GLENTEK DC BRUSH SERVO MOTORS
GM2300 SERIES

Revision: 4/21/2017

Glentek's GM2300 series of high performance, permanent magnet DC brush servo motors utilize traditional ferrite magnets, which are ideal for cost sensitive applications. In addition, the higher inertia armatures provide improved motor to load inertia matching for medium to high inertia loads. This helps to reduce the mechanical shaft resonance, which allows higher servo gains with increased stability. These motors incorporate skewed armatures, which provide ultra smooth operation (i.e.low cogging torque) at all speeds.

- Continuous Torque Range:
1.9 Lb-in (0.21 Nm) to 3.1 Lb-in (0.35 Nm)
- Peak Torque Range:
9.5 Lb-in (1.07 Nm) to 15.5 Lb-in (1.75 Nm)

GM2300 SERIES FEATURES
Skewed armature design provides ultra smooth operation (i.e. low cogging torque) at all speeds.
Various electrical windings are available as standard to suit both low and high voltage amplifiers in order to provide optimum speed and torque characteristics. Optional custom electrical windings are available to meet virtually any requirement.
Worldwide standard mounting configurations are available (Square, Round, and NEMA 23). Optional custom mounting configurations are available to meet virtually any requirement.
Industry standard lead termination configurations. (i.e. MS connectors, fluid tight strain relief cable exit, NPT hole with flying leads and terminal boxes)
Optional industry standard feedback devices. (i.e. high performance silver commutator tachometers, and encoders)
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.
RoHS compliant
CE marked.
UL Recognized Component for US and Canada.

GM2300 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

GM2300 SERIES SELECTION TABLE

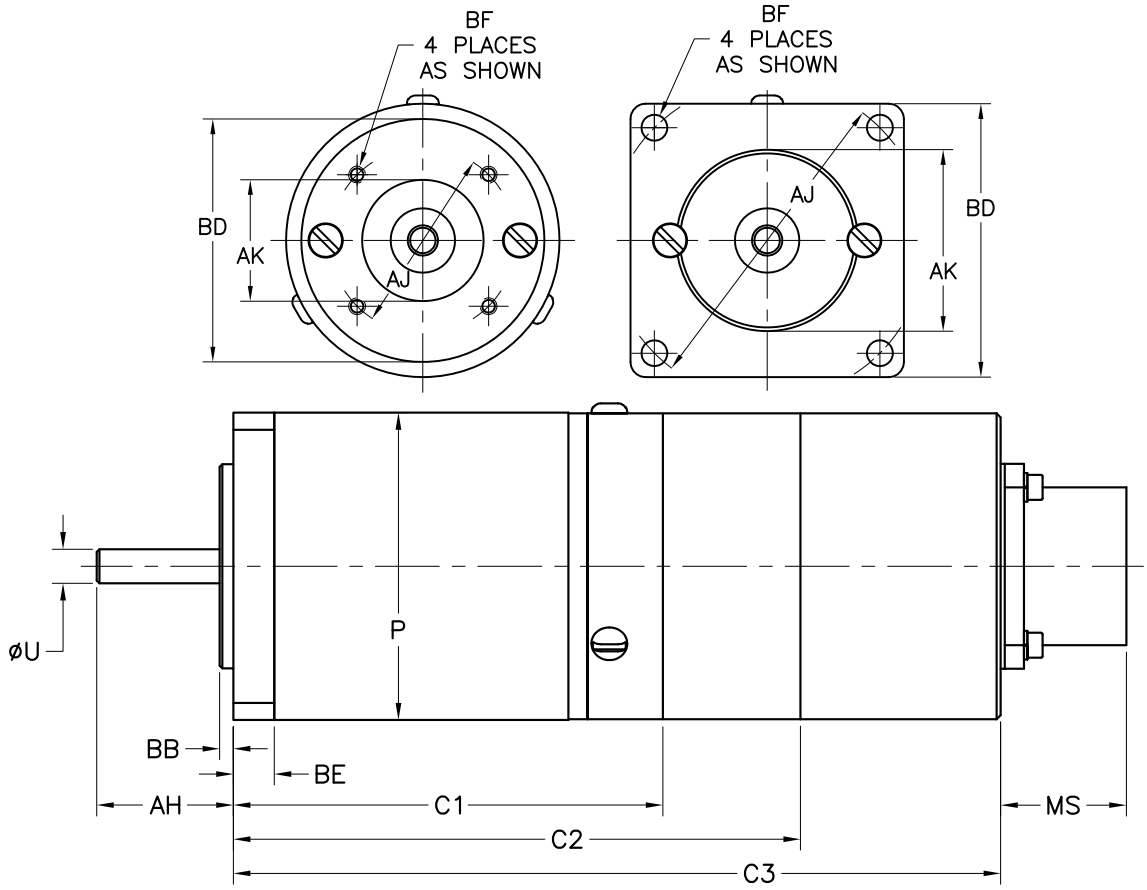
K_T = Torque Constant • K_V = BEMF = Volts/1000 RPM • L_A = Inductance

