GLENTEK BRUSHLESS SERVO MOTORS
GMB5600 SERIES

Revision: 2/17/2017

Glentek's GMB5600 series of high performance, permanent magnet Brushless servo motors utilize high-energy Neodymium-Iron- Boron (NdFeB) magnets, which provide more torque in a smaller package with higher dynamic performance than traditional ferrite magnet designs. In addition, due to high torque to inertia ratio of these motors, they are ideal for applications which require high acceleration and deceleration characteristics or where the physical size of the motor is a major concern.

- Continuous Torque Range:
130.0 Lb-in (14.7 Nm) to 360.0 Lb-in (40.70 Nm)
- Peak Torque Range:
390.0 Lb-in (44.1 Nm) to 1080.0 Lb-in (122.10 Nm)

GMB5600 SERIES FEATURES
High-energy Neodymium-Iron-Boron (NdFeB) magnet design with low inertia rotors provides a high dynamic performance.
Special design provides ultra smooth operation (i.e. low cogging torque) at all speeds.
Worldwide standard mounting configurations are available (English and Metric). Optional custom mounting configurations are available to meet virtually any requirement.
Normally closed thermal switch provides over temperature protection.
Encoder with commutation tracks, brushless resolvers or Hall sensors are standard feedback devices offered
Various electrical windings are available as standard to suit both low (120VAC) and high (240VAC) voltage amplifiers in order to provide optimum speed and torque characteristics. Optional custom electrical windings are available.
Shaft Keyway.
Class H insulation standard.
Standard operating temperature is dependent on the feedback device installed. Motors with resolver feedback can be specially configured to operate down to -40°C.
Optional 24VDC holding brakes are available.
Constructed to withstand the toughest industrial environment with rugged, high performance bearings and TENV contstruction with IP65 sealing standard
RoHS compliant.
CE marked.
UL Recognized Component for US and Canada.

GMB5600 SERIES ENVIRONMENTAL CONDITIONS	
Storage Temperature:	-20°C to 70°C
Operating Temperature:	Standard: -20°C to 40°C, without derating, derate torque 10% per 10°C above 40°C Special: -40°C to 40°C, without derating, derate torque 10% per 10°C above 40°C
Humidity:	5% to 95% relative humidity, non-condensing
Altitude:	Up to 1000m without derating, derate torque 10% per 1000m above 1000m

GMB5600 SERIES SELECTION TABLE

K_T = Torque Constant • K_V = BEMF = Volts/1000 RPM • R_A = Phase to Phase Resistance • L_A = Inductance

Model Number	Power @ Rated Speed		Speed, RPM		Cont. Stall Rating			Peak Stall Rating			K_T		K_V	R_A	L_A	Rotor Inertia	
	HP	KW	Max	Rated	Lb-in	Nm	Amps	Lb-in	Nm	Amps	Lb-in/A	Nm/A	V	Ω	mH	Lb-in-sec²	Kg-m²
GMB5627-70	4.40	3.30	2700	2400	130	14.70	11.7	390.0	44.10	35.1	11.1	1.26	70	0.54	3.5	0.0111	0.00125
GMB5627-115	2.64	1.98	1750	1500	130	14.70	7.1	390.0	44.10	21.3	18.3	2.06	115	1.5	10.0	0.0111	0.00125
GMB5654-70	6.80	5.10	2700	2400	210	23.70	18.9	630.0	71.10	56.7	11.1	1.26	70	0.20	1.6	0.0197	0.00223
GMB5654-115	4.50	3.40	1750	1500	210	23.70	11.5	630.0	71.10	34.4	18.3	2.06	115	0.50	4.1	0.0197	0.00223
GMB5681-80	9.10	6.80	2700	2400	280	31.60	22.0	840.0	94.80	66.0	12.7	1.44	80	0.17	1.5	0.0287	0.00324
GMB5681-115	6.00	4.50	1750	1500	280	31.60	15.3	840.0	94.80	45.9	18.3	2.06	115	0.34	2.9	0.0287	0.00324
GMB56108-80	10.20	7.60	2400	2100	360	40.70	28.3	1080.0	122.10	84.9	12.7	1.44	80	0.12	1.1	0.0370	0.00418
GMB56108-115	7.26	5.45	1750	1500	360	40.70	19.7	1080.0	122.10	59.1	18.3	2.06	115	0.22	1.9	0.0370	0.00418

NOTE: All ratings based on a 25°C ambient temperature with the motor face mounted to a 14" x 14" x 3/4" aluminum heatsink. The values for Max and Rated Speed are for motors operated with a 220 VAC power supply

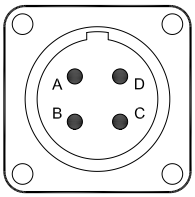
BRAKE OPTION

Brake requires 24V DC input voltage. The values for "Extension" represent the nominal maximum length that the brake will add to the motor. For some models, the extension will be less. Please contact one of our sales engineers for the exact values.

