

The BLA-42F series gear motor utilizes a Brushless DC motor with internal control electronics for precise movement in the application. The gear motor can be driven using a PWM signal to obtain speed control of the device. The brushless motor offers the highest efficiency, speed control, low audible noise, and extended life.

### GEAR REDUCER FEATURES

**Housing Material:** Zinc die cast  
**Gears:** Sintered Powder Metal & Plastic  
**1<sup>st</sup> Gear:** Plastic Helical for low audible noise  
**Bearings:** Ball Bearing Output  
**Lubrication:** Synthetic Grease  
**Gear Ratio: 485:1 (Standard), +300:1, 200:1, & 100:1**  
**Output speeds:** 0.5 to 18 RPM

### MOTOR FEATURES

**Type:** Electronically Commutated Outer Rotor  
**Voltage:** 24Vdc  $\pm$  10%  
**Output Power:** 3 Watts  
**Phase Connection:** 3 Phase Wye  
**Slot / Poles:** 12 / 10  
**Rotor Magnets:** Ferrite  
**Insulation Class:** B  
**Rotation:** Reversible  
**Rotor Positioning:** Hall Elements  
**Bearings:** Ball

### INTEGRAL DRIVE CONTROL FEATURES

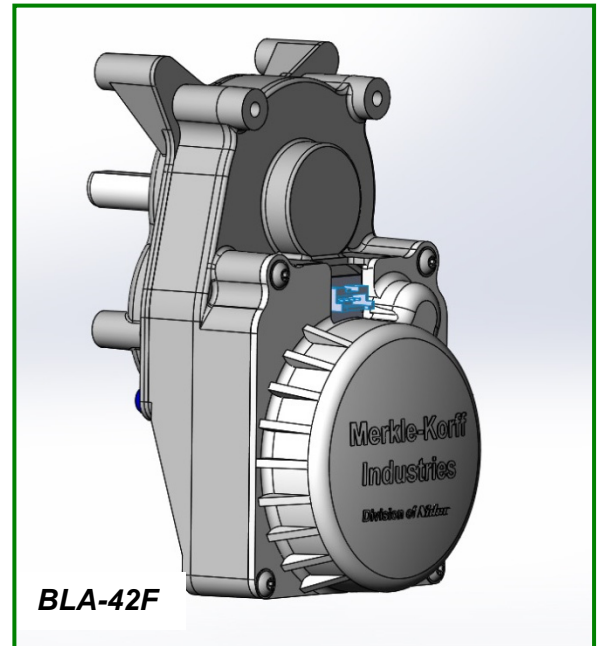
**Type:** Sinusoidal  
**Speed Control:** PWM (20 to 30 kHz)  
**Locked Rotor Protection:** Detects No Movement of the rotor within 1 second – Auto-recovery: 3 seconds  
**Braking:** Dynamic  
**Current Limit:** 1.7 Amps  
**Speed Feedback:** 5 PPR  
**Mating Connector:** JST PARP-05V

### Drive Components Temperature Rating @ 24Vdc

| Item    | Temperature Rating (°C) |
|---------|-------------------------|
| IC      | 105 Maximum             |
| MOSFETs | 105 Maximum             |
| Other   | 105 Maximum             |

### OPTIONAL FEATURES

- Customized output shafts including dual output
- Various lead lengths, terminals and connectors
- Mating Wire Harness



- ++ **Maximum Running Torque: 80 In.Lb (9.0 N.m)**
- ++ **Maximum Peak Torque: 265 In.Lb (30 N.m)**
- ++ **Speed: Up to 18 RPM @ 100% PWM**
- Ambient Operating Temperature Range: -10°C to 50°C**
- Circuit Protection:** This product does not have a protection circuit against overvoltage or reverse polarity connection.