Model Number	Power @ Max Speed		Cont. Stall Rating			Peak Stall Rating			K_T		R_A	L_A	RPM	K_V	Armature Inertia	
	HP	KW	Lb-in	Nm	Amps	Lb-in	Nm	Amps	Lb-in/A	Nm/A	Ω	mH	Max	V/Krpm	Lb-in-sec²	Kg-m²
GM2320-7	0.12	0.090	1.9	0.21	3.0	9.5	1.07	15.0	0.63	0.07	1.6	3.3	4000	7.4	0.00023	0.000026
GM2320-16	0.12	0.090	1.9	0.21	1.4	9.5	1.07	7.0	1.34	0.15	11.7	11.0	4000	16	0.00023	0.000026
GM2340-8	0.25	0.186	3.1	0.35	5.0	15.5	1.75	25.0	0.63	0.07	0.9	2.5	5000	7.5	0.00040	0.000045
GM2340-11	0.20	0.149	3.1	0.35	3.3	15.5	1.75	16.5	0.94	0.11	1.0	2.7	4000	11	0.00040	0.000045
GM2340-15	0.20	0.149	3.1	0.35	2.5	15.5	1.75	12.5	1.25	0.14	2.8	5.0	4000	15	0.00040	0.000045

NOTE: All ratings based on a 40°C ambient temperature with the motor face mounted to a 12" x 12" x 1/2" aluminum heatsink.

GM2300 SERIES DIMENSIONS

C1 = Bare Motor, C2 = Motor with Tachometer or Encoder, C3 = Motor with Tachometer and Encoder.
Note: Dimensions are in inches (mm)



Model Number	Lbs (kg)	C1	C2	C3	P
GM2320	**3.0** (1.4)	**3.69** (93.73)	**5.68** (144.3)	**7.04** (178.82)	**2.25** (57.15)
GM2340	**4.0** (1.8)	**5.30** (134.62)	**7.29** (185.2)	**8.65** (219.71)	**2.25** (57.15)

Connectors	6-Pin	14-Pin	16-Pin
MS	**.723** (18.36)	**.920** (23.37)	**1.013** (25.73)

Flange Type	Shaft		Flange/Face				Mounting Hole		
	AH	U (MAX)	AJ	AK	BB	BD	BE (MAX)	BF Dia.	Tap
Round	**1.00** (25.40)	**0.3750** (9.525)	**1.531** (38.89)	**1.00** (25.40)	**0.10** (2.54)	**2.00** (50.80)	**0.30** (7.62)	-	**6-32** ↧**.38**
Square Flange	**1.00** (25.40)	**0.3750** (9.525)	**2.625** (66.68)	**1.500** (38.10)	**0.10** (2.54)	**2.25** (57.15)	**0.30** (7.62)	**0.213** (5.41)	**THRU**
NEMA 23	**0.81** (20.57)	**0.3750** (9.525)	**2.625** (66.68)	**1.500** (38.10)	**0.10** (2.54)	**2.25** (57.15)	**0.30** (7.62)	**0.213** (5.41)	**THRU**

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.

