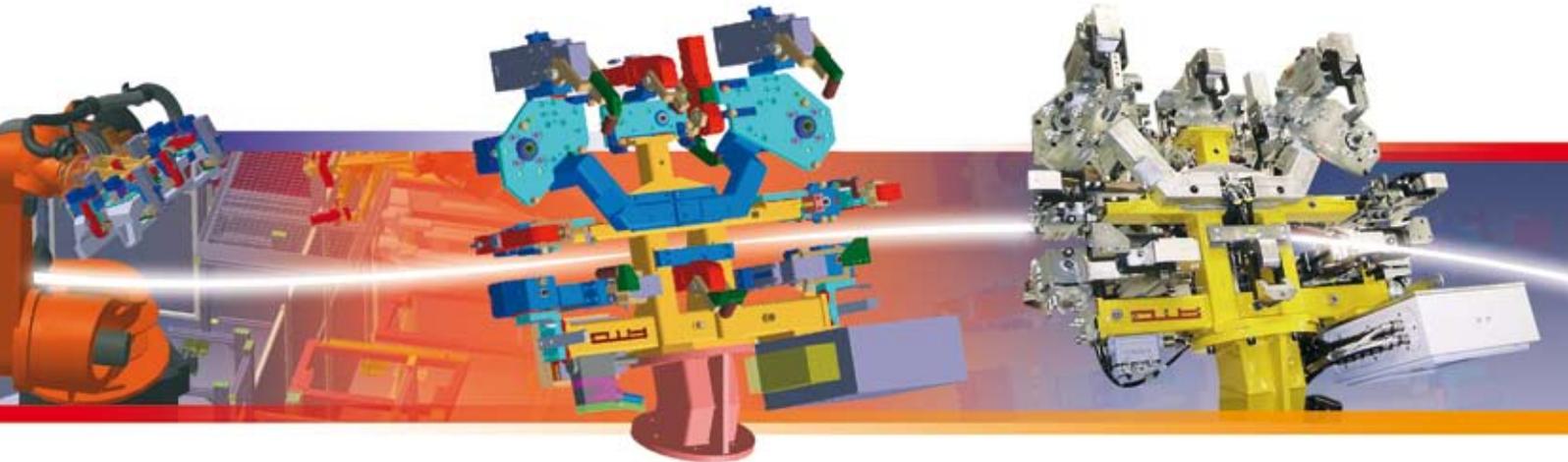


ATG Solutions

Optimizing plant design and production with CATIA and DELMIA



Overview

■ Challenge

Automation Technology Group (ATG) required an integrated PLM solution for the development of its trend-setting plant engineering solutions.

■ Solution

ATG selected Dassault Systèmes' PLM solutions for its complex projects including CATIA for virtual product design and DELMIA for virtual production planning.

■ Benefits

With its integrated DS PLM solution, ATG improved production processes, optimized product design, and achieved shorter lead times.

Production facility maker chooses integrated PLM solution

Automation Technology Group (ATG) Solutions, based in Berka/Werra, Thüringen, Germany, designs and manufactures production facilities and equipment used to produce machinery, tools, vehicles, custom engineering projects. The services provided by ATG and its 55 employees range from custom development, simulations, robotics solutions, and production to implementation, services and consulting.

ATG needed to streamline the flow of information from its design to production teams and do away with interfaces and data conversions that cause project delays and manufacturing errors. The company wanted a complete and integrated solution that would enable its designers and production planners to collaborate seamlessly and work concurrently. ATG adopted Dassault Systèmes' Product Lifecycle Management (PLM) solution based on CATIA for virtual product design and DELMIA for virtual production planning.

"When CAD and the digital plant are directly linked, special interfaces and data conversions are not necessary," said Torsten Hessland, CEO, ATG. With an integrated solution, production planners can use native, up-to-date CAD information while designers use the native 3D models of manufacturing equipment for an optimal configuration of their products. "When both applications run in the same software environment, it helps streamline our development processes," said Hessland.

Designing a complete factory

ATG is able to create an entire factory or production facility in the virtual world of DELMIA. "Without the DELMIA solutions, it would not be possible to create the necessary interfaces for system evaluation," said Hessland. To verify factory floor efficiency in the virtual world, ATG uses DELMIA DPM Body-in-White, Robotics, Human, and Automation solutions. Together, these solutions allow ATG to create, modify and validate automotive body-in-white planning for lines and stations in a virtual 3D environment - including robotic work cell programming and human behaviors - prior to any physical production.



"Thanks to data and workflow continuity, we have recorded considerable time and investment benefits and DELMIA plays a crucial role here."

Torsten Hessland
CEO, ATG



Additionally, the virtual commissioning capabilities of DELMIA Automation merge the 3D virtual manufacturing models with the actual control systems and robot controllers. ATG can then conduct and evaluate “what if” scenarios to optimize production, enabling it to get it right the first time. Any proposed changes to a plant floor layout can be explored beforehand in the virtual plant model.

Simulation helps optimize assemblies and robot programming

“Simulation provides flexibility in production planning, better quality and shorter lead times,” said Hessland. “It enables the various product components and assemblies to be examined in the context of their manufacturing and assembly systems and optimized without adding more and sometimes complex processes.”

Simulation is particularly useful in the implementation of welding lines with robots. The optimal location of the robot, the base height and welding process are determined. By taking into account the robot axes and the periphery (protective housing) the design is simulated and modified on screen until it is possible to weld every seam. The simulation then serves as the basis for offline programming. Designs are tested virtually for compliance with specifications

and then presented to the client. Any design modifications are integrated and simulated again until the final design is achieved and released to the customer.

“Thanks to data and workflow continuity, we have recorded considerable time and investment benefits and DELMIA plays a crucial role here,” said Hessland. For example, when several robots have to “work together” to transfer a component, this process can first be simulated offline in DELMIA. The accuracy of the solution then allows for easy transfer and upload of the program to the actual equipment.”

Using DELMIA for carbon fiber composite materials

ATG is particularly interested in technology transfer for the development of new materials in the area of carbon fiber technology. “In the field of CFRP, or carbon fiber reinforced plastic, we are looking at solutions that will replace steel and aluminum in certain applications,” said Hessland. “The goal is to save energy by reducing weight.” So far the CFRP studies on certain assembly profiles have been very productive since simulation results have been confirmed through real-world prototype testing. “It is an ideal field of application for the DELMIA portfolio,” stated a very pleased Torsten Hessland.

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Torsten Hessland
CEO, ATG



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