

The REV NEO Brushless Motor is the first brushless motor designed to meet the unique needs of the *FIRST* Robotics Competition (FRC) community. NEO offers an incredible power-to-weight ratio compared to existing brushed FRC motors. Designed to have similar performance characteristics and matching mounting features, NEO can be a drop-in replacement for CIM-style motors, making it easy to transition from brushed to brushless. The built-in hall-effect encoder guarantees low-speed torque performance while enabling smart control without additional hardware.

NEO has been optimized to work with REV SPARK MAX Motor Controller (REV-21-2158) to deliver incredible performance and feedback.

FEATURES

- Drop-in replacement for CIM style motors
- Shielded out-runner construction
- Front and rear ball bearings
- High temperature neodymium magnets
- High-flex silicon motor wires
- Integrated motor encoder
 - 3-phase hall-effect sensors
 - Motor temperature sensor
- Compact design

APPLICATION INFORMATION

The REV NEO Brushless Motor runs an 8mm keyed output shaft which allows for easy transition from CIM style brushed motors into brushless.

Swap a set of NEO Brushless Motors into your drivetrain or use one in an elevator to save weight and maintain peak-performance.

When paired with the SPARK MAX, you can use the integrated hall-effect sensors to calculate incremental position or speed from the NEO.

CAUTION

DO NOT plug the NEO directory into a battery. Only for use with a compatible brushless motor controller.

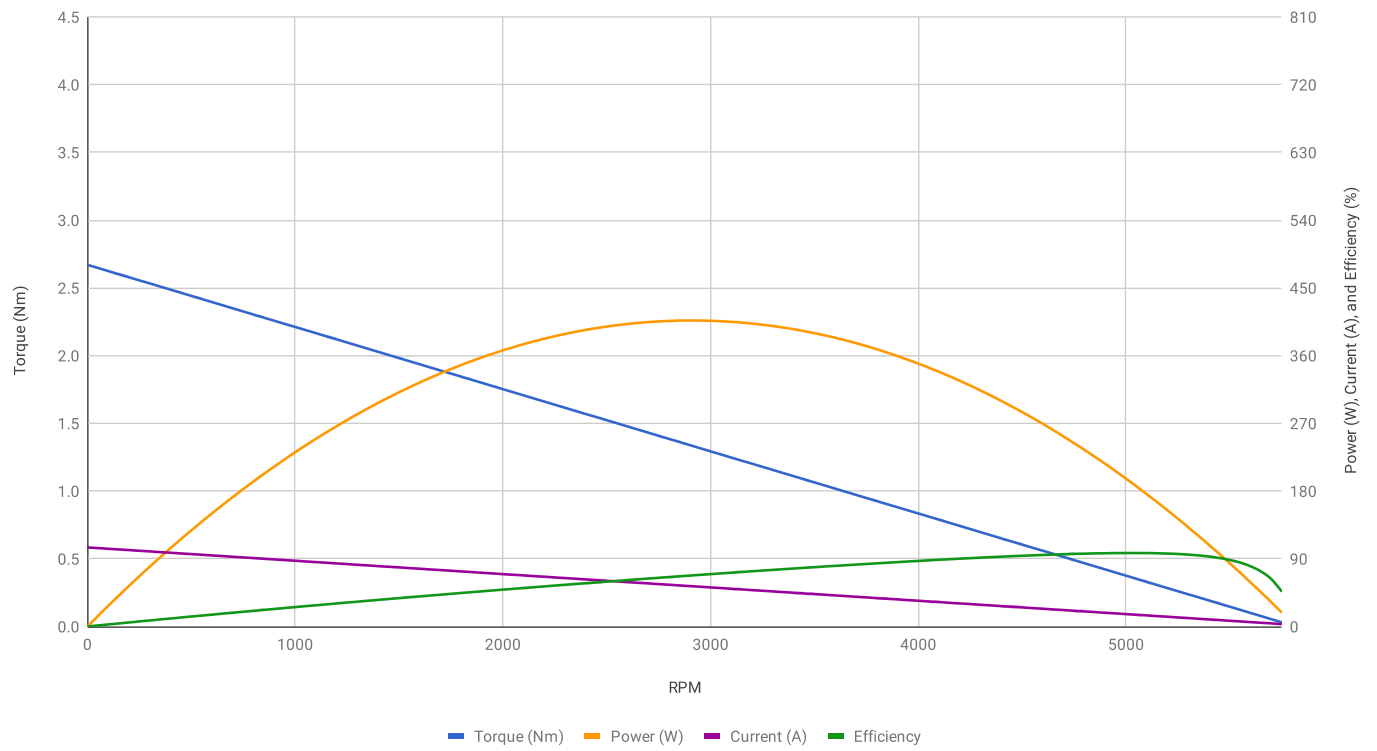


SPECIFICATIONS

The following specifications for the NEO Brushless Motor include both empirical and theoretical values. Empirical data was measured using the SPARK MAX Motor Controller and FRC system components and are the most realistic parameters to be considered when using the NEO in an FRC application. Both theoretical and empirical motor power curves are provided at the end of this data sheet.

NEO Brushless Motor Specifications	
Nominal Voltage	12 V
Empirical Motor Specifications	
Empirical Motor Kv	473 Kv
Empirical Free Speed	5676 RPM
Empirical Free Running Current	1.8 A
Empirical Stall Current	105 A
Empirical Stall Torque	2.6 Nm
Empirical Peak Output Power	406 W
Theoretical Motor Specifications	
Theoretical Stall Current	150 A
Theoretical Stall Torque	3.75 Nm
Theoretical Peak Output Power	540 W
Additional Specifications	
Typical Output Power at 40 A	380 W
Hall-Sensor Encoder Resolution	42 counts per rev.
Output Shaft Diameter	8 mm (keyed)
Output Shaft Length	35 mm (1.38")
Output Pilot	19.05 mm (0.75")
Body Length	58.25 mm (2.3")
Body Diameter	60 mm (2.36")
Weight	0.938 lbs (0.425 kg)

Empirical NEO Motor Curves



Theoretical NEO Motor Curves