Extension	Torque		Power
in. (mm)	Lb-in	Nm	Watts
2.25 (57)	318	36	26

CONNECTORS & PIN-OUT INFORMATION

4-Pin MS connector MS3102R22-22P



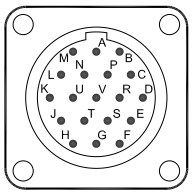
FRONT VIEW

Straight Mating Connector, MS3106F22-22S

Pin#	Function
A	Phase R
B	Phase S
C	Phase T
D	Case Ground

Special mounting options are available. Please contact a Glentek Sales Engineer for detailed information.

18-Pin MS connector MS3112E14-18P

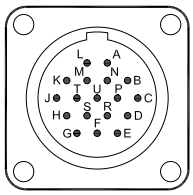


FRONT VIEW

Straight Mating Connector, MS3116F14-18S

Pin#	Function
	Resolver
A	Brake +
B	Brake -
C	Brake Shield
D	Resolver Shield
E	Reference
F	Since Ground
G	Cosine Ground
H	Sine
J	N/C
K	N/C
L	N/C
M	N/C
N	Temperature Switch
P	N/C
R	Reference Ground
S	Cosine
T	N/C
U	Temperature Switch

19-Pin MS connector MS3112E14-19P

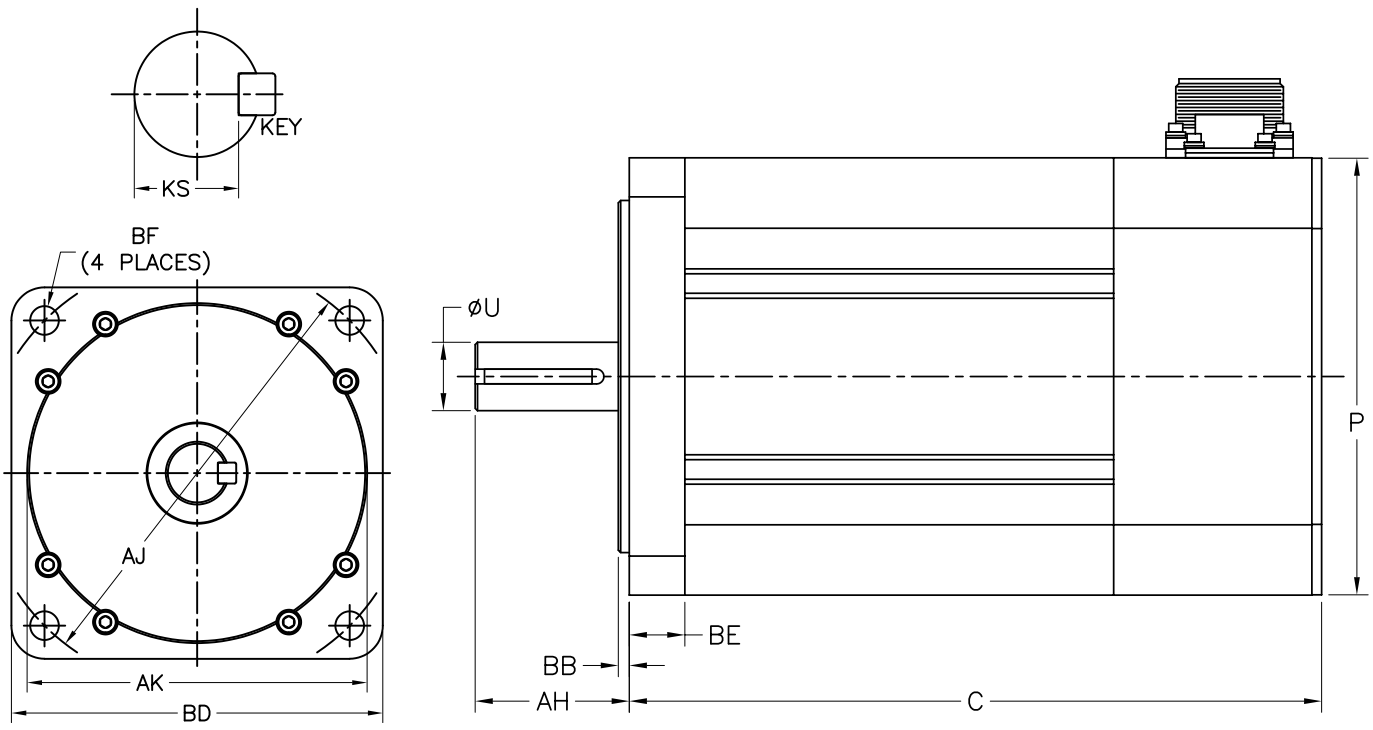


FRONT VIEW

Straight Mating Connector, MS3116F14-19S

Pin#	Function	
	Resolver	Encoder with Commutation Track
A	Temperature Switch	Temperature Switch
B	Temperature Switch	Temperature Switch
C	Resolver Shield	Encoder Shield
D	N/C	Encoder +5VDC
E	N/C	Encoder Common
F	Cosine Ground	Channel A+
G	Cosine +	Channel A-
H	Sine Ground	Channel B+
J	Reference Ground	Channel B-
K	Reference	Channel Z+
L	N/C	Channel Z-
M	N/C	Comm. Track S1+
N	N/C	Comm. Track S1-
P	N/C	Comm. Track S2+
R	N/C	Comm. Track S2-
S	N/C	Comm. Track S3+
T	N/C	Comm. Track S3-
U	Brake +	Brake +
V	Brake -	Brake -

