Create 3D Models from Point-clouds and Meshes

Verisurf provides industry-leading reverse engineering (RE) solutions offered in several suite configurations carefully designed to meet unique application needs. These suites constitute a powerful set of tools for developing CAD models from probed or scanned parts for 3D design, rapid prototyping, and other types of downstream manufacturing.

Engineering outcomes enabled by Verisurf Reverse solutions include:

- ✓ Producing STL files for 3D printing
- ✓ Generating CAD surfaces for CNC machining
- ✓ Developing solid CAD models for manufacturing
- ✓ Creating surface model representations for industrial design
- ✓ Building solid models for Product Lifecycle Management

Scan-to 3D solid modeling has never been this easy. Verisurf Reverse Engineering Solutions pave the way for rapid, finished scan-to-solid-CAD-model workflows no matter the application.
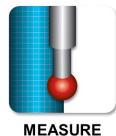
OFFLINE REVERSE ENGINEERING SUITE

Designed for reverse engineering workflows that don't require direct connection to a measuring device for data collection. Easily import point-cloud and mesh data from existing STL, colored-PLY, OBJ, Collada, text, and other, common file formats generated by CMMs, non-contact scanners or other 3rd party applications. Use this suite's extensive editing and point-cloud management capabilities to register, filter, segment, and otherwise manipulate point-clouds. Mesh 3D point-clouds directly in Verisurf and apply this suite's multiple mesh tools and utilities to optimize mesh flows, density, and transitions prior to surfacing.

After importing, creating, or editing mesh data, use Verisurf's various, advanced mesh surfacing functions to fit surfaces through the mesh and create CAD surfaces. As the final RE step, take advantage of Verisurf's complete, integrated CAD system to generate a finished, 3D solid model.

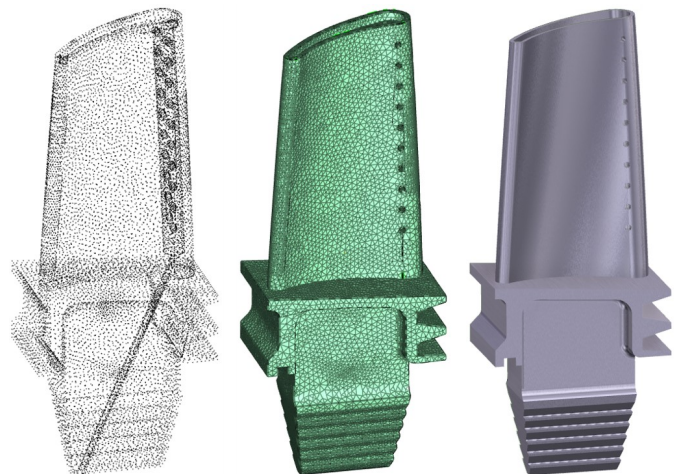### 3D SCANNING AND REVERSE ENGINEERING SUITE

In addition to all of the capabilities in the Offline Reverse Engineering Suite listed above, the 3D Scanning and Reverse Engineering Suite enables connection to any CMM, tracker, scanner, or other measurement device for collecting and managing point-cloud data directly in Verisurf. Create solid CAD models starting from any physical part in record time. The 3D scanning and Reverse Engineering Suite is a unique product designed exclusively for pointcloud to 3D, solid CAD model workflows.

Features and Benefits:

- ✓ Fast part-to-CAD model in a single, integrated system
- ✓ Robust, integrated CAD modeler
- ✓ Easy import, scan/measure, and mesh
- ✓ Extensive point-cloud editing and alignment
- ✓ Advanced *Power Surface* tool

Scan it, mesh it, model it. Whether you start from an existing scan or mesh data set or undertake the measuring and data collection process yourself, Verisurf has a Reverse Engineering solution with the right tools for your application.

