

ElectroCraft RapidPower™ Xtreme Brushless DC Servo Motor

High torque density. Excellent torque per frame size performance.

ElectroCraft's new RPX32 is a highly dynamic and controllable very small frame metric motor.

With an advanced 8-pole encapsulated core, this compact DC motor offers high torque density at a very affordable price. The RPX32 is available in 12V, 24V and 48V versions and like all ElectroCraft motors is fully customizable. This versatile motor is highly energy efficient and ideal for embedded applications.

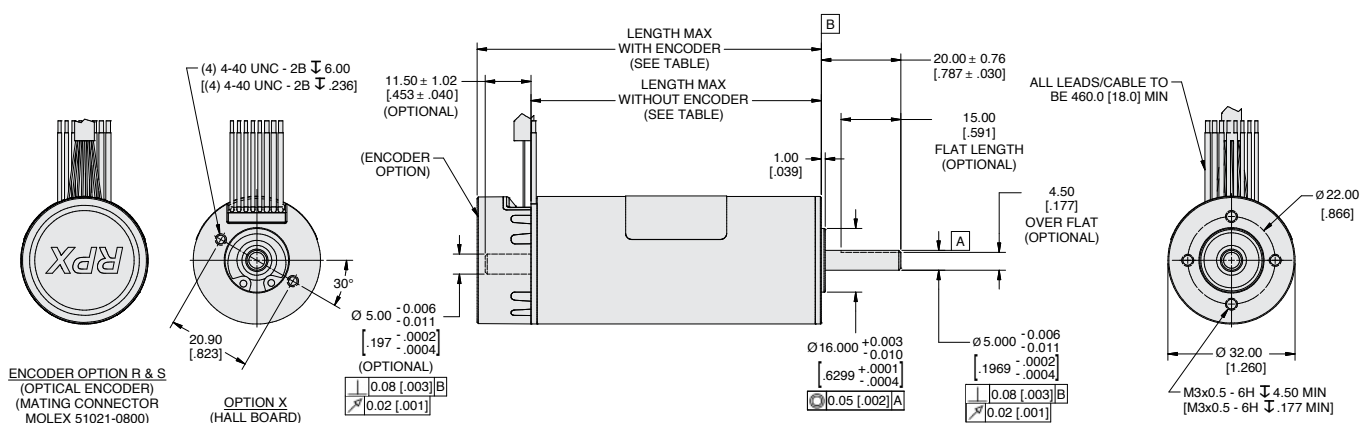
All versions of the RPX32 include hall sensor feedback and can be configured with an optional encoder (differential, optical encoder with up to 2048 lines)

Features:

- High torque density delivers class- leading torque from compact frame size.
- 8 pole motor; high torque at low speeds.
- High load capacity.
- Low heat generation



RPX32 BRUSHLESS DC MOTOR		
Size:	32mm (1.26in) diameter	
Peak Torque:	438 mNm (62 oz.in)	
Continuous Stall Torque:	RPX32-090	RPX32-150
	90 mNm (13 oz.in)	150 mNm (21 oz.in)
Speed:	up to 10,000 RPM	



ALL MEASUREMENTS ARE IN MM [INCHES]

MODEL	MAX LENGTH NO ENCODER	MAX LENGTH WITH ENCODER
RPX32-090	54 [2.13]	67 [2.64]
RPX32-150	74 [2.91]	87 [3.43]

RPX Model Number

R	P	X	3	2	0	9	0	V	2	4	1	0	0	S
Product Type			Frame Size		Torque mNm			Voltage			Feedback			
			32 mm		090 150			12 24 48			X - Hall Only R - 1024 Line Diff. Encoder S - 2048 Line Diff. Encoder			
											Termination			
											0 - Flying Leads 1 - Yes			
											0 - Round 1 - Flat			

Applications:**Medical Science****Automated Equipment**

- Fluid Pumps
- Air / Ventilation Pumps
- Blood Transfusers
- Diagnostic and Imaging Systems