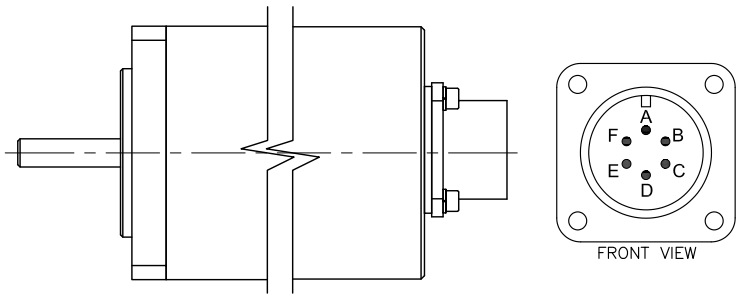
Extension	Torque		Power
in. (mm)	Lb-in	Nm	Watts
1.70 (43)	17.7	2.0	11

CONNECTORS & PIN-OUT INFORMATION

With a positive voltage applied to the red motor lead (Motor +) with respect to the black motor lead (Motor -), the motor drive shaft will turn in the clockwise direction as viewed from the shaft end.

GM 2300 Series Standard 6-pin MS Connector Location

*MS Connector aligned with shaft, mounted on the face of the cover

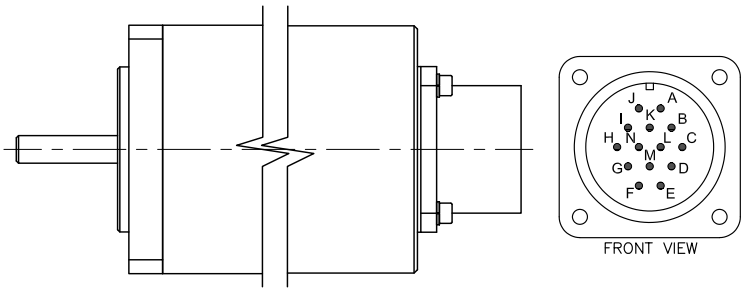


- Straight Mating Connector: MS3106F-20-27S
- 90° Mating Connector: MS3108E-20-27S

MS3102R-14-6P 6-Pin	Function
A	Motor +
B	Motor -
C	Tachometer +
D	Tachometer -
E (W/O Brake)	Tachometer Cable Shield
E (W/ Brake)	Brake+
F	Brake -

GM 2300 Series Standard 14-pin MS Connector Location

*MS Connector aligned with shaft, mounted on the face of the cover

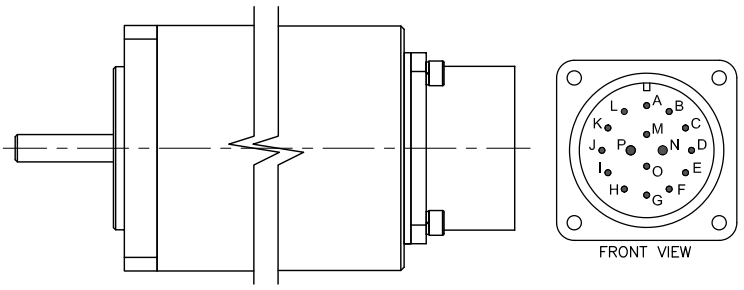


- Straight Mating Connector: MS3106F-20-27S
- 90° Mating Connector: MS3108E-20-27S

MS3102R-20-27P 14-Pin	Encoder Feedback Function	Resolver Feedback Function
A	Channel A+	Sine Sig (S1)
B	Channel A-	Sine Com (S2)
C	Channel B+	Cosine Sig (S3)
D	Channel B-	Cosine Com (S4)
E	Channel Z+	Reference Sig (R1)
F	Channel Z-	Reference Com (R2)
G	+5 VDC	N/C
H	Common	N/C
I	Cable Shield	N/C
J	Tachometer +	
K	Tachometer -	
L	Tachometer Cable Shield	
-	Brake +	
N	Motor +	
-	Brake -	
P	Motor -	

GM 2300 Series Standard 16-pin MS Connector Location

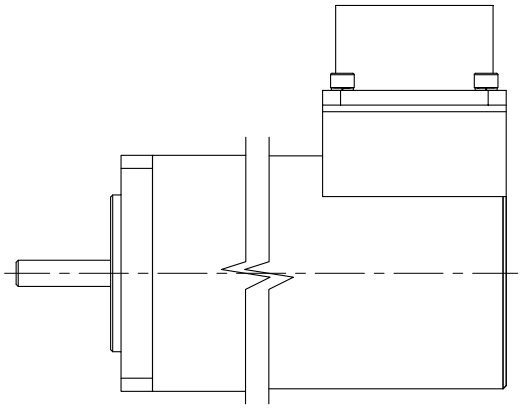
*MS Connector aligned with shaft, mounted on the face of the cover