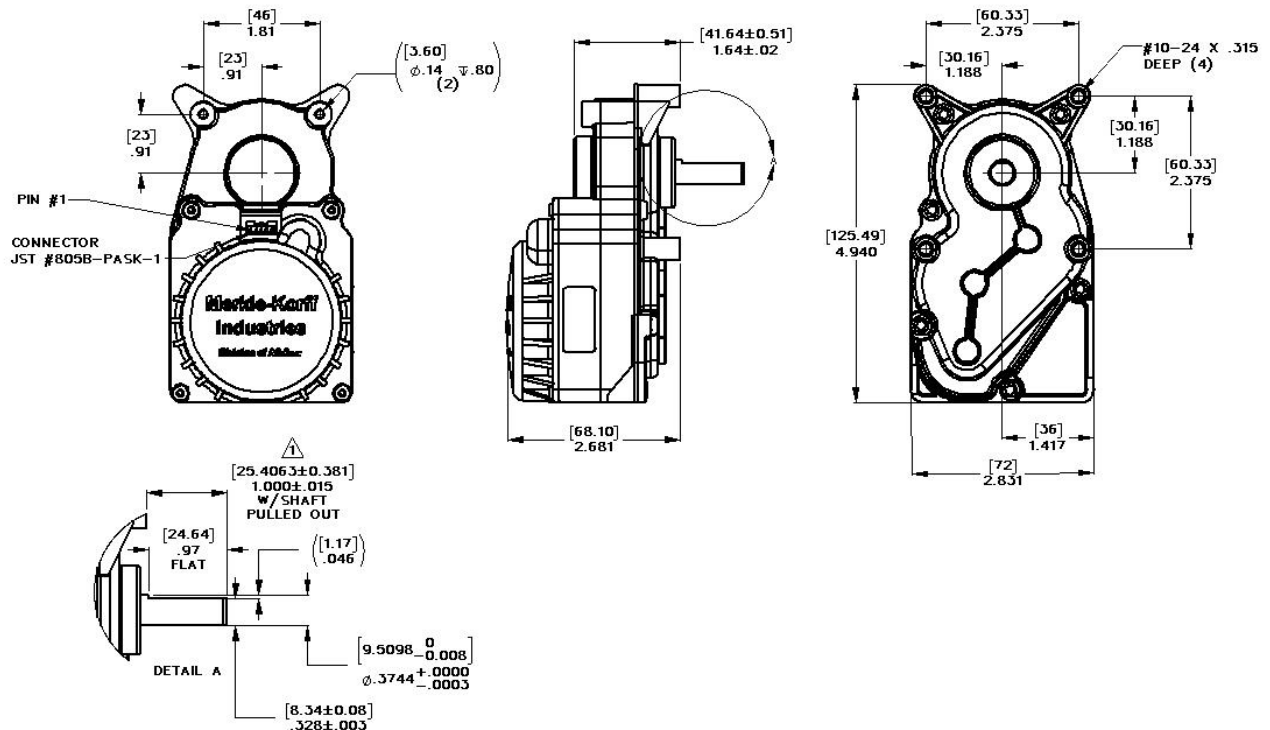
**Regulatory Agency:** RoHs, CE

*+ Note: Other gear ratios available based on application. The performance of the product will vary depending on the motor and gear ratio combination.*

