

# SIEMENS

*Ingenuity for life*

Automotive and transportation

## SKS Toijala Works

Unified design environment sets a platform for international recognition

### Product

NX, Teamcenter

### Business challenges

Develop a product that meets international emission standards

Improve work site safety measures

Increase efficiency and performance of log stackers

Legacy design and data management systems

### Keys to success

Transition to a unified design and data management solution, NX and Teamcenter

Locate all engineering data in one system

Utilize long-term support from a local Siemens partner, IDEAL PLM

### Results

Launched a game-changing new log stacker, KURO, that is mechanically simple but functionally extensive and easy to produce, maintain and use

Met international emission standards

Received an Honorable Mention in the Red Dot Award: Product Design 2016

### Performance and productivity requirements drive new product development

#### A leader in heavy equipment

Founded in 1960, SKS Toijala Works, part of SKS Group, was originally a specialist manufacturer of steel structures such as frames and boom systems for machine

building, and operates as a systems supplier to customers utilizing its global network of subsidiaries and partners. SKS Group is a Finnish family-owned enterprise founded in 1924 and has international units in China, Poland, Sweden, Russia and Estonia. SKS Toijala Works employs a staff of 200. Its headquarters is in Toijala, and the company operates a production site in Viiala.



**“Once the decision was made that in the future the log stacker was going to be designed with NX and Teamcenter, the question very quickly moved on from how to use it to how to make the most of it and get working on the new log stacker model. The staff had to learn to use the system quickly.”**

Juhani Lappalainen  
Quality Manager  
SKS Toijala Works Oy

In addition to the traditional part of their business as a service supplier to other heavy machinery companies in Finland, SKS Toijala Works acquired a log stacker business from its long-term customer Cargotec Finland in 2013; SKS Toijala Works had been producing the log stackers since 2002. Under the new ownership a new brand name, TW LogStacker, was adopted. SKS Toijala Works was determined to create a completely new type of log stacker for the market.

#### **Performance and productivity requirements drive new product development**

Designing and manufacturing log stackers demand innovation to meet emission and work site safety standards and requirements for efficiency and performance. Depending on the weight of the engine, international environmental agencies have established standards to reduce emissions according to a multiple-tier system. Meeting these standards requires engineering innovation and adaptability. Traditionally the stackers are heavy vehicles, some of them weighing up to 73,900 kilograms (kg), with lifting capacity of up to 31,000 kg.

The stricter fuel economy and emission standards mean that log stackers need to change to remain competitive. Innovation

is also the key to success of TW LogStacker products. SKS Toijala Works saw the need for a lighter and energy-optimized product that would integrate mechanical, software and electronic components much more than its predecessors, in order to meet the new performance targets, yet still remain reliable.

“The reliability of a log stacker is one of the key success factors in this business,” says Juhani Lappalainen, quality manager at SKS Toijala Works. “Log stackers are used at saw mills and pulp mills to unload logs from train or truck loads, so the log stacker needs to be reliable. The process is time-critical and it must remain uninterrupted to avoid costly delays.”

“Speed is another key success factor,” Lappalainen explains. “The quicker the trains or truck loads can be unloaded, the better. This means that the log stacker needs to handle heavier loads even though the vehicles are smaller.”

#### **Changing the game with the new KURO family log stacker**

When SKS Toijala Works acquired the log stacker business, the company inherited old product data containing product structures that were managed in disconnected silos as computer-aided design (CAD) files,

***“The new technology made it possible to create a mechanically simple, but functionally sophisticated product that is easy to produce, easy to maintain and simple to use.”***

Heikki Korpimaa  
Director of TW LogStackers  
SKS Toijala Works Oy



"I have accumulated knowledge of many CAD systems and vendors over the years. We chose NX and Teamcenter for the new model as we had years of experience using them before and we feel we get good support from IDEAL PLM when we need it."

Juhani Lappalainen  
Quality Manager  
SKS Toijala Works Oy

product data management (PDM) data and enterprise resource planning (ERP) information. The CAD models included data from two different CAD systems and the PDM data was also from different systems. SKS Toijala Works saw the need for a unified design platform to develop its new product that would allow them to manage all the design-related data in a common system.

