



# **BIG ASS FANS** PROPELLING LARGE, AIR-MOVING FANS INTO NEW MARKETS WITH SOLIDWORKS SOFTWARE



design and manufacture some of the world's largest high-volume, low-speed ceiling and vertical fans.



# **Challenge:**

Expand product offerings into new markets by compressing development cycles and increasing throughput.

### Solution:

Implement SOLIDWORKS 3D design software and SOLIDWORKS Simulation to automate design configurations and take advantage of virtual prototyping.

### **Results:**

- Cut design cycles by 40 to 50 percent
- Reduced prototyping costs
- Leveraged photorealistic renderings for marketing and sales
- Expanded product line into commercial and residential markets

Circulating high volumes of air—whether it's in an industrial plant, a commercial place of business, or your home's foyer requires a "big ass fan." That's why the company once known as the HVLS Fan Company changed its name to Big Ass Fans—it designs and manufactures among the largest high-volume, low-speed ceiling and vertical fans on the planet.

When the Kentucky-based manufacturer began operations in 1999, it primarily made fans for industrial applications, such as factories and dairy barns, using AutoCAD® software and 2D design techniques. Management soon set its sights on the larger commercial and residential markets, where the company's fans could improve the circulation of cooled air during the summer and heated air in the winter, generating significant energy savings. However, expanding and modifying its product line to meet applications as diverse as schools, auditoriums, sports arenas, churches, health clubs, and homes required a more efficient and reliable development approach, according to Product Designer Jason Williams.

"To move into the commercial and residential markets, we needed to shorten development cycles and increase throughput while controlling costs," Williams explains. "We needed to take the company to a whole new level, and decided to implement 3D design tools to support our growth cost-effectively."

After evaluating available 3D design packages, Big Ass Fans chose SOLIDWORKS<sup>®</sup> 3D CAD software and SOLIDWORKS Simulation for product development. The company selected SOLIDWORKS software because it is easy to use and lets Big Ass Fans take advantage of automated design configurations, virtual prototyping techniques, and 3D visualization tools. "SOLIDWORKS software was simply the most natural progression for us," Williams recalls. "We do everything from fabrication to aluminum castings to plastic injection-molded parts. For us, SOLIDWORKS software was the obvious solution for designing, simulating, and manufacturing our expanded product line."

# SHORTER DESIGN CYCLES SUPPORT PRODUCT EXPANSION

Since implementing SOLIDWORKS software, Big Ass Fans has increased the number of products it manufactures and sells, with fans ranging in size from the six-foot-diameter PIVOT<sup>™</sup> model to its 24-foot-diameter giant POWERFOIL X<sup>™</sup> industrial fan. The company has supported this product expansion without adding a significant number of resources due to a 40 to 50 percent reduction in the length of its design cycles and an associated increase in throughput.

"Our development time has decreased, which enables us to design and build more products," Williams stresses. "SOLIDWORKS software allows us to do more design iterations to optimize the design prior to production, which saves time. With SOLIDWORKS software, we create one design for each model and use configurations to account for different foil lengths and available options and accessories. The software has helped us to grow our product line and boost throughput. It also helps us to develop more stylized and aesthetically pleasing designs, which is an important factor in commercial and residential markets.".

# VIRTUAL, RAPID PROTOTYPING SPURS DEVELOPMENT

SOLIDWORKS software not only allows Big Ass Fans to design its products faster, but also streamlines production and makes product quality more consistent through the use of simulation and rapid prototyping technologies. The company uses SOLIDWORKS Simulation to conduct structural analyses on its foils, brackets, and structural mounts. Teamed with Big Ass Fans' Dimension® 3D printer, SOLIDWORKS software supports the creation of rapid prototypes, which the company uses to supplement its virtual prototyping efforts.

"With the design configuration tools found in SOLIDWORKS software, we create one design for each model and use configurations to account for different foil lengths and available options and accessories. The software has helped us to grow our product line and boost throughput."

– Jason Williams, Product Designer

"With SOLIDWORKS Simulation, we can validate the stresses from torsional forces, which can be significant on a 300-pound fan, as well as the strength of our weldments," Williams points out. "This helps us eliminate design errors. We also use rapid prototypes to create 3D mockups of our fans. Using these capabilities, we are able to identify potential errors and maintain quality and consistency in our products."

# **3D VISUALIZATION BRINGS PRODUCTS TO LIFE**

In addition to supporting Big Ass Fans' drive to develop new products, SOLIDWORKS software is helping the company market them. Using the 3D visualization tools in SOLIDWORKS software, such as PhotoView 360 rendering software, the company creates photorealistic images for use by its marketing and sales teams. This capability reduces the fan manufacturer's reliance on expensive photography.

"Yu can actually gain a better understanding of our products by viewing a rendering within the actual span of the fan as opposed to taking a photograph," Williams notes. "3D visualization tools allow us to show how our products will work-through application and concept demonstrationsbefore we build them. With SOLIDWORKS software, we can leverage 3D data in the appropriate format at every phase of the product development process."

Focus on Big Ass Fans VAR: 3D Vision Technologies Corp., Lexington, Kentucky, USA

#### Headquarters

2425 Merchant Street Lexington, KY 40511 USA Phone: 1877 244 3267

For more information www.bigassfans.com

Using PhotoView 36, Big Ass Fans creates photorealistic renderings of its products for improved design visualization and concept demonstration.

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Corporate Headquarters Dassault Systèm 10, rue Marcel Dassault CS 40501 78946 Vélizy-Villacoublay Cedex France

Dassault Systèmes SolidWorks Corporation 175 Wyman Street Waltham, MA 02451 USA Phone: 1 800 693 9000 Outside the US: +1 781 810 5011 Email: generalinfo@solidworks.com

Asia-Pacific

Dassault Systèmes K.K ThnkPark Tower 2-1-1 Osaki, Shinagawa-ku Tokyo 141-6020 lapan