

Increased efficiency through digital planning

Computer-simulated production planning reduces costs, permits optimal use of resources and minimizes problems at startup

VOLKSWAGEN AG



Siemens PLM Software

www.siemens.com/plm

▶ Business challenges

Increase the efficiency of vehicle body production planning

Achieve increased planning requirements without adding staff

▶ Keys to success

Production planning software available worldwide supports internal planners as well as external partners

More optimization loops boost precision of data models

What-if questions quickly and transparently answered

Better control of planning information

▶ Results

Growing planning requirements are met with no staff increase

Manufacturing costs are avoided and reduced

Fault-free, economical startups and plant operations

Europe's biggest OEM leads in production planning

Volkswagen AG is the largest car maker in Europe. Like auto OEMs worldwide, the company is always searching for ways to improve efficiency. This is true in all areas of vehicle manufacturing including production planning. Requirements placed on this sector include re-use of operating equipment, once-only drafting of plans and their use at several locations as well as inclusion of manufacturing considerations from the very early product design stage. And all of these targets must be reached without an increase in staff and without any loss of quality.



Realizing that the use of production planning software could help achieve the necessary efficiency gains, engineers in Wolfsburg, Germany carried out a comprehensive benchmarking process. "In the areas of body production, logistics and machine and equipment planning, Siemens PLM Software came out on top with its Tecnomatix® solutions," explains Carsten Macke, the person responsible for "digital factory" implementation within planning at Volkswagen AG.

A digital view of body manufacturing

Tecnomatix solutions have been in use at Volkswagen since 2002, supporting such tasks as product analysis, production plant and equipment planning, supervision of plant construction and suppliers, commissioning of production plant and equipment and quality optimization up to start of production. Fifty members of the staff in the body manufacturing section have been trained in use of the Tecnomatix software.

Since implementation of the Tecnomatix solutions, planning has become much simpler and more precise. For example, planners can now drag-and-drop a robot into a planning scenario where it is seen immediately within the 3D plant layout. If it is too far from a jig, it can easily be moved closer. In the past, if someone wanted to know how many robots were being used in a body manufacturing shop, two people had to spend several hours looking intensely at layouts. Now it is only necessary to press a button and Tecnomatix provides the exact number of robots and other

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Solutions/Services

Tecnomatix

Client's primary business

The Volkswagen Group, with its headquarters in Wolfsburg, is one of the world's leading automobile manufacturers and the largest car maker in Europe.

www.volkswagen-ag.de/english

Client location

Wolfsburg
Germany

"In the areas of body production, logistics and machine and equipment planning, Siemens came out on top with its Tecnomatix solutions."

"The more detailed and precise the simulation carried out at the beginning of the project, the fewer problems and costs there are when production is actually started."

Carsten Macke
Leader, Digital Factory Implementation
Body Manufacturing Production
Planning
Volkswagen AG

important detailed information. In addition, Tecnomatix answers what-if questions – such as, "What would happen if we placed eight robots in a station instead of four?" – faster, more transparently and in a way that is better founded on facts and experience. Planning aids, such as collision studies that provide information in color, make understanding plant operations easier than ever.

Another positive effect of the software, according to VW's planners, is that all information flows together via the database. For example, when a cost calculation must be created, there is no longer a mountain of files to be conquered. Everything is easily accessible within the system.

Groundbreaking project

A project called the "Laser-Gross-Geo" offers a good example of the value of Tecnomatix for VW. A design goal involved replacing a roof rail (found on almost all vehicles, where a luggage rack can be attached), with a direct connection between roof and side panel. The consequence of this change required a sequence of bodywork seams to be modified. Planners used Tecnomatix to implement the change to the welding process, keeping in mind goals to complete the welding operations in the shortest timeframe while increasing the amount of work to be done at that robotic welding station.

"During brainstorming, a concept was created as to how the station might look," explains Macke. "This was then worked out in detail together with the design department – up to this point only virtually! Then we erected it in a factory and tested it successfully. For many members of management, Laser-Gross-Geo was a real high spot," he adds. "They recognized that the more detailed and precise the simulation carried out at the beginning of the project, the fewer problems and costs there are when production is actually started. This is why I regard this project as truly groundbreaking."

Global advantages

"One advantage of the Tecnomatix software is the fact that it is available all over the world, both internally and for our external partners," says Gunnar Jensen, member of the digital factory team within planning at Volkswagen AG. "This leads to transparency and therefore trust between all concerned.

"The digital tools make it possible for us to use the time that remains up to release of the specification more effectively," Jensen adds. "For example, we can implement more optimization loops, which in turn leads to more precise data models. In the end, it is not only the individual planner, but also the actual plant operator who benefits from this way of working." With both internal and external plant operators receiving more efficient planning, VW is experiencing smoother startups and more economic plant operation.

Tecnomatix has also helped VW's planners accomplish all of this without an increase in staff.

"Tecnomatix solutions have enabled us to achieve better planning quality within a shorter time, while processing several projects with a workforce that has remained almost identical," says Macke.

VW's use of Tecnomatix solutions continues to spread. In addition to use in the body manufacturing planning department in Wolfsburg, Tecnomatix is now being used for production of jigs and fixtures, logistics and also for press simulations. Recently, the equipment assembly area decided in favor of the Tecnomatix portfolio for planning and simulation of assembly and mechanical production processes. In addition, the software is being used throughout the Volkswagen group of companies.

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