



FLAT MOTION External BLDC motors are ideal for applications where space is limited and include compact rotor designs that can operate continuously at very high speeds. They have an open body design for better passive heat dissipation and use Hall sensor technology with multi-pole cables for easy control. They are lightweight, have low power consumption, and a long service life.

#### **COMPACT AND POWERFUL**

FLAT MOTION External BLDC Motors are uniquely designed for applications that require a lot of power in a limited space. Their flat profile results in the same output with better torque characteristics compared to internal rotor motors and they include up to 16 poles for quiet operation at low speeds. Customized windings or shaft modifications are also possible.

#### **EASY CONTROL**

FLAT MOTION External BLDC motors are available in 32mm, 45mm, and 60mm sizes. Their compact configurations include multiple pole magnets and result in smooth operation and low noise. Easy control is made with cables using Hall sensors as external rotor motors and they offer plenty of space for internal connections. The digital pulse signal control and high torsional strength hollow shaft design result in optimal performance and operational control.

#### **LONG LIFE EXPECTANCY**

Each motor's simple structure has no slip ring or brush and electronic commutation allows for accurate speed control, a reduced thermal loss, easy maintenance, and a longer service life.

#### **FEATURES & SPECIFICATIONS**

- 32mm, 45mm, 60mm sizes
- 9V, 12V, 24V, 48V
- Hollow Shaft Designs
- Low Power Consumption
- Compact and lightweight
- High Heat Dissipation
- Class B insulation
- Operating Temp -20°C to +50°C
- Operating Life up to 25,000 hours
- Water and Dust Proof
- RoHS Compliant

#### **APPLICATIONS**

Robotics  
Industrial Automation  
Medical Devices  
Laboratory Equipment  
Optics  
Pumps  
Bar Coding Machines

FLAT MOTION External BLDC motors are compact and lightweight motor solutions for applications with limited space that require high performance and accurate control at different speeds.

For additional information or for assistance with your application, contact us at [sales@pelonistech.com](mailto:sales@pelonistech.com).



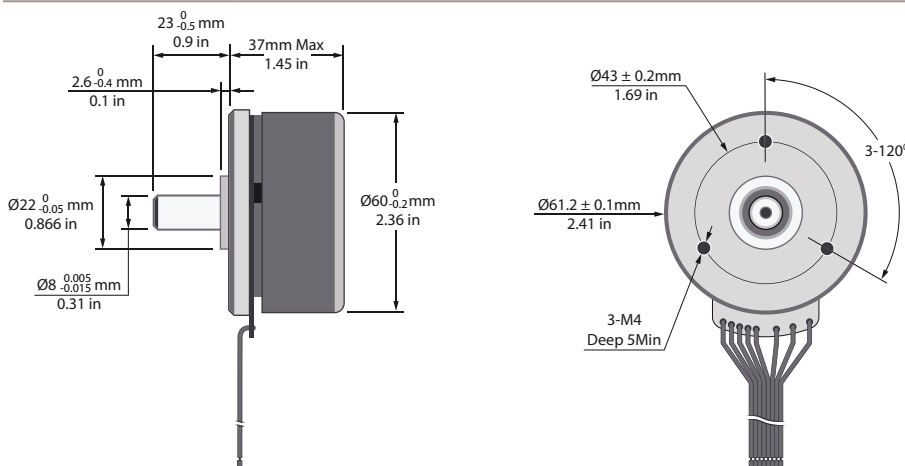
## EC60

### 60mm External Rotor BLDC Motor

FLAT MOTION SERIES

Winding Type	: Star
Hall Effect Angle	: 120 Degree Electrical Angle
Resistance Accuracy	: $\pm 10\%$ @20°C
Inductance Accuracy	: $\pm 20\%$ @1kHz
Ambient Temperature	: -20°C~+50°C
Insulation Resistance	: 100M $\Omega$ Min, 500VDC
Dielectric Strength	: 500VAC for one minute
Shaft Radial Play	: 0.02 Max (450 g-load)
Shaft Axial Play	: 0.15 Max (450 g-load)
Operating Temperature	: -20°C~+50°C
Insulation Class	: Class B

MODEL NO		EC60		
Number of Poles		14		
Number of Phases		3		
Rated Voltage	VDC	12	24	48
Rated Speed	RPM	3190	3740	3500
No-Load Speed	RPM	3710	4250	3970
No-Load Current	A	< 0.5	< 0.5	< 0.5
Rated Power	W	90	110	120
Rated Torque	mN.m	267	284	317
Rated Current	A	8.88	5.39	2.77
Peak Torque	mN.m	800	852	950
Peak Current	A	26.64	16.2	8.3
Maximum Efficiency	%	84	86	88
Line to Line Resistance	ohms	0.128	0.307	1.1
Line to Line Inductance	mH	0.615	0.188	0.864
Torque Constant	mN.m/A	30	52.7	114
Back E.M.F.	Vrms/KRPM	2.22	3.90	8.43
Rotor Inertia	g.cm <sup>2</sup>		1210	
Body Length	mm		37	
Mass	Kg		0.48	



Connector No	Lead Gauge	Function	Reference
RED	UL1430 24AWG	Vcc	Hall positive: +5V~+24V DC
BLUE		HALL A	
GREEN		HALL B	
WHITE		HALL C	
BLACK		GND	Hall negative
YELLOW	UL1430 24AWG	PHASE U	
RED		PHASE V	
BLACK		PHASE W	