Daktronics

Customer Success Story

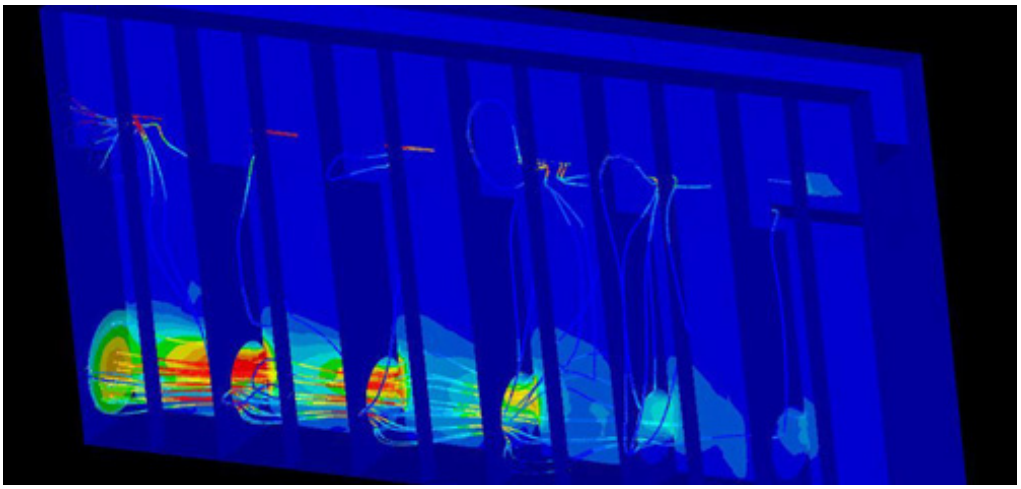
Autodesk® Simulation CFD

Autodesk Simulation CFD helps us engineer higher-quality products that are superior to our competition, break down existing design barriers, and define realistic expectations of a product earlier in the design process.

—Shannon Mutschelknaus
Thermal Product Development Engineer
Daktronics

Keeping score.

Autodesk Simulation CFD helps Daktronics' engineers evaluate the performance of displays early in the design process.



Display panel temperature and flow lines using Autodesk Simulation CFD. Image courtesy of Daktronics.

Daktronics, headquartered in Brookings, South Dakota, is one of the world's largest suppliers of electronic scoreboards, computer-programmable displays, digital billboards, and large-screen video displays and control systems. Its displays are built to withstand all types of weather, dissipate heat generated by light-emitting diodes (LEDs), and look good even when facing an unforgiving sun.

The engineers at Daktronics use Autodesk® Simulation CFD to analyze these complex factors early in the design process, and compare the benefits and costs for different combinations of components, fans, heat sinks, enclosures, and materials. "We use Autodesk Simulation CFD to thoroughly understand complex electronics cooling situations and make comparisons among different designs before we start to build," explains Shannon Mutschelknaus, thermal product development engineer at Daktronics. "With the information we gain by using the software, we can narrow our options to two or three different designs that we'll physically prototype."

A typical project at Daktronics starts with a model of the display created with MCAD system, PTC Creo™. Native geometry from PTC Creo is used by Autodesk Simulation CFD, eliminating the time-consuming translation process required for traditional computational fluid dynamics (CFD). Flow volume, volumetric boundary conditions, and material properties are assigned automatically; then, flow and heat-transfer analysis options can be selected. Autodesk Simulation CFD automatically generates the optimal mesh and provides access to initial simulation results within minutes.

Associative data between Autodesk Simulation CFD and PTC Creo makes it easy to run a simulation and then conduct a 3D design study. For less-demanding designs, Daktronics engineers run an airflow/ventilation analysis to compare different design options and optimize the airflow through the system. For designs incorporating complex thermal cooling systems, Mutschelknaus and his colleagues run integrated natural convection and airflow analyses.

New solar loading functionality in Autodesk Simulation CFD has also played a key role in Daktronics' design work. "Time-stepped solar simulation has enabled us to optimize display contrast by varying sizes and shapes of shading louvers on the display face," says Mutschelknaus. "It's another way that Autodesk Simulation CFD has helped us determine performance in the early design stages."

According to Mutschelknaus, nearly every project at Daktronics benefits from moving CFD up front in the design process. "Autodesk Simulation CFD helps us engineer higher-quality products that are superior to our competition, break down existing design barriers, and define realistic expectations of a product earlier in the design process."

To learn more about Autodesk Simulation CFD, visit **www.autodesk.com/simulationcfd**.

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