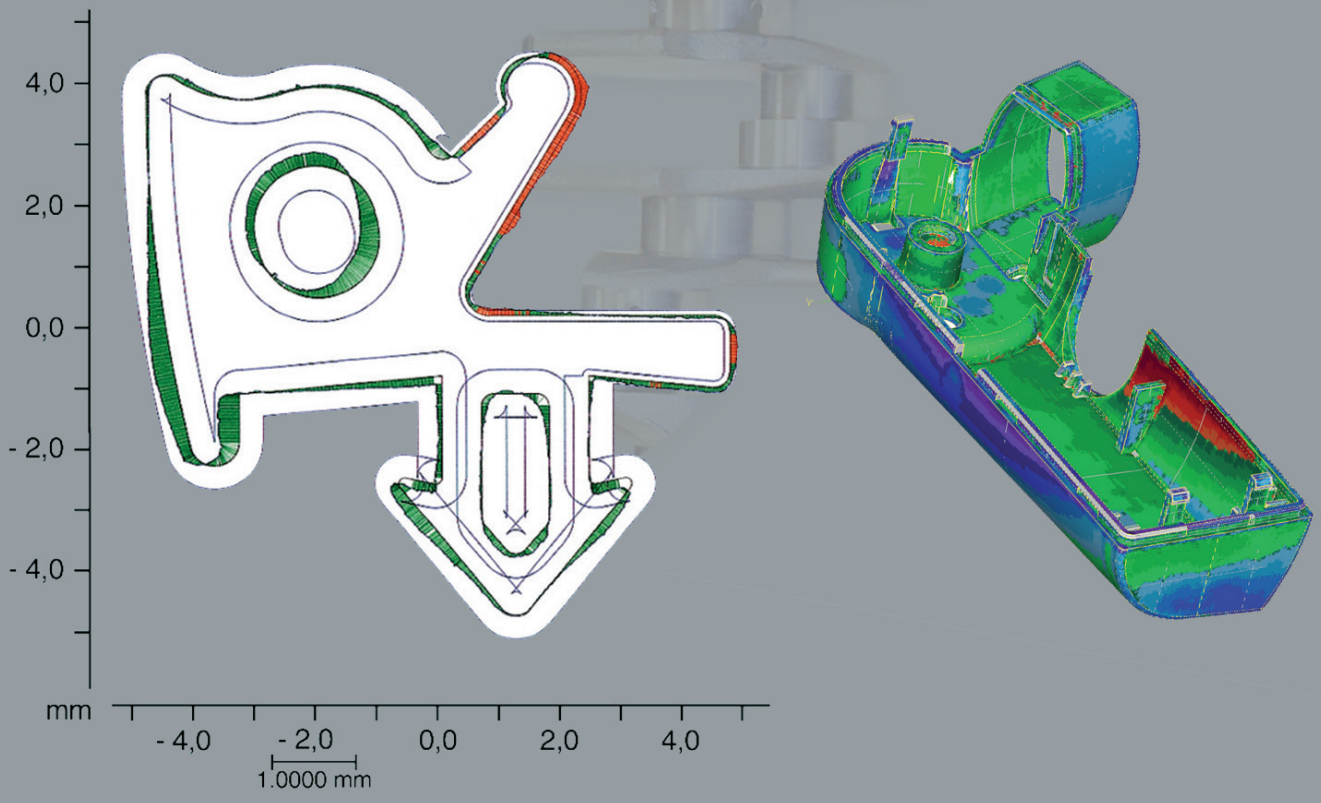
Release Information WinWerth 8.34
New Features

WinWerth®

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



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WinWerth® Version 8.34

Dear Customers, We are pleased to introduce the new version 8.34 of our WinWerth® 3D measuring software. Tomography measuring machines have been supplied with this version for several weeks. Within the next few months delivery of the other machine types will be switched to this software version.

The version 8.34 is of particularly interest for CT-users because new features for the CT sensor were integrated. Another development focus of this version is the expansion of functions for CAD-based programming in online and offline mode.

Have we piqued your interest in the WinWerth® Version 8.33? If so, please request an upgrade offer for your Werth coordinate measuring machine. Please contact our sales team either by phone at 0641-7938-519 or send an email to vertriebsinnendienst@werth.de.