- Straight Mating Connector: MS3106F-20-27S
- 90° Mating Connector: MS3108E-20-27S

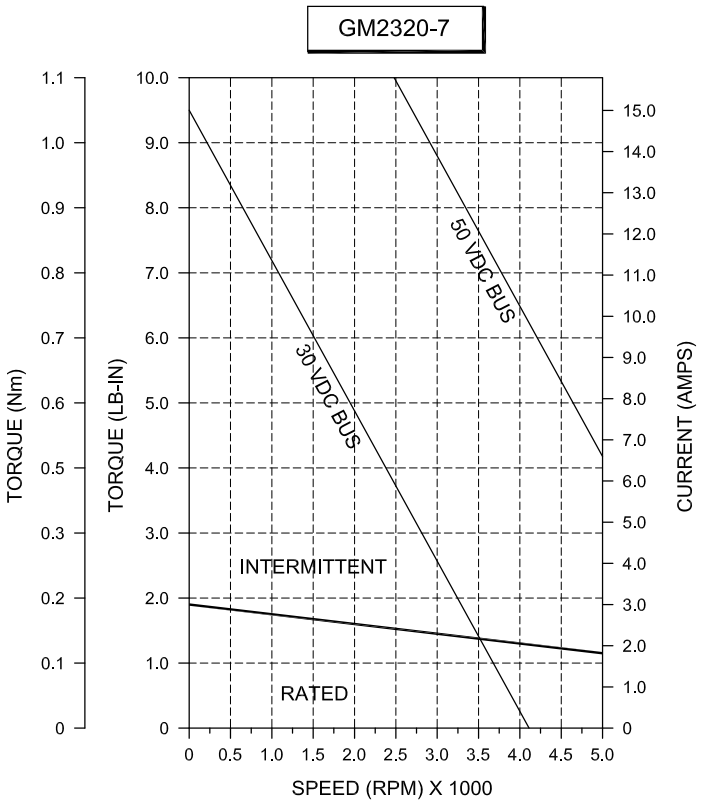
MS3102R-24-07P 16-Pin	Encoder Feedback Function	Resolver Feedback Function
A	Channel A+	Sine Sig (S1)
B	Channel A-	Sine Com (S2)
C	Channel B+	Cosine Sig (S3)
D	Channel B-	Cosine Com (S4)
E	Channel Z+	Reference Sig (R1)
F	Channel Z-	Reference Com (R2)
G	+5 VDC	N/C
H	Common	N/C
I	Cable Shield	N/C
J	Tachometer +	
K	Tachometer -	
L	Tachometer Cable Shield	
M	Brake +	
N	Motor +	
O	Brake -	
P	Motor -	

GM 2300 Series Special MS Connector Location



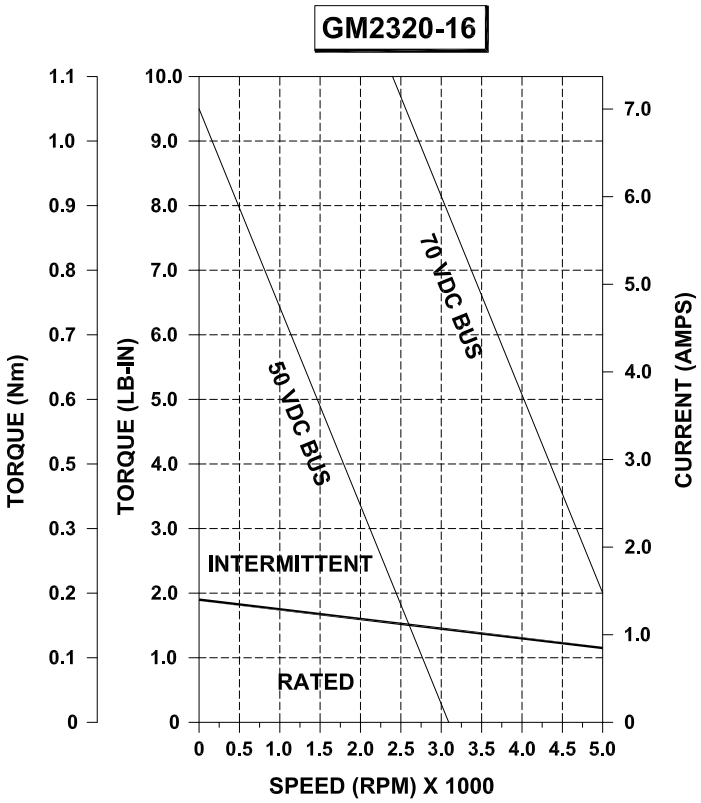
Glentek's GM2300 Series offer 90 degree mounting option please contact a Gletnek Sales Engineer for detailed information.

