ICEM Surf Advanced Tools

An add-on module to ICEM Surf Professional, ICEM Surf Advanced Tools delivers dedicated industry defined surface modeling and analysis capabilities to enable the users need to address specific aesthetical design, engineering and manufacturing requirements during the model design and validation phases.

Key capabilities

Surface creation functions

Helix surfaces
Creates Helical surfaces often used for the design of automotive side window glasses that are able to slide up and down along a helix curve and not just along a circular curve.

Accelerated Surfaces
Supporting Styling processes and Press Tool design processes to compensate for the spring back of the sheet metal in areas of bendings, Accelerated surfaces are calculated based on a curve and a smooth transition to reference surfaces.

Tube
Supporting design processes for gaps, the Tube function elegantly create gaps with fillets based on a centre line and width defined in the viewing direction from which the gap will have an equal distance.

Gap
A dedicated function for the design of engineered and manufactured component gap conditions. Offering various different combinations of gap types such as Flanges, Crimp Flanges via an easy to use command interface, creation of fillets and flanges along a guide curve that respecting styling, engineering and manufacturing constraints can be achieved in a single operation.

Corner Blend
Creates a single Patch Blend between 3 intersecting surfaces and a support, with possibilities to interactively manipulate the blend shape via manipulators, adjust its continuity with adjacent surfaces and at the same time perform trimming of the underlying surfaces.

Advanced Fillet
Extends ICEM Surf's filleting capabilities by offering alternative fillet generation types such as Two Chord lengths, 3 Radii, True minimum radius which are associated with styling driven requirements.

Tri-Tangent Fillet
Additional filleting command offering the possibility to generate a fillet between 3 surface supports.

Surface analysis functions

Levelling Analysis
Supporting Styling and engineering processes, the Levelling Analysis command provides the designer the capability to validate the levels of geometry associated to different component designs brought together in a design in context environment.
The analysis is performed across adjacent component geometry, possibly imported, to identify their corresponding component levels and tangency conditions, with the results of presented to the user via Graphical and numerical displays.

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Gap Analysis

Supporting Styling and engineering processes, the Gap Analysis command provides the designer the capability to validate the Gap conditions of geometry associated to different component designs brought together in a design in context environment.

The analysis is performed across adjacent component geometry, allowing the designer to check both the engineering properties of the Gap accuracy, but also in the context of styling criteria whereby the gap can be analysed along a view direction in order to achieve the required aesthetical result.

Flatness Analysis

Supporting manufacturing processes, surface geometry can be analysed for their Flatness to aid the designer in identifying potential areas that could incur spring back within a pressed sheet metal component.

The user can dynamically modify the parameters of the command during the analysis to locate critical areas and identify if the impact to the aesthetical design requires modification to compensate for the manufacturing process.

Nominal Actual Value Comparison Analysis

A coloured shaded analysis which can be dynamically modified by the user is performed on selected and a reference objects to compare their maximum and minimum deviation values.

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Customer benefits

o Industry driven advanced surfacing capabilities that deliver high productivity gains to aid the modeling and design of atheistically shapes, driven by styling and engineering criteria.

o Advanced surface analysis tools to support the styling, engineering and manufacturing criteria within a component design, allowing the designer to quickly detect problem areas before manufacturing begins.

o Avoid costly and time-consuming modification and re-testing loops.

o Reduce the need for physical prototypes

o Easy to use visual and dynamic functionality.

About Dassault Systèmes

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