



PrintStator

Advanced Motor Design Software

REDEFINING
ELECTRIC
MOTOR
DESIGN

**PRINT
STATOR**

Motor As A Software

ECM's advanced motor software, **PrintStator**, is an **innovative CAD platform** that **transforms user specifications** into optimized printed circuit board (PCB) stator motor designs.

As a simplified design tool, **PrintStator** enables users to easily create complex electric motor designs from any set of motor parameters. The software uses proprietary design algorithms to quickly develop purpose-built PCB stator motor solutions for each application.

Motors incorporating ECM's printed circuit board innovation are up to **70% lighter** than conventional options and achieve **efficiencies as high as 96%** - all while **requiring just 20% of the raw materials**.

With each unique motor design, **PrintStator** uses cutting-edge simulation models to make accurate predictions of motor performance under a variety of operating conditions. This allows users to quickly optimize motor designs with minimal resources.

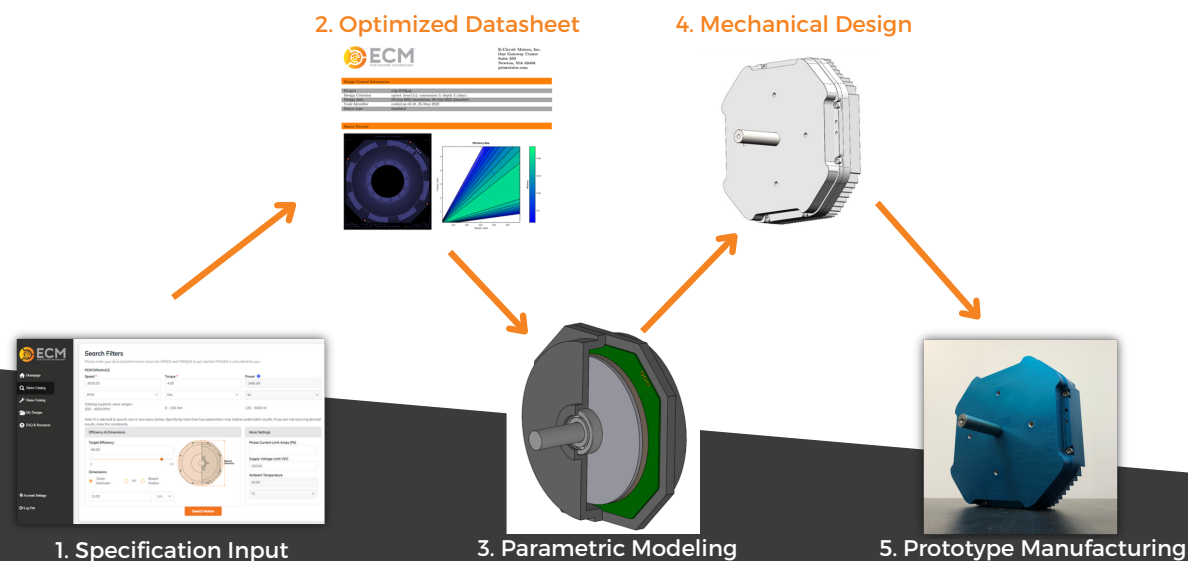
PrintStator streamlines the prototyping and manufacturing of PCB stator motors by developing manufacturing files which can be used to prototype the motor globally.

User Interface

PrintStator offers a user-friendly interface that facilitates electric motor innovation. Engineers can create entirely unique motor designs for their specific solutions or access a library of existing designs and customize them as per their requirements.

The software provides a range of customization options, including (but not limited to) motor dimensions, voltage/current restraints, performance specifications, target efficiency and the specific magnetic material integrated. The software also analyzes the motor's electromagnetic, thermal, and mechanical behaviour to provide users with accurate predictions of motor performance, and enable rapid design reiteration.

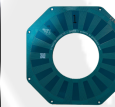
With **PrintStator**, users have access to unmatched design freedom and time-to-market for advanced PCB stator motors. As a result, advanced prototyping projects can now be pursued with improved accuracy and significantly reduced timeframes and budgets.



PrintStator Features

Exact Motor Designs

PrintStator's advanced modelling algorithms transform discrete motor specifications into optimized PCB motor stator designs without the risk of human error.

