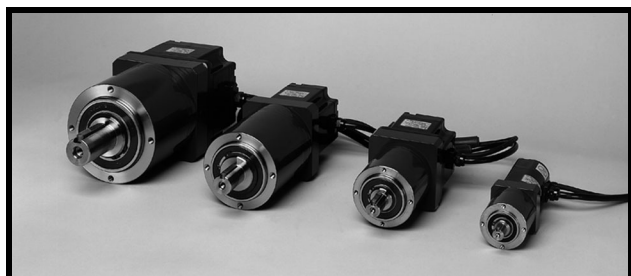


SGMPH Gearmotors - With Incremental Encoder

Rated Output : 100W, 200W, 400W,
750W, 1500W



Design Features

1. Compact

- Fits in limited mounting space

2. Torque

- 40.9 to 3540in·lb peak torque
- Cost-effective solution for low speed and high torque applications
- Uses improved Sigma II motor technology

3. Encoders

- 13-Bit incremental encoder standard

4. Enclosure

- Totally enclosed, self-cooled IP67 (not including shaft)

5. Application Emphasis

- Compact, high torque to inertia ratio
- Chip mounters
- PCB drilling machines
- Robots
- Conveyors
- Packaging

6. Certified International Standards

- UL, cUL recognized (File #: E165827), CE compliance

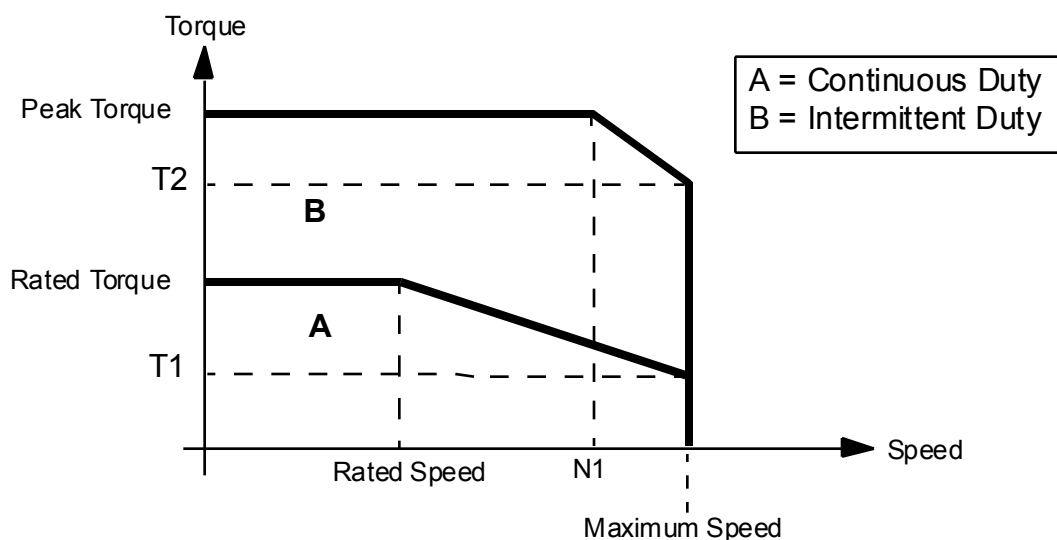
Gearmotor Ratings and Specifications

GEARMOTOR Part Number	Rated Torque** (in • lb)	Peak Torque** (in • lb)	Rated Speed** (rpm)	Maximum Speed* (rpm)	Speed N1 (rpm)	Torque T1 (in • lb)	Torque T2 (in • lb)
SG05SA-PE01□□	13.67	40.93	600	1000	900	8.59	34.34
SG10SA-PE01□□	27.34	81.84	300	500	450	17.17	68.68
SG25SA-PE01□□	66.95	200.39	120	200	180	42.04	168.16
SG50SA-PE01□□	133.89	283.00	60	100	90	84.08	336.32
SG1ASA-PE01□□	267.78	637.00	30	50	45	168.16	672.65
