

Minerva Boskovice Increases Quality while Reducing Development Times

Minerva Boskovice manufactures sewing machines for the clothing and footwear industry. It uses CATIA V5 for its design and assembly processes as well as for its finite element analysis and NC machining needs. Minerva focuses on innovation and quality to beat competition from low labor cost regions.

Minerva Boskovice, a subsidiary of Dürkopp-Adler and SGSB groups, produces industrial sewing machines. With features such as two-thread stitch with one or two needles or with or without arms, the sewing machines are not only used for all types of clothing, but for leather and footwear too. The most advanced model, called the M-Type machine, is equipped with a variety of safety and control features such as control of thread reserves, lubrication oil level, and arm inclination for better ergonomics. The M-Type sewing machine is the result of common development activities with Dürkopp-Adler, a project supported and co-funded by the Czech "Ministry of industry."



Minerva Boskovice is also a research & development center within the Dürkopp-Adler and SGSB groups with material, technical and human resources dedicated to the development of some of the most advanced sewing machines on the market. It is also the only manufacturer of sewing machines in the Czech Republic with its own CNC shop floors to machine molds, paint, harden and treat sub-parts as well as to assemble and verify the final products.

FIERCE COMPETITION IN THE TEXTILE INDUSTRY

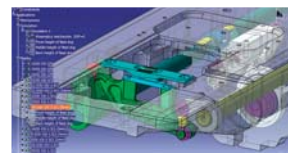
As textile and footwear manufacturers move east in an effort to lower labor costs, so does the production of industrial sewing machines. Companies do not compete in the area of price since machine prices are already low. What differentiates one company from another is its ability to innovate, fulfill customer requirements and produce the highest quality machines possible.

Minerva Boskovice's development process begins with an analysis of marketing studies

to determine the features of a future machine. This is then followed by the creation of an initial design using CATIA V5 where digital 3D models and simulations are used for the preliminary evaluation of the product. Minerva then creates a prototype, which is used to verify the sewing quality and the reliability of the machine's different functions. The manufacturing phase includes production of a "verification series" of machines that is used to verify the production process, define the bill of materials as well as the assembly documentation.

BETTER QUALITY. LESS ERRORS THANKS TO DIGITAL SIMULATION

With the Dassault Systèmes solutions development time for a new product is shorter and the resulting product is of better quality thanks to the use of 3D digital models and assemblies as well as CATIA V5's kinematics and structural analysis capabilities. "Without these tools, we would have to check collisions



and make corrections to the physical model", said Mr. Hrdá, technical director at Minerva. "Thanks to the ability to perform tests in a virtual environment and make corrections early during our overall process, the number of errors and collisions on prototypes has decreased", he said. Modifications due to customer requests are also faster and easier to implement. It is clear that CATIA V5 has helped Minerva be more competitive in this very challenging market.

Whereas in the past Minerva used different CAx systems for their different needs and was therefore forced to transfer data via standard interface formats, it now uses one system, CATIA V5. "Implementation of a unified system has reduced errors and has allowed the different departments such as design (tools, jigs, fixtures and set-up elements) and NC programming to collaborate better thanks to a unique data format. Problems linked to data transfer and conversions no longer exist," said Mr. Ondráček, CAx coordinator at Minerva. In addition, existing CATIA data can also be used in departments where CATIA is not yet implemented such as CNC measuring. Here, it is possible to enter CATIA data directly into the CNC measuring machine. Moreover, the open 3DXML format makes it possible to use 3D data models on

workstations where CATIA is not physically installed hence allowing people who do not need CAD for their day to day work to visualize manufactured parts or assemblies.

TRAINING AND SUPPORT FROM TECHNODAT

Technodat provided Minerva support for the implementation and customization of the Dassault Systèmes solutions. It also provided designers with customized training and consulting services as well as hotline support and assistance with CATIA release upgrades. In the future, and in cooperation with Technodat, Minerva plans to extend the number of CATIA V5 seats and provide

additional training to increase the staff's skills thanks to new functionalities that designers could use for their work to improve their productivity.

Minerva also plans to add lathing and 5-axis machining to its current NC activities and add FEM analysis of assemblies to its design department. It will also extend the implementation of 3DXML at prototype workshops and other departments so that more non-CATIA users can share and visualize product structure and geometry •]

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