GM2320-7 PERFORMANCE DATA



Power @ Max Speed	**HP**	0.12
	KW	.090
Cont. Stall Rating	**Lb-in**	1.9
	Nm	0.21
	Amps	3.0
Peak Stall Rating	**Lb-in**	9.5
	Nm	1.07
	Amps	15.0
Torque Constant	**Lb-in/A**	0.63
	Nm/A	0.07
Resistance	**Ohms**	1.6
Inductance	**mH**	3.3
Maximum Speed	**RPM**	4000
Back EMF	**V/Krpm**	7.4
Armature Inertia	**Lb-in-sec²**	0.00023
	Kg-m²	0.00026

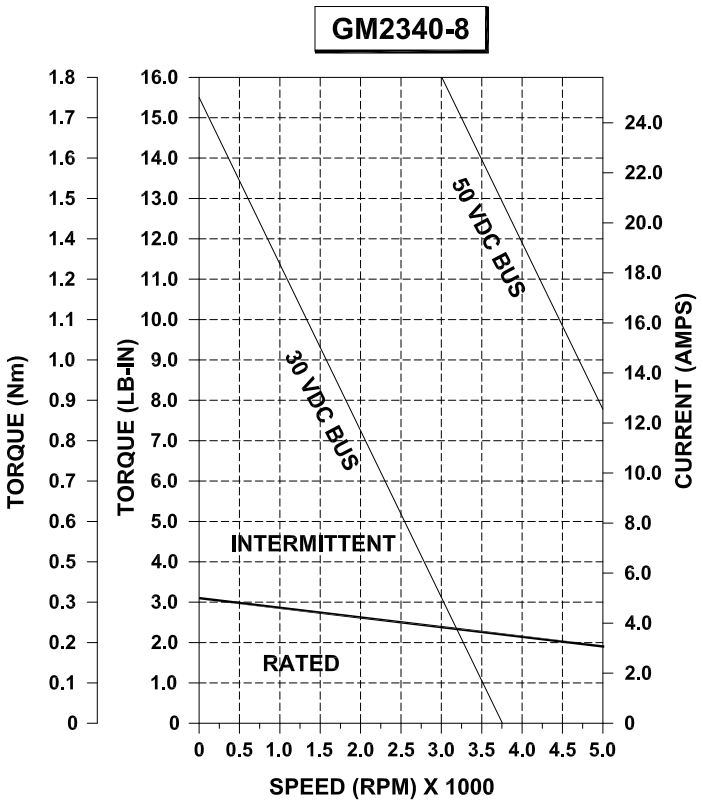
GM2320-16 PERFORMANCE DATA



Power @ Max Speed	**HP**	0.12
	KW	.090
Cont. Stall Rating	**Lb-in**	1.9
	Nm	0.21
	Amps	1.4
Peak Stall Rating	**Lb-in**	9.5
	Nm	1.07
	Amps	7.0
Torque Constant	**Lb-in/A**	1.34
	Nm/A	0.15
Resistance	**Ohms**	11.7
Inductance	**mH**	11.0
Maximum Speed	**RPM**	4000
Back EMF	**V/Krpm**	16
Armature Inertia	**Lb-in-sec²**	0.00023
	Kg-m²	0.00026

