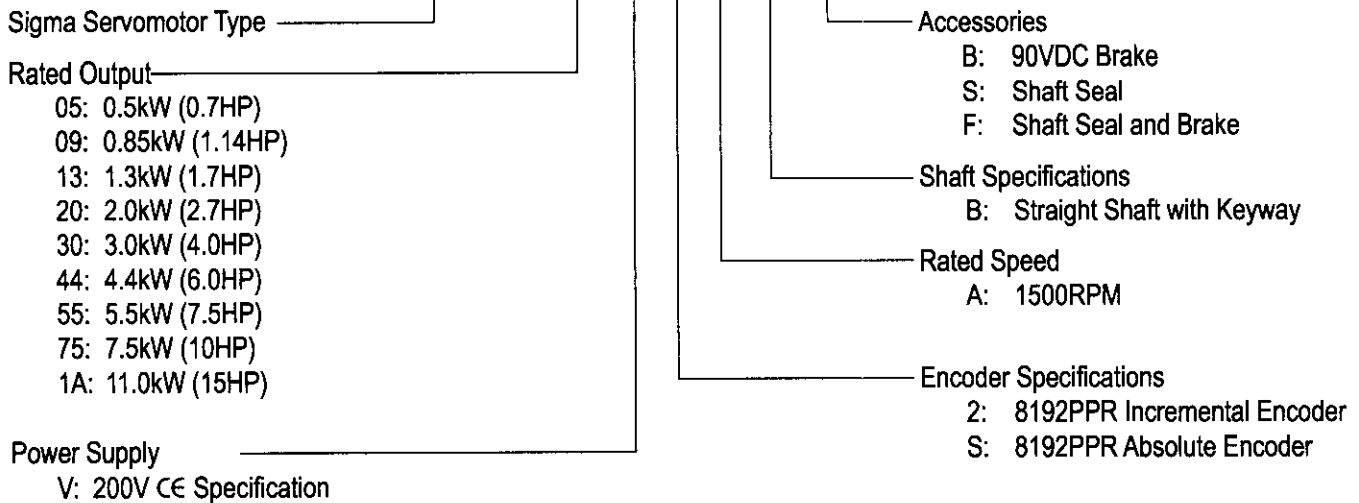
Use the diagram below to locate and identify the components of your system. Each item is letter-coded and cross-referenced in the option tables on the following pages.

## System Configuration



## Model Number Designation

**SGMG - 05 V 2 A B [B]**



**Servomotor & Amplifier Selection**

Use the table below to select the appropriate SGMG Sigma Servomotor and Amplifier.

Description	Peak Torque (in. lb.)	Rated Torque (in. lb.)	Motor Inertia (in. lb. sec <sup>2</sup> x 10 <sup>-3</sup> )	Motor MODEL # (A)	Amplifier MODEL # (B)* Analog/Digital Input SGDB-	Motor Item Class
200V 3-Phase 8192 PPR Incremental Encoder Straight Shaft with Keyway 3,000 RPM max. JL04V Circular Connectors	79	25	6.41	SGMG-05V2AB	05VD (Limited Stock)	Limited Stock
				SGMG-05V2ABB		Non-Stock
	122	48	12.3	SGMG-09V2AB	10VD (Limited Stock)	Limited Stock
				SGMG-09V2ABB		Non-Stock
	207	74	18.2	SGMG-13V2AB	15VD (Limited Stock)	Limited Stock
				SGMG-13V2ABB		Non-Stock
	254	102	28.1	SGMG-20V2AB	20VD (Limited Stock)	Limited Stock
				SGMG-20V2ABB		Non-Stock
	404	165	40.7	SGMG-30V2AB	30VD (Limited Stock)	Limited Stock
				SGMG-30V2ABB		Non-Stock
	630	252	59.8	SGMG-44V2AB	60VDY6 (Limited Stock)	Limited Stock
				SGMG-44V2ABB		Non-Stock
	776	310	78.8	SGMG-55V2AB	60VD (Limited Stock) Requires Regen Unit (E)	Limited Stock
				SGMG-55V2ABB		Non-Stock
	1050	425	111	SGMG-75V2AB	75VD (Non-Stock) Requires Regen Unit (E)	Non-Stock
				SGMG-75V2ABB		
	1550	620	249	SGMG-1AV2AB	1AVD (Non-Stock) Requires Regen Unit (E)	Non-Stock
				SGMG-1AV2ABB		

Note: 90VDC brakes for SGMG Sigma servomotors (CE) are standard. See Peripheral Device Selection in this section to order a power supply.

