

Vaionic Technologies

With 6 years of development experience in the field of electric motors and power electronics, Vaionic brings together a wide range of competencies and skills that go far beyond the standard repertoire of electric drive manufacturers. The core of the company is a well-rounded team, both in breadth and depth, which, with streamlined structures and processes, drives the development of a novel motor topology.



Founded in 2017 in Berlin



Exceptional Team

Development
Operations
Admin



Competences in Developments

Mechanics, thermics, flow, FEM, CFD, electronics, electromagnetism, data analysis

Vaionic is at the forefront of innovation.

Our team consists of **85% experts with a technical background** and is defined by a high level of well-established development processes and strong cohesion. The **hands-on mentality** of our experts, coupled with our **solution-oriented approaches**, leads to a technology- and customer-oriented working method. Through our agile project management, we deploy our resources strategically and fully leverage our capacities.

Motor and power electronics from a single source

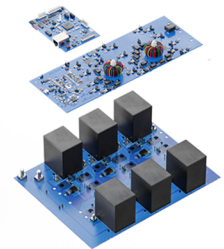
The company specializes in the development, prototyping and testing of the lightweight, compact and sustainable modular axial-flux electric motors as well as the corresponding proprietary power electronics including software.



Vaionic Modular Axial-Flux Electric Motor

Our motor expertise is combined in a newly developed **Axial-Flux Motor**, which is characterized by its light weight, compact size, economical use of active materials and yet high power density. The high efficiency, low use of heavy rare earths and recycling capabilities make the motor future-proof, especially with regard to increasing GWP requirements.

An ideal operation of electric motors is only possible in conjunction with perfectly coordinated power electronics. For this reason, we have set up a dedicated team to develop hardware and software that enables the best possible performance.



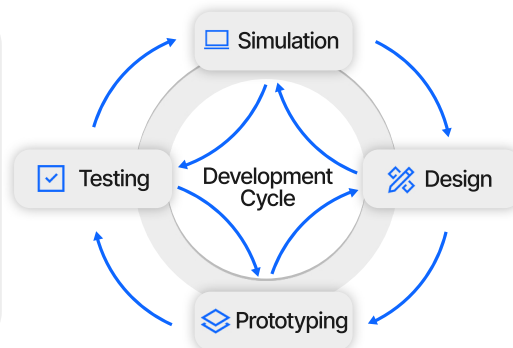
Vaionic Power Electronics



- **Electromagnetic Design**
Analyzing and optimizing electromagnetic properties.
- **FEM Mechanical Simulation**
Assessing static and dynamic structural behaviour and thermal stress.
- **CFD Fluid Dynamics Simulation**
Assessing structural integrity, stress, and mechanical behavior.
- **E-Drive System Simulation**
2-in-1 or 3-in-1 solutions for various applications.



- **Components Test**
 - High Voltage Test Benches for Electronic Testing
 - Balancing Test Benches
 - Dynamic Optical and Tactile Geometry Measurement
 - Insulation & Partial Discharge Measurements
 - Thermal and Electrical Ageing Tests
 - Hydrostatic Tests
- **System Tests**
 - Drag losses & Back-EMF Tests
 - Load Tests & Performance Maps
 - Vibration Analysis
 - Temperature Curves



- **Mechanical Design**
Expert knowledge in 3D modeling, component and heat sink design (e.g. SolidWorks, AutoCAD, etc.)
- **Power Electronics Design**
Power electronic circuits, GTU, PWU, CTU and MFU.
- **Materials Science**
Understanding of material compatibility w/ electromagnetic, thermal requirements and manufacturing processes.
- **System Design and Integration**
Mechanical architecture design for e-drive solutions.



- **Conceptual Prototyping**
Testing basic functionalities and feasibility.
- **Stator & Rotor Prototyping**
In-house coil winding production and RTM, assembly, balancing, installation.

- **Tools & Machines Production**
Taking full control over the production processes.
- **3D Printing**
Flexible and cost-effective production of components.
- **Power Electronics Prototyping**
Power Unit, Gate Driver Unit, Controller Unit, Motor Filter Unit, Heat Sink, PEM-Housing - manual mounting and assembly.