

Double rotating tool carrier



Double rotating tool carrier in use



Magnus Eriksson,
Technical Manager, Nitator

By Dora Lainé

Reducing Time and Improving Quality with DELMIA PLM Express

Nitator needed to shorten lead times and increase cost effectiveness when delivering design and production services to its automotive customers. Thanks to DELMIA PLM Express, the company has now improved welding quality, optimized fixture design and reduced robot idle time by 90%.

Nitator needed to increase automation in its development processes so that it can shorten lead times and be more cost effective. One of Nitator's goals was to design its fixtures right the first time before going to production. Nitator decided to adopt Dassault Systèmes' (DS) DELMIA PLM Express' Robotics capabilities to simulate robot welding parts before executing these tasks on the shop floor. In addition, since Nitator is equipped with robots built by different manufacturers, the

company also needed a unique yet hybrid solution like DELMIA that can create programs for each of its robots.

Nitator simulates welding parts with DELMIA to make sure the welding is efficient and the robot path collision free. As opposed to the "old way" of doing things - which was to design and manufacture a fixture, program the robot on the line to weld the part, and then wait until production to see if the robot can reach the part or if there is any interference anywhere - programming the robots off line and simulating with DELMIA have helped Nitator design a collision-free and efficient program from the start without monopolizing the robot during the programming phase. "Normally it takes about 40 hours to program a robot on line in the workshop and during that time we cannot use the robot; it is idle," said Magnus Eriksson, Technical manager, Nitator. "But when we program the robot off line in a virtual environment, we can reduce robot idle time by 90%."

DESIGN PROCESS OPTIMIZED

Customers provide Nitator with 3D models of the parts that they ultimately want to produce. Until DELMIA was implemented, this usually involved receiving data in STEP format. Now that DELMIA is used, Nitator can also receive native CATIA data from customers that use the DS solutions for their design work. "We definitely have more flexibility to import more data formats thanks to DELMIA," said Eriksson. "And since some of our biggest customers use CATIA, this is a plus." Nitator imports the customer's part data in their third-party CAD solution and make design adjustments to the part, in agreement with the customer, that are required to facilitate welding. They then incorporate the model into the virtual welding robot cell in DELMIA.

BENEFITS IN QUALITY, LEAD TIME AND CUSTOMER SATISFACTION

Nitator engineers program the robots in the virtual environment and design in parallel the welding fixtures, which has helped the company shorten lead time. They then simulate welding the part with DELMIA, which provides valuable information on how to optimize the robot's path and improve the design of the fixture. "Once the robot program has proven its efficiency in a

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virtual environment, we can manufacture the fixtures with confidence since we already know they do not obstruct the moving robot arm," said Eriksson. "In addition, switching from manual fixture design and manual robot programming to virtual off line programming has greatly improved welding quality." Jerry Jönsson, Design Engineer and Project Manager Offline

Programming, Nitator added, "Simulation reveals errors that we can easily correct early during the design stage and that would be costly if they were detected during the manufacturing phase."

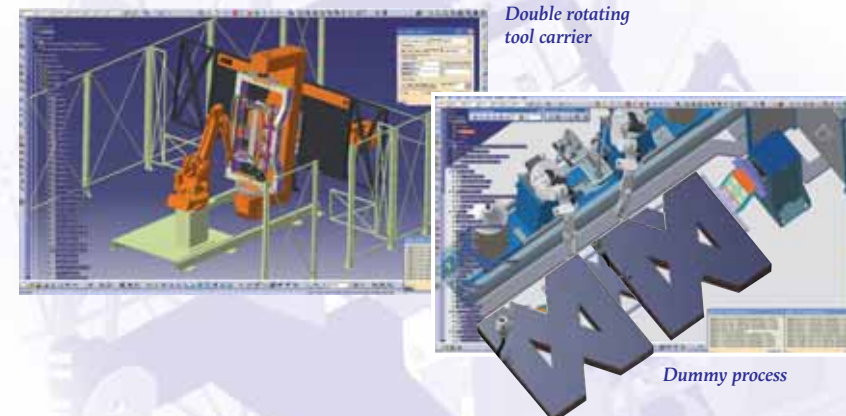
Nitator's customers also benefit from the company's use of DELMIA. Through simulation, Nitator can easily show and convince customers where design changes need to be made to the part so that welding can proceed smoothly. "Sometimes you cannot weld where the customer wants because the part's design makes it difficult for the robot to reach certain areas," said Jönsson. "We can advise our customers and work with them to make the necessary changes. This increases our credibility and the confidence that they have in us."

DELFOi provided Nitator engineers with training and implementation assistance. The business partner also designed and provided all the DELMIA robot cells used by Nitator. "The DELFOi team is very competent and professional and has consistently provided us with ideas on how to improve our robot programs. We consider them a valuable partner," said Eriksson .)

For more information:
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More about Nitator

Nitator is Sweden's leading contract manufacturer for the heavy automotive industry. The company provides high quality services in product development and construction of automotive parts and assemblies that cover initial design, project management, prototype, and series production. For more than 25 years, Nitator has been designing and manufacturing tools and fixtures for its customers that include Swedish truck and bus manufacturers Scania and Volvo. The company has three plants, two in Sweden and one in Lithuania with a total workforce of 170 engineers and technicians.



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Dummy process