GMB5600 SERIES DIMENSIONS

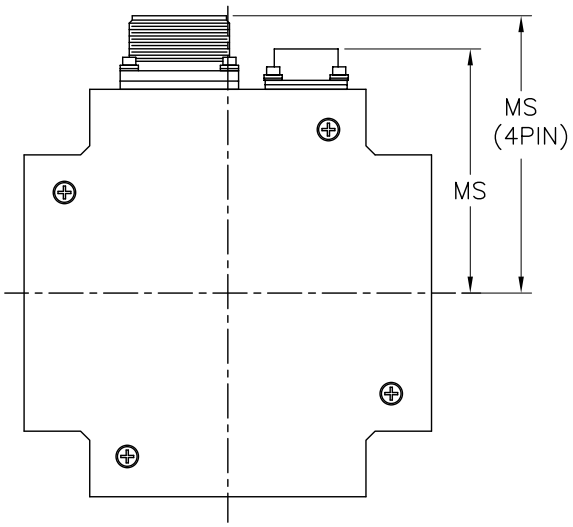


Model Number	Kg (lbs.)	C (max)	P (max)	Shaft				Flange/Face				Mounting Hole		
				AH	U	KEY	KS	AK	BB	BD	BE	AJ	BF Dia.	Tap
GMB5627-XXX-M	**15.0** (33.0)	**255.0** (10.0)	**142.0** (5.59)	**50.00** (1.97)	**24.00** (0.945)	**M8 X M7 X 38**	**19.8 - 20.0**	**130.00** (5.118)	**3.60** (0.142)	**142.00** (5.59)	**20.1** (0.79)	**165.00** (6.496)	**11.00** (0.433)	**THRU**
GMB5654-XXX-M	**22.7** (49.9)	**332.0** (13.1)	**142.0** (5.59)	**50.00** (1.97)	**24.00** (0.945)	**M8 X M7 X 38**	**19.8 - 20.0**	**130.00** (5.118)	**3.60** (0.142)	**142.00** (5.59)	**20.1** (0.79)	**165.00** (6.496)	**11.00** (0.433)	**THRU**
GMB5681-XXX-M	**30.4** (66.9)	**408.0** (16.1)	**142.0** (5.59)	**50.00** (1.97)	**32.00** (1.260)	**M10 X M8 X 36**	**26.8 - 27.0**	**130.00** (5.118)	**3.60** (0.142)	**142.00** (5.59)	**20.1** (0.79)	**165.00** (6.496)	**11.00** (0.433)	**THRU**
GMB56108-XXX-M	**38.6** (84.9)	**484.1** (19.1)	**142.0** (5.59)	**50.00** (1.97)	**32.00** (1.260)	**M10 X M8 X 36**	**26.8 - 27.0**	**130.00** (5.118)	**3.60** (0.142)	**142.00** (5.59)	**20.1** (0.79)	**165.00** (6.496)	**11.00** (0.433)	**THRU**

Note: Dimensions are in **mm** (inches)