We wish you continued success in working with WinWerth®.

Sincerely yours,

Your team from Werth Messtechnik GmbH

Contents

WinWerth

Standard

Evaluation of wall thickness for 2D profiles

A new function for the wall thickness measurement of 2D profiles has been integrated into WinWerth.

Going beyond the functionality of a caliper, the thinnest point in several positions can be determined. The width of the “slice” and the distance of the “slices” are adjustable.

WinWerth

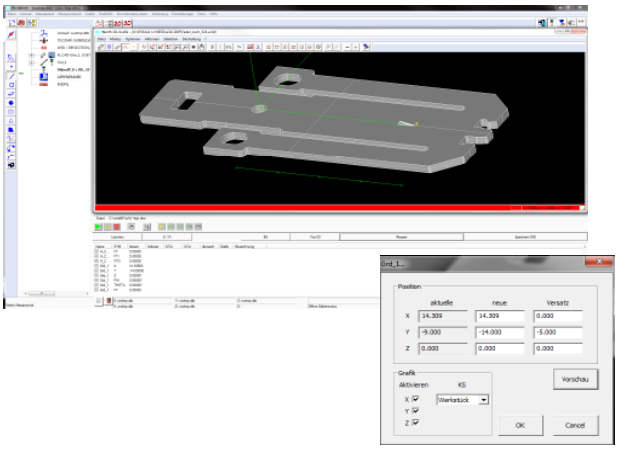
Standard

Graphical support for editing of part measuring programs

A convenient editing feature for the position of measured elements, including corresponding technology parameters, now enables rapid adaptation of existing DMIS programs.

By entering an offset or assigning of a new position i.e.:
- Elements (N-point elements and single-point elements)
- Subsets of an N-point element
- Group selection of elements (complete start-End-point scans)

can be moved anywhere in the measuring range.

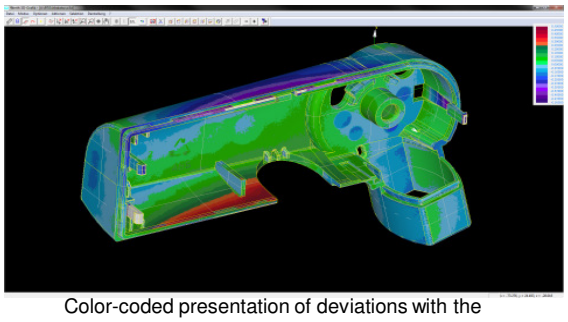


WinWerth

Standard

Werth 3D-CAD Viewer

The Werth 3D CAD Viewer is now available as a free download from the Werth homepage. Measurement results that were previously generated in WinWerth can be presented in the 3D viewer either interactively or automatically. With a color-coded plot of deviations between the workpiece and the CAD data, the results can be easily observed and optimization actions (such as tool corrections) can be determined. By simply clicking on the 3D model, the deviation of the corresponding measurement point to the CAD model is displayed graphically with a label (flag). Due to easy installation and operation, the Viewer is ideally suited to present and analyze measurement results in-house or externally.



Color-coded presentation of deviations with the Werth 3D-CAD viewer

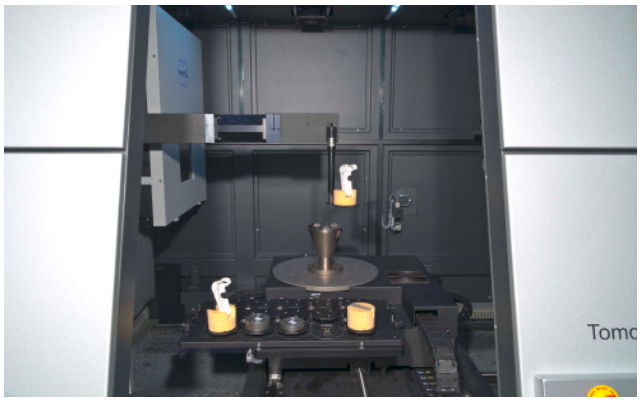
WinWerth

Option

Workpiece changer integrated into the measuring machine

The control of the unique Werth workpiece changing system has now conveniently been integrated into WinWerth. Using this software function, measurement parameters (such as magnification, X-ray parameters or beam hardening filters) as well as measurement programs are assigned to each workpiece carrier. After positioning of the completely programmed workpiece holder in the machine, the positioning of the workpiece and the processing of the previously assigned measuring programs are performed automatically.

