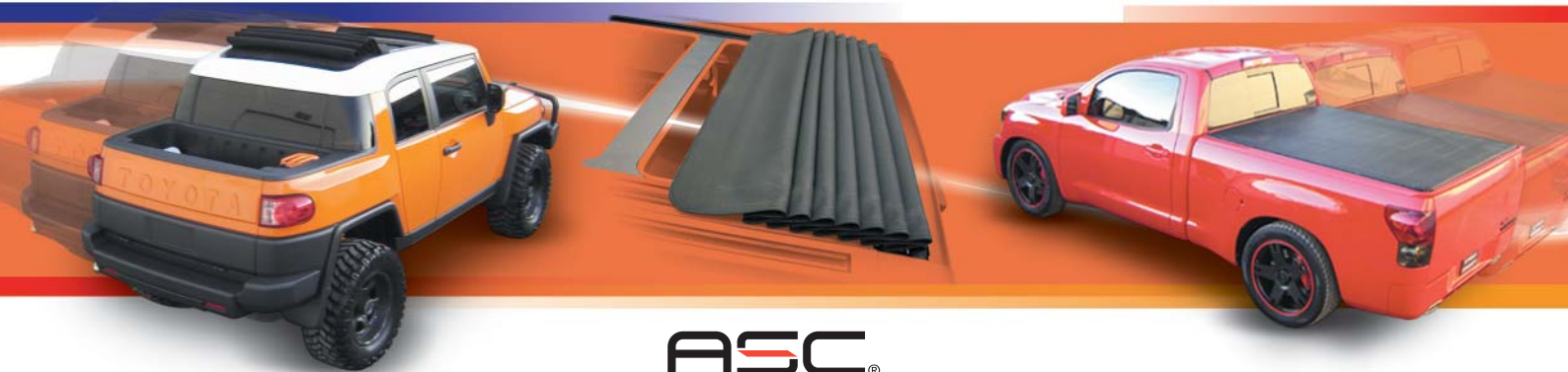


American Specialty Cars

American Specialty Cars soaks up the sun with CATIA V5



ASC[®]
American Specialty Cars

Overview

■ Challenge

American Specialty Cars needed a way to quickly adapt its InfinitiVu open-air roof system to multiple models of automobiles to respond to market demand.

■ Solution

Parametric and knowledge-based engineering capabilities of CATIA V5 adapt the design to each new model in hours while improving quality and holding down costs.

■ Benefits

ASC is positioned to handle soaring demand for its design, maximizing its market penetration and return on investment.

V5 PLM helps designers 'add new life to cars'

Automotive aficionados know American Specialty Cars as the company that introduced factory-installed sunroofs to the North American market in the 1960s, developer of convertible systems for the Toyota Camry Solara and Mitsubishi Eclipse, and a key contributor to the memorable styling of the Dodge SRT-4, Viper and Chrysler Group SRT-8 models.

Today, the company defines its mission as: "Bringing new cars to life. Adding new life to cars." The positioning reflects ASC's growing role in helping OEMs differentiate their products in a market where the number of global automakers has escalated and sales volumes have stagnated as consumers grew bored with the similarities among major brands.

ASC's latest innovation, an open-air roof system for minivans and sport utility vehicles called InfinitiVu, offers the potential to rejuvenate the segment, which has been hard hit by soaring gas prices and a lack of styling innovation. The InfinitiVu, which ASC describes as a "sunvertible," invariably prompts people who see it for the first time to delightedly exclaim "Wow!" The product's impact is so strong, in fact, that automakers are clamoring to be among the first to offer the innovation to the market.

Fortunately, ASC's investment in V5 Product Lifecycle Management (V5 PLM) solutions from Dassault Systèmes allows the design work required to customize the system to a particular model to be completed in record time, with quality that escalates in each new version and at costs well below the value consumers ascribe to the product.



"Instead of designing the product from scratch we capture our knowledge and build on it, which allows us to meet our customers' need for speed."

Chris P. Theodore
Vice Chairman
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Design agility accommodates a soaring market opportunity

“We believe InfiniVu is going to grow geometrically, so the fact that we can use V5 PLM to take the basic design and quickly morph it into all the different applications we see coming in the future is critical,” says Chris P. Theodore, ASC’s vice chairman.

“We have a half-dozen projects going now, with our first production unit hitting the market this summer. Instead of designing the product from scratch we capture our knowledge and build on it, which allows us to meet our customers’ need for speed, contributes to continuous quality improvement and keeps the cost below what you would expect for an option like this.”

The InfiniVu is available in a fabric version, which opens accordion-style from back to front, front to back, or in various combinations. This allows users to open any part of the roof or to protect certain passengers from the sun and wind – children sitting in the back seat, for example. It also comes in a style made of glass or Lexan panels, which slide and stack on top of one another to accomplish the same effects.