SG05SA-PE02□□	27.34	81.84	600	1000	1000/600	17.17	81.8/36.2*
SG10SA-PE02□□	54.68	163.69	300	500	500/300	34.34	163.7/72.4*
SG25SA-PE02□□	133.89	283.00	120	200	200/120	84.08	283/177*
SG50SA-PE02□□	267.78	708.00	60	100	100/60	168.16	708/354.7*
SG1ASAP-PE02□□	535.56	1593.00	26	48	50/30	336.32	1593/704.4*
SG05SA-PE04□□	54.81	164.42	600	1000	640	34.34	77.27
SG10SA-PE04□□	109.61	283.00	300	500	320	68.68	154.53
SG25SA-PE04□□	268.38	708.00	120	200	128	168.16	378.36
SG50SA-PE04□□	536.75	1610.25	52	96	64	336.32	756.73
SG1ASA-PE04□□	1073.50	2832.00	20	36	32	672.65	1513.45
SG05SA-PE08□□	102.34	306.04	600	1000	640	51.51	51.51
SG10SA-PE08□□	204.67	612.07	300	500	320	103.02	103.02
SG25SA-PE08□□	501.13	1498.63	104	192	128	252.24	252.24
SG50SA-PE08□□	1002.25	2997.25	40	72	64	504.48	504.48
SG05SA-PE15□□	205.16	614.50	520	960	640	103.02	103.02
SG10SA-PE15□□	410.31	1228.99	260	480	320	206.04	206.04
SG25SA-PE15□□	1004.63	3009.13	80	144	128	504.48	504.48
SG50SA-PE15□□	2009.25	3540.00	40	72	64	1008.97	1008.97

* Values for 100V Gearmotor

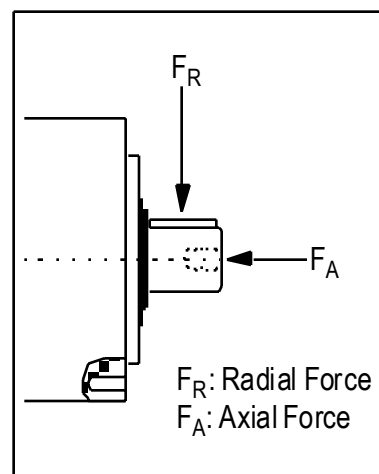
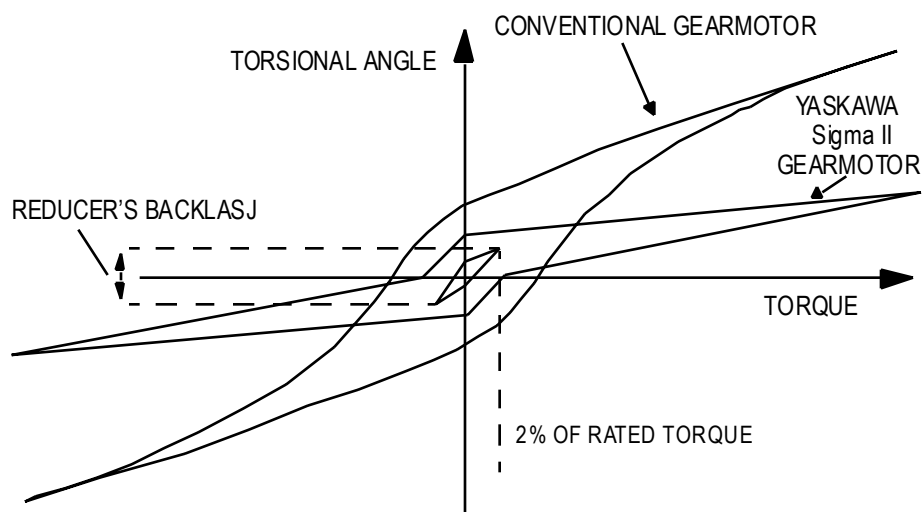
** To achieve the speed/torque performance listed, use only the gearmotor/amp combinations and system supply as specified on page 51.