This approach enables the full automatic measurement of workpieces sequentially, without lost time for additional setups or setting the machine parameters.



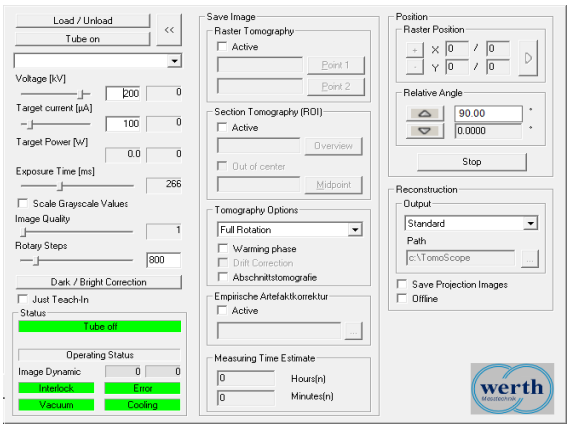
Workpiece changer of the HV Compact TomoScope

Computed Tomography
Standard

Computed Tomography in TeachEdit

The TeachEdit mode allows the combined teaching and editing of different measurements and evaluations in one measurement program. This measuring program can be executed automatically as often as required for identical part types.

In addition to the integration of the CT sensor in the TeachEdit mode, the user interface for the sensor in WinWerth has been revised. The dialog box is divided into two views. The standard view contains basic functions such as tube and detector parameters, while the expert view can be used to control region of interest (ROI) tomography, artifact correction and raster tomography.



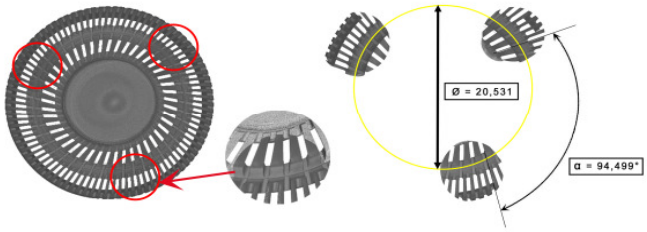
New user interface CT sensor

Computed Tomography
Standard

Multi-ROI-CT

The quality of a tomographic image depends in many cases on the measurement parameter settings.

Now for the first time the patented Multi-ROI-CT enables several regions within a workpiece to be measured with high resolution. The positions of the multiple regions are always in workpiece coordinates. The patented process preserves the exact references of the areas to each other.



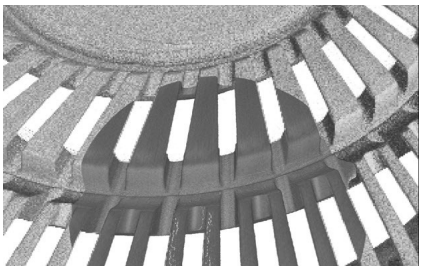
Areas of multi-ROI-CT on an electric razor

Computed Tomography
Standard

Merging of STLs with different resolutions

After the tomography, the data of the overview tomography with lower resolution and the high resolution ROI scans are automatically “assembled” and evaluated.

Advantage: The analysis and metrology evaluation can be done on a common point cloud with application dependent resolution.

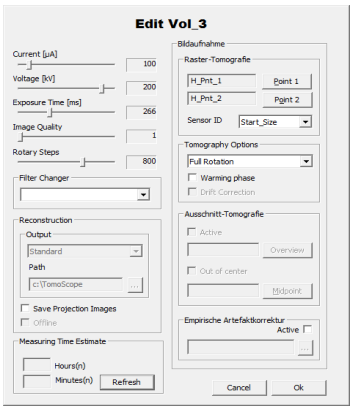

Merging differently resoluted STLs

Computed Tomography
Standard

Editing function for Computed Tomography

Existing measuring programs can now be easily edited using the feature tree.