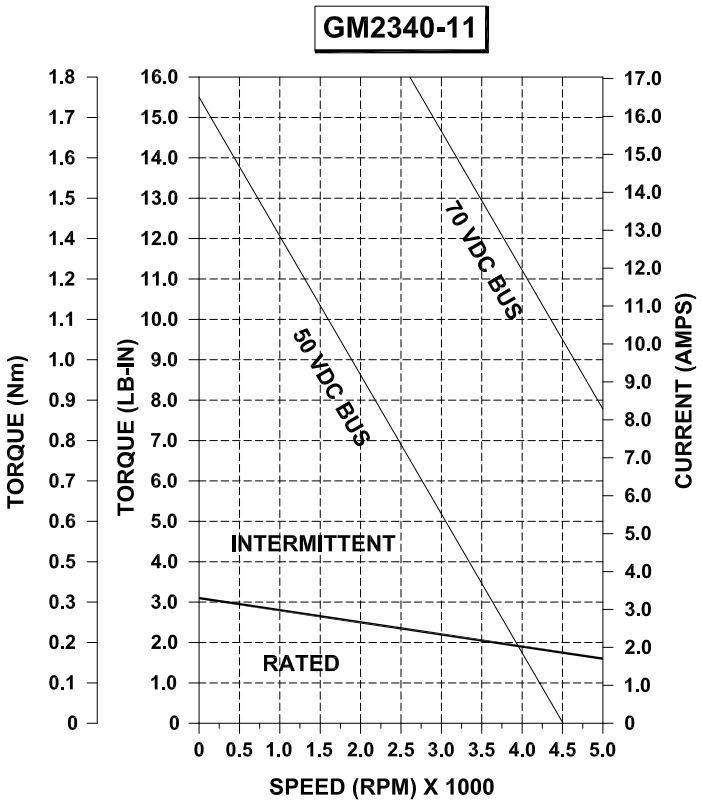
NOTE: All ratings based on a 40°C ambient temperature with the motor face mounted to a 12" x 12" x 1/2" aluminum heatsink.

GM2340-8 PERFORMANCE DATA



Power @ Max Speed	**HP**	0.25
	KW	0.186
Cont. Stall Rating	**Lb-in**	3.1
	Nm	0.35
	Amps	5.0
Peak Stall Rating	**Lb-in**	15.5
	Nm	1.75
	Amps	25.0
Torque Constant	**Lb-in/A**	0.63
	Nm/A	0.07
Resistance	**Ohms**	0.9
Inductance	**mH**	2.5
Maximum Speed	**RPM**	5000
Back EMF	**V/Krpm**	7.5
Armature Inertia	**Lb-in-sec²**	0.00040
	Kg-m²	0.00045

