



## CRYSTAL-CLEAR ADVANTAGES: THE 3DEXPERIENCE PLATFORM

When the inspector from the Swiss Federal Agency for Civil Aviation would come to Mecaplex, it used to cause Daniel Reutimann, responsible for digital design and development, a sleepless night or two before the appointment. If, for example, the inspector wanted to know what materials had been used for the window glazing on a Boeing aircraft, Reutimann would have trouble providing the required information right away. He would have to search through the various folders on his computer and try to remember the names under which he'd filed the data.

These days, when the inspector drops by, Reutimann is all calm and collected – thanks to ENOVIA, the data management component of the 3DEXPERIENCE Dassault Systèmes (3DS) platform.

“All product-related information is available at the click of a button”, says Daniel Reutimann. For him it's a decisive improvement: “Safety plays a crucial role in the aircraft industry, so we are audited frequently. Error-free, documented processes are a key factor. With the Dassault Systèmes applications, I no longer have to have to pull everything together from individual files – I have all the product information at my fingertips, project-oriented and up-to-date.”

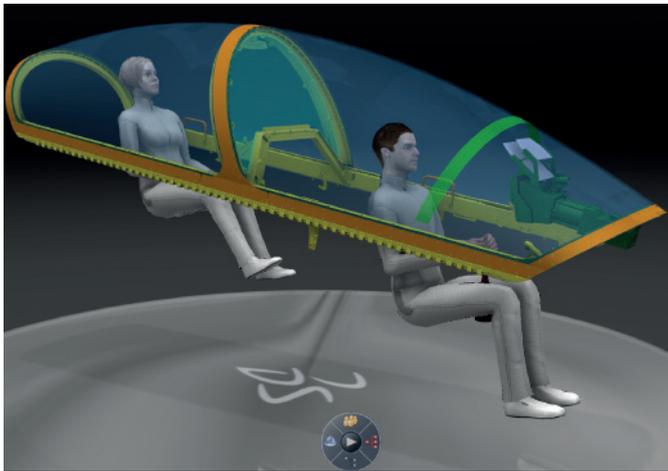
### DARE WHAT OTHERS DON'T

New technologies such as the 3DEXPERIENCE applications have been a decisive success factor for Mecaplex. The competition is usually bigger and often less expensive than the Swiss family business, established in 1948. Therefore, Mecaplex simply has to overstep the competition offer.

“We approach a task with an open-minded attitude and go places where others don't dare”, concludes Reutimann. “At our company, you won't hear the words ‘it can't be done’. We're always looking for creative ways to fulfill the wishes of our customers.” No wonder that client enterprises around the world value the flexibility and creativity of the Mecaplex staff. Among their reference customers are Dassault Aviation and EADS, but also Eurocopter, Korean Aerospace Industries, Northrop Grumman or Pilatus Aircraft.

**» The 3DExperience platform allows us to make all product data and other intellectual property available to all staff members, which facilitates our work.«**

*Daniel Reutimann, Head of Digital Design and Development*



## VIRTUAL PRODUCT DESIGN

Since glazing isn't one of the core competencies of aircraft manufacturers, a typical query from a Mecaplex customer might be: "We're building a helicopter that will fly at speed X up to an altitude of Y, and we want safe glazing for it". "This is where our creative consulting work comes in", says Reutimann. "We offer proposals on installation, pane thickness and composition, whether they should be heated or not, and so on." For calculation and production, Mecaplex relies on CATIA and DELMIA, two components of the 3D Experience platform. The platform is used to validate all proposals including any required perforations, screw joints and adhesive connections, as well as the entire installation procedure and the necessary tools and NC programs.

Mill-processing of the aircraft panes involves an extremely complex approach, from programming work to clamping and finishing. To ensure that all this goes off without a hitch, Mecaplex does its programming and control work with DELMIA V6 Machining, modern 5-axis and 3-axis milling machines for mechanical processing of pane glazing and molding. "I've always been a fan of virtual product design", Reutimann confesses. "During my studies, a professor gave me the first notions of what CATIA can do to turn ideas into reality". "Back at university we used to spend nights designing in CATIA, and to this day I still have lots of fun working with the system." In fact, Reutimann can no longer imagine doing his work without this resource: "CATIA lets us freely and flexibly develop any shape, no matter how complex or extreme the drafts are – especially for parts like indicator lights or wing-tips, which are under major aerodynamic stress: At the end of the day we can validate and build them. And with ENOVIA, we can relocate and reuse not just the geometry, but the entire

process." A decisive role falls to forming aircraft panes in line with the clients' strict requirements. That makes faultless design a must. "The calculations we need and the production methods we use today, like simulating bird impact on an aircraft pane, weren't even available a few years ago", explains Reutimann. "The 3DS solutions help us develop and manufacture even better products." In implementing the 3DEXPERIENCE applications and in staff training Mecaplex relies on CENIT's support

## ENORMOUS POTENTIAL

To present its proposals to its customers even more realistically, Mecaplex is also planning to deploy 3DVIA by Dassault Systèmes. "There's so much potential in 3D. You don't just display a product anymore: Your customers can experience the product as if it was right in front of them", says a satisfied Mr. Reutimann.

Nor does he believe that Mecaplex has reached the end of the road as far as the use of glass is concerned. "There's enormous innovative potential for glass, especially in combination with other materials like plastics, which in terms of thermal expansion behave like Plexiglas. Here we're just at the beginning – the great leap in development is still ahead."

### [ AT A GLANCE ]

#### Challenge

To remain a step ahead of the competition, Mecaplex had to optimize its design processes and make product know-how for current and future uses available throughout the enterprise.

#### Solution

Mecaplex opted in favor of the Dassault Systèmes 3DEXPERIENCE platform to drive its design, analysis and data management.

#### Benefits

The engineers can design aircraft glazing in any range of shapes and complexity, and analyze their resistance to external influences such as strong winds, turbulences and extreme temperature fluctuations. Additionally, the entire product lifecycle intellectual property is saved.

## ABOUT MECAPLEX

Mecaplex is part of the Glas Trösch Group and is based in Grenchen, in the Swiss Canton of Solothurn. Core Mecaplex competencies include impact-resistant and heated cockpit glazing as well as sun-shielded and shatterproof windshields made of acrylic glass or polycarbonate.

**»We've worked with CENIT for many years and we are more than satisfied», says Reutimann. «Our relation has become one of friendship.«**

*Daniel Reutimann, Head of Digital Design and Development*