- Note:
1. These performance ratings apply when duty cycles are 60% or less, and when the gearmotor runs for 1,000 cycles per hour or less. Contact your Yaskawa representative when duty cycles exceed 60%, and when the gearmotor runs for more than 1,000 cycles per hour.
 2. Rated Speed is at 20°C ambient temperature. Reduce Rated Speed by 20% at 40°C ambient temperature.
 3. For right-angle gearmotors, please consult the factory for availability.

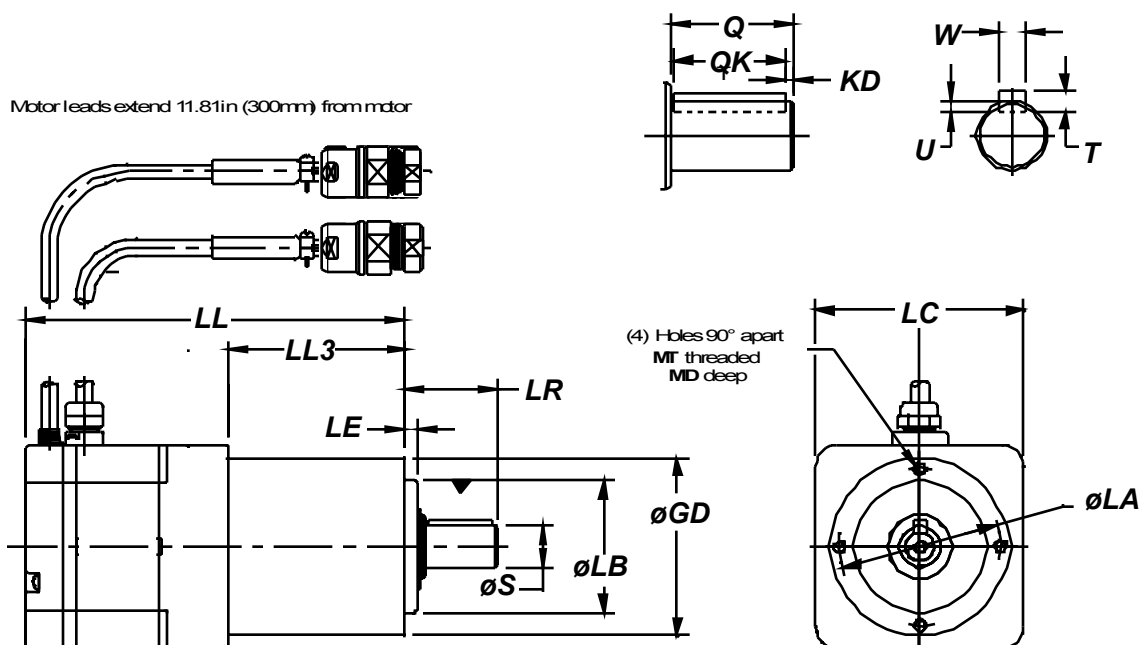


Gearmotor Mechanical Ratings

GEARMOTOR Part Number	Gearhead Backlash (arc min)	Gearhead Maximum Radial Load (lb _f)	Gearhead Maximum Axial Load (lb _f)	Gearhead Inertia (in • lb • s ²)	Gearmotor Weight (lb)				
SG05SA-PE01□□	<10	146	158	0.000052	3.24				
SG10SA-PE01□□									
SG25SA-PE01□□		326	349	0.00025	6.39				
SG50SA-PE01□□									
SG1ASA-PE01□□						540	428	0.0016	12.79
SG05SA-PE02□□	<10	326	349	0.00025	7.28				
SG10SA-PE02□□					7.94				
SG25SA-PE02□□		540	428	0.0016	14.34				
SG50SA-PE02□□									
SG1ASA-PE02□□						1035	900	0.0049	27.79
SG05SA-PE04□□	<10	326	349	0.00025	8.82				
SG10SA-PE04□□									
SG25SA-PE04□□		540	428	0.0016	15.88				
SG50SA-PE04□□						1035	900	0.0049	29.33
SG1ASA-PE04□□						1687	1350	0.0047	50.83
SG05SA-PE08□□	<10	540	428	0.0016	19.18				
SG10SA-PE08□□									
SG25SA-PE08□□		1035	900	0.0049	34.84				
SG50SA-PE08□□						1687	1350	0.0047	56.34
SG05SA-PE15□□	<10	1035	900	0.0048	34.40				
SG10SA-PE15□□									
SG25SA-PE15□□		1687	1350	0.0047	60.75				
SG50SA-PE15□□									