++ *Listed performance values based on standard 485:1 gear ratio.*

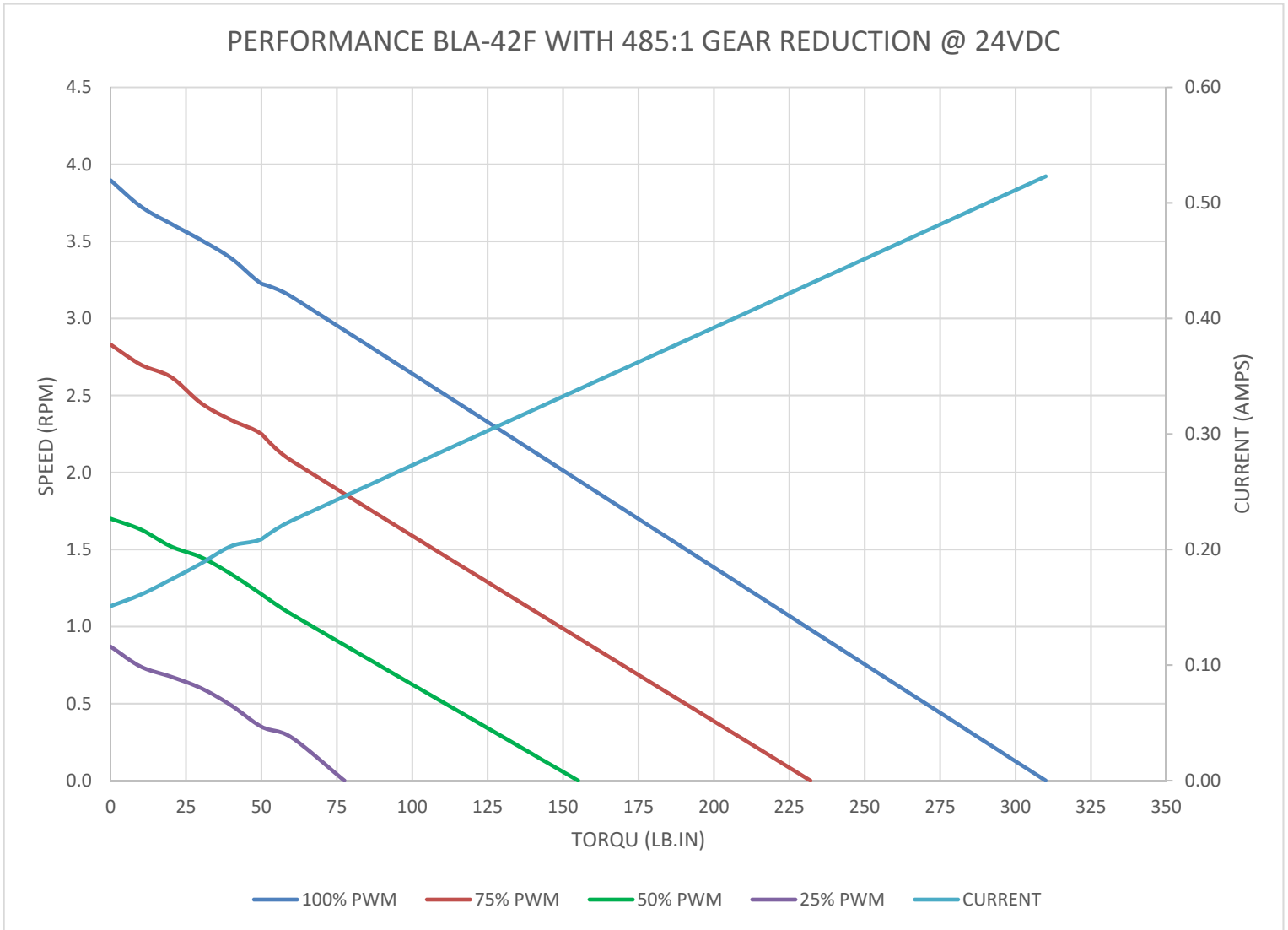
### TYPICAL APPLICATIONS

- Pellet Stove Augers
- Food Service Equipment
- Pumps
- Agricultural Equipment
- Valve Actuators
- Medical / Laboratory Equipment
- Robotics
- Material Handling

