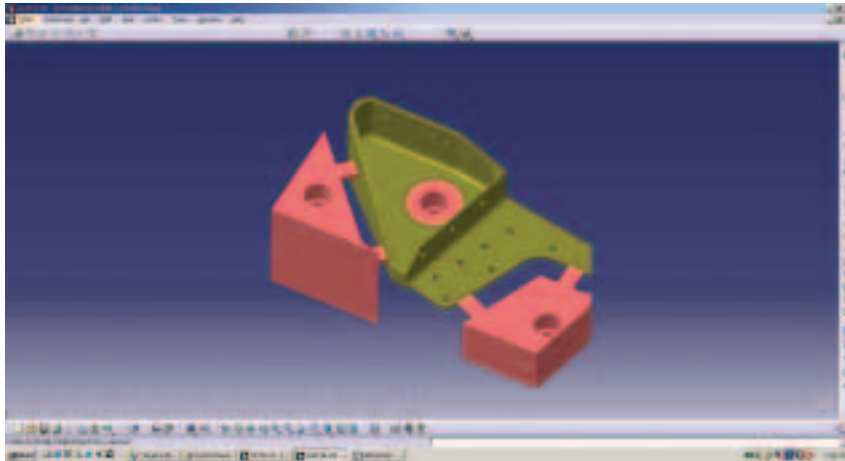


Production of complex parts in an integrated CAD/CAM process chain.



Finished part with clamps

Overview

■ The Challenge

Creation of engineering design and production possibilities for products that meet the high quality and safety standards of the aerospace industry

■ The Solution

Implementation of a CAD/CAM process chain based on CATIA® V5 with engineering design and NC modules

■ The Benefit

Short development times at the highest possible quality level, economic production – even with low unit volumes

Small, but still a partner of the great.

Aircraft Philipp GmbH, with its registered office in Unterwössen on the Chiemsee, was founded by Rolf Philipp, an aerospace engineer, and it specializes in the engineering design and production of components for the aerospace industry. These include turned and milled parts, fittings, exhaust systems, composite fiber elements as well as integral components made of various materials. The company also constructs models and has already created numerous highly complex wind tunnel models. The most important customers of the small company, which has been certified by the German Civil Aviation Authority, include renowned companies such as MAN Technologie, who supply components for the Airbus and Ariane, as well as Eurocopter, one of the worldwide leading manufacturers of helicopters and a supplier for Airbus. The company has two high-tech processing centers for cutting processes and modern coordinate measurement technology

in order to be able to implement innovative parts manufacturing as a partner of the aviation industry. To continue the development of his company, Rolf Philipp was faced with the decision of additionally investing in a CAD/CAM system to enable him to expand his range of products and services for customers.

Comprehensive CAD/CAM solution.

Rolf Philipp tested a total of five CAD systems: Only CATIA V5 fully convinced him. The consistency of the solution across all CAD and CAM fields, the comprehensive engineering design options and NC functions, as well as the ease of familiarization were the most important decision criteria for the young entrepreneur. Added to this is the fact that CATIA is very widespread in the aerospace industry and that the future of CATIA is secure, as it is subject to continuous development. In September 2001, the first CATIA workstation with the required engineering design and NC manufacturing modules was installed. In addition, post-processors for 3-axis and 5-axis machining were implemented, making it very easy for the company to create NC programs for multi-face machining.

With the wide range of functions that CATIA V5 offers for innovative engineering design methods, Aircraft Philipp has a system that provides effective support for every step from engineering design to production: From 2D draft drawings or the automated generation of engineering design drawings from 3D components, all the way to the adaptation of 3D components in line with production requirements, their positioning, and final checks of the composition of assemblies. For model construction, CATIA V5 provides powerful functions for the creation of complex surfaces.

Fast and flexible NC programming.

The NC programming integrated in CATIA V5 provides Aircraft Philipp with a high degree of reliability and flexibility. What was decisive for Rolf Philipp was that CATIA integrates NC functions for all common manufacturing processes, such as 2.5-axis processing, 5-axis milling and turning, in one system. In the area of CAM, the CATIA modules Prismatic Machining 2, Surface Machining 2 and Advanced Machining 2 are deployed. These provide the possibility for simple creation of NC programs for 2.5-axis and 5-axis processing as well as surface milling. What is particularly important in cooperating with clients is the interoperability between CATIA V4 and V5.

A supplier in demand.

The basis of the engineering design is often formed by CATIA V4 data models or 2D drawings. Aircraft Philipp uses these to create a 3D data model in CATIA V5, and this is delivered to the customer alongside the produced parts. The matured CAD/CAM solution means that the complete throughput times are normally only two weeks. And although the components are usually only produced in relatively

small unit volumes, Aircraft Philipp is still able to achieve economical production. „CATIA V5 enables us to optimize our processes, which is a clear-cut competitive advantage for us,“ says Rolf Philipp.

“The high degree of automation and the possibility for reuse of existing knowledge provide the requirement for further optimization of our process chain.”

Rolf Philipp, Founder and Owner of Aircraft Philipp GmbH

Large-scale plans in CAD/CAM services.

Following the successful start of his company, Rolf Philipp now has plans that involve a significant expansion of his operation and an equally significant expansion of his range of services in the CAD/CAM field. A processing center is being installed in a new, large factory hall, fully automated and designed for parts with a collision area of 1700 mm. “This means we will have one of the most powerful machines for the aviation industry and will also be able to manufacture very large components,” says Rolf Philipp. Over and above this, he is planning to generate NC programs for his customers using CATIA V5 and to make them available to the customers for their own production. He is also planning to offer expert training courses in NC programming. To be able to implement all of this, he is planning to take on a large number of new staff. As far as the future is concerned, the aviation expert is very confident: “CATIA V5 is helping us to acquire new customers and ensure long-term positive competitiveness.”



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