CATIA ICEM SHAPE DESIGN
PERFECTION IN VIRTUAL SURFACE DESIGN
Driving the design revolution

The product design process is changing. Product development teams are streamlining, product portfolios have to be designed to satisfy market demand for numerous sub-assemblies, and design precision is paramount. Modern engineers work on more vehicles than the automotive industry. Models are being replaced increasingly quickly and often. New output styles and colors within a branded product (Mercedes Platform) bring within it between 60,000 to 80,000 variants to the market. At the same time, automotive design has become significantly more complex. The industry has experienced revolutionary advances in technology and radical changes in customer expectations in terms of both form and quality, which makes design surfaces hard to project.

These pressures are combining to make the design process even more intensive. Designers need to understand how all their changes impact the rest of the design as quickly as possible. Engineers must manage numerous iterations of vehicle designs, and the design process is a reflection of the design revolution. CATIA ICEM’s unique “Parallel Commands” allow simultaneous surface creation and modification, providing significant efficiencies and improved workflow for optimized efficiency.

Key Benefits
- The only highest quality Class A surface modeling solution fully integrated within CATIA
- Unique “Parallel Commands” simultaneously surface creation and modification
- Optimized workflow, for optimized efficiency
The CATIA ICEM solution suite is unique in the market. No other surface design solution allows design professionals to create stunning surfaces of all types, and accurately measure and see the impact of individual changes to other parts of the design. No other surface design solution fits better within the all-encompassing product development environment.

Because Class A surfaces cannot be developed properly in isolation, the integration with the virtual design environment is crucial to maximize the efficiency and effectiveness of the entire product development process. The greater the emphasis manufacturers put on the development of Class A surfaces, the closer design and engineering teams have to work together, making that integration still more important. Without it, the resultant gaps in the development process chain lead to engineering headaches and expensive redesigns.

CATIA ICEM was the first Class A surface modeling tool to be fully integrated into CATIA virtual design environment, setting a new standard for Class A modeling. Users can now work towards the surface quality required for the final product through the entire development process within a single system, and without converting or losing data. Using a single common data format for designs, from end to end – as opposed to different formats from standalone, incompatible systems – results in improved workflow efficiency, as well as significant time and cost savings.

In addition, data models created in CATIA ICEM can be used in CATIA. Ultimately, this means greater freedom and flexibility for design professionals and greater developer and time-effective complete development process. This integration covers the entire development process chain, from a software-based development to now you see it

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Key Benefits

- One single solution for the whole product development process, from design to manufacturing
- Integrated associative product development environment
- Real-time diagnosis, ensuring surfaces high-end quality
- Hybrid modeling environment with both explicit and feature-based approaches
- Efficient easy-to-use tools and commands

CATIA ICEM was the first CAD solution to create surface objects that can be integrated into CATIA virtual design environment, setting new standards for Class A modeling. Users can now work towards the surface quality required for the final product throughout the entire development process within a single environment, and without converting or losing data. Using a single common data format for designs, from end to end – as opposed to different formats from standalone, incompatible systems – results in improved workflow efficiency, as well as significant time and cost savings.

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CATIA ICEM Shape Design Center
ICEM Shape Design Center is the foundation of the ICEM Shape Design product portfolio. It offers advanced surface and curve functionality to create, modify, and analyze workable and ergonomic shapes in the highest quality. Based on traditional and modern surface-modelling techniques, it introduces a strong associative and feature-based modeling methodology to dramatically improve the productivity within the Class A process. It also delivers new levels of integration in the overall product development workflow.

CATIA ICEM Shape Design Expert
ICEM Shape Design Expert offers an extended tool set that complements ICEM Shape Design Center. This add-on module enables the creation and modeling of aesthetic and ergonomic shapes using advanced global surface-modelling and shape-modelling capabilities. It also provides specialized Class and dedicated industry-specific functionalities such as advanced editing, list management, gap creation, and accelerated surface.

CATIA Freestyle Sketch Tracer
CATIA Freestyle Sketch Tracer is an add-on module that enables the integration of designers’ work into a 3D format for creating 3D virtual mock-ups. An intuitive toolbox helps the user to create 3D data from 2D sketches.

CATIA Digitized Shape Editor
CATIA Digitized Shape Editor is an add-on module that addresses the import, filtering, trimming, tessellation, and character line definition of digitized data from 3D scanners and coordinate measuring machines.

CATIA Quick Surface Reconstruction
CATIA Quick Surface Reconstruction is an add-on module that simply and rapidly reconstructs surfaces from digitized data and offers several approaches to generating these surfaces, depending on the type of shape required.

CATIA Digital Shape Sculptor
CATIA Digital Shape Sculptor is an add-on module that provides modeling tools to quickly create, edit, or refine a shape from an existing physical model. This approach to creating aesthetic forms allows non-CAD specialists to visualize without the need of traditional CAD tools. CATIA Digital Shape Sculptor empowers designers and engineering teams to explore and create a new world of design and engineering efficiency through a powerful new toolset.

CATIA Real Time Rendering
CATIA Real Time Rendering is an add-on module that enables designers to interactively, create realistic and dynamic renderings and animations, allowing for the evaluation and validation of any design model at any stage. CATIA Real Time Rendering enables designers to create realistic and dynamic renderings and animations, allowing for the evaluation and validation of any design model at any stage.

CATIA Photo Studio
CATIA Photo Studio is an add-on module that generates high-quality photo-realistic images and movies of digital mock-ups by using a powerful ray-tracing engine. CATIA Photo Studio manages reusable scene settings and delivers powerful animation capabilities. By giving a physically realistic simulation of the model appearance, it can be used for final design validation.

Every iteration of CATIA ICEM addresses a wide range of enhancements specifically requested by professional developers and designers. Many of these new features improve the integration between concept creation, Class A surface-modelling and CAD modeling.

The geometry has also been made even more associative. For example, whereas surfaces may previously have had to be parameterized or constructed features allowing surfaces to be defined as features. This allows changes to be made to the surface while maintaining the properties of the underlying geometry. The Class A surface-modelling capabilities have further improved through the introduction of adaptive filling, cutting, and trimming of surfaces. Moreover, commands have also been introduced to make efficient and easy to use for the extraction, manipulation, and modification of surface elements.

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About Dassault Systèmes

As a world leader in 3D and Product Lifecycle Management (PLM) solutions, Dassault Systèmes brings value to more than 115,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes applications provide a 3D vision of the entire lifecycle of products from conception to maintenance to recycling.

The Dassault Systèmes portfolio consists of CATIA for designing the virtual product - SolidWorks for 3D mechanical design - DELMIA for virtual production - SIMULIA for virtual testing - ENOVIA for global collaborative lifecycle management, and 3DVIA for online 3D lifelike experiences.

For more information, visit http://www.3ds.com.

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