

## 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)

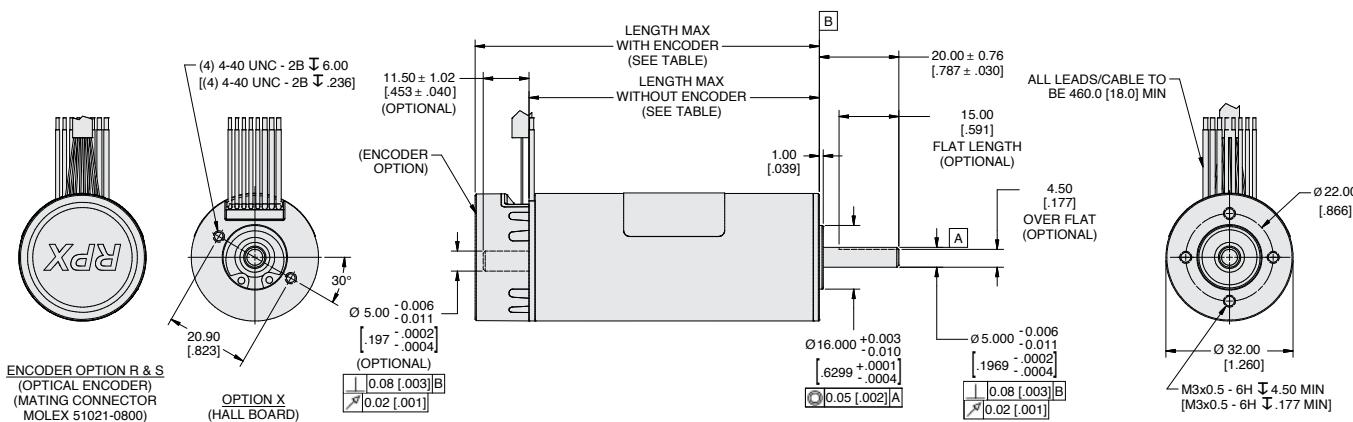
### Features:

- 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

<b>Size:</b>	32mm (1.26in) diameter	
<b>Peak Torque:</b>	438 mNm (62 oz.in)	
<b>Continuous Stall Torque:</b>	<b>RPX32-090</b>	<b>RPX32-150</b>
	90 mNm (13 oz.in)	150 mNm (21 oz.in)
<b>Speed:</b>	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

32 mm

Torque mNm

090  
150

Voltage

12  
24  
48

Rear Shaft \*

0 - None  
1 - Yes

Front Shaft

0 - Round  
1 - Flat

Feedback

X - Hall Only  
R - 1024 Line Diff. Encoder  
S - 2048 Line Diff. Encoder

Termination

0 - Flying Leads

# RPX32

ElectroCraft RapidPower™ Xtreme Brushless DC Servo Motor

*High torque density. Excellent torque per frame size performance.*



## 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

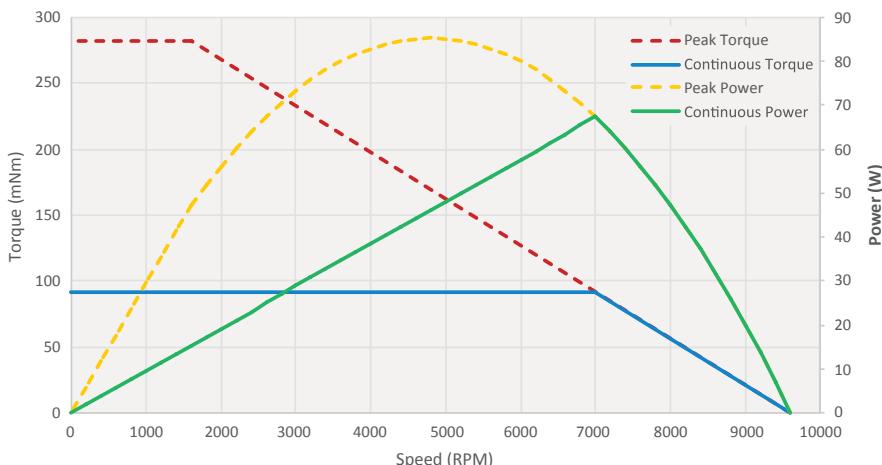
#### Military/Defense

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

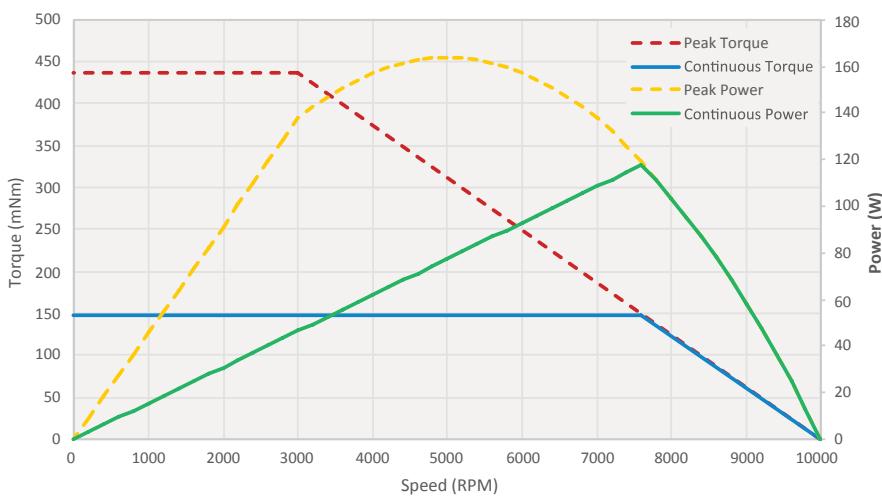
#### Agriculture

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

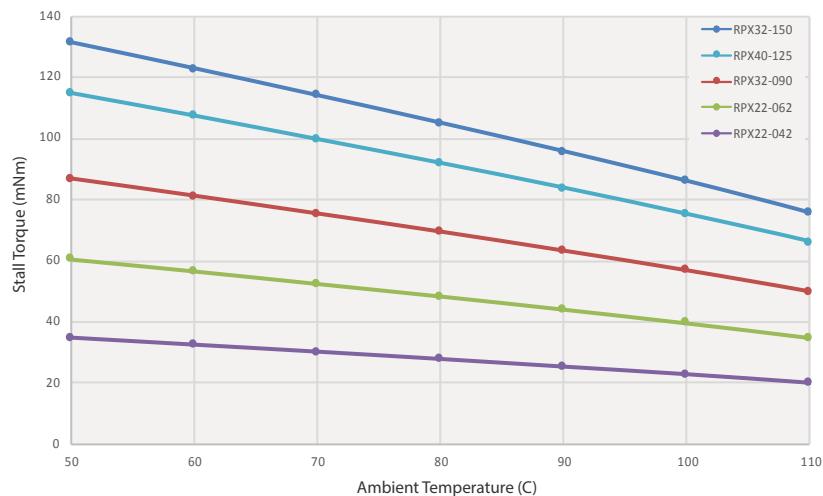
## RPX32-090 Performance



## 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

Specifications	Stack Size and Winding Models					
	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-in²)		0.0437			0.0607	
Rotor Inertia (g-cm²)		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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