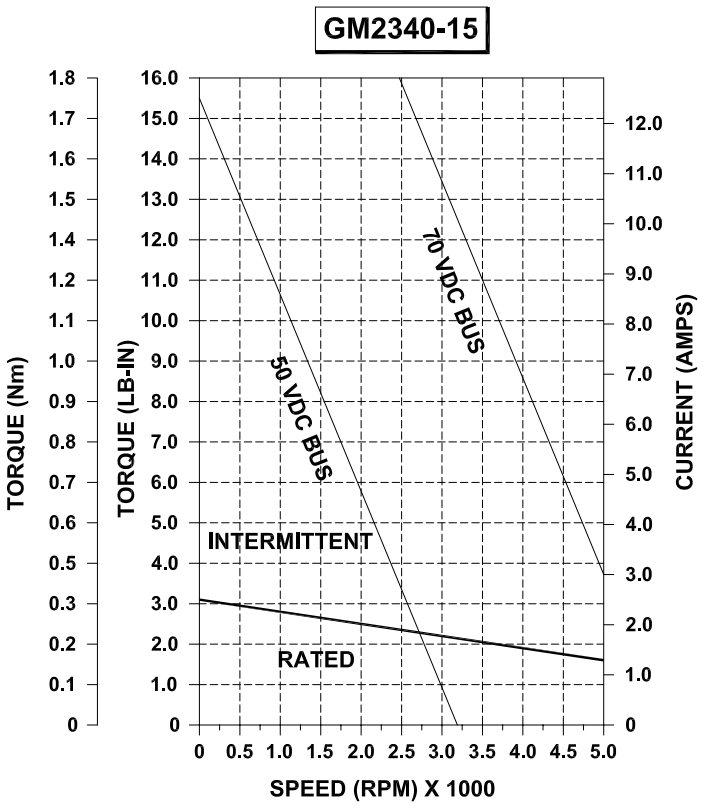
GM2340-11 PERFORMANCE DATA



Power @ Max Speed	**HP**	0.20
	KW	0.149
Cont. Stall Rating	**Lb-in**	3.1
	Nm	0.35
	Amps	3.3V
Peak Stall Rating	**Lb-in**	15.5
	Nm	1.75
	Amps	16.5
Torque Constant	**Lb-in/A**	0.94
	Nm/A	0.11
Resistance	**Ohms**	1.0
Inductance	**mH**	2.7
Maximum Speed	**RPM**	4000
Back EMF	**V/Krpm**	11
Armature Inertia	**Lb-in-sec²**	0.00040
	Kg-m²	0.00045

NOTE: All ratings based on a 40°C ambient temperature with the motor face mounted to a 12" x 12" x 1/2" aluminum heatsink.

GM2340-15 PERFORMANCE DATA



Power @ Max Speed	**HP**	0.25
	KW	0.149
Cont. Stall Rating	**Lb-in**	3.1
	Nm	0.35
	Amps	2.5
Peak Stall Rating	**Lb-in**	15.5
	Nm	1.75
	Amps	12.5
Torque Constant	**Lb-in/A**	1.25
	Nm/A	0.14
Resistance	**Ohms**	2.8
Inductance	**mH**	5.0
Maximum Speed	**RPM**	4000
Back EMF	**V/Krpm**	15
Armature Inertia	**Lb-in-sec²**	0.00040
	Kg-m²	0.00045

NOTE: All ratings based on a 40°C ambient temperature with the motor face mounted to a 12" x 12" x 1/2" aluminum heatsink.

GM2300 SERIES MODEL NUMBERING

This section explains the model numbering system for Glentek's GM2300 Series DC Brush 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.

GM	23	20	-	7	-	0	2	8	0	1	5	0	0	-	

Frame Size 23 = 2.3" Motor
Stack Length 20 = 2.0 inch stack
Back EMF Constant 7 = 7 V/Krpm
Brake Option 0 = No brake installed
Tachometer Option 2 = 7 VDC tachometer
Encoder Option 8 = 2500 PPR
Brushless Resolver Option 0 = No resolver installed
Flange Type 1 = Standard Square
Lead Termination 5 = Male MS connector, MS3102R-24-07P (16-pin style)
Wiring Diagram 0 = Glentek Standard
Sealing Option 0 = No shaft seal
Factory Assigned Option Leave blank

GM			-		-									-	

Frame Size	
23	2.3" Motor

Stack Length			
20	2.0 inch Stack	40	4.0 inch stack

Back EMF Constant			
2.0" only		4.0" only	
7	7 V/Krpm	8	8 V/Krpm
16	16 V/Krpm	11	11 V/Krpm
-	-	15	15 V/Krpm
For custom Back EMF, Please Contact Glentek			

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

Tachometer Option					
0	No tachometer installed	2	7 VDC tachometer	4	Special
1	3 VDC tachometer	3	9.5 VDC tachometer	-	-

Encoder Option					
0	No encoder installed	4	1000 PPR	8	2500 PPR
2	500 PPR	6	2000 PPR	9	Special

Brushless Resolver Option					
0	No resolver installed	1	Brushless resolver	2	Special

Flange Type			
0	Standard Round	6	Special
1	Standard Square	7	NEMA 23

Lead Termination			
0	Flying leads exiting through a rubber grommet	4	14-Pin, Male MS connector
1	.5" NPT with flying leads	5	16-Pin, Male MS connector
2	.75" NPT with flying leads	6	Liquid tight strain relief with flying leads
3	6-Pin, Male MS connector	8	Special

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

Sealing Option					
0	No shaft seal	1	Shaft Seal	2	Special

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