

# Brushless DC Gearmotors



**Merkle-Korff Industries®**

A Kinetek Company®

**Merkle-Korff** offers Brushless DC Gearmotors with hall only feedback or with a control board that is fully integrated to the internal motor. The fully digital control features the latest in micro-processor technology. The motor mounts to the most robust parallel shaft gearbox that Merkle-Korff manufactures, or it can be fitted to our new line of 52 mm planetary gear heads.



## Features

### Internal controller

- Two quadrant programmable control: current limiting, acceleration, speed regulation, and velocity profiles
- Built-in quadrature encoder
- Over-current protection
- Stall condition protection
- 0 – 5 or 0 – 10 VDC speed reference voltage
- Dynamic braking and holding capability
- Input voltage polarity protection
- Electronic commutation

### Motor

- Long life
- Ball bearing construction
- 8 pole rotor
- 3 phase stage– wye connection
- High energy/skewed magnets for reduced cogging
- Integral hall sensors for rotor position

### Gearbox

- Sintered or needle bearings: output shaft
- Sintered powder metal gearing
- Helical first stage for low audible noise

## Applications

- Commercial food equipment
- Pumps
- Business equipment/automation
- Pellet stove
- Medical/laboratory
- Satellite positioning systems
- Custom solutions

## Specifications

- Input voltage: 12 to 32 VDC
- Insulation class: F (155° C)
- Bi-directional
- Speed regulation: open or closed loop, programmable
- Velocity profile: programmable
- Acceleration: programmable
- Temperature protection: 90° C/110° C std
- Current limit: programmable
- Tachometer O/P: 2 Ch – 6PPR
- Gearing peak torque: 250 lb. in
- Speed range: 0.25 – 35 rpm

## Optional features

- Hall only output: externally controlled
- Incremental optical encoder

## Standard gear reductions

- 1131:1, 1044:1, 536:1, 495:1, 178:1, 165:1

### Merkle-Korff Industries

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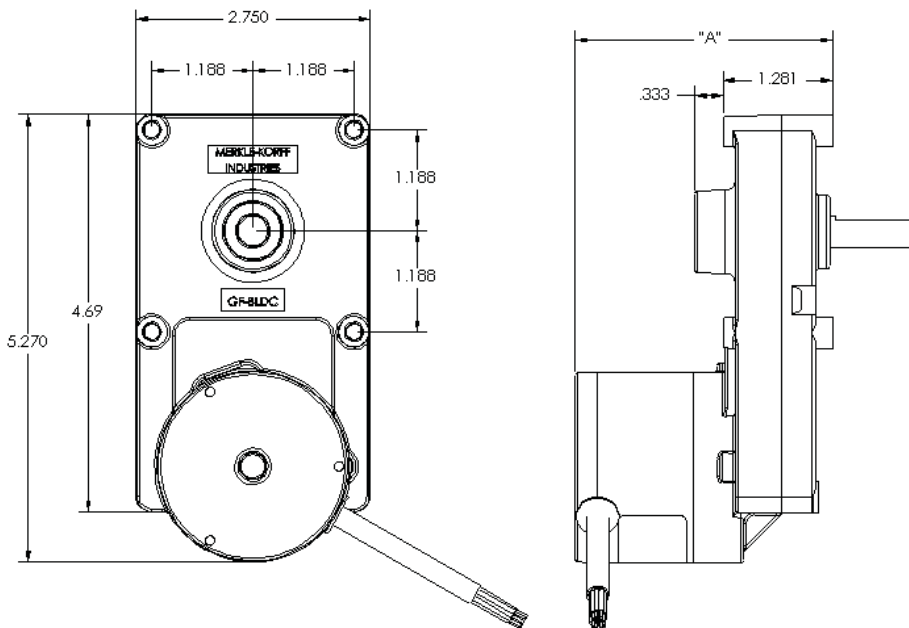
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## Dimensional diagram



## Available models

Model	Output power (watts)	Peak torque (lb. in)	"A"
GF-5706B	12	150 lb. in	3.020"
GF-5719B	25	200 lb. in	3.520"
GF-5738B	45	250 lb. in	4.270"

## Timing diagram sensor — winding

	Hall-effect sensors			CCW phases			CW phases		
	HA	HB	HC	A	B	C	A	B	C
1	1	0	1	+	-	0	-	+	0
2	1	0	0	0	-	+	0	+	-
3	1	1	0	-	0	+	+	0	-
4	0	1	0	-	+	0	+	-	0
5	0	1	1	0	+	-	0	-	+
6	0	0	1	+	0	-	-	0	+

## External (hall only): lead wire color code

Board position	Designation	Lead color
1	motor A	blue
2	motor B	white
3	motor C	brown
4	hall A	green
5	hall B	orange
6	hall C	yellow
7	5UDC	red
8	GND	black

## Internal controller: lead wire color code

Board position	Designation	Lead color
1	digital I/O "A"	gray
2	digital I/O "B"	white/red
3	direction	white/black
4	signal ground	green
5	enable input	orange
6	5DVC (output)	yellow
7	input power (12-32VDC)	red
8	power ground	black
9	analog input 2	violet
10	analog input 1 (speed)	blue
11	tach output "B"	brown
12	tach output "A"	white



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