VERISURF® 2023

What's New in Verisurf 2023: *Release Highlights*

Verisurf 2023—Your Partners to Mission Success: Verisurf 2023 enhancements feature increased power and performance for complex CMM programming scenarios, advanced mesh and reverse engineering tools, and intelligent GD&T. Creation of a CMM program/plan direct from MBD is a game changer! Also in this release are helpful ballooned drawing inspection features and new file import capabilities, including additive manufacturing-centered formats.

OVERVIEW VIDEO ▶

(CLICK BUTTON BELOW FOR INDIVIDUAL FEATURE VIDEO)

AUTOMATE

Dynamic Edge Points

Simplifies the CMM inspection of thin parts that vary from nominal form. When the parent surface of a thin part, such as a sheet metal stamping, varies from nominal form, measurement of the edge can result in failed probe hits due to incorrect location of the material. Verisurf solves this problem through the use of edge point programming, which automatically adds an index point to adjust the location of the edge point.

- Simplifies CMM inspection of thin parts that vary from nominal form
- Create points interactively or snap to discrete points
- Supports both 3 and 5-axis probing systems
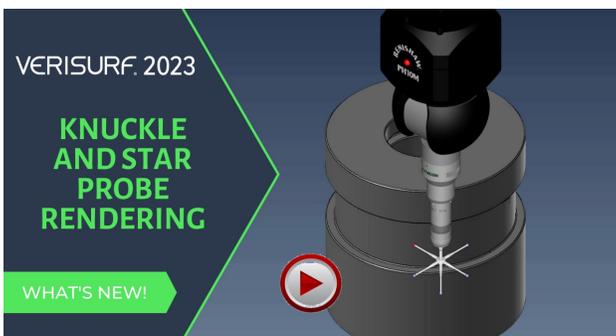
Knuckle and Star Probe Rendering

Enhances CMM inspections through the use of a realistic, graphical representation of the active probe. Accurate rendering simplifies CMM programming using the UCC simulator through intuitive, visual confirmation of probe selection and orientation. Probe rendering works with all knuckle and star-probe configurations, and it supports both 3- and 5-axis probing systems.

- Provides a realistic, graphical representation of the probe
- Works with all knuckle and star-probe configurations
- Supports both 3 and 5-axis probing systems

MBD & MEASURE

MBD Inspection Balloons

Enhances the functionality of model-based definition through the addition of inspection balloons to GD&T callouts. Balloons can be applied to geometric tolerances, such as parallelism, profile, and position, as well as scalar dimensions, such as diameter, angle, and thickness. Inspection balloons appear in the graphics window and become a part of the Verisurf data file for use in inspection plans and reports.

- Automatically adds balloons to GD&T callouts
- Control balloon numbering through tree order
- Streamlines FAI-type reporting

MBD & AUTOMATE

Intelligent Plan from MBD

Further automates inspection-plan programming through the use of intelligent plan creation from MBD. Parts with complex GD&T callouts such as under-constrained references, composite position, and separate and simultaneous requirements, are challenging to program and report. Verisurf meets this challenge by automating the creation of complex inspection plans from associative MBD.

- Intelligently groups features and assigns tolerance values
- Automatically recognizes simultaneous requirements
- Simplifies reporting of complex GD&T callouts.

## MBD
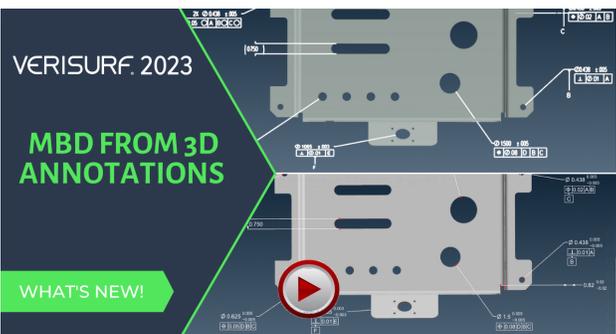
MBD from 3D Annotations

Simplifies the inspection of parts with complex GD&T callouts by mapping Mastercam 3D annotations to Verisurf MBD. Files from Solidworks, Inventor, Solid Edge, STEP, AP242, and files from any CAD system may contain dimension and tolerance data, which Mastercam imports as 3D annotations. With the new MBD from 3D annotations function, Verisurf converts these simple drafting entities into associative MBD callouts.

