

Surface Refinement

ICEM Surf Master

Global surface functions



An add-on module to ICEM Surf Professional, ICEM Surf Master extends the capabilities for global modification, creation and diagnosis of surface geometry focusing on global filleting, overcrowning and global connections of surfaces, enabling existing designs to be quickly and easily modified for consistent design integrity and engineering data re-use.

KEY CAPABILITIES

Crowning

Supporting tool engineering requirements, the Crowning capabilities allow the designer to compensate for the spring-back behaviour of sheet metal after the pressing process. Defining one or several positions where form changes should be performed, the user can dynamically adjust the shape harmoniously to new positions, maintaining the design intent and shape characteristics to adjacent surfaces.

Global Filleting

Providing the capability to globally fillet and automatically trim a group of surfaces, previously modelled with sharp edges.

Global Offset

Used for the design and definition of wall thickness of Plastic or sheet metal components, complex multiple surfaces can be offset at a constant distance from the originals, whilst intelligently extrapolating and trimming the new surfaces, to form the required complete surface definition.

Global Blend

Offering advanced global surface blend capabilities to quickly and elegantly fill gaps between surfaces with extensive optional user management of the internal shape and its continuities.

Addenda

Provides the capability to create an addenda surface, consisting of Lines and Arcs along a spine curve as an extension of the part geometry. The segments may consist of lines and arcs.

Feature Design

A powerful function to globally map complex surface shapes lying upon a support to a pre-defined new support. Supporting various applications such as conceptual design in re-using established designs, or for the fast production of form variants in tool engineering of crowning tasks and for maintaining design intent across similar models.

Split-lines:

Dynamic shaded display of the split-line (horizontal line) on a component to aid the design and manufacturing process in determining the pressing direction (Line of Draw) for plastic and sheetmetal parts. Additional benefits include dynamic vector manipulation for the shaded display with active split-line tolerance angle color bands.

Customer benefits

- Precise crowning ability, including edge curve fixing to simulate sheetmetal spring back conditions
- Single command to globally fillet an entire construction, with one common radius.
- Productivity gains achieved in designs of complex areas through Global Offset and Global Blend compared with the single command operations.
- Model complex addenda surfaces in rapid time.
- Split-line analyses enabling quick detection of undercut areas of form.
- Rapid generation of design variants whilst maintaining the original design intent and quality through Feature Design.
- Global form changes can be quickly and exactly reproduced, for future operations, due to the ability to save the modification specifications.
- The unique design methodology of Reality Modelling* within ICEM Surf becomes available.



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