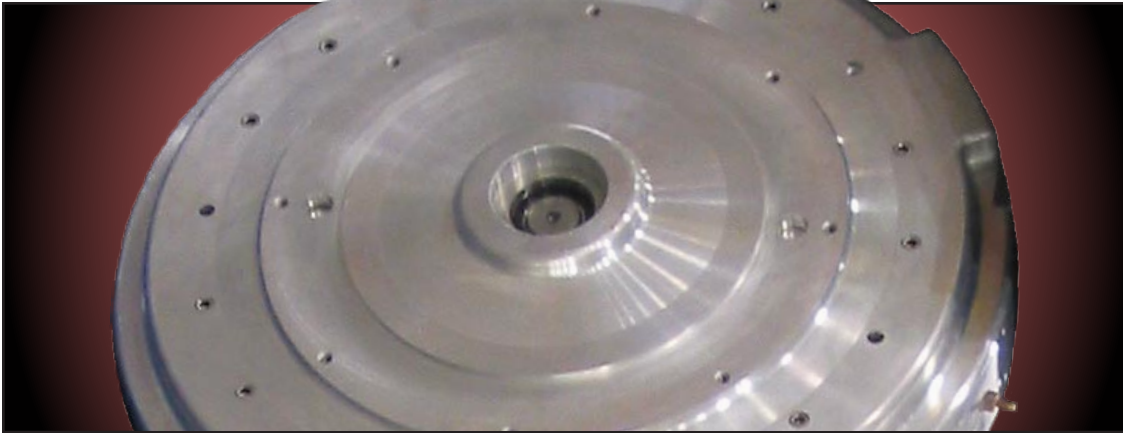


E813

Axial Flux BLDC Motor



The E813 motor is part of a permanent magnet motor system designed for power generation applications where high system efficiency is important. Developed for a customer for use in high-efficiency distributed-power systems, the E813 was designed to give the competitive edge necessary in this relatively new and highly competitive field.

In addition to the E813, a number of other coil configurations have been studied in the same frame size – including multi-slice versions and high peak-torque versions – for a variety of industrial and military applications. The family of E813 motor designs currently under development with government and commercial partners will offer a broad range of possible system configurations for both high-efficiency and high-torque speed-servo applications.

The specifications provided here illustrate some of the E813's capabilities. Especially noteworthy is its high efficiency over a very large operating range. Low-speed, high-torque versions of this motor are currently under development for direct-drive position-servos for naval applications.

Contact a Lynx applications engineer to determine if there is an 813 mm SEMA design that can meet your needs.

Typical Applications

- Power Generation
- Servo Applications
- Precision Robotics
- Marine Propulsion
- Weapons Turrets
- Compressors / Blowers

Application Information

- Requires 3-phase PWM inverter, available through Lynx partners
- Performance ratings based on 130°C winding, 40°C ambient air
- Developed for use in high-efficiency PM synchronous distributed power generation units

Standard Features

- Brushless axial flux design
- Use of patented SEMA coil provides superior power density
- Ironless design eliminates cogging torque
- Extremely linear torque constant independent of speed



