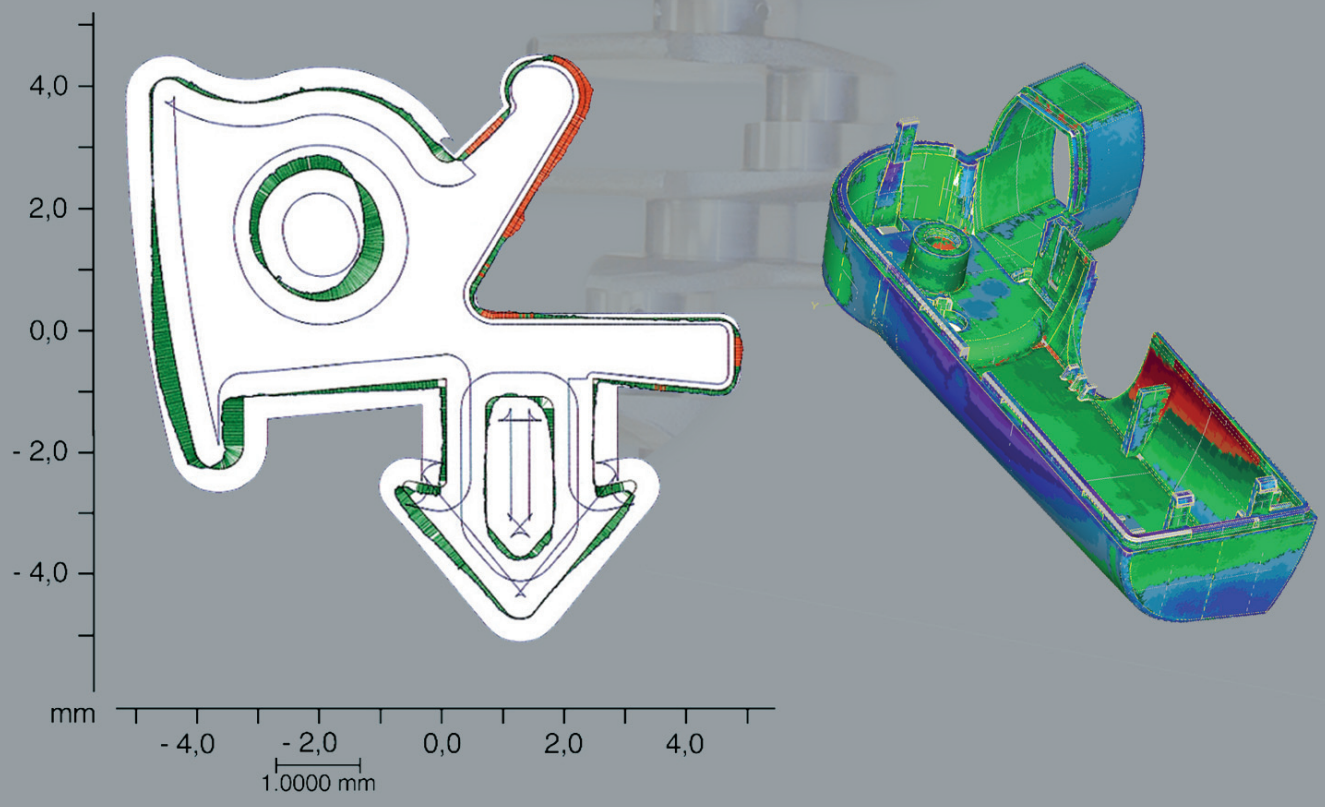
Release Information WinWerth 8.40
New Features

WinWerth®

THE 3D MEASUREMENT SOFTWARE FOR ALL TASKS
ON THE SHOPFLOOR AND IN THE LABORATORY



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WinWerth® Version 8.40

Dear Customers,

We are pleased to introduce the new version of our WinWerth® 3D measuring software, WinWerth® 8.40.

