

This durable line of gearmotors was designed and engineered for low audible noise, continuous operation and extended life. The 80SQ series is versatile and offers a wide choice of gear reductions for demanding applications. The 5700B brushless motor offers extended life, high efficiency, and controllability for demanding applications.

### **GEAR REDUCER FEATURES**

**Housing Material:** Aluminum die cast

**Gears:** Hardened Steel

**Bearings:** Sintered or Needle

**Lubrication:** Synthetic Grease

**Gear Ratios:** 3:1 to 200:1

**Output speeds:** 1 to 600 RPM

**Duty:** Continuous

### **MOTOR FEATURES**

**Type:** Electronically Commutated

**Voltage:** 12Vdc to 32Vdc

**Output Power:** 45 to 140 Watts with External Drive

**Phase Connection:** 3 Phase Wye

**Slot / Poles:** 12 / 8

**Rotor Magnets:** High Energy skewed to reduce cogging

**Insulation Class:** F

**Rotation:** Reversible

**Rotor Positioning:** Three Hall Effect Sensors

**Bearings:** Ball

### **INTEGRAL CONTROL FEATURES**

**Type:** Two quadrant trapezoidal programmable

**Speed Control:** 0 to 5Vdc or 0 to 10Vdc

**Protection:** Over current and over temperature

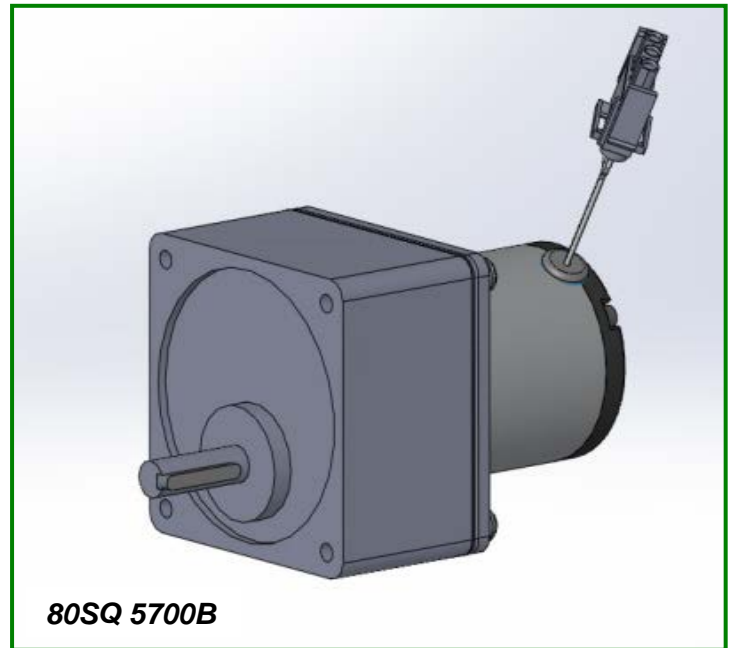
**Braking:** Dynamic

**Programming Options:** Acceleration, velocity, current limit

**Tachometer Output:** 2 Channels – 6 PPR

### **OPTIONAL FEATURES**

- Customized output shafts including dual output
- Helical first stage gear for low audible noise
- Various lead lengths, terminals and connectors
- Output Needle bearings for high radial loads
- Integral motor control



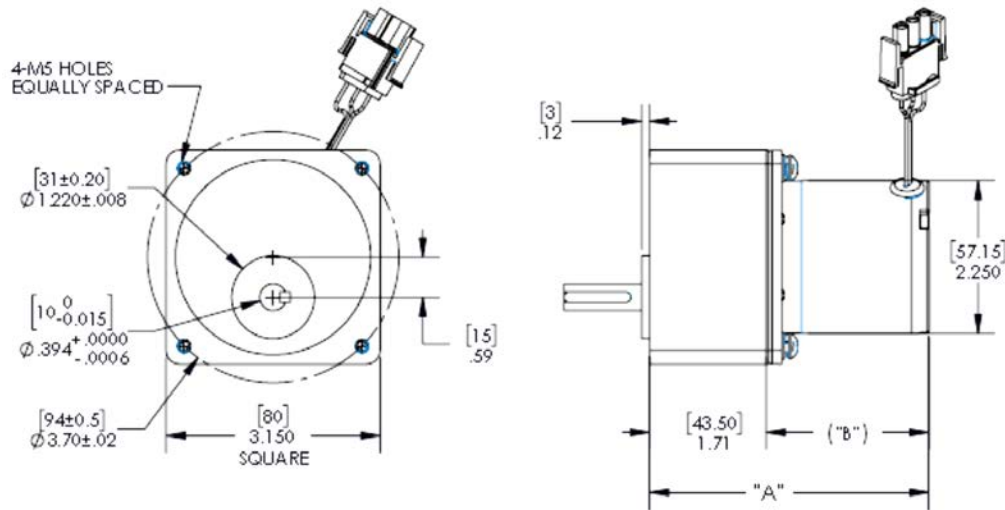
**Maximum Permissible Torque: 70.8 In.Lb (8.0 Nm)**  
**Speed: Up to 600 RPM**

*Note: Speed and torque combinations will vary depending on the motor/gearbox combination.*