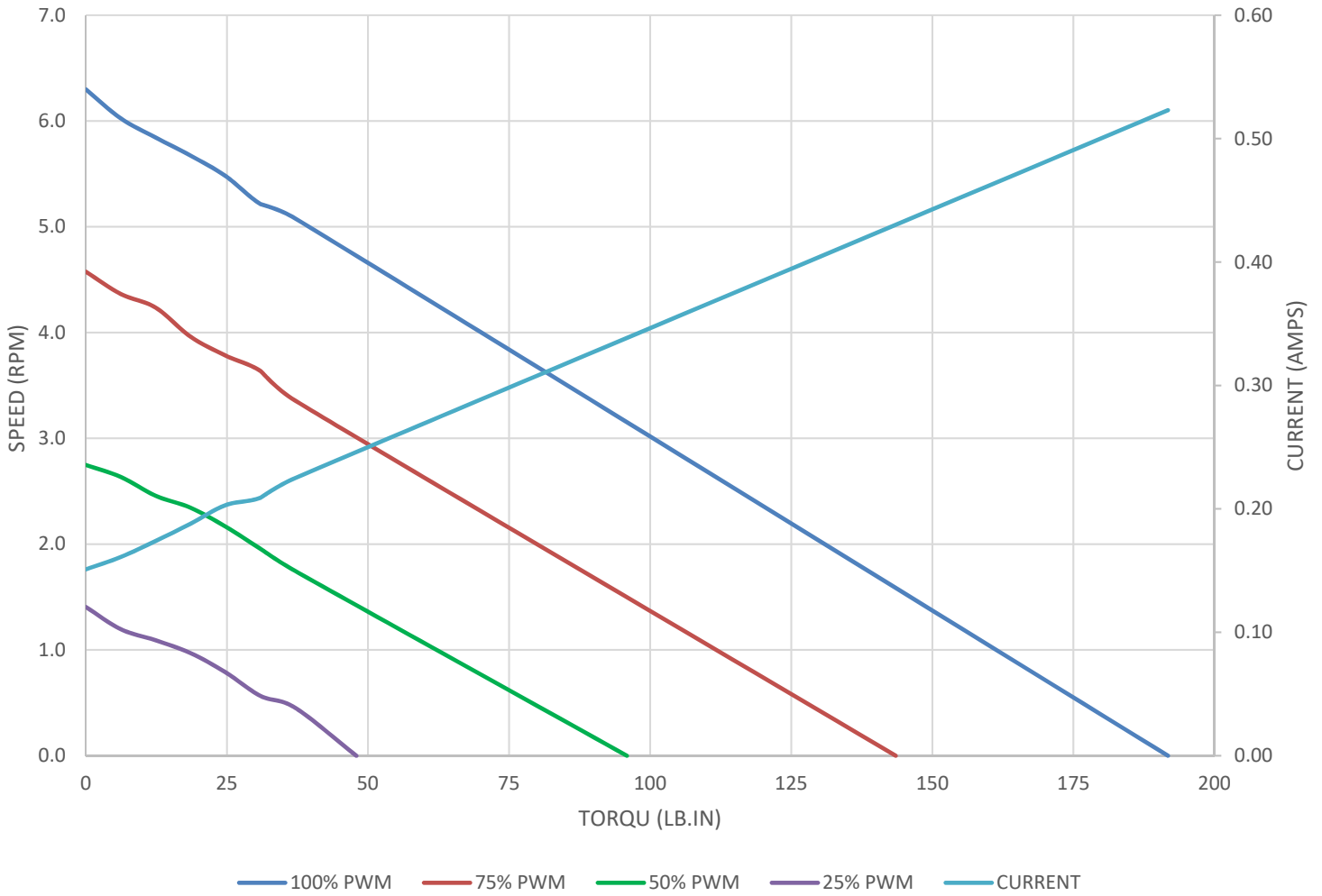


| Electrical Interface Connection                      |      |        |   |                  |
|--|------|--------|---|------------------|
| Connector  | Pin  | Signal | Detail  | Internal Circuit |
| Motor: B05B-PASK-1 (JST)<br>Mating: PARP-05V-S (JST) | 1    | FG     | <b>Speed Feedback Output</b><br>5 Pulses Per Revolution<br>$\text{Speed [rpm]} = \text{FG [Hz]} \times 60 / 5$<br>Open Collector Output (I = 2mA Max) |                  |
|  | 2 *  | CW/CCW | <b>Output Direction From Shaft End of Gear Reducer</b><br>*** CCW = Connected to External +5Vdc<br>*** CW = Open                                      |                  |
|  | 3    | PWM    | <b>PWM Input (Low Active)</b><br>Full Speed (100%) = Connected to Pin 4<br>Motor Stop = Open<br>Recommended PWM Frequency: 20-30 kHz                  |                  |
|  | 4 ** | GND    | <b>Power Ground</b>   | -                |
|  | 5 ** | VM     | <b>Power Supply Voltage</b>   | -                |

