

CASE STUDY

ECM Motors Offer Measured Efficiency & CFM/W Advantages in Blower Applications

Overview

Utilizing PrintStator Motor CAD, ECM integrated a PCB (Printed Circuit Board) Stator motor solution in a residential blower. This endeavor significantly enhanced system efficiency and airflow performance of the blower system.

Results

The blower with the PrintStator designed PCB Stator motor delivered significant benefits over the legacy offering.

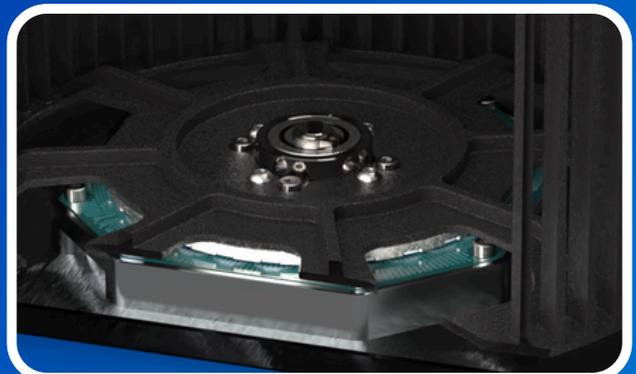
The key advantages of ECM's solution included the following:

- **Overall System Efficiency Improvement** - The PCB Stator motor solution led to a notable enhancement in all-around system efficiency, surpassing the target specifications at each operating point.

“ECM’s design solutions bring game changing benefits to blower applications, including improved airflow, enhanced efficiency, and compact Integration.

With PrintStator Motor CAD SaaS, anyone can leverage PCB Stator innovation to optimize their HVAC applications,”

ECM CEO Brian Casey



Results

- **CFM/W Increase** - ECM's motor design achieved remarkable CFM/W increases across a range, with the highest improvement reaching up to 145%.
- **Length Reduction** - The PrintStator designed motor facilitated a reduction in length by 5.6cm, demonstrating ECM's ability to optimize space utilization while delivering superior performance.
- **Noise Reduction** - Extensive testing revealed a significant noise reduction of 27dB, enhancing the user experience and ensuring quieter operation.
- **Increased Airflow** - As the PCB Stator motor required much less space in the fan's working area, the project delivered a substantial increase in airflow, further enhancing the system's effectiveness in its intended application.



Conclusions

Using ECM's advanced optimization tool, HVAC system designers can achieve substantial increases in airflow per Watt and significant reductions in noise, while the compact integration results in shorter assembly and servicing times. In addition to being highly optimized for the application, the PCB Stator motor is also lightweight, sustainable, and easily manufactured.