SKS Toijala Works first began using NX™ software from product lifecycle management (PLM) specialist Siemens PLM Software as a CAD design solution in its engineering subcontracting business in 2001 for servicing one of its customers. The initial experience encouraged the design team to expand on the Siemens PLM Software portfolio and gain the design expertise of both NX and Teamcenter® software for data management.

The company worked with IDEAL PLM, a Siemens PLM Software solution partner, to implement the new system. IDEAL PLM was founded in 1992 and offers PLM solutions and related services in Finland,

and has been working together with SKS Toijala Works since 2001.

"I have accumulated knowledge of many CAD systems and vendors over the years," says Lappalainen. "We chose NX and Teamcenter for the new model as we had years of experience using them before and we feel we get good support from IDEAL PLM when we need it. When we had to consolidate legacy data, we had a good experience from their support in the process."

The decision meant that some of the staff who joined SKS Toijala Works through the change in ownership for log stackers had been using another CAD solution, and now had to learn a new solution. "Once the decision was made that in the future the log stacker was going to be designed with NX and Teamcenter, the question very quickly moved from how to use it to how to make the most of it and get working on the new log stacker model," says Lappalainen. "The staff had to learn to use the system quickly."

## Solutions/Services

NX

[www.siemens.com/nx](http://www.siemens.com/nx)

Teamcenter

[www.siemens.com/teamcenter](http://www.siemens.com/teamcenter)

## Customer's primary business

Founded in 1960, SKS Toijala Works Oy, part of SKS Group, was originally a specialist manufacturer of steel structures such as frames and boom systems for machine building. SKS operates as a systems supplier to customers utilizing its global network of subsidiaries and partners. SKS Group is a Finnish family-owned enterprise founded in 1924, currently employing a staff of 200. In addition, SKS Toijala Works Oy acquired a log stacker business from its long-term customer Cargotec Finland Oy in 2013, launched as TW LogStackers. [www.twlogstacker.fi](http://www.twlogstacker.fi)  
[www.sks.fi](http://www.sks.fi)

## Customer location

Akaa

Finland

## Partner

IDEAL PLM

SKS Toijala Works introduced its new KURO product family, which steps into a new category traditionally ruled by wheel loaders with its eight- to 12-ton intelligent load rating. The key goals for development were competitive cost, excellent fuel economy, ease of maintenance, reliability and efficiency in operation.

KURO looks rather conventional, but it has most of the components reorganized under the covers, compared to the existing log and reach stackers on the market. Some of the solutions have been reinvented; the new machine uses virtually none of the same components that were used in the old TW LogStacker products. Four patent applications have been made from different areas. KURO was developed from scratch, making use of the know-how that had been accumulated over the years since the inception of the tracker and stacker business in 1971.

In addition, SKS Toijala Works introduced a new kind of remote reporting and management system for the log stackers called TW Remote. The control system sends packages of data from KURO's controller area network (CAN) bus into the cloud using either Wi-Fi or a Global System for Mobile Communications (GSM) connection, depending on the local networks. KURO's control software can also be updated wirelessly through the Internet. TW Remote enables customers to track their own machines and can be used, for example, to track the machine's fuel consumption per unloaded ton and distance to better develop the logistics around the loading area and to better anticipate service renewals. Furthermore, it allows easier end-user service for possible issues and therefore reduces unscheduled downtime.

## Receiving recognition through the Red Dot Award: Product Design 2016

The new KURO LogStacker, designed with NX and Teamcenter, received an Honorable Mention in the Red Dot Award: Product Design 2016. Participants from 57 nations had registered about 5,200 products and innovations for the Red Dot award. Only products that impress the jury with a well-thought-out solution receive the Honorable Mention. Each entry is assessed according to criteria such as degree of innovation, formal quality, functionality and ecological compatibility.

"Our development team included people with the best know-how and competence in the industry from 12 partner companies in Finland," says Heikki Korpimaa, director of TW LogStackers at SKS Toijala Works. "As a result, we have developed the new generation log stacker using the latest technology on the market. The new technology made it possible to create a mechanically simple, but functionally sophisticated product that is easy to produce, easy to maintain and simple to use."

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