

Vermeer Manufacturing Company

STYLIZING AGRICULTURAL, TREE-CLEARING, AND EXCAVATING MACHINERY WITH SOLIDWORKS



Vermeer uses SolidWorks software to check for interferences and collisions in large-assembly designs, which range from 500 to 4,000 parts.

- Improved product performance and styling
- Shortened prototyping and analysis time
- Increased collaboration and efficiency across multiple groups
- Reduced scrap and rework substantially

The Vermeer Manufacturing Company is a global leader in the manufacture of machinery and equipment for agricultural, tree-clearing, and excavating purposes. For many years, the company used the AutoCAD® 2D CAD package to design its products. However, increasing competition, the need to bring products to market faster, and a desire to improve product aesthetics prompted the company's Engineering Group to evaluate 3D CAD systems in 1998, according to Karl Maasdam, a Vermeer applications specialist.

"We realized that we needed to upgrade from 2D to a 3D CAD system to reap the benefits of solid modeling, such as getting products to market faster, improving the visualization of our assemblies, and enhancing the styling of our products," Maasdam says. "We put a team together and evaluated several 3D CAD packages, including SolidWorks®, IronCAD®, Mechanical Desktop®, and Solid Edge®."

Maasdam says the team recommended the SolidWorks 3D CAD system because it provided the most comprehensive set of advanced capabilities for the price, including large assembly, sheet metal, surfacing, and visualization functions, and also offered the best value.

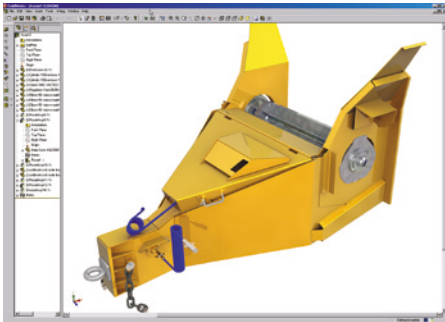
Increasing design style and ability to handle complex assemblies

By transitioning to SolidWorks 3D CAD software, Vermeer has both enhanced the style and improved the performance of its products. "Everything is so much more efficient with SolidWorks that we can do more to improve the look and performance of our designs," Maasdam explains. "For example, we began using fiberglass hoods on our tractors and can now evaluate and incorporate more styles and make our machines more attractive and appealing."

All Vermeer products consist of assemblies with 500 to 4,000 parts. Maasdam says that SolidWorks software, in conjunction with the SMARTEAM® product data management (PDM) system, is helping the company handle large assemblies more efficiently in a collaborative design environment. "We have one person managing

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Karl Maasdam, Applications Specialist



The combination of SolidWorks CAD software and the SMARTEAM PDM system enables Vermeer to leverage design data for other functions, including purchasing, documentation, field service, and manufacturing.

the large assembly and six to eight people working on attachments and subassemblies that are feeding information into the large assembly,” Maasdam says. “We are designing castings, complex sheetmetal components, and checking for interferences and collisions, all in SolidWorks. The software is allowing us to design much more complex geometries and things we just wouldn’t have been able to do in AutoCAD.”

Eliminating production steps and rework

Since standardizing on SolidWorks software, Vermeer has eliminated several steps from its design and manufacturing processes, including the development of finite element models for analysis, the manual compilation of bills of materials (BOMs), and extensive reproduction of engineering drawings when design changes are made or for use in parts manuals.

“We now use the SolidWorks model to run finite element analysis (FEA) and have reduced the amount of time it takes for analysis and final prototyping and testing significantly,” Maasdam says. “Our BOMs, which we had to do manually in AutoCAD, propagate automatically from our SolidWorks model. We also used to redraw our designs in isometric views for use in parts manuals. Now, our Documentation Group can take the model from Engineering and create any view they want automatically. Our parts manuals used to lag behind production but are now completed and ready to go before the machine goes into production.”

The elimination of design steps and the improved quality of product designs developed in SolidWorks not only are helping Vermeer get products to market faster – a new horizontal grinder design was completed in just two months – but also have reduced scrap and rework substantially. “We used to have to rework parts and make modifications on the shop floor. With SolidWorks, we simply do not have a lot of the tweaking and grinding of parts we had before. Much of our rework is gone, and the amount of scrap we produce has definitely gone down,” Maasdam says.

Managing diverse product data

Vermeer also implemented the SMARTEAM enterprise PDM system to manage the company’s diverse range of product data. “We selected SMARTEAM because of its tight integration with SolidWorks and ease-of-use for personnel outside of engineering,” Maasdam says.

“File management is important, not just from an engineering perspective but for leveraging product design data for other functions,” he adds. “In addition to implementing a SMARTEAM seat for every SolidWorks seat, we have added 65 SMARTEAM seats for use on the shop floor, by our service technicians in the field, and by our Purchasing Group. People outside of Engineering can now access the data directly, which they can use during production and on service calls.”



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