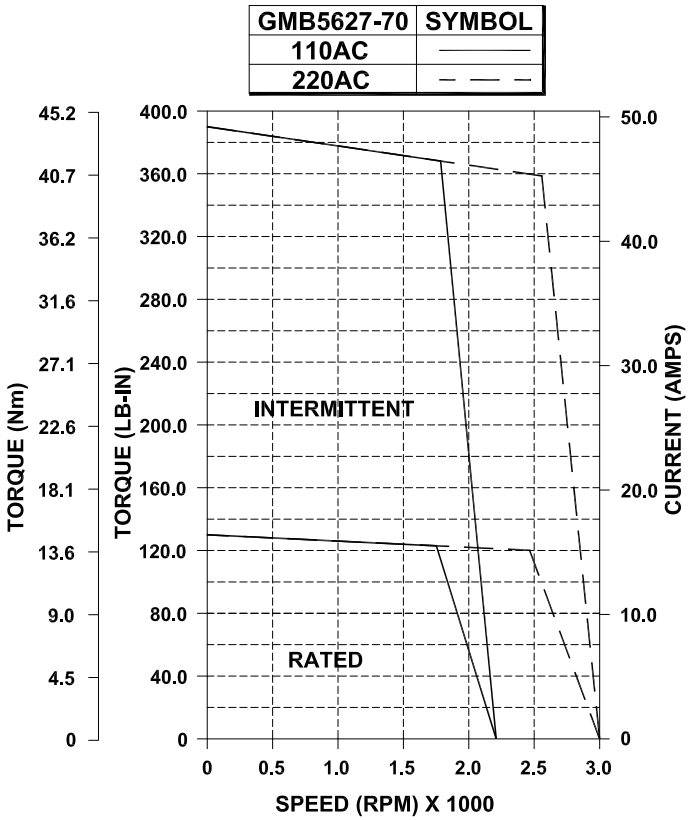
Model Number	Lbs. (Kg)	C (max)	P (max)	Shaft				Flange/Face				Mounting Hole		
				AH	U	KEY	KS	AK	BB	BD	BE	AJ	BF Dia.	Tap
GMB5627-XXX-E	**33.0** (15.0)	**10.06** (255.5)	**5.59** (142.0)	**1.97** (50.0)	**0.875** (22.23)	**.188 SQ. X 1.50**	**.761 - .771**	**4.500** (114.30)	**0.140** (3.56)	**5.59** (142.0)	**0.81** (20.57)	**5.875** (149.23)		**3/8-16 THRU**
GMB5654-XXX-E	**50.0** (22.7)	**13.06** (331.7)	**5.59** (142.0)	**1.97** (50.0)	**0.875** (22.23)	**.188 SQ. X 1.50**	**.761 - .771**	**4.500** (114.30)	**0.140** (3.56)	**5.59** (142.0)	**0.81** (20.57)	**5.875** (149.23)		**3/8-16 THRU**
GMB5681-XXX-E	**67.0** (30.4)	**16.06** (407.9)	**5.59** (142.0)	**1.97** (50.0)	**1.260** (32.00)			**4.500** (114.30)	**0.140** (3.56)	**5.59** (142.0)	**0.81** (20.57)	**5.875** (149.23)		**3/8-16 THRU**
GMB56108-XXX-E	**85.0** (38.6)	**19.06** (484.1)	**5.59** (142.0)	**1.97** (50.0)	**1.260** (32.00)			**4.500** (114.30)	**0.140** (3.56)	**5.59** (142.0)	**0.81** (20.57)	**5.875** (149.23)		**3/8-16 THRU**

Note: Dimensions are in **inches** (mm)



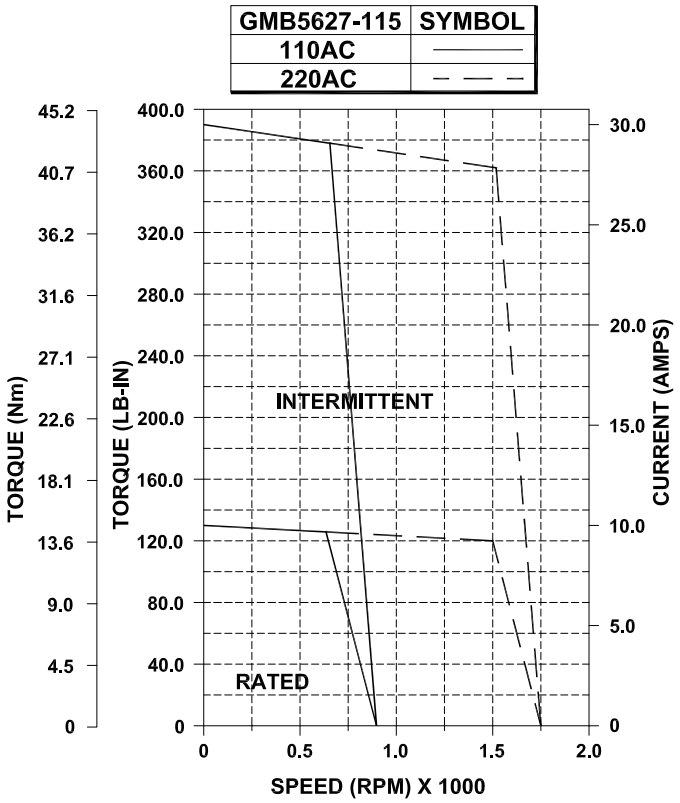
Connectors	MS inches (mm)	MS mm (inches)
4-Pin	**3.8** (96.5)	**96.5** (3.8)
18-Pin	**3.35** (85.0)	**85.0** (3.35)
19-Pin	**3.35** (85.0)	**85.0** (3.35)

GMB5627-70 PERFORMANCE DATA



Power @ Max Speed	**HP**	4.40
	KW	3.30
Speed, RPM	**Max.**	2700
	Rated	2400
Cont. Stall Rating	**Lb-in**	130
	Nm	14.70
	Amps	11.7
Peak Stall Rating	**Lb-in**	390.0
	Nm	44.10
	Amps	35.1
Torque Constant	**Lb-in/A**	11.1
	Nm/A	1.26
Back EMF	**V/Krpm**	70
Resistance	**Ohms**	0.54
Inductance	**mH**	3.5
Armature Inertia	**Lb-in-sec²**	0.0111
	Kg-m²	0.00125