Surgical Robots and Robotic Assistants

- Traction Motors for Mobile Systems
- Arm/Gripper Positioning and Force Control

Lab Automation Equipment

- Dispensing Systems
- Sample Handling Systems
- Analysis Systems
- Centrifuges

Robotics

- Traction Motors for Mobile Applications
- Steering Systems for Mobile Applications
- Arm/Gripper Positioning and Force Control

Industrial Automation

- Industrial Machinery
- Material Handling and Conveyor Equipment
- Automated Guided Vehicles (AGVs)
- Sorting and Packing Systems
- Dispensing Machines

Electronics / Semiconductor Manufacturing

- Wafer Handling and Processing Systems
- Assembly, Test and Packaging Systems

Transportation**Automotive & Commercial Vehicles**

- Power Seats
- Fan & Pump Motors
- Emission Control Systems
- Drive by Wire and Driver Assist Systems
- Autonomous Vehicle Camera & Sensor Controls

Aerospace

- Flight Control Systems
- Commercial UAV Flight Motors
- Pumps / Actuators

Marine & Shipbuilding

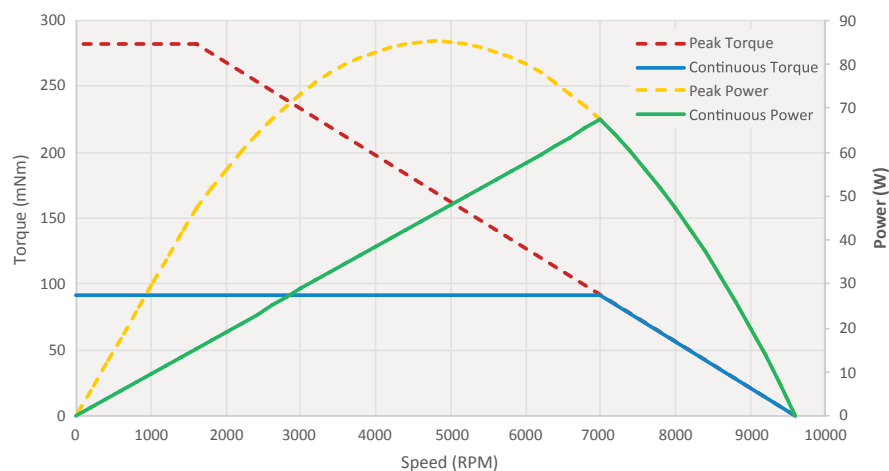
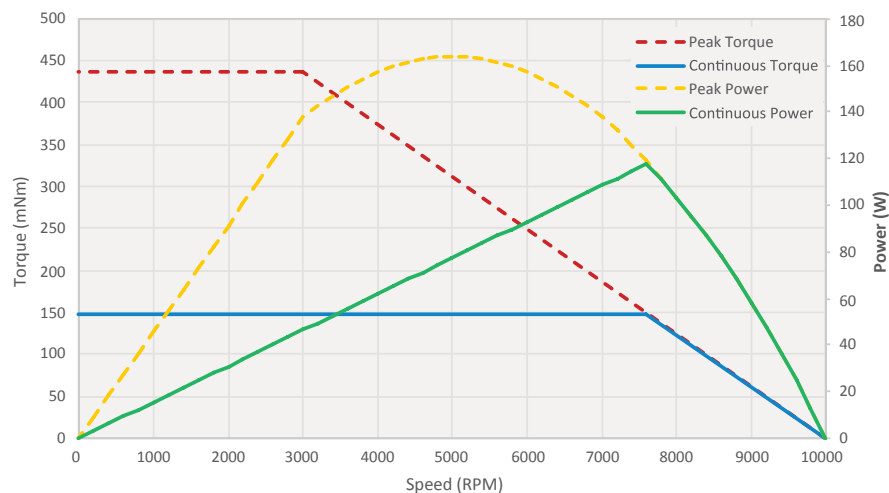
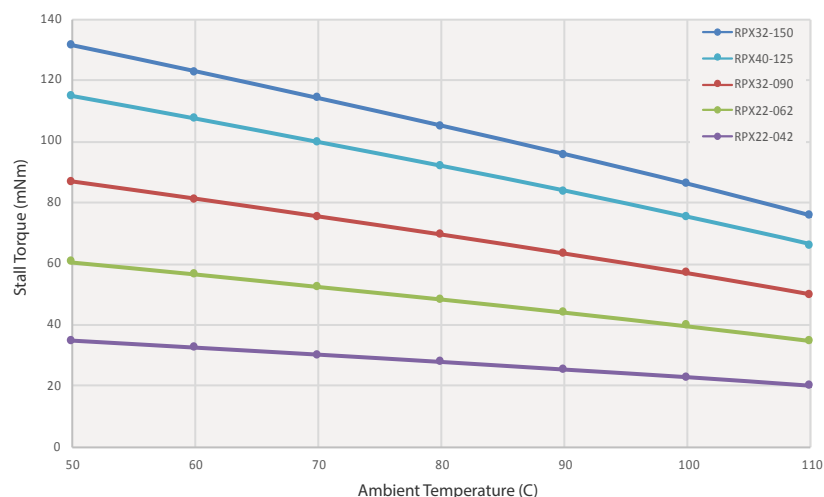
- Gyro Stabilization Systems
- Steering Pumps