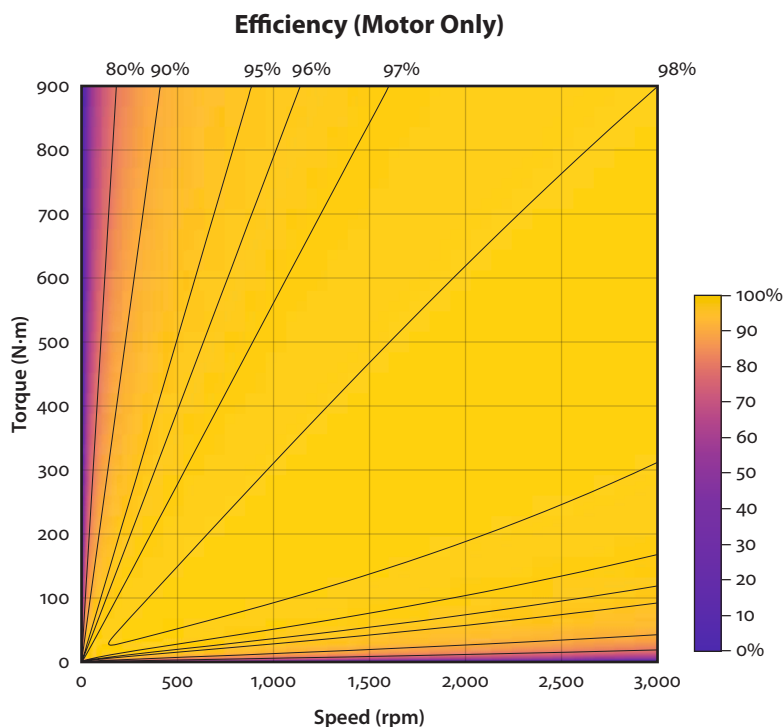
Lynx Motion Technology

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E813

Parameter	Symbol	SI	English
Continuous Ratings			
Supply Voltage (DC bus)	V_s	850 V _{DC}	850 V _{DC}
Voltage (line to line)	V_{L-L}	574 V _{AC} (pk-pk)	574 V _{AC} (pk-pk)
Speed	S	2,750 rpm	2,750 rpm
Torque	T_c	450 N·m	332 lbf·ft
Current	I	119 A _{rms}	119 A _{rms}
Power	P_{out}	130 kW	174 hp
Peak Ratings			
Peak Torque ¹	T_{pk}	900 N·m	664 lbf·ft
Peak Current ¹	I_{pk}	238 A	238 A
Motor Constants			
Torque Constant	K_T	3.78 N·m/A	2.79 lbf·ft/A
Back EMF Constant (phase to neutral)	K_E	209 V _{rms} /krpm	209 V _{rms} /krpm
Electrical Time Constant	τ_e	1.66 μ s	1.66 μ s
Electrical Aspects			
Resistance (cold, per phase)	R	26.5 m Ω	26.5 m Ω
Inductance (per phase)	L	44 μ H	44 μ H
Mechanical Aspects			
Inertia (rotor only)	J_r	9.16 kg·m ²	6.76 lbf·ft·s ²
Mass (entire motor)	m	295 kg	650 lb
Number of Poles	—	28 poles	28 poles
Motor Diameter (actual)	AC	813 mm	32 in.

¹ Peak ratings are based on operational capabilities of existing inverter. Higher peak torques are possible using a different controller. Contact a Lynx engineer for details.



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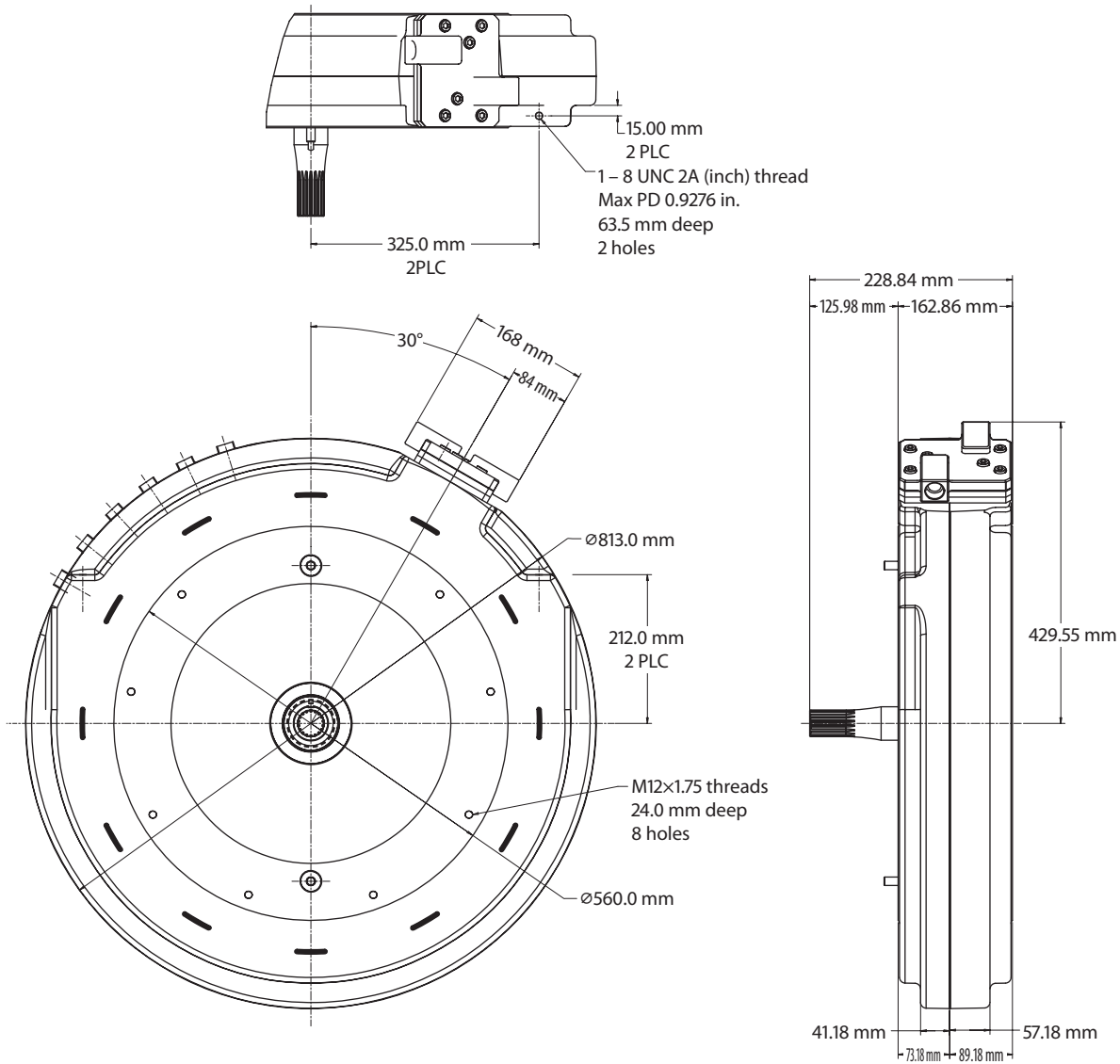
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