LÄPPLE AG

25 years of collaboration

Overview

Challenge

As an automotive industry systems supplier, LÄPPLE AG must engineer, design and manufacture tools for vehicle body parts for both prototype and production models.

Solution

LÄPPLE uses CATIA V5 data from customers to design its tools. It uses ENOVIA V5 digital mock-up (DMU) to ensure everyone involved shares the same view and information of the design.

Benefits

Thanks to CATIA V5, development time is shorter, process reliability is up, and errors are down. The common view and design information provided by ENOVIA V5 DMU means has improved the speed and accuracy of communication and decision making.

"With CATIA V5 we can model and modify vehicle part surfaces in great detail. In so doing, we can avoid upfront, costly retooling further down the line."

Jürgen Faller, CAD/CAM production department head, LÄPPLE AG

Automotive systems partner

Germany's LÄPPLE AG is a systems supplier to the automotive industry with locations in Germany, Ireland, South Africa and the USA. Over 4,500 employees worldwide engineer, design and manufacture remodelling tools, body-work tools, prototypes, vehicle body parts and systems as well as complete production plants.

Customers include the crème de la crème of the European automotive industry including Porsche, Jaguar, DaimlerChrysler, AUDI, BMW and Volvo, as well as overseas car manufacturers such as General Motors, Ford and Toyota. The Heilbronn headquarters is a think-tank at the forefront of technology. It is here that the engineering, design and prototyping expertise of the whole group is concentrated. "CATIA V5 plays a decisive role in this," says Jürgen Faller, head of the CAD/CAM production department.

CATIA V5 prevents costly retooling

Faller and his team have been working with Dassault Systèmes' design software for nearly 25 years. A successful partnership has developed over this period. Many of LÄPPLE's design requirements have found their way into the solution's range of features. "Today we can very easily bend parts, distort curves or chamfer surface areas with CATIA V5," says Faller.

Special features such as the ability to include different backgrounds like a sandy beach or a sunset enable LÄPPLE designers to better evaluate the surface quality of vehicle parts. "Using ENOVIA V5 digital mock-up or DMU, we can turn a vehicle part into the sun. By looking at the lines of light, we can see on screen whether the surface of a vehicle part is mathematically correct or whether we need to take corrective action. This makes it clear to our customer that modifications are necessary. In so doing, we avoid upfront, costly retooling further down the line," says Faller.

Complex surfaces modelled in great detail

As it was 25 years ago, a customer's data on prefabricated components is still very much the starting point for LÄPPLE. This data is input into CATIA V5 and is put through its paces. "The first thing we do is examine the data for feasibility. Even at this early stage, we can often assess whether things are going the way the customer planned," says Faller.

"When the customer's expectations match the data, we perform a simulation test. This enables us to check whether the available data lends itself to technical drawings. The drawing simulation provides data on how the materials perform, which is something we need to consider for the design phase. Only then can a precise lay-out for tool production be drawn up. It's at that point that we design surface quality for components as well as the solid construction of individual tools,» says Faller. "The design possibilities are amazing. With CATIA V5 we can model die surfaces in great detail."

ENOVIA V5 DMU provides a common view

NC programming for production of cast tools is done with CATIA V5 and the complete tool design is made accessible to the different project stakeholders through ENOVIA V5 DMU. V5 DMU, which comes embedded in CATIA V5 or standalone, provides a single access point to product information in 3D, enabling easy understanding of the design and early assessment of product manufacturability, resource and process planning. How long is the sheet? How thick is a part? How many screw parts are needed and where precisely is the bore? The toolmaker knows all this at a glance, without any 2D paper drawings.

"By reducing or eliminating the need for hardcopy drawings on the shop floor, V5 DMU minimizes common misunderstandings between manufacturing and engineering teams. The designer, the planner, the NC programmer and the toolmaker have all the same view of the tool and can agree on details with each other easily," says Jürgen Faller.

Significant increase in process reliability

Jürgen Faller can no longer do without CATIA V5. Repeated refinement of the software has meant that design times have become shorter and shorter, process reliability has increased significantly, data management is noticeably better and the error rate has reduced. In addition, ENOVIA V5 DMU enables LÄPPLE to leverage 3D product information beyond the design office, which significantly improves speed and accuracy of communication and decision making.

> "With ENOVIA V5 DMU, the designer, the planner, the NC programmer and the toolmaker all have the same view of the tool. It makes it easier for them to agree on the details."
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> Jürgen Faller, CAD/CAM production department head, LÄPPLE AG

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The Dassault Systèmes home page can be found at www.3ds.com