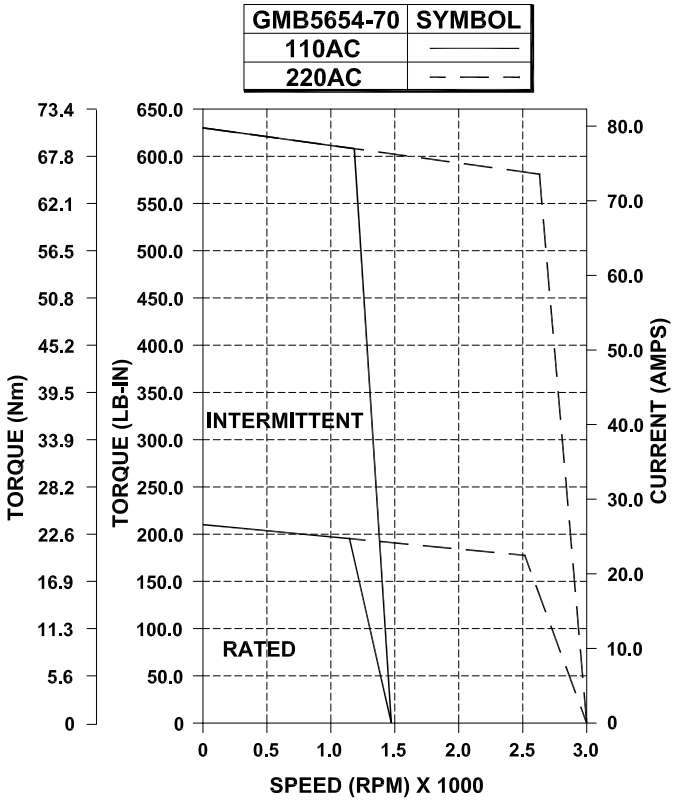
GMB5627-115 PERFORMANCE DATA



Power @ Max Speed	**HP**	2.64
	KW	1.98
Speed, RPM	**Max.**	1750
	Rated	1500
Cont. Stall Rating	**Lb-in**	130
	Nm	14.70
	Amps	7.1
Peak Stall Rating	**Lb-in**	390.0
	Nm	44.10
	Amps	21.3
Torque Constant	**Lb-in/A**	18.3
	Nm/A	2.06
Back EMF	**V/Krpm**	115
Resistance	**Ohms**	1.5
Inductance	**mH**	10.0
Armature Inertia	**Lb-in-sec²**	0.0111
	Kg-m²	0.00125

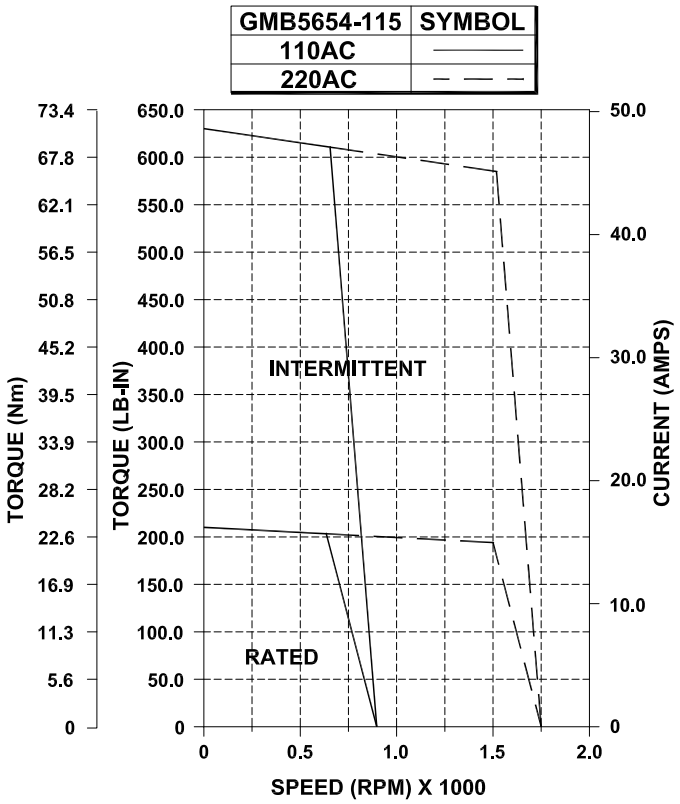
NOTE: All ratings based on a 25°C ambient temperature with the motor face mounted to a 14" x 14" x 3/4" aluminum heatsink.

