

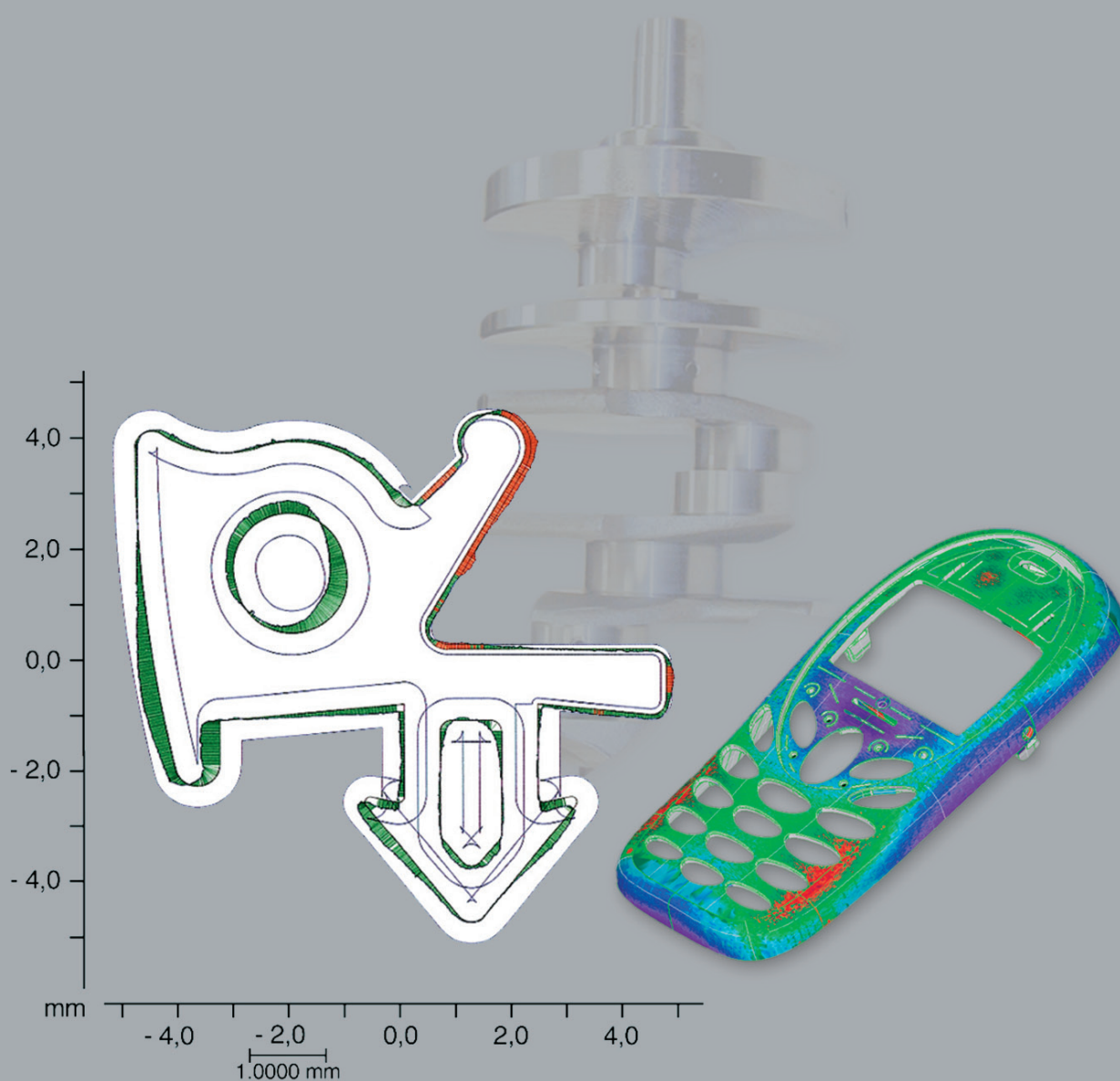


# Release Information WinWerth 8.33

## New Features

# WINWERTH®

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



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## **WinWerth® Version 8.33**

**Dear customers of Werth Messtechnik GmbH,**

**We are pleased to introduce the new version 8.33 of our WinWerth® 3D measuring software. New machines will be delivered with this software version based on the Windows 7 operating system.**

**To increase the operational benefits of your Werth coordinate measuring machine concerning ease of use, flexibility and speed, we have integrated many new features in version 8.33 and optimized existing functions.**