SGMPH
Gearmotors


Dimensions in inches (mm)



GEARMOTOR	LL3	LL	LE	LR	LB	GD	S	LC	LA	MT	MD	Q	QK	KD	W	T	U
SG05SA-PE01□A	1.988 (50)	5.177 (131.5)	0.158 (4)	0.965 (24.5)	1.378 (35)	1.969 (50)	0.472 (12)	2.362 (60)	1.732 (44)	M4 x 0.7	0.315 (8)	0.709 (18)	0.551 (14)	0.079 (2)	0.158 (4)	0.158 (4)	0.098 (2.5)
SG10SA-PE01□A																	
SG25SA-PE01□A	3.465 (88)	6.772 (172)	0.197 (5)	1.417 (36)	2.047 (52)	2.756 (70)	0.630 (16)	2.756 (70)	2.441 (62)	M5 x 0.8	0.394 (10)	1.102 (28)	0.984 (25)		0.197 (5)	0.197 (5)	0.118 (3)
SG50SA-PE01□A																	
SG1ASA-PE01□A	4.193 (106.5)	7.500 (190.5)		1.811 (46)	2.677 (68)	3.543 (90)	0.866 (22)	3.543 (90)	3.150 (80)	M6 x 1.0	0.472 (12)	1.417 (36)	1.260 (32)		0.236 (6)	0.236 (6)	0.138 (3.5)
SG05SA-PE02□A	2.677 (68)	6.181 (157)		1.417 (36)	2.047 (52)	2.756 (70)	0.630 (16)	3.150 (80)	2.441 (62)	M5 x 0.8	0.394 (10)	1.102 (28)	0.984 (25)		0.197 (5)	0.197 (5)	0.118 (3)
SG10SA-PE02□A	3.465 (88)	6.969 (177)															
SG25SA-PE02□A	4.193 (106.5)	7.697 (195.5)		1.811 (46)	2.677 (68)	3.543 (90)	0.866 (22)	3.543 (90)	3.150 (80)	M6 x 1.0	0.472 (12)	1.417 (36)	1.260 (32)		0.236 (6)	0.236 (6)	0.138 (3.5)
SG50SA-PE02□A																	
SG1ASA-PE02□A	5.295 (134.5)	9.036 (229.5)	0.236 (6)	2.756 (70)	3.543 (90)	4.724 (120)	1.260 (32)	4.724 (120)	4.252 (108)	M8 x 1.25	0.630 (16)	2.284 (58)	1.969 (50)	0.158 (4)	0.394 (10)	0.315 (8)	0.197 (5)
SG05SA-PE04□A	2.677 (68)	6.969 (177)	0.197 (5)	1.417 (36)	2.047 (52)	2.756 (70)	0.630 (16)	3.150 (80)	2.441 (62)	M5 x 0.8	0.394 (10)	1.102 (28)	0.984 (25)	0.079 (2)	0.197 (5)	0.197 (5)	0.118 (3)
SG10SA-PE04□A																	
SG25SA-PE04□A	4.193 (106.5)	8.484 (215.5)		1.811 (46)	2.677 (68)	3.543 (90)	0.866 (22)	3.543 (90)	3.150 (80)	M6 x 1.0	0.472 (12)	1.417 (36)	1.260 (32)		0.236 (6)	0.236 (6)	0.138 (3.5)
SG50SA-PE04□A	5.295 (134.5)	9.823 (250)	0.236 (6)	2.756 (70)	3.543 (90)	4.724 (120)	1.260 (32)	4.724 (120)	4.252 (108)	M8 x 1.25	0.630 (16)	2.284 (58)	1.969 (50)	0.158 (4)	0.394 (10)	0.315 (8)	0.197 (5)
SG1ASA-PE04□A	6.024 (153)	10.551 (268.0)	0.315 (8)	3.819 (97)	4.724 (120)	6.102 (155)	1.575 (40)		5.512 (140)	M10 x 1.5	0.787 (20)	3.228 (82)	2.756 (70)	0.236 (6)	0.472 (12)		
SG05SA-PE08□A	3.150 (80)	7.815 (198.5)	0.197 (5)	1.811 (46)	2.677 (68)	3.543 (90)	0.866 (22)		3.150 (80)	M6 x 1.0	0.472 (12)	1.417 (36)	1.260 (32)	0.079 (2)	0.236 (6)	0.236 (6)	0.138 (3.5)
SG10SA-PE08□A																	
SG25SA-PE08□A	5.295 (134.5)	9.803 (249)	0.236 (6)	2.756 (70)	3.543 (90)	4.724 (120)	1.260 (32)		4.252 (108)	M8 x 1.25	0.630 (16)	2.284 (58)	1.969 (50)	0.158 (4)	0.394 (10)	0.315 (8)	0.197 (5)
SG50SA-PE08□A	6.024 (153)	10.532 (267.5)	0.315 (8)	3.819 (97)	4.724 (120)	6.102 (155)	1.575 (40)		5.512 (140)	M10 x 1.5	0.787 (20)	3.228 (82)	2.756 (70)	0.236 (6)	0.472 (12)		
SG05SA-PE15□A	4.016 (102)	9.626 (244.5)	0.236 (6)	2.756 (70)	3.543 (90)	4.724 (120)	1.260 (32)		4.252 (108)	M8 x 1.25	0.630 (16)	2.284 (58)	1.969 (50)	0.158 (4)	0.394 (10)		
SG10SA-PE15□A																	
SG25SA-PE15□A	6.024 (153)	11.634 (295.5)	0.315 (8)	3.819 (97)	4.724 (120)	6.012 (155)	1.575 (40)		5.512 (140)	M10 x 1.5	0.787 (20)	3.228 (82)	2.756 (70)	0.236 (6)	0.472 (12)		
SG50SA-PE15□A																	