GMB5654-70 PERFORMANCE DATA



Power @ Max Speed	**HP**	6.80
	KW	5.10
Speed, RPM	**Max.**	2700
	Rated	2400
Cont. Stall Rating	**Lb-in**	210
	Nm	23.70
	Amps	18.9
Peak Stall Rating	**Lb-in**	630.0
	Nm	71.10
	Amps	56.7
Torque Constant	**Lb-in/A**	11.1
	Nm/A	1.26
Back EMF	**V/Krpm**	70
Resistance	**Ohms**	0.20
Inductance	**mH**	1.6
Armature Inertia	**Lb-in-sec²**	0.0197
	Kg-m²	0.00223

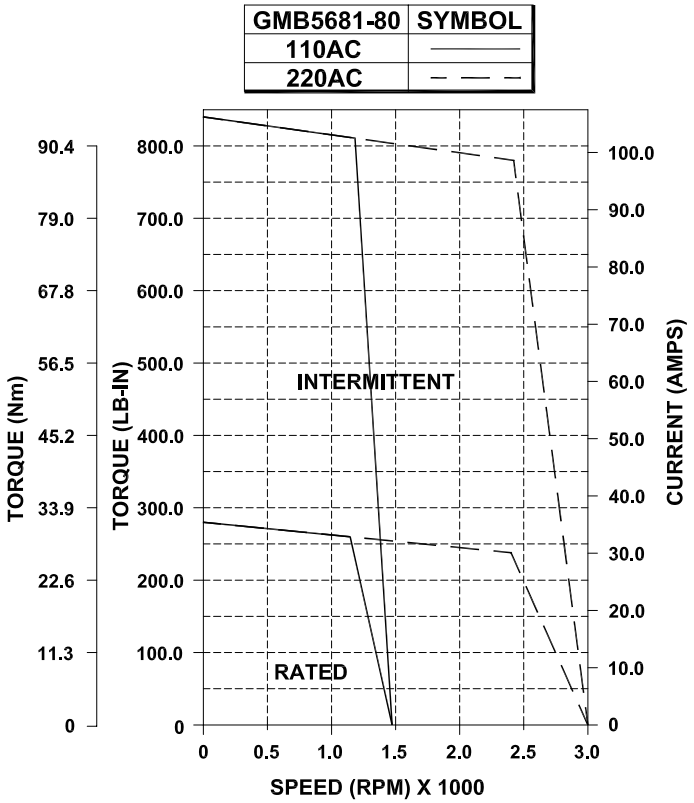
GMB5654-115 PERFORMANCE DATA



Power @ Max Speed	**HP**	4.50
	KW	3.40
Speed, RPM	**Max.**	1750
	Rated	1500
Cont. Stall Rating	**Lb-in**	210
	Nm	23.70
	Amps	11.5
Peak Stall Rating	**Lb-in**	630.0
	Nm	71.10
	Amps	34.4
Torque Constant	**Lb-in/A**	18.3
	Nm/A	2.06
Back EMF	**V/Krpm**	115
Resistance	**Ohms**	0.50
Inductance	**mH**	4.1
Armature Inertia	**Lb-in-sec²**	0.0197
	Kg-m²	0.00223

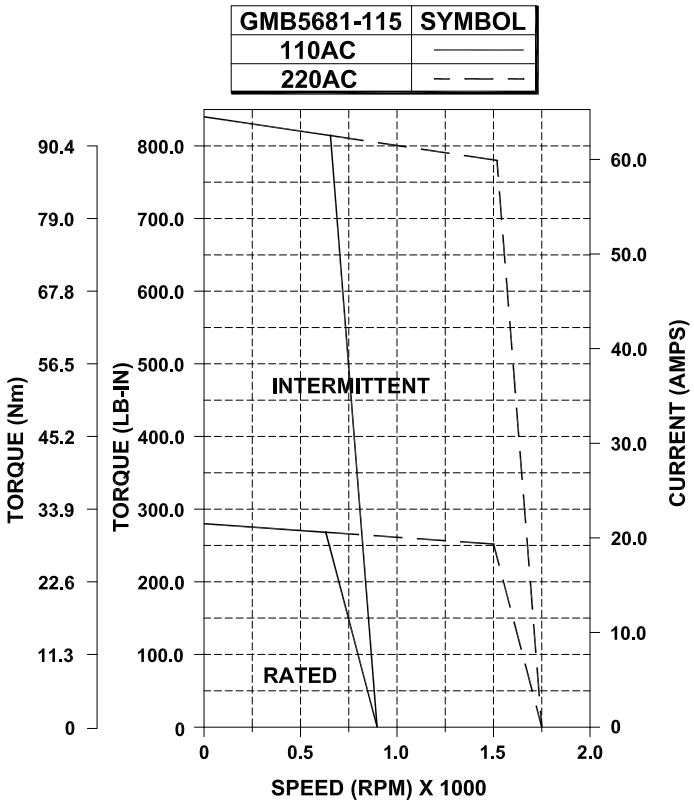
NOTE: All ratings based on a 25°C ambient temperature with the motor face mounted to a 14" x 14" x 3/4" aluminum heatsink.