Version 8.40, convinces with an interactive operating concept especially through increased ease when taking measurements with tactile sensors. Among other improvements, the automatically generated scanning paths and point distributions (with or without CAD data) leaves almost no wishes unfulfilled. Of course, these new and convenient functions for changing and adapting measuring programs as well as the feature-oriented measurement capabilities can also be used with optical sensors and X-ray tomography.

A new feature has been added to the image processing sensor. Raster scanning along a predefined path, this enables even large workpieces to be measured entirely at a high measurement speed. The analysis of the features is then simply performed "in the image." Functions such as "AutoElement" or "AutoCalculate" make it simple to use this approach.

This year in the field of computed tomography we are announcing new solutions for measuring workpieces made from several different materials as well as a specialized process for high-resolution measurement of complex workpieces.

A number of other innovations make working with your Werth coordinate measuring machine easier. Many features are integrated as standard, others are available as application-specific options.

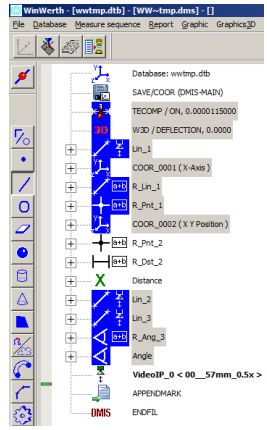
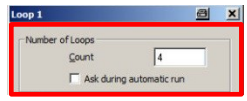
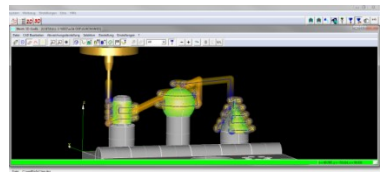
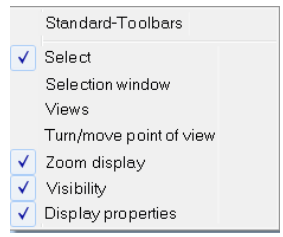
Have we piqued your interest in WinWerth® 8.40? If so, please request an upgrade offer for your Werth coordinate measuring machine. Please contact our sales team by phone at +49-641-7938-519, send an email to export@werth.de or contact your local dealer.

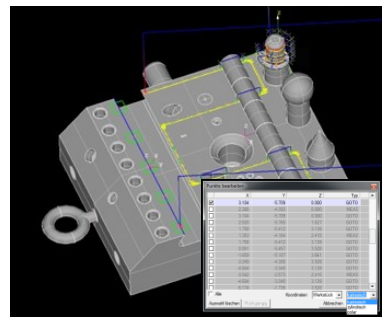
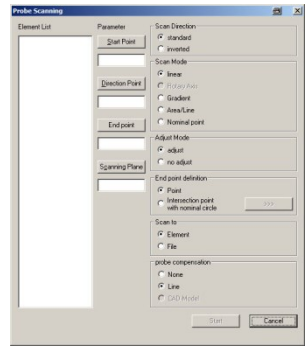
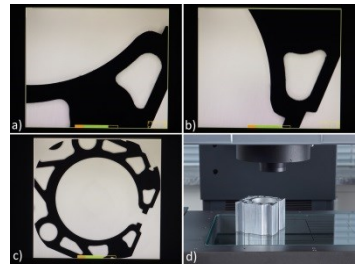
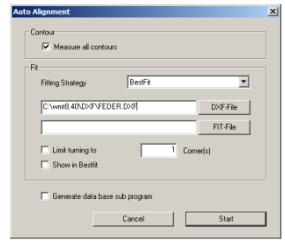
We wish you continued success in working with WinWerth®.

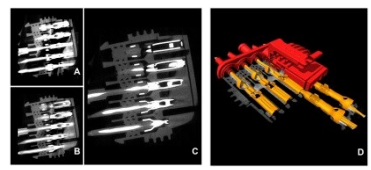
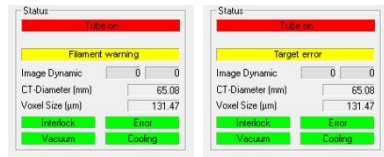
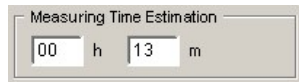
Sincerely yours