Tolerances for standard (SG) gearmotors

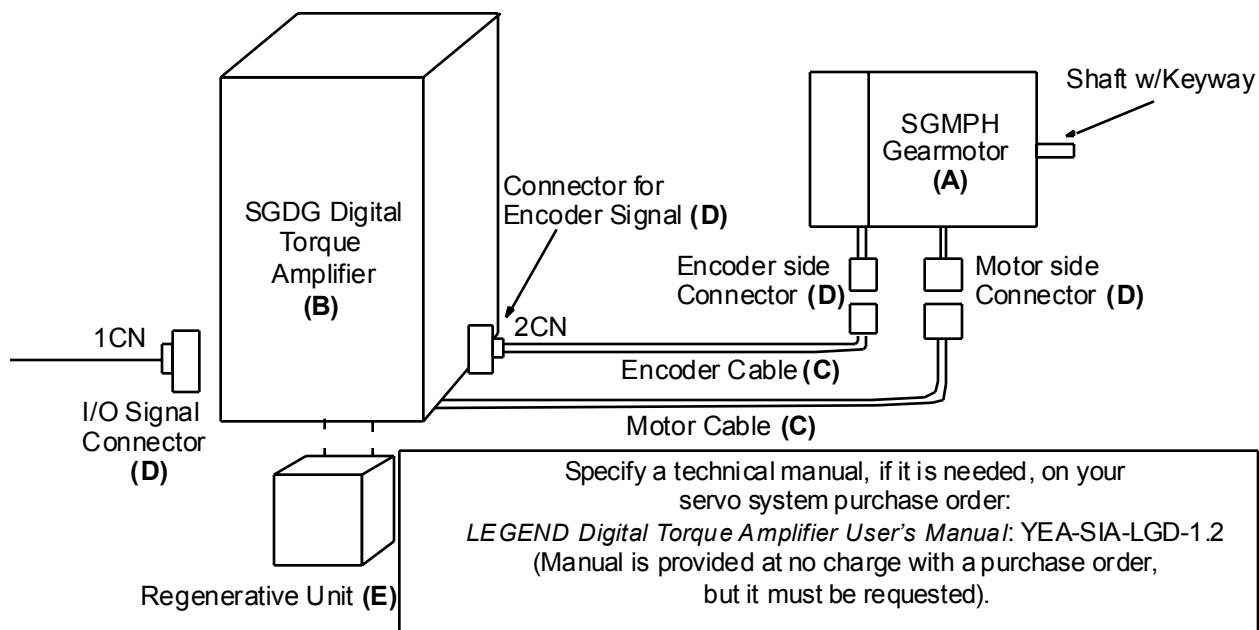
Dimension	ΦS		ΦLB		W	
Unit	Diameter	Tolerance	Diameter	Tolerance	Width	Tolerance
in	0.472, 0.630	+0.00047 +0.00004	1.378	+0.00000 -0.00063	0.158, 0.197, 0.236	+0.00000 -0.00118
	0.866	+0.00059 +0.00008	2.047, 2.677	+0.00000 -0.00075	0.39370	+0.00000 -0.00142
	1.25984, 1.57480	+0.00071 +0.00008	3.5433, 4.724	+0.00000 -0.00087	0.47244	+0.00000 -0.00169
mm	12, 26	+0.012 +0.001	35	+0.000 -0.016	4, 5, 6	+0.000 -0.030
	22	+0.015 +0.002	52, 68	+0.000 -0.019	10	+0.000 -0.036
	32, 40	+0.018 +0.002	90, 120	+0.000 -0.022	12	+0.000 -0.043