QUICK SURFACE OPTION FOR REVERSE

QUICK SURFACE

Quick Surface is a powerful, new option for Verisurf reverse engineering suites that efficiently creates smooth, high-quality surfaces from meshes derived from scan data or STL files. Quick Surface maintains curvature-continuity between adjacent surfaces and is ideal for automatically creating smooth, high-speed toolpaths.
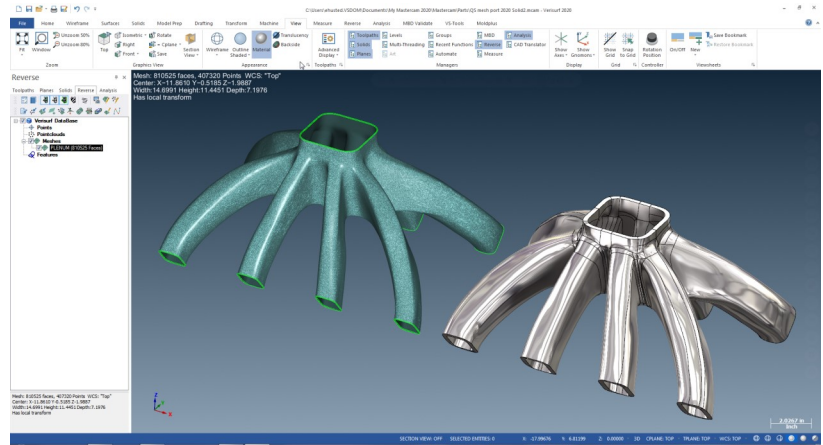
Features and Benefits

✓ Reduce and clean up the number of polygons while keeping the original reference mesh for best results

✓ Quad surfacing for free-form surface reconstruction (not possible with standard surfacing methods)

✓ Real-time fit analysis and advanced snap-to-mesh technology that allows even novices to create complex shapes in no time

✓ Easily creates smooth, high-quality NURBS surfaces on organic shapes with the click of a mouse button
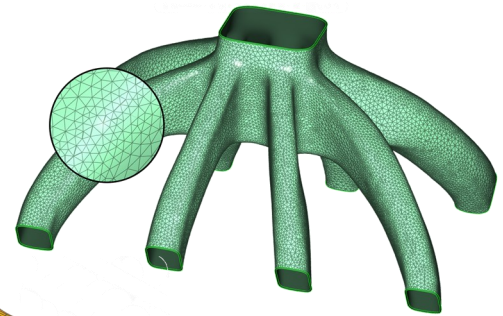
Verisurf Reverse with Quick Surface

The ideal enabler for scan-to-part or scan-to-3D printing workflows

✓ Import and export data in any CAD/CAM format

✓ Combine, segment, register, edit large, dense pointclouds

✓ 2D and 3D pointcloud meshing with multiple, advanced editing and automated optimization tools

✓ Extensive mesh surfacing options with fine tuning controls and a full CAD system for building solid models suitable for downstream inspection, manufacturing, and tool building.
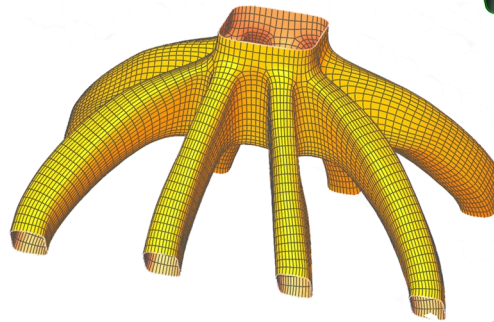

Quick Surface creates smooth, high-quality surfaces continuous across adjacent boundaries that are suitable for downstream machining or 3D printing.
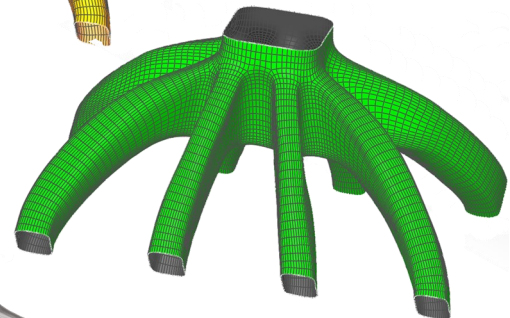

Before Quick Surface: mesh from scan data

Quick Surface quad mesh

Quick Surface fit analysis

After Quick Surface: final NURBS surfaces in Verisurf

* Quick Surface is an option that can be added to any Verisurf reverse engineering suite