

BROWNLEE-MORROW COMPANY, INC.

ACCELERATING AIR- AND FLUID-HANDLING EQUIPMENT
DEVELOPMENT WITH SOLIDWORKS



Brownlee-Morrow moved to the SOLIDWORKS 3D product development platform to streamline development of its air- and fluid-handling equipment, cutting its design cycles by 75 percent, dramatically decreasing drawing issues, and substantially reducing development costs in the process.

Challenge:

Streamline the development of air- and fluid-handling equipment while simultaneously accelerating proposal development, reducing drawing errors, and increasing design efficiency.

Solution:

Implement SOLIDWORKS Standard design and SOLIDWORKS Premium design and analysis software solutions.

Benefits:

- Shortened design cycles by 75 percent
- Reduced drawing errors by 43 percent
- Realized ROI of \$50,950 in first year
- Boosted sales by \$25,000/year

A leading manufacturer of air- and fluid-handling equipment, the Brownlee-Morrow Company, Inc. specializes in meeting unique customer needs. Founded in 1952 to design, manufacture, and support air-handling, ventilation, and air pollution control equipment, the company has grown to become a leading producer of fans and pumps, offering a complete line of products and services. With offices in Birmingham and Mobile, Ala., Brownlee-Morrow serves a range of markets, including the municipal and industrial air- and liquid-handling, power generation, mining, automotive, chemical, pulp and paper, primary metals, marine, and poultry industries.

Until 2014, the company utilized 2D design tools to develop its equipment and systems. However, increasing competition, a drawings backlog, and the need to streamline and accelerate development prompted Brownlee-Morrow management to upgrade the firm's design platform to 3D, according to Design and Drafting Manager Joel Gilbert.

"The nature of our business is that we need to make a lot of last-minute changes to locate our equipment in tight spaces," Gilbert explains. "With the AutoCAD LT® software that we used, it was taking too long to perform drawing cleanup, which resulted in drawing errors that required production rework to resolve interferences and an overall drawings backlog. We decided to evaluate 3D design systems that would enable us to accelerate development and resolve our drawings issues."

Because Brownlee-Morrow had previously used Autodesk software, the company initially tried Autodesk® 3D systems—including Inventor®, Fusion®, and Plant 3D—during a two-month trial period. After determining that those solutions were not meeting Brownlee-Morrow's needs, the manufacturer expanded its solution search, evaluating the SketchUp®, OnShape®, Creo®, and SOLIDWORKS® 3D design systems. "Within a week of the SOLIDWORKS trial, we made the decision to move to the SOLIDWORKS platform, implementing

SOLIDWORKS Standard design and SOLIDWORKS Premium design and analysis software," Gilbert recalls.

"We found the SOLIDWORKS interface to be user-friendly, intuitive, and logical, and we also liked the fact that SOLIDWORKS Premium came with additional tools, such as simulation, rendering, and product data management (PDM)," Gilbert adds.

FASTER DESIGN, BETTER QUALITY

Since standardizing on the SOLIDWORKS development platform, Brownlee-Morrow has cut its design cycles by 75 percent and reduced drawing errors by 43 percent. The company has also improved the quality of its proposals and reduced the time required to create them. "With SOLIDWORKS, we're four times as fast in developing custom systems, partly because our design accuracy and ability to make changes quickly, late in the process, has improved dramatically," Gilbert stresses.

"We're able to develop a proposal with SOLIDWORKS, including 3D models, in a couple of hours instead of the days and weeks it took to develop proposals—which did not include drawings, let alone 3D models—working in 2D," Gilbert continues. "The average part variance that we experienced before moving to SOLIDWORKS was 12 percent. In the first two years that we used SOLIDWORKS, our average part variance was less than half a percent. With SOLIDWORKS, we're faster and more precise."



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SIMULATION SAVES MONEY

Using SOLIDWORKS Premium simulation capabilities, Brownlee-Morrow is also cutting costs by eliminating the need to use consultants to conduct analysis and reducing material and welding costs. "In the past, we would outsource analysis in special cases, but overall our equipment was extremely overbuilt, resulting in higher costs for materials and welding services," Gilbert notes.

"Using the simulation tools in SOLIDWORKS Premium, we can quickly run analyses to ensure that we're using the right material and applying the appropriate factor of safety," Gilbert continues. "For example, we used SOLIDWORKS Premium to validate that the design for a structural steel base and frame for a barge system that spans 45 feet and must handle loads over 200,000 pounds was sufficient. We've run physical tests to verify our simulation results, and they have proven to be accurate, which not only gives us greater confidence in our designs, but also saves us money."

SIGNIFICANT ROI IN FIRST YEAR

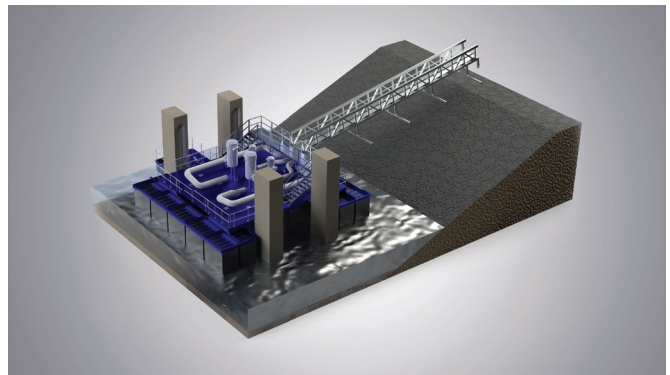
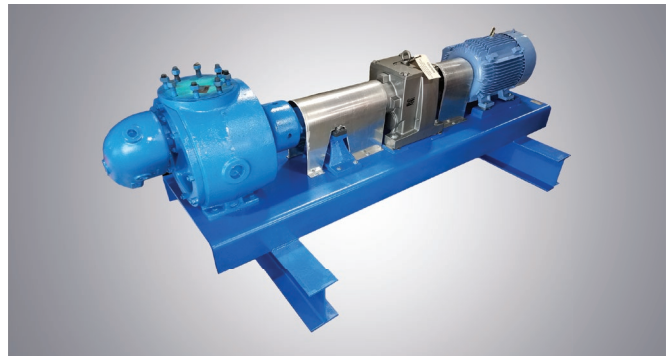
In evaluating SOLIDWORKS software in 2014, Brownlee-Morrow estimated the return on investment (ROI) that the company would realize and then calculated the actual ROI that the company had captured one year after the SOLIDWORKS implementation. In all three cost-savings areas—reducing drawing errors, increasing drawing efficiency, and increasing manufacturing efficiency—the ROI that Brownlee-Morrow realized exceeded its estimates, resulting in total cost savings of \$50,950 in the first year.

"With the vast improvement in the quality of proposal drawings and quote accuracy, I estimate that we conservatively added \$25,000 a year in sales that would otherwise not have been landed without the ability to provide accurate drawings," Gilbert says.

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As a leading manufacturer of pumps and pumping systems, Brownlee-Morrow relies on the simulation capabilities of SOLIDWORKS Premium software to validate system performance, making sure that it is using the right material and applying the appropriate factor of safety in its designs.

Our 3DEXPERIENCE® platform powers our brand applications, serving 12 industries, and provides a rich portfolio of industry solution experiences.

Dassault Systèmes, the 3DEXPERIENCE® Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 220,000 customers of all sizes in all industries in more than 140 countries. For more information, visit www.3ds.com.

