

Automotive and transportation

Fontaine Trailer

Innovating in a business that never stands still

Product

NX

Business initiatives

New product development

Regulatory compliance

Production efficiency

Business challenges

Maintain brand value through successive generations of products

Design to reduce assembly costs and time

Reduce weight to improve fuel efficiency

Comply with transportation regulations

Keys to success

Focus on customers

Superior technology

3D solid modeling-based design engineering

Results

Continuously improved weight and load capacity

Improved manufacturing efficiency, lower costs



Fontaine Trailer uses NX to deliver exceptional customer value

Fontaine Trailer Company is the world's largest manufacturer of flatbed truck trailers. Well known among fleets and owner operators, Fontaine has for more than 60 years built a strong reputation for exceptional quality, the most reliable performance, the best warranty and the highest resale value in the industry.

The company's product line includes flatbed, drop-deck, extendable and lowbed trailers. Flat and drop-deck trailers are manufactured in Fontaine plants in Haleyville and Jasper, Alabama, with

specialty trailers manufactured in plants in Springville, Alabama, Kent, Ohio and Princeton, Kentucky.

For Fontaine, innovation in the trailer business is continuous. Product improvements are driven by customer requests, by the requirements of transportation regulatory agencies, or from internal needs for business process improvement. Maintaining the legendary quality and brand character is a primary concern. "There are many ways to design and build a trailer," says Harold Painter, senior designer and systems manager at Fontaine. "Whatever we change, we have to maintain the well-designed and well-built qualities of our products – it's what distinguishes us from competitors."



Fontaine uses the NX™ digital product development system from Siemens PLM Software as a key design engineering tool. “We model our trailers to the last detail in solids, and we have done so since solid modeling tools were introduced in the system,” Painter explains. “From the solid models, NX produces drawings, bills of material and DXF output that goes directly to CNC burning machines for manufacturing our main beams. All of that data comes directly from the solid model, so there is little manual work or data re-entry, and no chance of introducing errors.”

NX includes tools that are particularly helpful to Fontaine, including the weld assistant and interpart expressions. Because assembly of the company’s products involves many welding processes, Fontaine takes advantage of NX weld modeling tools that streamline the design of joining features and the representation of welds on drawings, in

compliance with international weld annotation standards.

Flat bed truck trailers are actually not flat – they are constructed with a front-to-rear arch that flattens under full loads. Modeling the trailer assembly with the arch would be difficult or impractical, because most of the components, like side rails and floor sills, are rectilinear. Fontaine creates trailer models in NX in the flat state, but ties the flat model to a sketch and model of the arched trailer with inter-part expressions that maintain the associative relationships in the digital model.

Innovating to regulations

Transportation regulatory agencies issue many safety and operating specifications that affect trailer design, including lighting, reflective devices, braking and suspension systems, load capacity and distribution. Among the Fontaine

“Especially for nonengineering people, there’s a huge benefit to having a digital solid model for design reviews.”

Dan Giles
Engineering Manager
Fontaine

“We sometimes use NX differently than intended, but there is always a way to make NX accomplish what you want it to do.”

Harold Painter
Senior Designer and Systems Manager
Fontaine

innovations to meet such requirements is a sliding suspension, developed to fine-tune load distribution and to meet certain state department of transportation specifications for the distance of the axle from the kingpin that attaches the trailer to the tractor.

Innovating to customer needs

Fontaine relies on input from sales representatives, dealers and customers to guide trailer design enhancements. Solid models developed with NX play a key role in design reviews that result in the innovations that customers want and need. “Especially for nonengineering people, there’s a huge benefit to having a digital solid model for design reviews,” explains Dan Giles, engineering manager at Fontaine. “For sales

representatives, we can clearly explain new features using 3D solids in color – we can look at the model from any angle, zoom in or quickly create section views to highlight any area of interest. It’s a neat and user-friendly method of communicating.”

Reducing weight without compromising performance

With rising fuel prices over the past few years, Fontaine’s customers have focused more intently on reduced operating costs. Fontaine has responded to their needs with significant trailer weight reductions. New designs, such as the Revolution product line, are using lighter materials – replacing steel with aluminum – to reduce weight while maintaining load capacity and



Solutions/Services

NX
www.siemens.com/nx

Customer's primary business

Fontaine Trailer Company is the world's largest manufacturer of flatbed trailers.
www.fontainetrailer.com

Customer location

Haleyville, Alabama
United States

durability. Hybrid models use a mix of aluminum and steel components. But even the trailers in Fontaine's all-steel product lines are being re-engineered to reduce weight and yield greater fuel economy.

"I'm currently redesigning one of our high-run production models with the goal of reducing the weight by 450 pounds," Painter says. "With NX assembly modeling we can quickly determine how changes in the design affect the weight of the finished product."

Designing for assembly

Design for assembly is a key business initiative for Fontaine, aimed at increasing manufacturing speed and efficiency while reducing assembly costs. Fontaine's engineering departments are steps away from

its manufacturing plants, a proximity that fosters a tight collaboration between design engineering and the activity on the shop floor. The design engineering staff is intimately familiar with the assembly process and is always seeking ways to eliminate inefficiencies.

Though design for assembly is more an engineering discipline than a function of the CAD software, NX lends support to the initiative. Fontaine designers have eliminated the time and effort required to measure and position welds by designing notches in components at desired weld bead locations. Similarly, tabs and slots in mating components ensure that the components are positioned properly, and eliminate manual measurement and fixturing.

"With NX assembly modeling we can quickly determine how changes in the design affect the weight of the finished product."

Harold Painter
Senior Designer and Systems Manager
Fontaine

Siemens PLM Software

Americas +1 314 264 8499
Europe +44 (0) 1276 413200
Asia-Pacific +852 2230 3308

www.siemens.com/plm

© 2015 Siemens Product Lifecycle Management Software Inc. Siemens and the Siemens logo are registered trademarks of Siemens AG. D-Cubed, Femap, Fibersim, Geolus, GO PLM, I-deas, JT, NX, Parasolid, Solid Edge, Syncrofit, Teamcenter and Tecnomatix are trademarks or registered trademarks of Siemens Product Lifecycle Management Software Inc. or its subsidiaries in the United States and in other countries. SolidWorks is a registered trademark of Dassault Systèmes Solidworks Corporation. All other logos, trademarks, registered trademarks or service marks belong to their respective holders.
12096-Z4 3/15 C