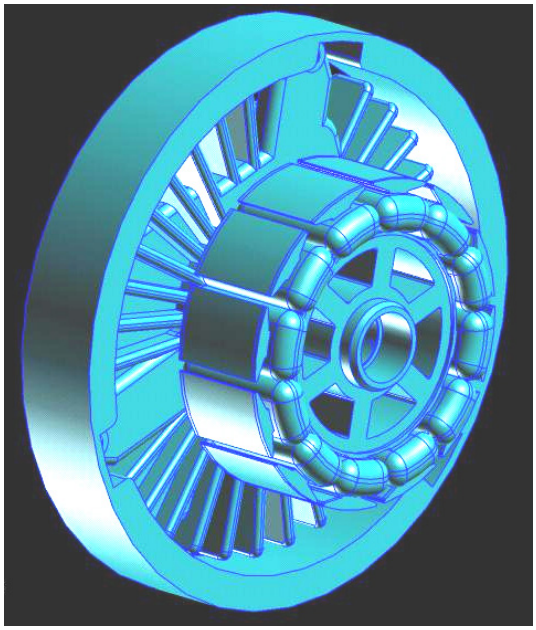
Intelligent Fluid Solutions
Experts in Fluids Engineering

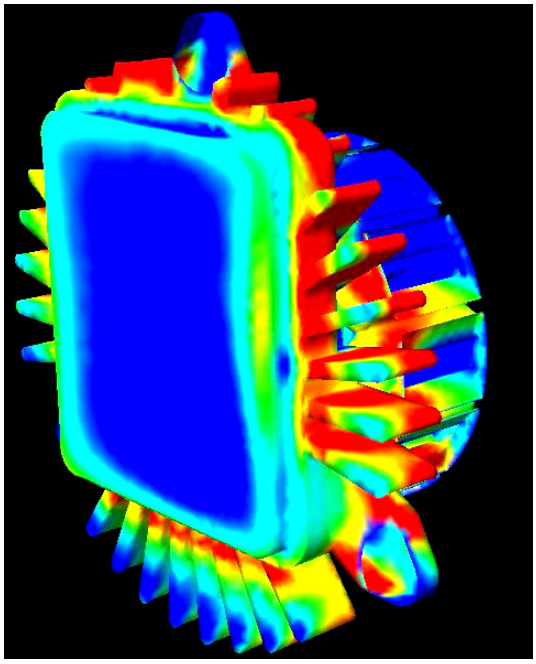
Simulation of Internal Cooling of an Electric Motor



A compact high-power DC motor generates significant internal heat causing the primary components to exceed 100 ^{0}C in temperature. Under normal ambient temperatures this is satisfactory, however in extreme desert conditions premature failure of the motor occurs due to over-heating. CFD (Computational Fluid Dynamics) techniques were used to simulate the motor operation and thermal response under extreme ambient conditions.

Accurate predictions of performance were made that were used to assess the margins of improvements required.

CFD offered the required engineering tool to perform detailed analysis on the thermal and flow characteristics within the motor. This rapidly increased available data and improved understanding of the system physics. Design modifications were easily implemented in the virtual model and tested, leading to an improved final design in a cost-effective manner.



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