ICEM Surf Scan Modelling
Modelling and Modifying Point Clouds

An add-on module to ICEM Surf Professional, ICEM Surf Scan Modelling allows the user to efficiently handle dense, ordered, or random point clouds generated by automatic laser and photo digitisers. Supporting Reality Modelling** concepts of simultaneously combining facet and surface models with photo-realistic textures*, it is no longer necessary to produce surfaces in all steps of the process chain.

Key capabilities

**Scan Data**

**Formats**
Support of multiple data formats; ASCII XYZ-point, STL-facets, Hymarc, Steinbichler and Renishaw.

**Import**
Import and review capabilities are provided for large amounts of data (several million points) that can be quickly visualised, filtered and separated.

**Export**
The generated facets can be exported in the standard STL-format.

**Scan Management**

**Filter**
Data filtering tools are available to remove redundant points, and to reduce and optimize data size

**Trim and Separate**
Separation of scans in different zones through selection of plane, triangle, polygon, etc..

**Feature Recognition**
Edges, sharp bends, deforming edges etc. are located and marked. For further processing with the possibility to convert to smooth curves.

**Creation of Facets**
To aid visualization, Facet models can be created directly from point data or from surfaces, and with the help of Gouraud-Shading the results can be hardly be distinguishable from surface models. In addition, editing tools are provided to fill holes and to edit the facets.

**Cuts**
Dynamic and incremental cuts can be calculated from both point clouds and from facet models.

**Optimisation**
The facet models can be re-generated and optimized with regard to bend and equilateral edges with Smoothing and Refining tools whilst retaining the shape characteristics.

**Quick Surfacing**
Work directly on the scan models to support demand to quickly generate a surface representation of existing scan models, with less emphasis on the quality of these surfaces.
Customer benefits

- Facet models can be modelled directly without having to create surfaces first (Clay Modelling). Supporting Conceptual design or deep Die drawing analysis processes.

- Easy transfer of facet data between ICEM Surf and other CAD- and CAM-systems by import and export in standard STL format.

- Class-A surfaces can be generated from facet data in a very short time.

- Productivity gains are achieved within the design and visualization processes through the combination of surface and facet data in a homogenous work environment.

- Using Quick Surfacing tools, the user can choose between the very fast Push Button approach, and the more interactive method, and if required, a combination of both.

- A complete or selected area of Scan geometry can be used to generate surfaces in one operation.

- User defined control over the refinement settings (Bezier, B-Spline, surface order and segmentation) are offered in order to achieve the desired surface representation.

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