Advantage: Existing measuring programs can be optimized and modified any time.



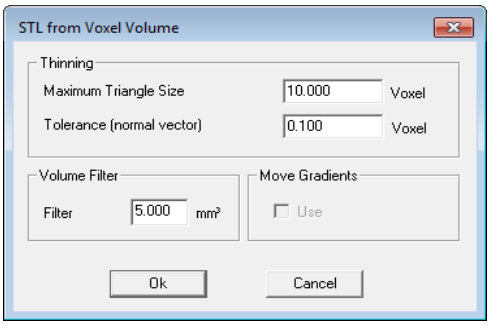
New user interface CT sensor

Computed Tomography
Standard

Calculation of point clouds (STL) from volume data with different parameters

Volume data can now be saved under desired file names. In order to calculate corresponding point clouds (STL), a new feature has now been fully integrated as computing strategy in the TeachEdit mode. A new dialog box for parameter settings simplifies the operation.

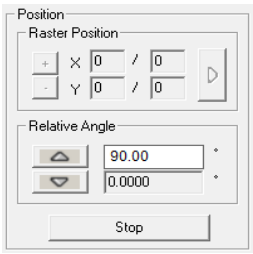
Advantage: Multiple calculations of point clouds from one volume with individual thinning and filter parameters is possible.



Computed Tomography
Standard

Positioning control of sensors for tomography (even with rastering)

The operation of the grid tomography was optimized during the integration of the CT sensor in the TeachEdit mode. After defining the desired measuring range by definition of the two extreme points, WinWerth automatically calculates the number of scanning steps and the positions in the X and Y directions. The positioning can be checked before the measurement is carried out (i.e. the workpiece is fully reachable with all sensors and can be fully rotated).



User interface CT sensor

Computed Tomography
Standard

Teach-in on the CT CMM with reduced measuring time

The new function "just teach-in mode" enables more efficient teach-in of measuring programs with the CT sensor. The complete measuring run is taught as usual with activated X-ray tube (including the corresponding technology parameters), but the tomography process itself can be performed time optimized. The “full” measurement (tomography) itself is performed later in the final automatic run.

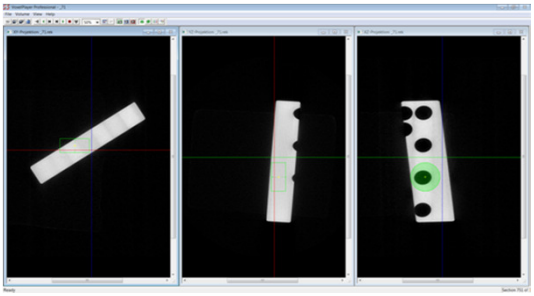
Advantage: The time for the teach-in procedure is reduced.

Computed Tomography
Standard

Trimming / extracting of CT volumes

Measured volumes can now be optimized (trimmed, cut, extracted) interactively in WinWerth. Correct trimming of the volume reduces the amount of data and thus increases the evaluation speed.

Advantage: Partial volumes of multi-material workpieces can, for example, be extracted to calculate several STL point clouds.

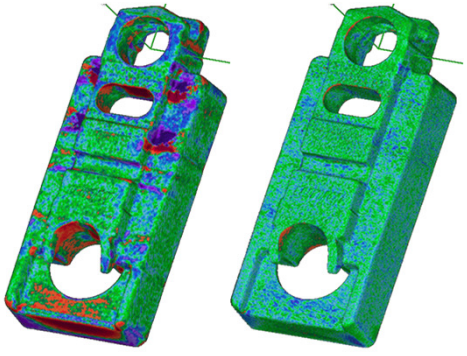


Computed Tomography
Option

Empirical artifact correction (EAK) to increase the accuracy

The correction of artifacts is done empirically (from observation).

All occurring artifacts (beam hardening, scattered radiation, ...) are merged together. The correction curve is determined from the contexts of transmission length to the expected weakening / gray value in the radiographic image. The later correction of radiographic images is done based on these determined characteristic curves before reconstruction. These corrections may be applied to other CT measurements.