- Automatically converts 3D annotations to associative MBD
- Simplifies plan creation from MBD
- Supports annotations from numerous CAD platforms
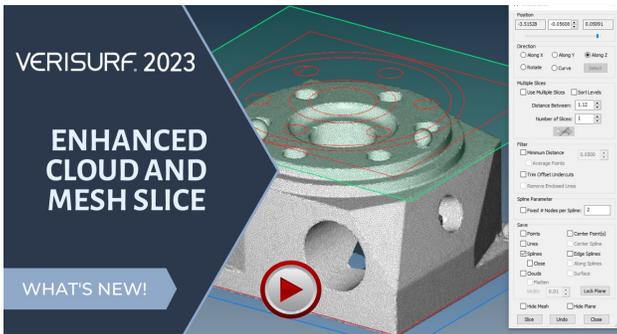
REVERSE

Enhanced Cloud and Mesh Slice

Simplifies reverse engineering workflows through the enhancement of tools to slice meshes and clouds. The Create Slice dialog now features an option to create edge splines from the cropped ends of a mesh, and splines interrupted by holes in the mesh can be closed automatically. These improvements facilitate lofting a surface from a mesh by automating or eliminating a number of additional steps.

- Streamlines reverse engineering using clouds and meshes
- Automatically closes splines and creates edge splines (on cropped meshes)
- Lock plane enables projection of cloud slices

New Mesh Utilities (and more!)

Adds more power to reverse engineering workflows through the addition of new mesh utilities. Tri Mesh produces uniform size from an irregular, closed mesh. Tri Mesh converts meshes created from CAD models or other modeling, to improved uniform triangles for a better mesh. Flatten Mesh models 3D shapes converting them to flat patterns and provides an analysis of the conversion. Expanded mesh information and color maps with analysis can be useful for engineering understanding.

- Tri Mesh – helps with long, sliver triangles creating uniform triangles
- Flatten Mesh – creates flat pattern from 3D shape, includes info on the transformation
- Expanded mesh information and mesh coloring and analysis

New Coarse and Smooth Refine

Provides greater control over mesh refinement through the addition of two new refine options. The subdivide option refines a mesh by connecting the edge midpoints to increase the triangle count without moving the vertices. Subdivision retains the geometry of the mesh while increasing the number of triangles. Refinement using loop divide creates the same number of triangles as subdivision but applies smoothing to increase continuity between triangles. The result is an increase in triangle density with improved smoothness.

- Provides greater control over mesh refinement
- Subdivision retains mesh geometry with an increase in triangle count
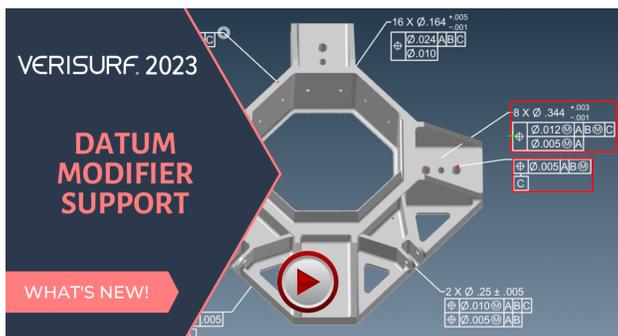- Loop division increases both triangle count and mesh smoothness

MEASURE

- Simplifies cloud measurement through dedicated controls
- Makes scanner filter controls available in measure settings
- New post filter enables smoothing

Measure Cloud Object

Simplifies cloud measurement with non-contact scanners through the use of a new measure function featuring dedicated scanner controls. After choosing cloud measurement, the scanner controls, scan-rates, clipping plane, and pre and post-processing filters, are displayed conveniently on the measure settings tab. This new arrangement simplifies scanning measurements by providing direct access to the controls.

- New Auto Align Features improve the accuracy of scan data alignment
- Prioritized data selection streamlines the alignment

Enhanced Non-Contact Alignment

Improves the accuracy of non-contact scan-data alignment through enhancements to Auto Align. When circle or slot targets are used with a cloud or mesh to align data to a model, Verisurf fits an inscribed feature through the nearest points sampled evenly around the circumference. The calculated center point of the inscribed feature is then used for the alignment. These enhancements improve the accuracy of Auto Align in every workflow, including device alignment, reporting, and automation. When Auto Align results are saved as an Analysis object, Verisurf now exports the fitted-feature objects along with the graphical results of the cloud or mesh alignment analysis. This information facilitates reporting and traceability.

- Supports datum modifiers for position and profile callouts
- Automatically configures the DRF alignment
- Simplifies analysis of callouts with simultaneous requirements

Datum Modifier Support

Provides enhanced GD&T analysis through the addition of datum modifier support for position and profile as well as advanced options for composite position reporting. These enhancements yield the most accurate possible analysis of GD&T callouts for complex part inspections.

Verisurf 2023 includes additional improvements beyond these highlights.

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