COMPANY

Betts Industries, Inc.

LOCATION

Warren, Pennsylvania, United States

SOFTWARE

Autodesk® Simulation CFD

Small change, big result

Autodesk Simulation CFD helps Betts Industries design a more efficient pressure/vacuum vent quickly—and without specialized CFD expertise

With Autodesk Simulation CFD, we could easily see the flow inside the model, where it was moving quickly, and where the pressure pockets were—something you can't do in real life or on a flow bench.

—**Kyle Anderson**
Design Engineer
Betts Industries, Inc.

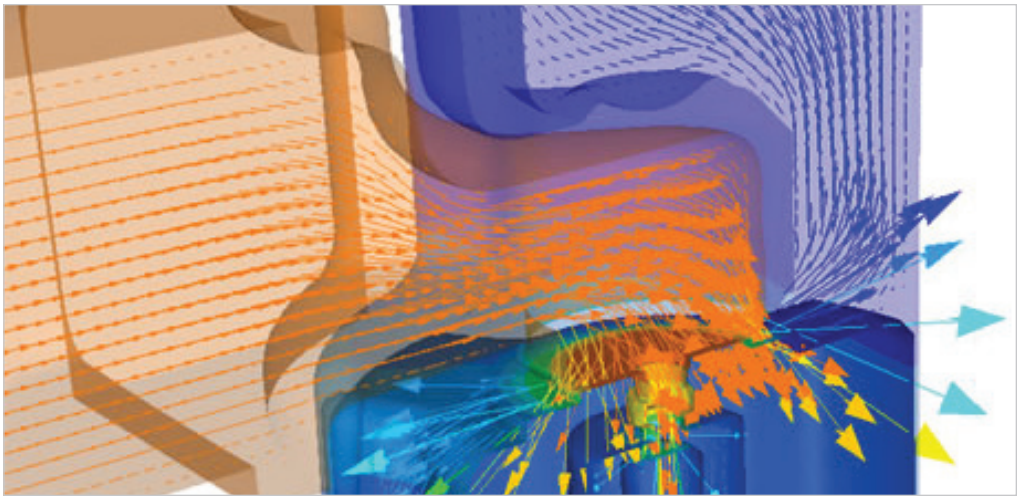

Image courtesy of Betts Industries, Inc.

Betts Industries, Inc., designs, engineers, manufactures, and sells components for highway cargo tanks and other industrial applications. Recently, when the Warren, Pennsylvania-based company wanted to design a new model of its pressure/vacuum vent—which resides on top of gasoline trailers and helps ensure safety by normalizing pressure within the tanks—it turned to Autodesk® Simulation CFD software.

The aluminum die-cast body of the current vent was modeled in PTC® Creo® (formerly Pro/ENGINEER®). Betts Industries wanted to use that native data to conduct design trade-off studies. However, it didn't want to hire a full-time computational fluid dynamics (CFD) specialist or outsource the work.

"We wanted software that was tightly integrated with PTC Creo, but didn't require the specialized expertise usually needed to solve complex CFD problems," says Kyle Anderson, the design engineer in charge of CFD analysis for the vent project.

Within the first day of running the model in Autodesk Simulation CFD, Anderson and his team generated 3D visualizations showing flow characteristics they had not seen before. Over the course of the next two weeks, they tested different designs to analyze and compare critical data such as flow velocity, flow magnitude, and pressure differential under varying conditions.

"With Autodesk Simulation CFD, we could easily see the flow inside the model, where it was moving quickly, and where the pressure pockets were—something you can't do in real life or on a flow bench," says Anderson.

CFD analysis results showed that a relatively small design change would yield dramatic improvements, increasing the flow rate from 1,750 standard cubic feet per hour (SCFH) to 2,336 SCFH. The process took about two weeks, compared to the estimated six to eight weeks that would have been required using physical prototypes, according to Anderson.

Testing of a physical prototype on a critical orifice flow tank verified the Autodesk Simulation CFD results. This gave Betts Industries the confidence to move ahead on tooling for the new vent, which is 33 percent more efficient than its predecessor.

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

AUTODESK.