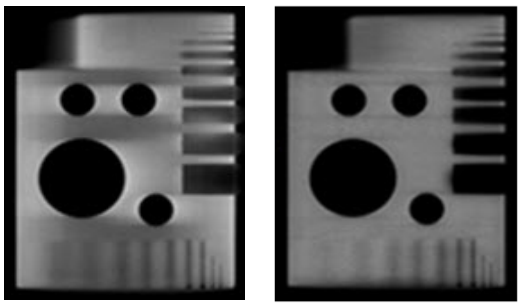
Computed Tomography

Option

Virtual Autocorrection (VAK)

In this method the determination of the artifact correction is made by simulation (calculation of theoretical physical models taking into account the artifact development, the workpiece geometry and the machine properties).

Here, the artifact types are individually simulated on master parts, measuring objects or CAD data and considered accordingly. Occurring artifacts are, for example, beam hardening, scattered radiation, cone-beam artifacts, but also other effects. The correction to the data collected is then performed accordingly on the radiographic images, volumes or even point clouds.
These corrections may be applied to other CT measurements.



Volume section through a 200 mm aluminum block - left without and right with virtual Autocorrection

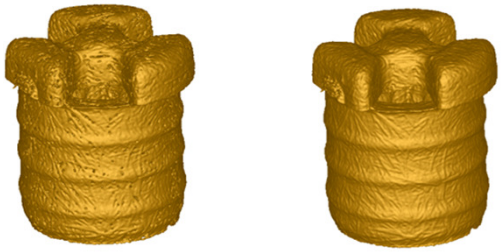
Computed Tomography

Option

Filtering of glass fibers in plastic composite materials

A new software filter now allows for measurement of small workpieces made of glass fiber reinforced plastic.

With small workpieces, artifacts more often occur which are due to the significantly higher density of the reinforcing fibers. These effects are completely eliminated by new filtering techniques.



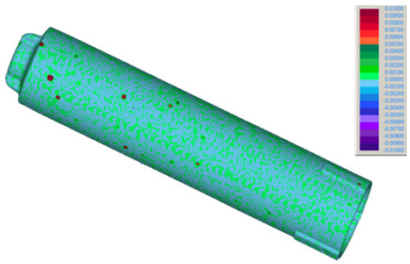
Computed Tomography

Option

Filtering of metal chips in plastic components

A software filter is now available for the measurement of workpieces with impurities (e.g. metal chips in plastic parts). So far, this filter was available only as an option for a tomography.
Now the filter function is freely adjustable as well as in the teach-in and in automatic mode.

Advantage: The filter can be applied on each volume that is loaded or measured in WinWerth - even at a later date.



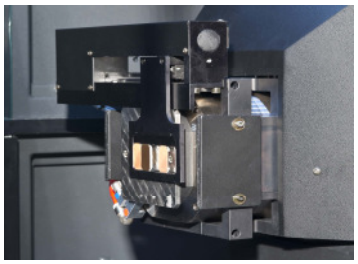
Computed Tomography

Option

CNC hardware filter changer

A newly developed CNC filter changer is now available.

The filter changer can now be completely moved out of the measurement range. This enables minimal distances between the workpiece and the X-ray tube and thus the setting of higher magnifications. Previously, the workpiece could only be positioned in front of the filter changer.



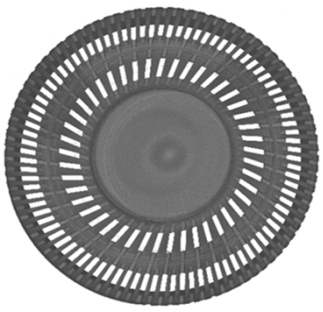
CNC filter changer on the HV Compact TomoScope

Computed Tomography

Option

Fast reconstruction

The increasing requirements for higher resolutions are now met by high-resolution 4000 x 4000 pixel detectors.
With this high-resolution detector in combination with Werth Raster Tomography, volume sizes of 48 billion voxels (48 Gigavoxel) can be scanned. To still be able to process the enormous quantities of data in real time, the reconstruction hardware and software of the TomoScope® and TomoCheck® series machines have been upgraded. For example, a standard "in the image" measurement with 4096^3 voxels can now be done in real time.



Shaver head of an electric razor
48 GVoxel - voxel size 1 micron

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New Features

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