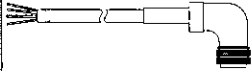
For technical information, request technical document numbers PI-6021 and DE9409784 from your Yaskawa representative.

\* For more detailed SGDB amplifier specifications and dimensions, refer to page 127.



Pre-wired Cable Selection

Use the table below to select Pre-wired Cables for your SGMG Sigma Servomotor.

Cable Description, (C)	Motor Size (kW)	Part Number		Comments	Item Class
		without Brake	with Brake		
Power Cable with Connectors 	0.5, 0.9, 1.3	B1CE-□	B1BCE-□	Use the following key to specify required cable length (last digit of part #): 1: 3 meters 2: 5 meters 3: 10 meters (standard) 4: 15 meters 5: 20 meters	Limited Stock
	2.0, 3.0	B2CE-□	B2BCE-□		
	4.4	B3CE-□	B3BCE-□		
	5.5, 7.5, 11	* See note below			-
Encoder Cable (incremental or absolute)	All	A1CE-□			Limited Stock
Encoder Cable Only for Solder Connections		DP8409123		Up to 70 feet; for use with mating connector.	
Encoder Cable Only for Solder Connections		DP8409179			Over 70 feet; splice cable to accommodate connector.
Input/Output 1CN Cable & Transition Terminal Block		JUSP-TA50P		35 mm din rail mountable; the cable length is 0.5 meters.	Stock **
Input/Output 1CN Cable with Pigtail Leads		DE9406969-□		Use the following key to specify required cable length (last digit of part #): 1: 1 meter (standard) 2: 2 meters 3: 3 meters	

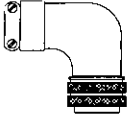

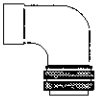




\* Pre-wired cables for motors with brakes (5.5, 7.5 & 11kW) are not available, since the applicable mating connectors are compatible with a conduit connection.

\*\* Standard cable lengths are Stock items; non-standard cable lengths are Limited Stock items.

## Mating Connector Selection

Use the table below to select Mating Connectors for your SGMG Sigma Servomotor.

Connector Description (D)		Motor Size (kW)	Part Number		Comments	Item Class
			without Brake	with Brake		
Connector for Motor Power Cable *		0.5, 0.9, 1.3	JL04V-8A18-10SE-EB JL04-18CK(13)	JL04V-8A20-15SE-EB JL04-2022CK(14)	L-type connector Cable clamp	Limited Stock
		2.0, 3.0, 4.4	JL04V-8A22-22SE-EB JL04-2022CK(14)	JL04V-8A24-10SE-EB JL04-2428CK(17)	L-type connector Cable clamp	
		5.5, 7.5, 11	JL04V-6A32-17SE	JL04V-6A32-17SE	Straight-type connector	
-			-	No cable clamp, conduit coupled 1.875 inches 16UN-2A		
Connector for Encoder Cable (incremental or absolute encoder)		All	JA08A-20-29S-J1-EB JL04-2022CKE(12)		L-type connector Cable clamp	
1CN Mating Connector			DE9406970		Can use 1CN for analog speed and torque monitor service checks.	
2CN Encoder Mating Connector			DE9406973		-	
3CN Peripheral Mating Connector			Stock 9-pin male D-shell connector		Source locally.	-
5CN Connector and 1m Cable with Pigtailed			DE9404559		-	Limited Stock

\* Choose the connector and the associated cable clamp for a complete assembly.