GMB5681-80 PERFORMANCE DATA



Power @ Max Speed	**HP**	9.10
	KW	6380
Speed, RPM	**Max.**	2700
	Rated	2400
Cont. Stall Rating	**Lb-in**	280
	Nm	31.60
	Amps	22.0
Peak Stall Rating	**Lb-in**	840.0
	Nm	94.80
	Amps	66.0
Torque Constant	**Lb-in/A**	12.7
	Nm/A	1.44
Back EMF	**V/Krpm**	80
Resistance	**Ohms**	0.17
Inductance	**mH**	1.5
Armature Inertia	**Lb-in-sec²**	0.0287
	Kg-m²	0.00324

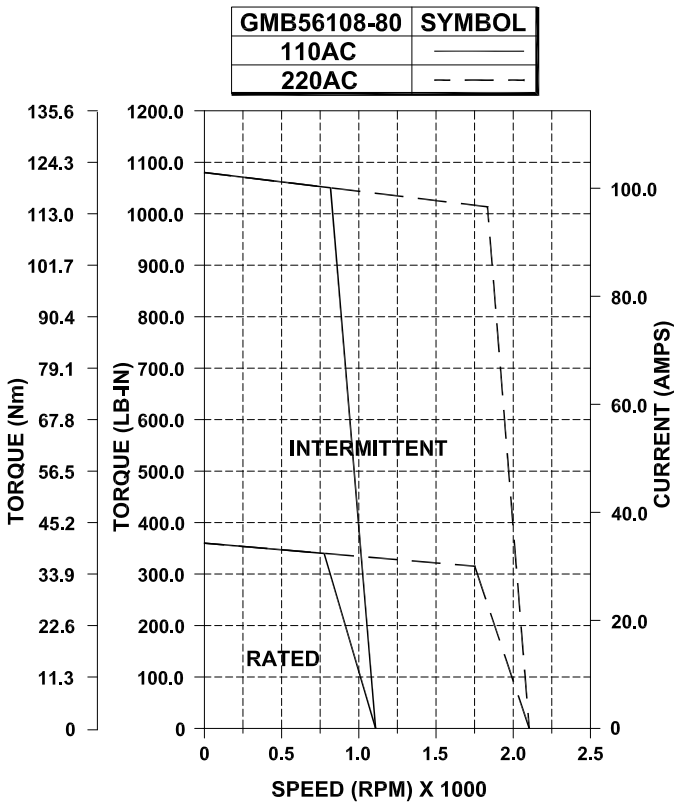
GMB5681-115 PERFORMANCE DATA



Power @ Max Speed	**HP**	6.00
	KW	4.50
Speed, RPM	**Max.**	1750
	Rated	1500
Cont. Stall Rating	**Lb-in**	280
	Nm	31.60
	Amps	15.3
Peak Stall Rating	**Lb-in**	840.0
	Nm	94.80
	Amps	45.9
Torque Constant	**Lb-in/A**	18.3
	Nm/A	2.06
Back EMF	**V/Krpm**	115
Resistance	**Ohms**	0.34
Inductance	**mH**	2.9
Armature Inertia	**Lb-in-sec²**	0.0287
	Kg-m²	0.00324

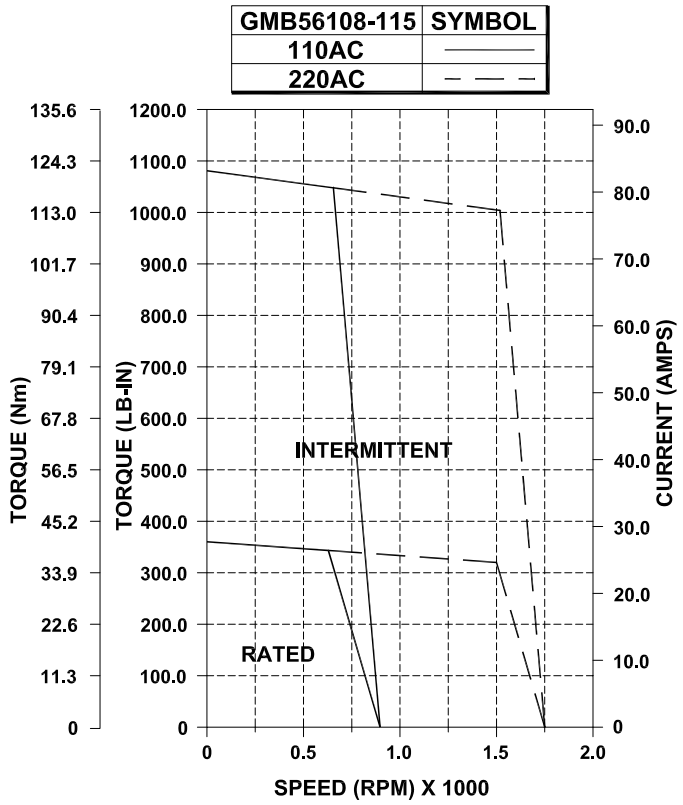
NOTE: All ratings based on a 25°C ambient temperature with the motor face mounted to a 14" x 14" x 3/4" aluminum heatsink.

