

Big trucks, big design challenges

About Terex

Terex Equipment Ltd. is part of the global Terex Corporation, the third largest manufacturer of construction equipment in the world. Terex Equipment has three product lines: five models of a 6 x 6 articulated dump truck, five models of a rigid dump truck for general construction, quarrying and surface mining, and the well-known push-pull scraper. The company has 600 employees and manufactures 1,200 trucks a year.

What does it take to design and manufacture a product such as an off-highway dump truck that travels at up to 40 mph over tough quarry and mine terrain all day every day at some 98 percent availability for up to 20 years? It takes the right staff with the right skills and the right tools, especially if the truck is to be manufactured in volume, profitably and with consistently high levels of customer satisfaction. That is why Terex Equipment chose to upgrade its existing CAD system to the NX digital product development system and the Teamcenter digital lifecycle management system.



Terex is the third largest construction equipment manufacturer in the world

Increasing productivity while reducing cost of ownership

Alan Clark, an engineering project manager at Terex Equipment, is responsible for new product development for off-highway dump trucks. Some of these models have a working life of 20 years or longer. "It's a hard life for our vehicles and we face a number of challenges in designing them," Clark says. "The construction business is becoming more competitive, with our customers under increasing pressure to reduce costs and maintain margins. In

response, we must reduce the total cost of vehicle ownership and increase vehicle productivity while ensuring compliance with ever tightening emission and safety regulations."

The company is currently devoting a lot of time to developing and updating its trucks for the future. In an effort to do this as quickly as possible, one of the strategies is to reduce the number of build problems in the prototype. "Our aim is to get the prototype right the first time," Clark notes. "To do that, we need software that can handle assemblies of several thousand parts. Our aspiration is to be able to view a whole vehicle in 3D, complete down to the last washer."

With these goals in mind, Terex enlisted the help of TEAM Engineering, a certified Siemens PLM Software reseller, to upgrade its design solution from I-deas to NX. "We gave TEAM Engineering one of our big models and they demonstrated NX's advanced assembly capability on a laptop using embedded lightweight JT data," Clark says. "We could look at the whole assembly, toggling the parts we wanted to work on."

Products

NX

Teamcenter

I-deas NX

Services

*Training
Support*

Business initiatives

Product development

Industry

Construction equipment

Contact

www.terex.com

Location

Motherwell, Scotland

“Having TEAM Engineering working closely with our people has really made the upgrade process fly and I'm very happy with the results that we have achieved so far”

*Alan Clark,
Engineering Project Mgr.,
Terex Equipment Ltd.*

To confirm the choice of NX, Clark and his colleagues talked to a nearby international engineering company that manufactures large assemblies that include hydraulic and electrical systems. "They are using NX and Teamcenter, and they confirmed everything we found," Clark adds "This gave us a high level of confidence in our decision, especially as we had already proved to our satisfaction that NX was exactly right for what we wanted to achieve and that our chosen electrical design system, VeSys, interfaces directly with NX."

Delivering a great result

TEAM Engineering handled the upgrade to NX (as well as to a new version of Teamcenter). TEAM Engineering, which also provided training, was supported by the Terex design office, Terex MIS and by Siemens PLM Software. "Our design engineers went home on Friday and when they returned on Monday, the system had been upgraded," says Clark. "When it was all switched on, it worked the first time. That was a great result!" Phase two will complete the move to NX across the board as well as migrate I-deas data to NX.

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maintaining the histories, features and relationships. As Munro points out, "Overall, this is a business-critical IT system and since we could get audited against the US Sarbanes-Oxley Act, a documented testing framework is important. We've done in excess of 100 hours testing against a formal test schedule with any issues resolved before going into production."

A very strong business case

The upgrade was a significant investment for Terex. Was it justified? Clark affirms that "the business case was very strong. A modest 10 percent productivity gain will more than pay for the total upgrade (including our investment in electrical design software), gaining some 3,000 hours of design time a year," he says. "I'm confident that from what we have seen ourselves and from external references, a 10 percent gain is massively conservative."

What benefits have been achieved from the upgrade so far? Design engineer Andy McRobbie, the first point of call for CAD support, has noticed a difference. "There has been a dramatic reduction in users' calls from a couple each day to a couple each week," he says.

Another advantage is that checking data in and out of Teamcenter is up to five times faster now. "We expect to free up approximately five hours a day of much-needed design time by adopting NX fully," Clark says. "I have six NX-trained designers and they are already telling me that they can create shapes and styling models very quickly. We really are confident that we'll produce our complete top-down model. It is also a huge advantage that all our engineering subcontractors have NX so we don't need to translate anything." Reviewing the transition to the new software, Clark says, "TEAM Engineering and Siemens PLM Software made it easy for us. They have the products that meet our needs in capability and cost. At every step we've taken, we have benefited even more than we expected and the results so far confirm that our investment will be paid off very quickly."



10 percent productivity gain has paid for the upgrade



From washers to wheels, the whole assembly can be modelled

About TEAM Engineering

AT TEAM Engineering, we take pride in our approach to customer Service and Support. As a group of experienced engineers, exclusively focused on Siemens software, we really are committed to supporting you in the best way we know – as a TEAM. Our Customers really do come first.

Founded in 1997, TEAM Engineering are now the longest established reseller for Siemens PLM Software in the UK. With offices in England and Scotland, we are geographically well placed to support our growing and diverse customer base. Our training and support center is hosted at our southern office; from here we can manage and track your support calls. All our customers have secure online access to view their call status and access our knowledge base.