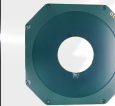


PrintStator provides users with an extensive range of design flexibility in specifying operating parameters and application constraints, allowing users to design a motor around their system rather than designing their system around a motor.

Design Flexibility

Simulation Tools

PrintStator accurately simulates the performance of each motor design under a variety of operating environments, allowing users to quickly optimize solutions to better fit their specific application.

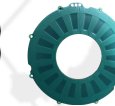
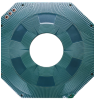


PrintStator's users can optimize motor designs for a variety of characteristics including weight, efficiency, torque density, size, current, and/or a combination of criteria depending on application requirements.

Optimization Opportunity

Rapid Design Cycle

PrintStator enables swift iterations on designs through the input of altered parameters. With **PrintStator**, complete models are ready in a matter of hours and functioning prototypes are just weeks away.

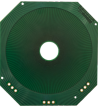


PrintStator produces unique Gerber files with each motor design. These files can be sent to PCB manufacturers worldwide for immediate prototyping—offering a simplified manufacturing process and rapid design-to-prototyping cycle.

Simplified Manufacturing

Software Updates

As a cloud-based software, **PrintStator** has an integrated feedback loop that ensures the continued improvement of modelling accuracy and optimization capabilities. Users of **PrintStator** can expect regular software updates.



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PrintStator Applications

ECM's partners are using **PrintStator** to gain competitive advantage. The successful implementation of solutions designed through **PrintStator** has provided benefits including up to **15% increases in efficiency**, a **66% reduction in weight**, a **70% reduction in axial length** and a significant decrease in audible noise.

PCB stators offer improvements in motors, brakes, generators, and actuators for many diverse industries. Some of these include HVAC, robotics, unmanned vehicles, precision motion control, e-mobility, physical therapy, and healthcare.

As of Q2 2023, **PrintStator** had been leveraged to design PCB stator motors ranging from 4W to 20kW.



HVACR



MEDICAL
DEVICES



E-MOBILITY



AEROSPACE
AND DEFENSE



MARITIME



CONSUMER
APPLIANCES



FITNESS
EQUIPMENT



ROBOTICS



HAPTICS

NODO

FILM SYSTEMS

"The result of this collaboration, using PrintStator to create a custom PCB stator solution is a major step forward for both the film industry and high torque, high precision haptics."

Boyd Hobbs, CEO and Founder
NODO Film Systems



"ECM's innovative technology is changing the way the industry thinks about motors. We are excited to be a design & manufacturing partner."

Todd Cooper, President, Advanced Technology Solution
Celestica

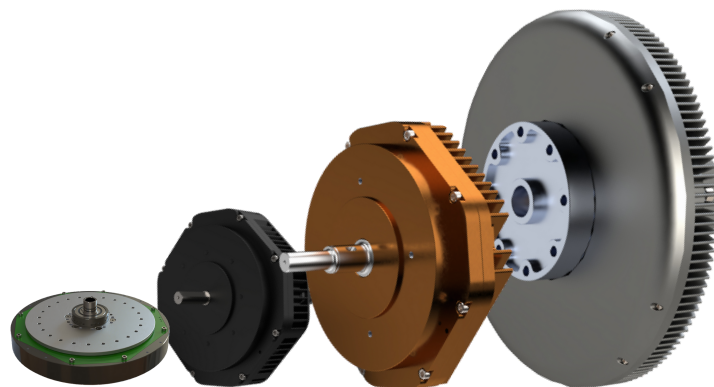
Leveraging PrintStator

PrintStator simplifies the design and manufacture of advanced PCB stator electric motors, offering unmatched design flexibility and time-to-market, and **ultimately providing innovators with the exact solution for their needs.**

ECM will soon license **PrintStator**, making it available to individuals, companies, start-ups, governments, and universities. This will **allow engineers to interact directly with the software platform, create their own integrated, specialized motors** and generators, and leverage printed circuit board manufacturers to deliver a complete solution within weeks.

To learn more about **PrintStator** and how you can begin leveraging it today, visit www.pcbstator.com or email info@pcbstator.com.

FIND OUT MORE!



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