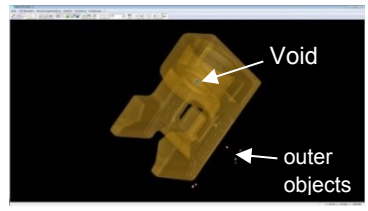
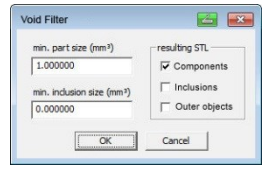
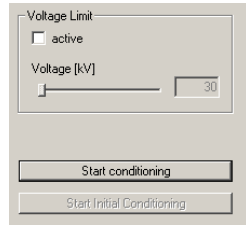
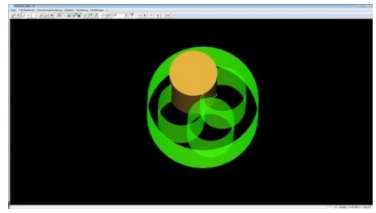
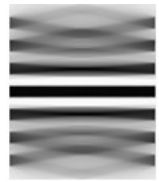
Your Werth Messtechnik GmbH team

Contents

WinWerth® General Functions (Standard)	**Feature-oriented Measurement** • Measurement of selected features from a measuring program • After selecting the desired features WinWerth® automatically identifies the relevant basic elements with the associated settings and the orientation of the workpiece • This creates a feature-oriented program extract, which can be stored or processed as a sub or main program • Fast generation of a new measurement program: For example, creation of a program out of a large program for first article measurements	 *Feature tree with selected elements*
WinWerth® General Functions (Standard)	**New Features for Loop Definition** • It is possible to define the number of loop iterations at the beginning of a measurement • this allows, for example, measurement with variable number of identical parts	 *Loop menu*
WinWerth® General Functions (Standard)	**Visualization of Sensor Paths in the 3D-Graphic** • For better testing and optimization of the measurement process, the travel paths are displayed in a new way in the 3D Graphics • Display / suppression of travel path information by toolbar or menu • Selection of presentation details via the menu (default – sensor center point, maximum – sensor center point and probe tip) • Dynamic visualization before and after the cursor position configurable in the toolbar • Offline collision check possible	 *Visualization of sensor travels*  *Toolbar*
WinWerth® for Image Processing and Computed Tomography (Option)	**Videostream** • The contents of the image processing monitor can be recorded as a videostream, for example, for documentation purposes	
WinWerth® for Tactile and Optical Point Sensors (Standard)	**Extended Scan Path and Point Distribution Modes for Tactile and Optical Sensors** • Ergonomic measuring of all geometric elements with tactile and optical sensors • Time-consuming manual positioning of the sensor is no longer necessary • Many different strategies can be selected, for example for plane: meander, spiral etc.	

	• Improved editing of the point distribution, such as: - Marking, deleting and editing of individual points and scanning paths - Editing directly in the 3D graphics ("drag and drop") or by numerical input - Editing within workpiece and element coordinates (cartesian, cylindrical and polar) - By updating with the "preview button" offline collision analysis is possible • Generating of nominal elements for the distribution of points by entering the parameters, interactive measuring or from the CAD model • Combination of the point distribution also possible for rotary/tilt axes, for example, for measuring concentricity, runout, roundness, cylindrical shape etc.	 *Scanning path and points distribution on the CAD-model*
WinWerth® for Tactile and Optical Point Sensors (Standard)	**Increased Number of Probe Indices** • The number of indices for trigger and measuring probes, the Werth Laser Probe WLP and the Chromatic Focus Probe CFP is practically unlimited • Thus, it is possible for example to save any number of calibrated styli • The number of indices is dynamically increased	
WinWerth® for Tactile and Optical Point Sensors (Standard)	**New Features for Probe Sphere Correction** • For the measurement of gears, for example, the center coordinates of scanned contours of the probe ball are required • The strategy of the sphere correction can be selected in the WinWerth® scanning dialog • The following options are available: - No correction - Correction using the CAD-model - Standard correction	 *Menue „Probe Scanning“*
WinWerth® for Image Processing (Option)	**Rasterscanning HD** • Automatic capture of large areas with high structural resolution using continuous, overlapping image recording during movement, with subsequent superimposition of the individual images into a high-resolution overall image (patent) • Reduction of the measurement time, as there is no need to position the sensor to every single feature • Reduction of the measurement uncertainty, because for each measurement multiple images are superimposed in different positions	 *Image detail at the start a) and end b) of the predefined circular path, overall image c) and workpiece d)*
WinWerth® for Image Processing (Option)	**AutoAlign** • Automatic detection of the workpiece in a raster image with subsequent alignment by fitting to a reference element, e.g. CAD • By using measuring windows, sections of the measuring range can be used for the Auto Align function (multiple part measurement with QuickInspect)	 *Dialog „AutoAlign“*

