MECHANICAL

CATIA PLM Express
CATIA - Mechanical Shape Design

First class solution for mechanical shape design

In traditional systems, design modifications are very complicated, making collaboration between designers complex and delaying product development. Companies require an all-in-one solution to create and verify the quality of shapes.

Overview

CATIA - Mechanical Shape Design provides a unique and powerful spec-driven modeling approach for the creation of high-end mechanical shapes and the intuitive manipulation of free form surfaces. This standard solution for high quality surface modeling promotes efficient concurrent engineering between styling and shape design enabling to optimize the product design workflow.

Customer Benefits

- Recognized as the standard solution in mechanical shape design domain delivering high quality shapes
- Rapid propagation of design changes at any time for easy shape design optimization
- Automatic generation of complex hybrid shapes such as sweeps and blends
- Standard design methodology definition to speed up the design process
- Compliancy with design rules and constraints making shapes ready for manufacturing operations
- Concurrent design empowerment

CATIA

Key Capabilities

Smart feature-based approach to dynamically create and modify all types of wireframes and surfaces

CATIA - Mechanical Shape Design provides a comprehensive set of features for shape design. These include wireframe elements: point, line, angle, plane, curves, circle, (bi-tangent, tri-tangent, through and trimmed), spline, parallel curves, corner on plane, connect 3D, spiral sphere, intersection and projection. It also includes standard and advanced surface features such as extrude, revolute, sweep, (including segment and circle), offset (including skin) and fill. Both standard and advanced combinations of elements use associative transformation, including symmetry, scaling, translation, affinity, extrapolation and fillet.

The most extensive set of advanced surface capabilities on the market such as adaptive sweep

Those advanced functions allow creating rapidly high level and complex mechanical surfaces. It facilitates the capture of design intent and accelerates design changes.

Rapid flattening of ruled and non-ruled surfaces and developing curves on revolution surfaces

It allows flattening ruled and non-ruled surfaces such as cylinders, continuous point blend, and sweeping segment. The user is then able to verify the mathematical surface of a shape. Once the surface is flat, it is easier to manage bulk calculations, raw materials' costs calculation, and manufacturability calculation.

**Wide set of real time analysis tools for quality checking**

It provides immediate visual quality control through real-time curve and surface diagnosis tools.

Powerful law definition to capture design intent

Knowledgeware and laws functionalities included in CATIA - Mechanical Shape Design bring to the user the best in class tool to faster create complex surfaces.

Unmatchable knowledge template creation and reuse for automation of design tasks

CATIA - Mechanical Shape Design enables to reuse the same surface geometry in multiple instances, allowing concurrent engineering to take place. It can reuse a surface geometry linked
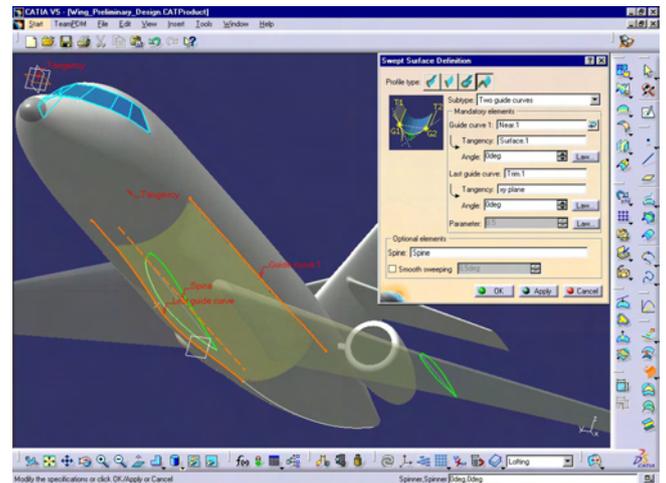
Screen capture of CATIA - Mechanical Shape Design

to an existing surface providing master model design methodologies.

Styled surfaces can be refined and used as references to create mechanical shapes

Thanks to the powerful associativity mechanism, any required design change is easily controlled and rapidly propagated.

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