Selecting Your SGMPH Gearmotor System

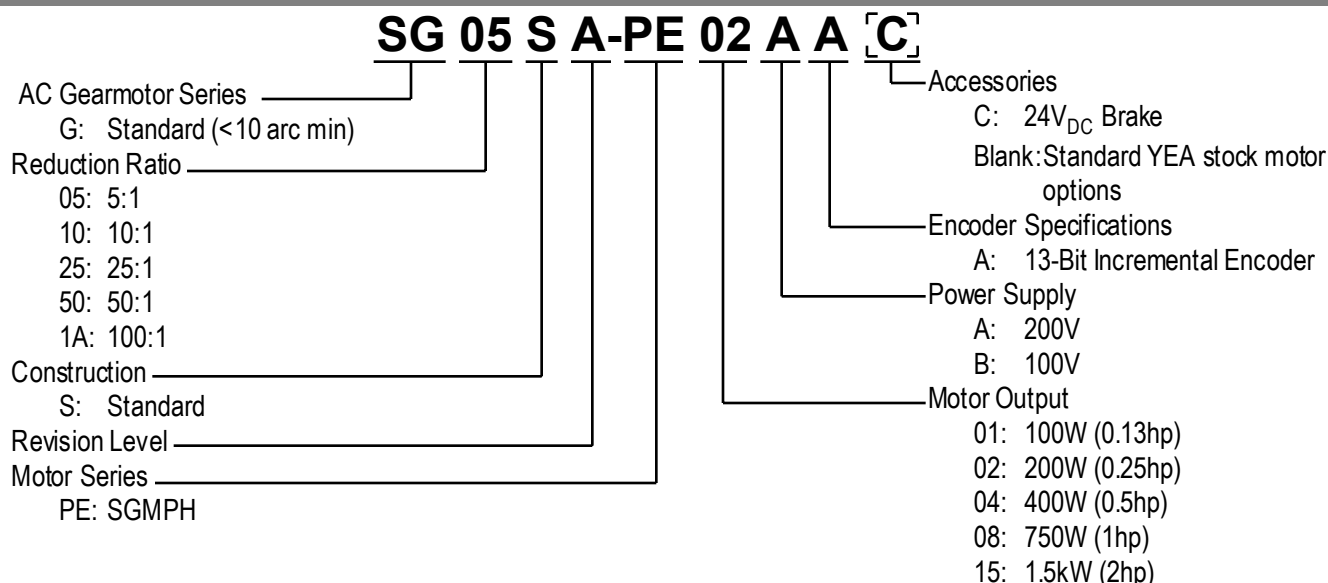
First, select the AC gearmotor suited for your application using SigmaSize: the Yaskawa servomotor sizing software, available at no charge. (Request SigmaSize software via e-mail, at: literature@yaskawa.com).