Computed Tomography (Option)	**Sectioning of Point Distributions (STL)** • A point distributuion (STL) can be separated to different locations: - Separation on a section contour between the point cloud and a regular geometric element - Separation of a manually defined cutting contour • Openings on the separated point cloud can be closed planar or curved	 *Calculation of material volume*  *Calculation of filling volume*
Computed Tomography (Option)	**Extented Volume Calculation** • In addition to the material volume the filling volume of a workpiece can be calculated • After disconnecting and closing a portion of the point cloud the filling volume can be calculated • Allows for example the calculation of: - the required amount of material for plastic injection molded plastic parts - the dead volume in fuel injectors - the filling volume of vessels • Volumes can be added and subtracted	 *Calculation of material volume*  *Calculation of filling volume (blue section)*
Computed Tomography (Option)	**Multi-Spectra-Tomography** • In a CT measurement metal pins for example often cause artifacts due to beam hardening and scattered radiation. Historically, these effects made the measurement of the plastic enclosure much more difficult. The Multi-Spectra-CT offers an innovative solution for workpieces made of multiple materials. WinWerth® takes two CT measurements with spectra tuned to a specific material and computationally combines them into a single volume • By reducing the artifacts in the volume, dimensions measured between the different materials have a lower measurement uncertainty or are now made possible	 *By combining several CT measurements (A and B) tuned to each specific material, artifacts are minimized (C and D)*
Computed Tomography (Standard)	**Increased Ease of Use** • User-friendly display of the tube status: - Filament status - Target status • For the early detection of wear and reduction of downtime through timely preventive maintenance • Display of the currently set magnification parameter: - Voxel size - Measuring range • Estimate of measuring time directly visible in user interface	 *Status display computed tomography*  *Display of the estimated measuring time*

Computed Tomography (Standard)	**Void filter** • Using the void filter voids or outer objects can be removed from the STL point cloud • Evaluation of CT measurements without disturbing voids and inclusions • Voids can be sorted by size, and can be analyzed and presented separately	 *Component in STL representation with voids and external objects*  *Dialog void filter*
Computed Tomography (Standard)	**Conditioning** • User-specific limitation of the maximum voltage of the X-ray tube • Significant reduction of the warm-up time of the X-ray tube, in particular in X-ray tubes with an acceleration voltage of 300 kV • Warm-up start at user-defined times possible	 *„X Ray“ Tool*
Computed Tomography (Option)	**Visualization of the CT Measuring Range in the 3D-Graphic** • Clear graphical representation of the measurement range of the currently selected magnification • Simplified teaching of CT measurements particularly for ROI measurements	 *Presentation of the possible total measurement range (outer green cylinder), the current measuring range (brown cylinder) and other possible partial ranges (ROIs, internal green cylinder)*
Computed Tomography (Option)	**Cone Beam Artifact Correction** • Artifact correction for measurements with short focus-detector distances, with increase of X-ray radiation on the detector for brighter radiographic images and shorter measurement times • With the cone beam artifact correction, artifacts at the top and bottom of the detector edges are corrected. Accuracies are achieved which were only possible with large focus-detector distances (smaller cone angle) • Thus a significant reduction of the measurement time by using larger cone angles while maintaining high image quality in the CT volume is possible	  *Measured volume* *Corrected volume*

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