



# The Future of Electric Propulsion



ePropelled designs and manufactures the smartest and most innovative electric propulsion systems in the world. Our world-class expertise in material science, system design, and software lets us deliver platforms for manufacturers whose products rely on the superior performance of electric motors and generators.

We have adapted our broad technology portfolio of patents and designs to deliver propulsion systems for electric vehicles (EVs), unmanned aerial vehicles (UAVs), and electric vertical takeoff and landing aircraft (eVTOLs). Since we deliver complete solutions, our motors can be used in cooling pumps for these systems.

Manufacturers in these markets rely on the performance of electric motors to meet their customers' expectations. We deliver the right range of innovative products that meet their needs for higher performance, efficiency, power density, and price.

## Applying Our Technology

Our innovations in electric motor development and power electronics are based on material science and cutting-edge research. We deliver turnkey motor systems that are smaller and lighter but more powerful with lower operating costs. Our heritage in technology also enables us to enhance our systems with smart software features ranging from diagnostics to artificial-intelligence-based self-learning capabilities.

Standard products are available off the shelf to simplify build processes, but we can also alter designs according to customers' 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.

## Efficiency Makes Green Technology Even Greener

Our products are designed for high efficiency, contributing to much lower energy consumption and a longer battery life. We make electrical systems, motors, and pump motors greener and more financially viable for the manufacturers and end users.

- Smaller batteries with the same range benefit manufacturers, customers, and the environment.
- Batteries that last longer take the pressure off raw materials, manufacturing, and recycling.
- A significant reduction in electricity used from the grid is especially beneficial in areas where the grid is not as clean as it could be or has restricted power capacity.



### eMobility

Propulsion systems for all vehicles from automobiles to commercial transport.



### Light EV

Motor systems for two- and three-wheelers.



### Air

Power and propulsion systems for UAVs and eVTOLs.



### Sustainability

Motor systems for high efficiency energy savings.

**1/5**

Transport accounts for 7.9 billion tons or one-fifth of global CO<sub>2</sub> emissions with road travel accounting for three-quarters of it.

**390 KG**

EVs would save an average of 390 kg of CO<sub>2</sub> per vehicle in the U.S.

**15%**

ePropelled's patented eDTS improves EV efficiency by 15% for a significant reduction in energy used.

**42M TONS**

The 15% improvement provided by eDTS would dramatically cut CO<sub>2</sub> emissions between now and 2030.

## EVs: Changing the Transport Energy Equation

Working with industry-leading partners, such as Ramkrishna Forgings Limited (RKFL), we develop EV products that provide vehicle manufacturers with the highest-performing electric propulsion solutions to help improve efficiency at a lower cost. Our patented Dynamic Torque Switching™ increases driving range and life expectancy of the battery pack or allows the manufacturers to reduce the size of the battery pack by at least 15% for the same range.

This technology for electric propulsion systems is an innovative drive system concept that allows a single electric machine to dynamically engage several modes, each optimized for different points in the drive cycle. The control system is designed to allow the transition between the modes to take place seamlessly to deliver optimum torque/speed/efficiency characteristics in real time.



We provide a reduction of at least 15% in system level energy consumption.



Reduced battery use means vehicles can go longer between charges.



Smaller batteries and better efficiencies result in lower vehicle costs.

Whatever the type of the vehicle, its energy requirements, and size, it needs the right mix of battery, power, and performance to provide the most cost-effective solution for the end user. ePropelled provides the right motor systems for different types of large and small EVs ranging from trucks and cars, through light EVs, agricultural vehicles and golf carts, to eScooters.

ePropelled propulsion systems are the innovation and the technology needed to make the powertrain cheaper and more energy efficient, helping the manufacturer *and* the consumer.

## UAVs: Fly Higher. Fly Longer. Fly Smarter.

ePropelled solves the needs of UAV designers and manufacturers for improved energy and system-level efficiency and offers hybrid-ready solutions that ensure longer flight times with lighter components. Our systems help make engines lighter and more efficient.

### Our solutions deliver:

- Outstanding power to weight ratios
- Best-in-class efficiency
- High reliability
- The smartest systems with extensive instrumentation accessed via a CAN interface
- Unique cooling features

ePropelled systems provide electrical power from 500 W to 12 kW and electric propulsion with peak power of up to 20 kW, making them ideally suited for commercial class applications. Our electrical machines are matched with our power electronics. Additionally, we are the first vendor to enable the power system to work in hybrid mode, combining an internal combustion engine with electric propulsion and onboard power generation.

## Pump Motors: High Efficiency Energy Systems

ePropelled provides pump manufacturers with motors that are compact, lightweight, and quiet, ensuring energy efficiency and lower operating costs as well as consumer satisfaction. We achieve that through significantly reduced vibration, reduced need for cooling, and variable speed, which lowers energy costs for the consumer and enables manufacturers to add new features, functions, and use profiles that vary speed without additional valves and piping.

- Our high efficiency 3 HP variable speed pump motor is 92% efficient, while comparable motors from a leading manufacturer are only 80% efficient.
- Compact and lightweight design, allowing for more space and easier installation and operation.
- Quiet performance with much less vibration provides better value for end users.
- Active power factor correction and base frequency hopping means less need for cooling, leading to lower operating cost.
- IoT features allow for status monitoring.

Manufacturers need water pump motors that can make them more competitive and provide end users with a superior product. ePropelled magnetic technology experts can help them achieve both these goals.



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](http://epropelled.com)