



The Future of Electric Propulsion

When reliability matters, ePropelled keeps you flying



ePropelled designs and manufactures the world's smartest and most innovative electric propulsion motor systems for manned and unmanned aerial vehicles. We deliver innovative motor systems that are smaller and lighter—but more powerful—with lower operating costs.

Advancements in battery energy density, materials science, programming, and simulations have created an exciting new market and growth opportunities. But for the industry to keep growing, even more profound changes in UAV technologies are necessary. Product manufacturers and users want longer range and flight times, which require lighter components. Commercial and government markets, manufacturers, and engine builders are all faced with several challenges and needs:

- Weight restrictions of internal components
- Power and energy consumption
- Flight range
- Payload
- Cost of materials
- Power systems enabling hybrid modes
- Varying safety compliance requirements

With these multiple challenges being interconnected, many of the solutions in one area need to contribute to improvements in others. That's where ePropelled can help with our complete power and propulsion systems for demanding, commercial-scale applications.

PROPULSION SYSTEMS

Our electric propulsion systems family includes propulsion motors, ranging from 500 watts to 20 kW, and matching motor controllers.

Propulsion Motors

Our propulsion motors set a new standard for performance. The innovative design of our high-efficiency motors provides the best thrust-to-weight ratio in their class and our advanced cooling technology allows UAVs to fly higher.

Motor Controllers

ePropelled intelligent motor controllers are paired with our motors to provide the most efficient propulsion solution with the highest thrust-to-weight ratio. These controllers are designed to enable advanced electric propulsion systems for the most demanding applications.



High-performance systems designed and built in the United States.



Designed to be lightweight with outstanding power density.



Built for industrial strength, longevity, and safety.



Superior power-to-weight ratio with highest efficiency in power class.



Products available off the shelf or altered to specific requirements.

POWER SYSTEMS

The modular components of our power systems family below can be matched to meet your mission requirements and supply from 500 watts to 12 kW electrical power.

Starter Generators

The ePropelled starter generator (SG) series are the most versatile starter generators in their category, allowing for extended flight time, reduced noise, and increased power. Our family of starter generators ranges from 500 watts to 12 kW and while they provide the same power generation as an alternator, they have enough torque to start the engine. When paired with our power electronics, the SGs can also support hybrid applications.

Intelligent Power Systems

ePropelled intelligent power systems (iPS) take the AC generated by the starter generator and convert it to DC to power the onboard avionics, servos, and payloads. The iPS monitors all input and output voltage, as well as current levels, collecting and reporting that data via an integrated CAN interface. Our open API allows for the creation of custom applications and setting thresholds for alerts and alarms based on specific mission profiles.

Electronic Engine Starters

Our electronic engine starters (EES) use an onboard battery to send power to the starter generator to start the engine. This allows the UAV to be completely self-contained. The EES also allows the SG to function as a battery-powered motor for hybrid applications including power assist for takeoff and extended range for emergency landings.

DC-DC Converters

These sophisticated DC-DC converters allow for efficiencies of up to 93.5% (load dependent), status reporting via software API and CAN bus, and real-time data monitoring for all voltages, currents, and temperatures. They also send alerts to the system controller and provide overcurrent and short circuit protection.

THE FUTURE OF ELECTRIC PROPULSION

Our systems feature:

- Unique cooling technology to enable UAVs to fly higher in thinner air where cooling is a challenge
- Best-in-class power and thrust-per-weight ratio to meet challenging mission parameters
- Smarter systems—using standards-based CAN—that provide access to all sensor data

We further solve the need of UAV designers and manufacturers for improved energy and system-level efficiency with hybrid-ready solutions that ensure longer flight times with lighter components. Our systems help make engines lighter and more efficient while reducing the costs of the overall design.

Hybrid Ready™ UAV line

ePropelled is the first vendor to enable the power system to work in hybrid mode. Our Intelligent Hybrid Power Assist Unit (iHPAU™) marries:

- An internal combustion engine
- A combined starter generator and propulsion motor
- An intelligent electronic control unit (iECU) with a built-in electronic engine starter
- An intelligent air motor controller (iAMC)

Our starter generators can be changed from power-generation mode to power-assist mode, enabling them to draw power from the battery and use it for propulsion, thereby supplementing the engine.



ADVANTAGES

Our innovations in electric motor development and power electronics are based in material science, expertise in magnetic engineering, and cutting-edge research that aims to disrupt the market. As a technology company with an in-depth understanding of electric propulsion systems, we take a wide approach to innovation and development. This not only gives us a strong competitive advantage, but it also helps our customers better compete in their markets.

All ePropelled products are interconnected—our water pump motors are based on our UAV and EV motor technology, while pumps are also needed for EVs and eVTOLs. It's all linked together by our leading-edge technology that can be applied to all electric motors and generators.

We also enhance our systems with smart software features ranging from diagnostics to artificial-intelligence-based self-learning capabilities. This allows our systems to continually control and monitor their operations, provide real-time updates, and save data to help end users improve machine performance.

ePropelled delivers a range of unique, innovative, synergistic solutions that can be applied in various industries to fulfil manufacturers' needs for higher performance, efficiency, power density, and price, and to help them meet their customers' expectations.

Our products have a superior power-to-weight ratio and are smaller and quieter. They also leverage ePropelled's-patented cooling technology to enhance operating conditions. Most importantly, we have the highest efficiency in our product classes.

Standard products are available off the shelf to simplify build processes, but we can also alter designs according to specific requirements. In most cases, our U.S.-based manufacturing is a major benefit to customers, and our global presence gives us unique capabilities to respond to customer needs, regardless of where they are.

RESELLERS AND MANUFACTURERS

Our systems enable engine manufacturers to offer a more complete solution to their customers. Resellers and system integrators have the benefit of working with one company for both electric power and electric propulsion systems. Your customers will have the most efficient and innovative products with the best power-to-weight ratio in the commercial segment.



ePropelled designs intelligent motors, motor controllers, generators, and power management systems that help reduce energy consumption and improve system efficiency at a lower cost. We are a leader in magnetics engineering, and our patented technology and innovative smart power systems are equally at home in the air, on the road, and under water, defining the future of electric propulsion.

ePropelled has offices in the United States, Europe, and India and collaborates with manufacturers of all types and sizes around the world. For more information, please visit epropelled.com

epropelled.com | 978-703-1350