“The convertible market in the United States is a very stable market, but it’s exclusively a two-door market,” Theodore observes. “That excludes

most of the U.S. population – families with kids, people concerned about safety and those who need hauling capacity. Half the U.S. market now is for non-sedan-type vehicles – SUVs, crossovers, trucks, minivans. Those buyers appreciate the open air experience as much as anyone, but functionality is their top priority. InfiniVu gives them a way to enjoy the open air without sacrificing utility.”

If even 10 percent of such buyers choose InfiniVu as an option, ASC will sell more than a million units annually. But the numbers are likely to be much higher: nearly half of all two-door cars sold are convertibles, attesting to the allure of open-air driving. With such large projected demand and automakers hungry for differentiating features, Theodore knew ASC’s announcement of the InfiniVu would bring immediate pressure to produce it, fast.

The right solution, used the right way

ASC had used CATIA V5, Dassault Systèmes’ market-leading V5 PLM solution, for years in its basic design work. But ASC hadn’t implemented the features of CATIA V5 that would allow the company to meet the projected InfiniVu demand. “The bad news was that we weren’t using the tool right,” Theodore says. “The good news was that we had the right tool.”



ASC brought in experts from Dassault Systèmes to help restructure its CATIA V5 data to take advantage of parametric design capabilities and templates. Clarifying and documenting the company's design processes allowed ASC to identify opportunities to streamline processes and eliminate wasted effort, and then to automate those processes using PLM principles. Once the processes were automated, ASC engineers could enter a few parameters about a specific model of automobile – the roof dimensions and surface characteristics, structural integrity requirements, and positioning of side curtain airbags, for example – and the software would immediately morph the design to meet that vehicle's specific requirements.

"The first Infiniti design we did took a year to concept followed by two years of development," Theodore said. "Now, with just the roof surface data, CATIA V5 can determine the optimum length and width, the shape longitudinally and laterally, clear all the external barriers, and generate the design in a matter of a few hours. The entire process from concept to delivery is down to a year. Now that the OEMs have seen it they all want to know how fast they can have it, so that speed is critical."

Unified data generates multiple benefits

But speed is only one of the benefits ASC derives from V5 PLM. Continuous quality improvement is another, because CATIA V5 "allows you to learn and build upon it rather than having to re-learn, which ensures you don't make the same mistake twice," Theodore said.

With CATIA V5, innovation and quality ramp up faster because users build on their knowledge with each new design iteration, delivering more benefit to each successive customer. Accumulated learning and design-in-context also eliminates arbitrary mistakes. Because everyone who works on a design can see not only what has been done but why, eliminating the risk that someone will damage a design by making changes whose impact they don't fully understand.

The benefit that makes all others possible, however, is real-time communication. "Having one set of data that is shared in real time makes information clear and transparent and eliminates a lot of waste," Theodore said. "We practice lean product creation, so we don't want to be working on outdated data or the wrong data, and we don't want to have to catch up on changes after the fact."

"When you take out the waste caused by poor communication of data, you go faster with fewer errors and concentrate on innovation."

Chris P. Theodore
Vice Chairman
American Specialty Cars

The ultimate vision for PLM is that if a change is made, everybody knows about it in the next nanosecond, along with all of the implications for cost, tooling, and assembly.”

PLM-produced products are right first time, every time

ASC has such confidence in the accuracy of CATIA V5's parametric design capabilities that it finished creating a physical, working mockup of an InfiniVu system for an important customer review just one day before the presentation. “We could do that because we knew it would be right the first time, and it was,” Theodore said.

But ASC has only begun to scratch the surface of what it can do with V5 PLM, and it has aggressive plans to continue building on its early successes. The next step is to move into full knowledge-based engineering (KBE) that captures not only design information, but also analysis, tooling, manufacturing and costing information, among others.

“We want to capture all the knowledge that we have, decisions that our engineers make every day without

even realizing it, and build those into CATIA V5 as rules,” Theodore said. “Then, as we adapt our design to each new customer's requirements, we can count on CATIA V5 to apply the rules so that we get every aspect of the design right the first time. We want to expand that into manufacturing, tools and the rest of the bill in terms of cost and weight, reanalyze all those parameters automatically and keep moving forward.”

When all of that work is done for the fabric InfiniVu system, Theodore said, then ASC will be ready to apply the work to its glass- and Lexan-panel versions and build rules that will allow the fabric and solid designs to be interchanged automatically. As the volume of its InfiniVu design data grows, ASC also is reviewing solutions to help it manage that data and the processes that surround it more effectively, including ENOVIA and MatrixOne. ASC ultimately plans to apply its learnings from the InfiniVu product to the rest of its business.

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