Military/Defense

- Military Robots
- Mobile Radar and Communication Systems
- Flight Control Systems
- Military UAV Flight Motors
- Guidance Systems

Agriculture

- Automated Planting Equipment
- Automated Harvesting Equipment
- Farm Machinery Control Systems
- Agricultural Robots

RPX32-090 Performance**RPX32-150 Performance****RPX Series Stall Torque at elevated Ambient Temperatures**

Ambient operation temperature range for all the RPX models is -40 to 110C (hall sensor version)



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RPX32

RAPIDPOWER™ XTREME BRUSHLESS DC SERVO MOTOR

RPX32 Mechanical / Winding Data

	Stack Size and Winding Models					
Specifications	RPX32-090V12	RPX32-090V24	RPX32-090V48	RPX32-150V12	RPX32-150V24	RPX32-150V48
Design Voltage (VDC)	12	24	48	12	24	48
No load speed (RPM)	9,600			10,000		
Peak Torque (oz-in)	39.9			61.9		
Peak Torque (mNm)	282.0			438.0		
Peak Current (Amps)	18.0	12.0	8.0	30.0	20.0	11.0
Continuous Stall Torque* (oz-in)	12.7			21.2		
Continuous Stall Torque* (mNm)	90.0			150.0		
Continuous Stall Current (Amps)	8.0	4.0	2.0	13.0	7.2	3.6
Continuous Rated Torque* (oz-in)	12.7			21.2		
Continuous Rated Torque* (mNm)	90.0			150.0		
Continuous Rated Current (Amps)	8.0	4.0	2.0	13.0	7.2	3.6
Continuous Rated Speed (RPM)	7,000			7,500		
Voltage Constant (V / kRPM)	1.3	2.5	5.0	1.3	2.4	4.8
Torque Constant (oz-in / Amp)	1.7	3.4	6.7	1.7	3.2	6.3
Torque Constant (mNm / Amp)	11.9	23.8	47.6	11.9	22.4	44.8
Resistance (Ohms)	0.2	1.0	3.7	0.1	0.5	1.6
Inductance (mH)	0.2	0.6	2.3	0.1	0.3	1.0
Motor Constant (oz-in / √ Watt)	3.4			5.0		
Motor Constant (mNm / √ Watt)	24.0			35.3		
Electrical Constant (msec)	0.60			0.62		
Mechanical Constant (msec)	1.35			1.15		
Thermal Time Constant (sec)	413.0			480.0		
Rotor Inertia (oz-in ²)	0.0437			0.0607		
Rotor Inertia (g-cm ²)	8.0			11.1		
Thermal Resistance (C / Watt)	5.20			4.10		
Axial Load (N) 5mm from face	10.0			10.0		
Radial Load (N) 5mm from face	40.0			40.0		
Weight (oz)	5.3			9.2		
Weight (g)	150.00			260.00		
Length (inch)	2.1			2.9		
Length (mm)	54.0			74.0		
Number of Poles	8.0			8.0		
Notes:	*Continuous rating based on a 25°C ambient temperature, winding temperature rise of 125°C. Mounted on a 150 X 150 X 6 mm aluminum heat sink.					



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