

Industrial machinery and heavy equipment • Aerospace and defense

VOP CZ

Heavy equipment manufacturer uses Siemens PLM Software solutions to increase offerings to the marketplace

Products

Solid Edge, Teamcenter, NX

Business challenges

Improve product development efficiency
Facilitate data integration
Create accurate calculations

Keys to success

Achieve technical perfection
Facilitate innovation
Expand into new product areas

Results

Achieved virtually seamless product development integration across operations
Successfully introduced new products, including delivering greater innovation and quality
Significantly enhanced connection between design and logistics
Substantially improved accuracy of technical documentation



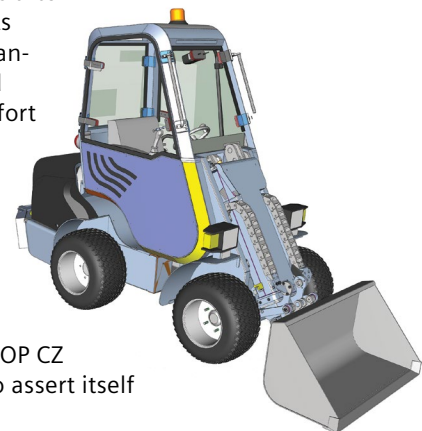
VOP CZ enhances connection between design and logistics with the help of Solid Edge, Teamcenter and NX

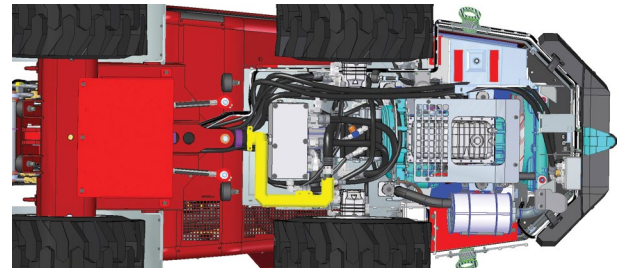
Unveiling the Dapper 5000

While the VOP CZ, s.p. (VOP CZ) brand was introduced to the Czech Republic market just a few years ago, the company dates back to the period just after the World War II, when Opravářský závod 025 was established in Šenov u Nového Jičína. In 1989 it was renamed Vojenský opravárenský podnik 025, s.p. Initially, its activities were strictly military, as the company functioned as a service organization for the Czechoslovakian army, focusing on repairing military equipment. Military production and modernization of military technology projects were then added. Today the company is still a leading integrator and

supplier of cutting-edge modern equipment for military purposes for the Army of the Czech Republic.

Recently, however, VOP CZ has also been increasingly focused on civil engineering production. The company expanded to the field of civil engineering and manufacturing in the 1990s after restructuring. As part of this expansion, it invested considerable effort and resources in the development of a technological and production base, and for more than 15 years VOP CZ has managed to assert itself





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Research and Development
Director
VOP CZ

in the highly competitive international market for welded parts and assemblies. In addition, the company is using its modern manufacturing facilities (with powerful machining tools and welding robots backed by extensive experience) in the development of special techniques to develop its own products.

Indeed, the company has recently enjoyed success developing its own product for the civil sector, a multi-functional loader and tool carrier: the DAPPER 5000, which was recently introduced to the professional public and very well received. Software solutions supplied by Siemens PLM Software and its partner Industrial Technology System s.r.o. played a key role in its development and design.

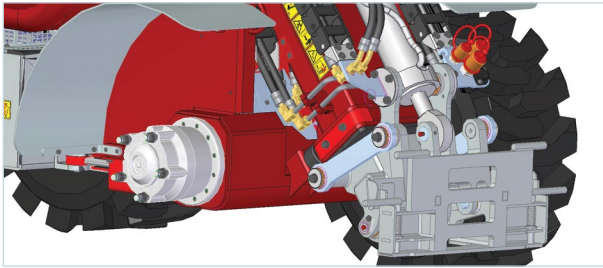
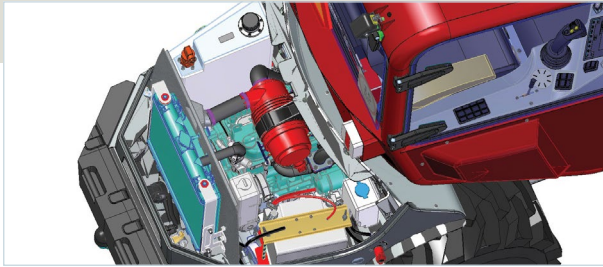
Increasing product development efficiency

“Virtually the entire DAPPER project was created in a 3D CAD (computer-aided design) application with Solid Edge,” says Ing. Pavel Mikunda, director of research and development (R&D) at VOP CZ. “Initially, 3D models of individual parts were formed, and the subsequent composite assemblies were also tested using the machine kinematics, thus verifying that there were no collisions of parts; for example, such as during the turning of the machine or when using a telescopic arm.”

