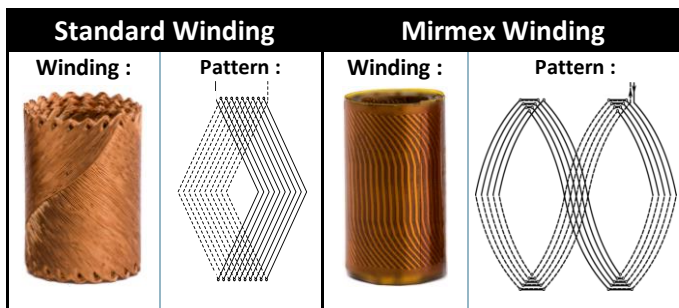


New Generation of Slotless Brushless DC Motors Dramatically Improving Power Density, Compactness, and Efficiency.

Technology

Mirmex Motor is a micromotor innovator designing and manufacturing miniature DC motors & motor windings based on a patented winding technology that provides **unmatched flexibility and performance**. Born in university lab in 2013 as a response to a frustrating experience with the **cost and lack of customization possibilities offered by the traditional vendors**, the technology is now available in volume to OEMs in the US and in Europe.

In a Mirmex micro-motor, the standard winding, made of copper wire is replaced by a tubularly rolled winding printed on a flexible PCB. **Combined with a genetic AI algorithm, this process unlocks new winding topologies and optimized coil shapes impossible to create with the historical methodology.**



Performance

Measurements have shown an **improvement in the power/torque density of up to 70%** for a standard 24mm-diameter motor. This gain can lead to **higher power, lower size, and lower operating temperature**. Upgrading an existing micro motor is easy because the windings can be **made fit-form compatible with existing designs**.

The solution is very flexible and provides design engineers with an **affordable tailor-made solution that can be fine-tuned until very late in the product design**

cycle. High precision can also be achieved because of better filtering of the distortion harmonics.

Applications

Mirmex DC micro-motors have the potential to considerably increase the design flexibility of motorized devices, especially those **operating on battery** or when **compactness and dynamics** are particularly important. Its distinctive characteristics will especially be appreciated in the following fields:

- Medical and industrial power tools & machines
- Robotics and mid- to high-end actuators
- Medical ventilators and pumps
- Aerospace and military

Modelization

Advanced motor modelization is part of the standard Mirmex offer. Based on several years of **PhD-level analytical and FEM modeling**, the Mirmex software will exactly tell you the performance that can be achieved compared to your current solution. No other design software can optimize motors with such a tight calculation interaction with *each* individual copper fiber of the winding.

Commercialization

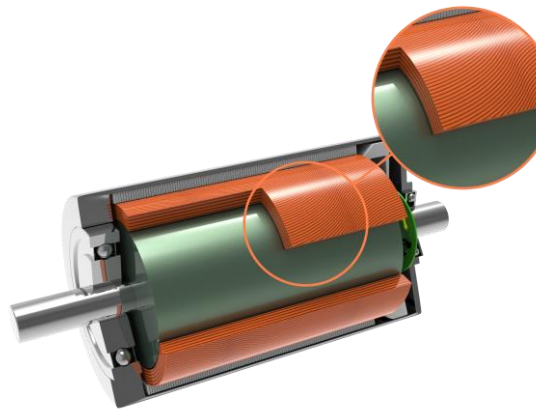
Depending on the customer needs, Mirmex provides bare **windings, stators**, as well as **frameless and assembled motors**. These products are entirely compatible with existing controllers and gearboxes. IP licensing is also available for large opportunities.

Mirmex is ISO13485 / CFR 21 Part 820 certified.

More Information

Please contact sales@mirmexmotor.com for more information.

“Custom-made, AI Built, High Power Density DC Micromotors & Windings that Consistently Beat their Swiss, German and American Equivalents.”



▪ **Optimal and unique.** Mirmex Motor provides micro motors and windings that are unique and optimal for your own application. You no longer have to compromise on the compelling features that you always dreamed to include in your actuator but could not get from the top vendors who sell on catalog. 100% of our products include a winding tailored *only* for you.



▪ **Compact size and compact cost.** For a given torque, the micro motors from Mirmex can be made smaller than the competition. Size improvements up to 50% have been achieved. It is not just a question of space: a smaller motor can also bring attractive side benefits such as cost savings at the system level (smaller casing, reduce rare earth materials) or differentiating features that are hard to replicate with a traditional motor architecture (lower weight in a space or drone application for example).



▪ **Up to 70% improved dynamics and best-in-class power density.** With more design degrees of freedom than any other vendor, the Mirmex windings can be optimized for multiple working points, for an entire cycle, or even for on-the-fly reconfiguration. The Mirmex technology facilitates the design of high torque actuator, which translates into higher dynamics. When applied to an industrial machine, a higher production rate can be achieved. If your production runs 24/365, it represents a colossal amount of cost savings.



▪ **Higher efficiency and better thermal behavior.** An optimal coupling between the winding and the magnets, as well as a tailored balancing between all possible sources of thermal losses enable a Mirmex motor to maintain high torque during a longer time until cut-off temperature is reached.



▪ **Custom-made winding with almost no upfront capex.** The performance of a motor is determined by its copper winding. Let our Artificial Intelligence algorithm determines the best winding for your motor and get a few prototypes delivered within a few weeks. Compared to wire-based winding, the initial investment is an order of magnitude smaller.



▪ **Fit & form compatible.** Windings can be provided in any length and with outer diameter from 4 to 75mm. The winding can be made compatible with your existing solution, an easy way to boost performance without re-engineering your entire application.

▪ **Higher precision, easy transition from slotted to slotless motor architecture...** Many great other things can be achieved with the Mirmex products. More information available under NDA.