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



Gearmotor & Amplifier Selection

Use the table below to select the appropriate SGMPH LEGEND AC gearmotor and amplifier.

Gearmotor (A)					Gearhead only		Amplifier MODEL # (B)* SGDG-	Gear Motor Item Class	Amplifier Item Class
MODEL #	Rated Torque* (in • lb)	Peak Torque* (in • lb)	Rated Speed* (rpm)	Maximum Speed* (rpm)	Inertia (in • lb • s ²)	Gear Ratio			
SG05SA-PE01AA	13.67	40.93	600	1000	0.000052	5:1	01GT*	3-5 Week Leadtime for Assembly	Stock
SG10SA-PE01AA	27.34	81.84	300	500		10:1			
SG25SA-PE01AA	66.95	200.39	120	200	0.00025	25:1			
SG50SA-PE01AA	133.89	283.00	60	100		50:1			
SG1ASA-PE01AA	267.78	637.00	30	50	0.0016	100:1			
SG05SA-PE02AA	27.34	81.84	600	1000	0.00025	5:1	04GT*		
SG10SA-PE02AA	54.68	163.69	300	500		10:1			
SG25SA-PE02AA	133.89	283.00	120	200		25:1			
SG50SA-PE02AA	267.78	708.00	60	100	0.0016	50:1			
SG1ASA-PE02AA	535.56	1593.00	26	48	0.0049	100:1			
SG05SA-PE04AA	54.81	164.42	600	1000	0.00025	5:1			
SG10SA-PE04AA	109.61	283.00	300	500		10:1			
SG25SA-PE04AA	268.38	708.00	120	200	0.0016	25:1			
SG50SA-PE04AA	536.75	1610.25	52	96		50:1			
SG1ASA-PE04AA	1073.50	2832.00	20	36	0.0047	100:1			
SG05SA-PE08AA	102.34	306.04	600	1000	0.0016	5:1	10GT**		
SG10SA-PE08AA	204.67	612.07	300	500		10:1			
SG25SA-PE08AA	501.13	1498.63	104	192	0.0049	25:1			
SG50SA-PE08AA	1002.25	2997.25	40	72	0.0047	50:1			
SG05SA-PE15AA	205.16	614.50	520	960	0.0048	5:1	15GT**		
SG10SA-PE15AA	410.31	1228.99	260	480		10:1			
SG25SA-PE15AA	1004.63	3009.13	80	144	0.0047	25:1			
SG50SA-PE15AA	2009.25	3540.00	40	72	0.0047	50:1			
SG05SA-PE01BA	13.67	40.93	600	1000	0.000052	5:1	04GT***		
SG10SA-PE01BA	27.34	81.84	300	500		10:1			
SG25SA-PE01BA	66.95	200.39	120	200	0.00025	25:1			
SG50SA-PE01BA	133.89	283.00	60	100		50:1			
SG1ASA-PE01BA	267.78	637.00	30	50	0.0016	100:1			
SG05SA-PE02BA	27.34	81.84	600	1000	0.00025	5:1			
SG10SA-PE02BA	54.68	163.69	300	500		10:1			
SG25SA-PE02BA	133.89	283.00	120	200		25:1			
SG50SA-PE02BA	267.78	708.00	60	100		0.0016		50:1	
SG1ASA-PE02BA	535.56	1593.00	26	48	0.0049	100:1			

Notes: 24V_{DC} Brakes for SGMPH AC gearmotors are standard. Contact a local source for 24V_{DC} power supplies.

Use the tables on the following page to specify mating connectors or pre-wired cables in different lengths.

* Reference the speed/torque curves for performance.