GMB56108-80 PERFORMANCE DATA



Power @ Max Speed	**HP**	10.20
	KW	7.60
Speed, RPM	**Max.**	2400
	Rated	2100
Cont. Stall Rating	**Lb-in**	360
	Nm	40.70
	Amps	28.3
Peak Stall Rating	**Lb-in**	1080.0
	Nm	122.10
	Amps	84.9
Torque Constant	**Lb-in/A**	12.7
	Nm/A	1.44
Back EMF	**V/Krpm**	80
Resistance	**Ohms**	0.12
Inductance	**mH**	1.1
Armature Inertia	**Lb-in-sec²**	0.0370
	Kg-m²	0.00418

GMB56108-115 PERFORMANCE DATA



Power @ Max Speed	**HP**	7.26
	KW	5.45
Speed, RPM	**Max.**	1750
	Rated	1500
Cont. Stall Rating	**Lb-in**	360
	Nm	40.70
	Amps	19.7
Peak Stall Rating	**Lb-in**	1080.0
	Nm	122.10
	Amps	59.1
Torque Constant	**Lb-in/A**	18.3
	Nm/A	2.06
Back EMF	**V/Krpm**	115
Resistance	**Ohms**	0.22
Inductance	**mH**	1.9
Armature Inertia	**Lb-in-sec²**	0.0370
	Kg-m²	0.00418

NOTE: All ratings based on a 25°C ambient temperature with the motor face mounted to a 14" x 14" x 3/4" aluminum heatsink.

GMB5600 SERIES MODEL NUMBERING

This section explains the model numbering system for Glentek's GMB5600 Series Brushless Servo Motors. The model numbering system is designed so that you, our customer, will be able to quickly and accurately create the model number for the drive that best suits your requirements. Please complete the drive configuration code you require using the information on this page. After completing your model number, please contact a Gletnek Sales Engineer to confirm that the model number you have created is correct.

GMB		56	27	-	70	-	E	-	0	0	2	0	0	1	0	0	-	

Magnet Type blank = NdFeB
Frame Size 56 = 5.6" (4 pole) Motor
Stack Length 27 = 2.7 inch stack
Back EMF Constant 70 = 70 V/Krpm
Dimensions E = English
Brake option 0 = No brake installed
Commutation Device 0 = Brushless Resolver
Number of Motor poles 2 = 6 Pole
Flange Type 0 = Standard
Shaft Type 0 = Standard
Lead Termination 1 = Two MS Connectors
Wiring Diagram (MS connector lead termination only) 0 = Glentek Standard
Encoder Option 0 = No encoder installed
Factory Assigned Option leave blank

GMB				-		-		-									-	

Frame Size	
	Leave blank for rare earth magnets

Frame Size	
56	5.6" Motor

Stack Length			
27	2.7" Stack	**81**	8.1" Stack
54	5.4" Stack	**108**	10.8" Stack

Back EMF Constant							
2.7" only		**5.4" only**		**8.1" only**		**10.8" only**	
70	34V/Krpm	**70**	70V/Krpm	**80**	80V/Krpm	**80**	80V/Krpm
115	115V/Krpm	**115**	115V/Krpm	**115**	115V/Krpm	**115**	115V/Krpm
For custom Back EMF, Please Contact Glentek							

Dimensions			
E	English	**M**	Metric

Brake Option					
0	No brake installed	**1**	24 VDC Brake	**2**	Special

Commutation Device					
0	Brushless Resolver	**2**	Encoder with commutation tracks	**4**	Absolute Encoder
1	Hall Effect Sensors	**3**	Special	**5**	Sin/Cos Encoder

Number of Motor Poles	
2	6 pole

Flange Type			
0	Standard Round	**1**	Special

Shaft Type			
0	Standard Round	**1**	Special

Lead Termination			
0	One MS Connector	**3**	Special
1	Two MS Connectors	**4**	Liquid tight strain relief with flying leads
2	NPT(s) only with flying leads		

Wiring Diagram (MS conector lead termination only)			
0	Glentek Standard	**1**	Special

Encoder Option							
0	No encoder installed	**4**	1250 PPR	**8**	8192 PPR	**C**	4096 PPR
1	500PPR	**5**	2000 PPR	**9**	5000 PPR	**D**	3600 PPR
2	1000PPR	**6**	2500 PPR	**A**	512 PPR	**E**	18000 PPR
3	1024PPR	**7**	Special	**B**	2048 PPR		

Factory Assigned Option
A numerical code will be assigned by Glentek to motors whoes specifications vary from the standard configuration