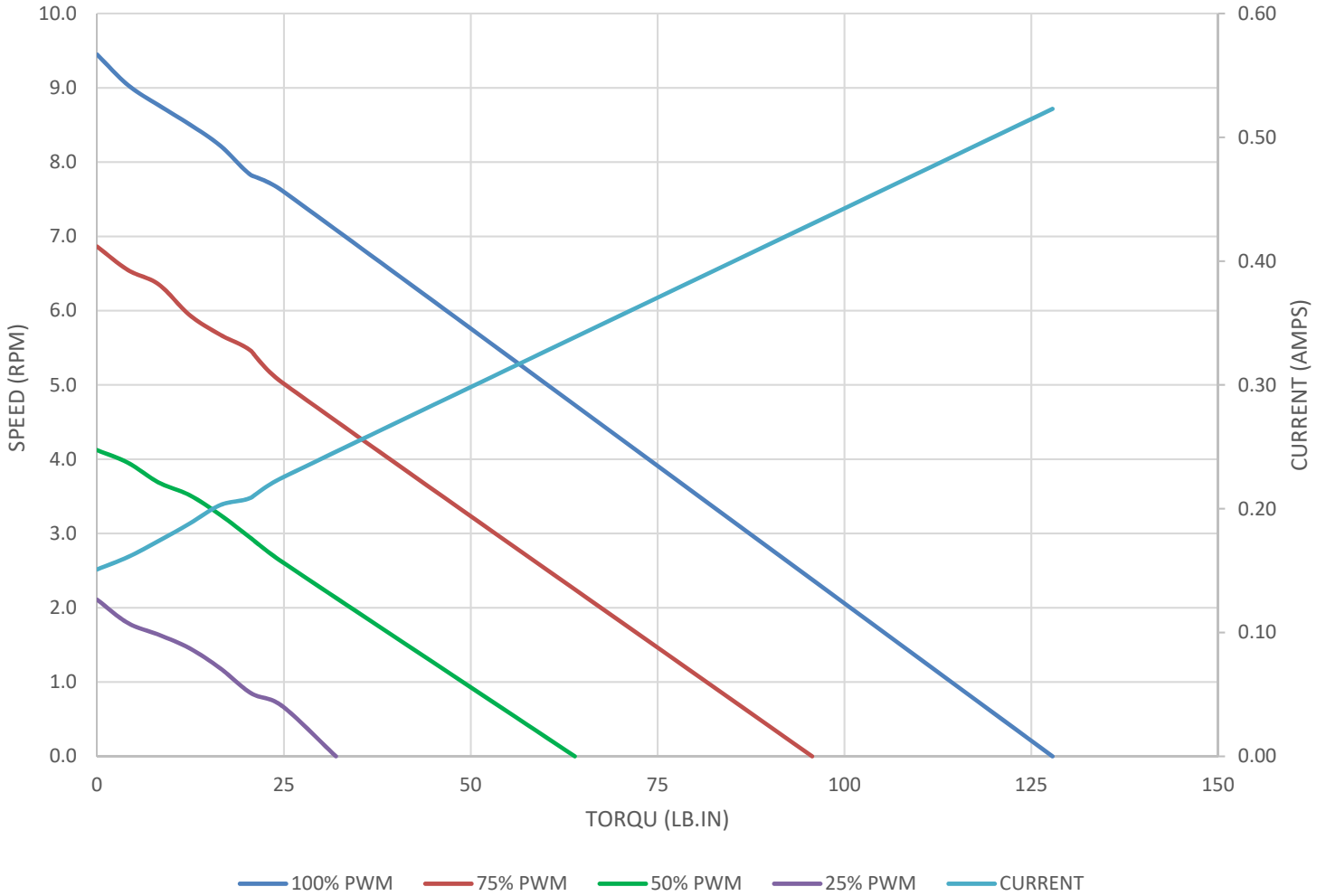
**BLA-42F718K010 PERFORMANCE DATA**



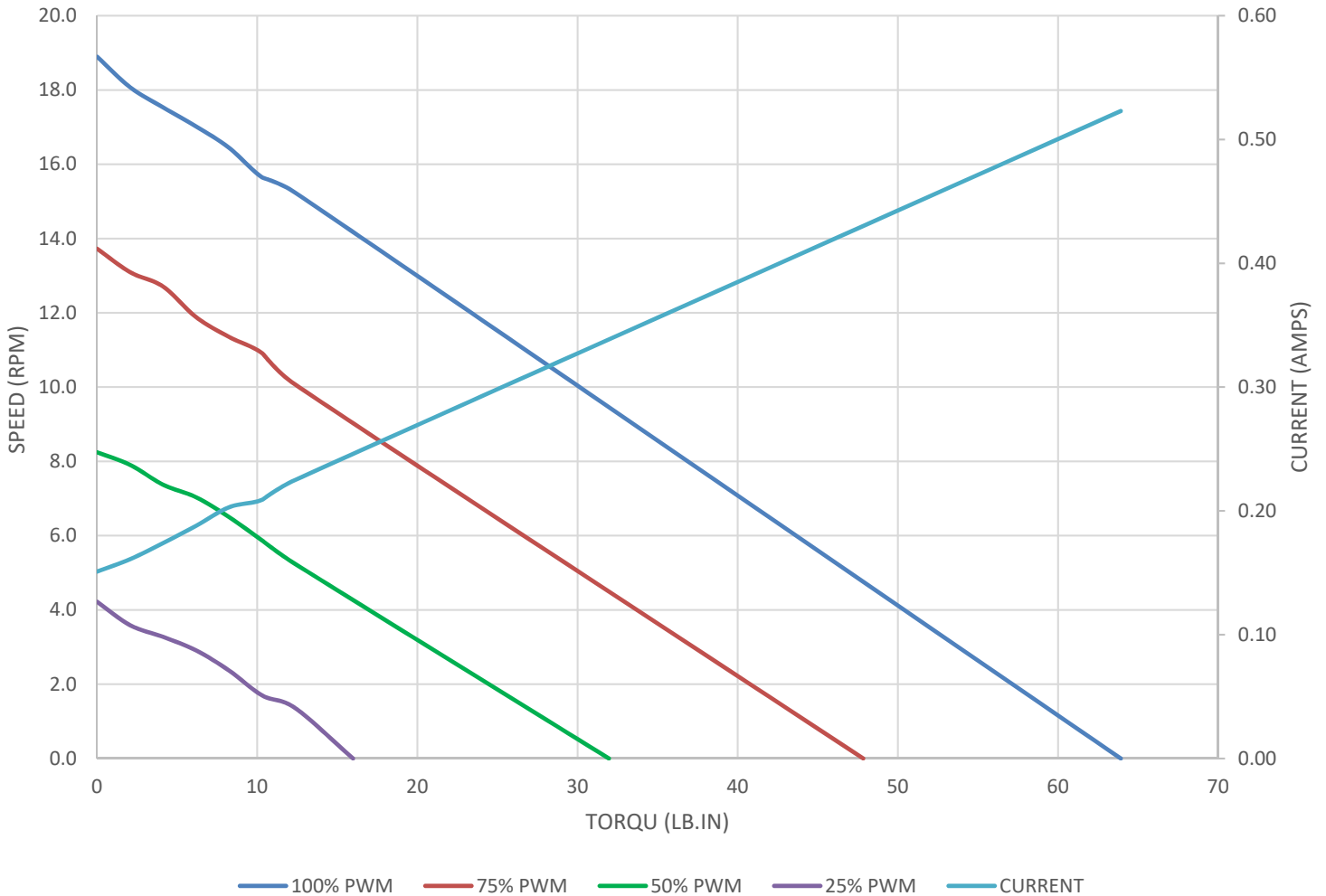
PERFORMANCE BLA-42F WITH 300:1 GEAR REDUCTION @ 24VDC



PERFORMANCE BLA-42F WITH 200:1 GEAR REDUCTION @ 24VDC



PERFORMANCE BLA-42F WITH 100:1 GEAR REDUCTION @ 24VDC



- \* Motor must stop rotating and be at 0 RPM before reversing direction.
- \*\*Reversed polarity on Pins #4 and #5 will damage controller.
- \*\*\*Output shaft direction for gear ratios other than 485:1 may result in opposite rotation.