

Hydrojet

Aerospace manufacturer achieves 400% growth with CATIA



Overview

■ Challenge

Compete with world-class rivals in the aerospace OEM market by fabricating, machining and assembling complex composite parts and structures.

■ Solution

CATIA with Numeric Control (NC) modules allows Hydrojet to collaborate more closely with its clients, who also use CATIA.

■ Benefits

Hydrojet has increased capacity, reduced cycle times, supported continued growth, and won new business while retaining key customers.



"We've grown 400% in the seven years since we purchased CATIA."

Michael Rado, Senior Vice President, Hydrojet

Under Boeing's wing

Hydrojet, a Pennsylvania-based manufacturer of complex aerospace parts, was founded in 1988 with a customer that most startups can only dream of: the Boeing helicopter facility in Philadelphia.

But like many small startups, Hydrojet made do with entry-level CAD/CAM software. Creating tooling designs and machining instructions from customer data therefore required extensive translation, introducing the potential for error and longer cycle times.

"We simply had to get away from converting data to reduce cycle times and improve the business value to Boeing," Hydrojet Senior Vice President, Michael Rado says. But buying CATIA, only available for UNIX at the time, cost the same as a milling machine that could have increased Hydrojet's capacity.

"It was one of those crossroads where we had to make a cultural change," Rado says. He put the milling machine purchase on the back burner and moved forward with CATIA.

Hydrojet grows with CATIA

As a small composites manufacturer, Hydrojet needed to build its expertise quickly. When one of its customers offered to do some programming in CATIA, Hydrojet found its future VP of operations, Gary Linderman.

"Bringing CATIA into a 15-man company opened doors for us with Boeing and Sikorsky," Linderman says. "It eliminated the surface issues that occurred when you took CATIA designs and translated them. It demonstrates our commitment and gives customers confidence."

When CATIA became available on Microsoft Windows®, Hydrojet put one seat on a PC in the company's break room for employees to "test drive." Within a month, even machine operators were designing their own tooling. "It got to the point where they were fighting for the seat," Rado says.

"We are so dependent on it – it's so strong, so powerful – it's truly helped us. We even laid out our new, 35,000-square-foot facility in CATIA." Hydrojet



needs the added space, enjoying 400% growth in its business since rolling out CATIA. The company currently employs 20 and expects to top 40 by late 2009.

From concept to part: the power of model-based definition

Using CATIA to validate manufacturing processes with model-based definition has allowed Hydrojet to increase capacity. Model-based definition gives users the capability to work with 3D models, rather than 2D drawings, to confirm the effect of changes before actually making them.

“Many of the parts we manufacture require 20-30 operations before they are ready for machining and assembly,” Rado says. “Those parts already have a great deal of value. Having one master set of data and using it through the entire process, from bond tool design to fixtures for machining and assembly, has reduced our time, increased our quality, and solidified our confidence level.”

The precision of CATIA has reduced Hydrojet’s scrap rate to almost nothing and allowed it to implement statistical process controls. CATIA also works seamlessly with Creaform’s Handyscan 3D™ laser scanners for reverse engineering of existing parts. Creaform is a Dassault Systèmes’ CAA Software Partner. Because it is designed to work inside CATIA, Creaform’s Handyscan Scanning Module™ eliminates translations, opening a lucrative new market for Hydrojet.

“We reverse engineered one component part for an aerospace customer that literally saved them two hours per unit on the assembly floor because of a perfect fit,” Rado says. “We also now have the ability to use rapid prototyping technology. ‘White parts’ are created from the CATIA model to verify fit prior to investing in the expense of a tool string. This helped Hydrojet secure a win-win composite mentoring sponsorship with a Department of Defense customer.”

Hydrojet’s growth has been accomplished through expansion of its engineering and tooling design expertise. With CATIA, the company focus has shifted from contract manufacturer to true solutions-driven partner.

“We’re not the same company we were in 2000,” Rado says. “We have developed and grown. I can attribute a portion of that to the decision to buy CATIA. The people here embraced the technology and now use it to solve demanding problems. With CATIA, Hydrojet is a cut-above competitor.”



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