When developing loaders, the engineers of VOP CZ rely on the product development advantages offered by Solid Edge® software for design, Teamcenter® software for product data management and NX™ software for computer-aided engineering (CAE), all from Siemens PLM Software.

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“Modern design tools are a necessity today as they enable us to speed up work,” says Mikunda. “We can use the time saved by our engineers for further development of new machinery and equipment, or to educate them, which is necessary in the development of new products.

“The largest increase in efficiency came with the transition to Solid Edge with synchronous technology, in which new features and capabilities that go hand-in-hand with a more user-friendly environment greatly helped our engineers to work faster and more efficiently.”

CAD systems have been used at the company since 1995 when they were first employed to modernize the T-72 M and T-72 M4 CZ tanks. The engineering department has come a long way with Solid Edge. The introduction of Solid Edge at VOP CZ is associated with another major military project, the modernization of the Czech Army with the wheeled PANDUR II armored personnel carrier.

Managing CAD/CAE tools using Teamcenter

This project was undertaken with the Austrian firm Steyr Arms, and as part of the joint effort, Solid Edge and Teamcenter were acquired for design, project management and work organization.

“The next big change came in March 2013 when we invested in an additional 26 Solid Edge licenses with synchronous technology, including support,” says Mikunda. “By the end of the year, we purchased a floating license for electrical design, frames, piping systems and a module for simple calculations using the finite element method.”

However, this did not mean the end of the expanding the software arsenal at VOP CZ; the interconnection of the CAD design solution with other software tools is proving to be critical to enhancing efficiency and achieving greater competitiveness. A few of these tools have been used in the construction of the DAPPER 5000 loader.

“For simpler calculations during the design of fixtures, metal parts and small assemblies, designers have a simulation module available directly via Solid Edge. We acquired NX CAE for complex calculations, such as stressing the arms of the DAPPER. A big plus is the integration of all these tools with Teamcenter.”

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Solutions/Services

Solid Edge

www.siemens.com/solidedge

Teamcenter

www.siemens.com/teamcenter

NX CAE

www.siemens.com/nx

Customer's primary business

VOP CZ develops, manufactures and supplies military equipment and civilian products. It provides military equipment and systems, including upgrade, refurbishing and repair services, to the Czech Republic Army and international customers, and equipment to manufacturers of construction and road-building machines worldwide.

www.vop.cz

Customer location

Šenov u Nového Jičína
Czech Republic

"We've already purchased NX CAE, and our calculation specialists were trained and are now familiar with the tool in detail," says Mikunda. "For simpler calculations during the design of fixtures, metal parts and small assemblies, designers have a simulation module available directly via Solid Edge. We acquired NX CAE for complex calculations, such as stressing the arms of the DAPPER. A big plus is the integration of all these tools with Teamcenter."

Realizing a tightly integrated, highly successful operation

Choosing NX CAE, says the R&D director, was logical because in order to achieve closer integration of the entire process, it was necessary for the new full-featured application to use finite element analysis (FEA) calculations for strength assessments in complex control scenarios, and be fully synched with Teamcenter.

"We want to use Teamcenter throughout our entire company so that personnel in other departments have access to the results of the FEA analyses according to assigned rights," says Mikunda. "We want

to ensure that it is possible to read the data from Solid Edge natively rather than by importing it through the conversion files for CAD geometry. From experience, we know that such transferred geometry is not always accurate after subsequent importing."

Given the close cooperation among departments, the emphasis on seamless data integration and interdependence of individual design solutions is understandable. All data created by the company's designers is utilized by the integrated logistics support department. Among downstream advantages, the data is used to create operational and accompanying technical documentation.

Moreover, VOP CZ's successful launch of new, more innovative and higher-quality products illustrates that the company's focus on utilizing highly integrated solutions is paying dividends.

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