To achieve the performance (speed/torque) listed, the AC supply to the LEGEND AC must be

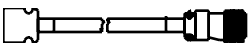
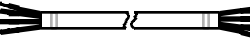
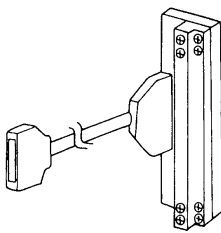
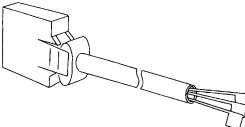
* 200 - 230 VAC 1 phase 10% - 15% 60, 50Hz

** 200 - 230 VAC 3 phase 10% - 15% 60, 50Hz

*** 100-115 VAC 1 phase 10% - 15% 60, 50Hz

Pre-wired Cable Selection

Use the table below to select pre-wired cables for your SGMPH AC gearmotor.

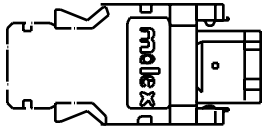
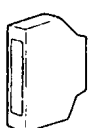
Cable Description (C)		Motor Size (kW)	Part Number*	Comments	Item Class
Power Cable with Interconnectron Connectors (without Brake)		0.1, 0.2, 0.4, 0.8	B4ICE-□□(A)	These UL and CE compliant cables are available in five lengths. Use the following key to specify needed cable length (last two digits of the part number): 03: 3m 05: 5m 10: 10m (standard) 15: 15m 20: 20m	Stock**
		1.5	B5ICE-□□(A)		
Power Cable with Interconnectron Connectors (with Brake)		0.1, 0.2, 0.4, 0.8	B4IBCE-□□(A)		
		1.5	B5IBCE-□□(A)		
Encoder Cable with Interconnectron Connector		All	A1ICE-□□(A)		
Encoder Cable (for applications up to 20m) Only for Solder Connections			FR-RMCT-SB	These cables are available in any length. For example, to order one FR-RMCT-SB cable, 16m long, specify: quantity: 16 part no.: FR-RMCT-SB	
Encoder Cable (for applications from >20 to <50m) Only for Solder Connections			UL20276-SB		
Input/Output 1CN Cable & Transition Terminal Block			JUSP-TA36P	35mm DIN rail mountable; the cable length is 0.5 meters.	
Input/Output 1CN Cable with Pigtail Leads			CKI-SGDG-□□	Use the following key to specify required cable length (last digit of part number): 01: 1m (standard) 02: 2m 03: 3m	

* The "(A)" at the end of the cable part number indicates the revision level. Revision level may be subject to change prior to this catalog reprinting.

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

Connector Selection

Use the table below to select mating connectors or kits for your SGMPH AC gearmotor.

Connector Description (D)		Motor Size (kW)	Part Number	Comments	Item Class
Interconnectron Connector for Motor Power Cable (with or without Brake)		0.1, 0.2, 0.4, 0.8, 1.5	FIN07S-B2	IP67 Mated Solder Cup	Stock
2CN Amplifier Mating Connector			JZSP-CMP9-1	—	
Interconnectron Connector for Encoder Cable			FIN17C-A2	IP67 Mated Gauge: 24 - 18 AWG Requires Crimp Tool B150 and positioner.	
1CN Mating Connector		All	DP9420007	—	
Interconnectron Crimp Tool	—		B150	—	Limited Stock
Positioner	—		B055/A	—	

Peripheral Device Selection

Use the table below to select peripheral devices for your SGMPH LEGEND AC gearmotor.

Component Description(E)		Part Number	Comments	Item Class
External Regenerative Unit*	50 ohms 120 watt for 01, 04, 1.0 amps	RH220BN50_ohmJ	This is a general purpose regenerative unit.	Stock
	25 ohms 300 watt for 1.5 amp	RH500N25_ohmK	Caution: Proper set-up is necessary to avoid equipment damage.	

- * For an alternate solution, specify the individual resistor part number RH500N25_OHMK in necessary series or parallel connection. Refer to LEGEND Digital Torque Amplifier User's Manual (YEA-SIA-LGD-1.2) for proper resistor sizing guidelines.