### **TYPICAL APPLICATIONS**

- Food Service Equipment
- Satellite positioning systems
- Pellet Stoves
- Agricultural Equipment
- Valve Actuators
- Medical / Laboratory Equipment
- Robotics
- Material Handling

**80SQ 5700B**



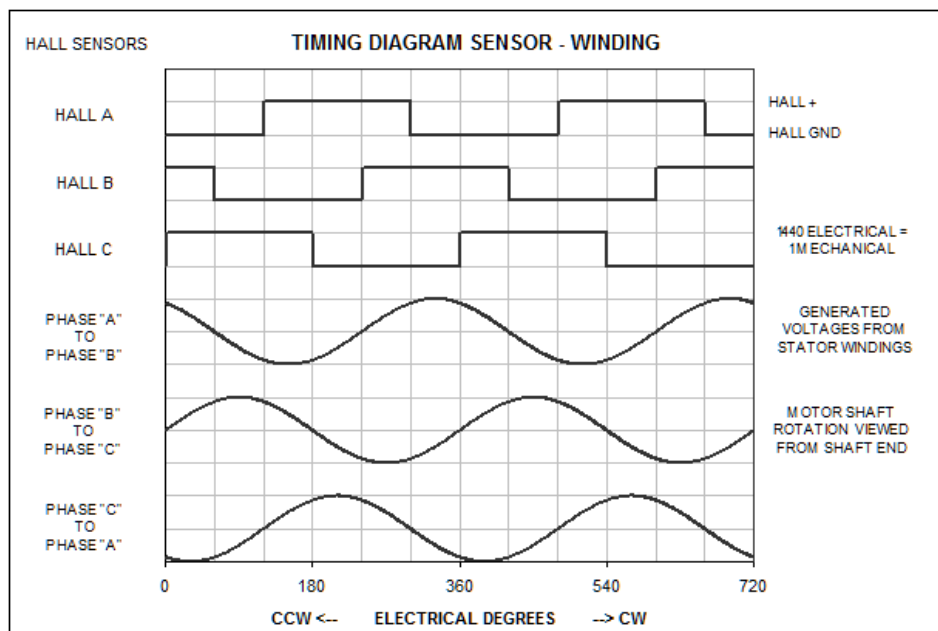
| Model      | Output Power (Watts) with Integral Control | Output Power (Watts) without Integral Control | Peak Torque (Lb.In) | Dimension "A"   | Dimension "B"  |
|------------|--|---|---------------------|-----------------|----------------|
| 80SQ-5706B | 12   | 45  | 70.8                | 3.570" [90.69]  | 1.860" [47.24] |
| 80SQ-5719B | 25   | 100   | 70.8                | 4.070" [103.38] | 2.360" [59.94] |
| 80SQ-5738B | 45   | 140   | 70.8                | 4.820" [122.43] | 3.110" [79.00] |

**Integral 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              | 5 Vdc (output)         | Yellow      |
| 7              | Input Power (12-32Vdc) | Red         |
| 8              | Power Ground           | Black       |
| 9              | Analog Input 2         | Violet      |
| 10             | Analog Input 1 (speed) | Blue        |
| 11             | Tachometer Output "B"  | Brown       |
| 12             | Tachometer Output "A"  | White       |

**External Controller (Hall Only): Lead Wire**

| Board Position | Designation   | Lead Color |
|----------------|---------------|------------|
| 1              | Motor Phase A | Blue       |
| 2              | Motor Phase B | White      |
| 3              | Motor Phase C | Brown      |
| 4              | Hall A        | Green      |
| 5              | Hall B        | Orange     |
| 6              | Hall C        | Yellow     |
| 7              | 5 Vdc (Vcc)   | Red        |
| 8              | Ground        | Black      |



In order to properly commutate the Merkle-Korff 2.25" BLDC motor, the following table is provided to indicate the required motor phase state for a given hall-effect state.

| Direction       | 120° Hall Spacing |    |    | Motor Phases |     |     |
|-----------------|-------------------|----|----|--------------|-----|-----|
|                 | HA                | HB | HC | MA           | MB  | MC  |
| <b>(NOTE 1)</b> |                   |    |    |              |     |     |
| CW              | 1                 | 0  | 0  | DC+          | OFF | DC- |
|                 | 1                 | 1  | 0  | OFF          | DC+ | DC- |
|                 | 0                 | 1  | 0  | DC-          | DC+ | OFF |
|                 | 0                 | 1  | 1  | DC-          | OFF | DC+ |
|                 | 0                 | 0  | 1  | OFF          | DC- | DC+ |
|                 | 1                 | 1  | 1  | DC+          | DC- | OFF |
| CW              | 1                 | 0  | 0  | DC-          | OFF | DC+ |
|                 | 1                 | 0  | 1  | DC-          | DC+ | OFF |
|                 | 0                 | 0  | 1  | OFF          | DC+ | DC- |
|                 | 0                 | 1  | 1  | DC+          | OFF | DC- |
|                 | 0                 | 1  | 0  | DC+          | DC- | OFF |
|                 | 1                 | 1  | 0  | OFF          | DC- | DC+ |

NOTE 1: Direction viewed from motor shaft (gearbox output shaft rotation may not be the same)