**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](mailto:vertriebsinnendienst@werth.de).**


**We wish you continued success in working with WinWerth®.**

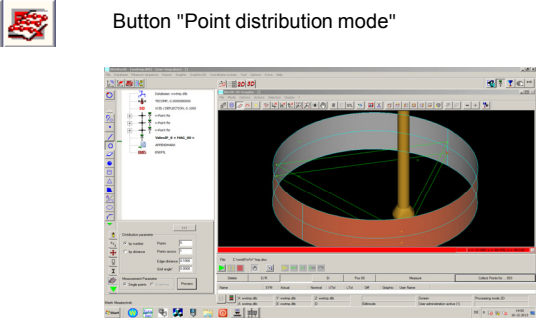
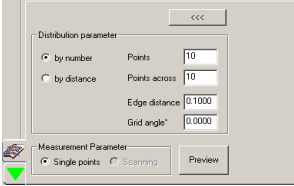
**Sincerely yours,**

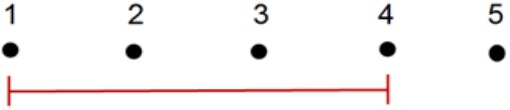
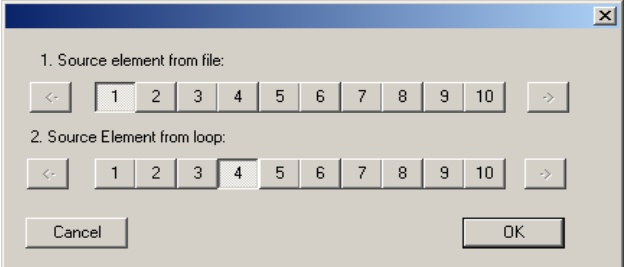
**Your team from Werth Messtechnik GmbH**

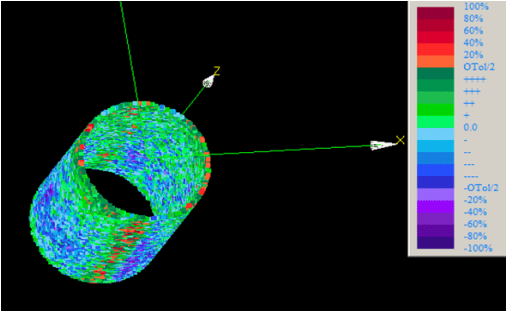
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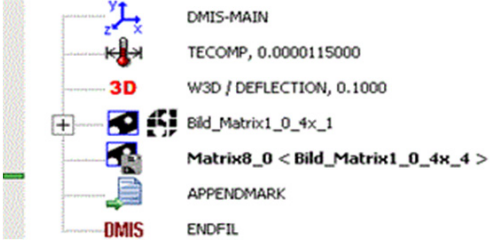
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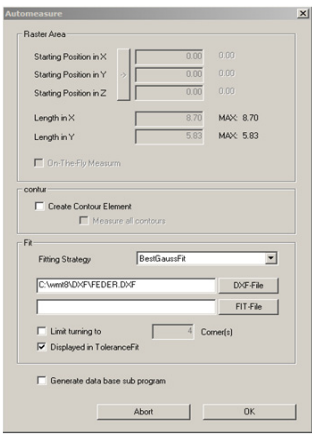
<p><b>WinWerth</b> Standard</p>	<p><b>WinWerth Version 8 under Windows 7 / 64 Bit</b></p> <p>All new machines are now supplied with the operating system Windows 7 64 bit and the software version WinWerth 8. The 64-bit system supports more working memory than a 32-bit system. This results in a performance boost, which brings significant speed advantages, particularly when evaluating 3D point clouds.</p>	
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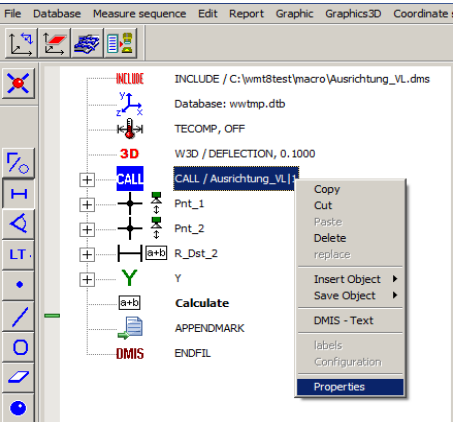
<p><b>WinWerth</b> Standard</p>	<p><b>Element Macro</b></p> <p>The Element Macro enables automatic measurements of geometric elements with any sensor. After the manual probing of the mathematically necessary minimum number of points, the additionally desired points are distributed automatically (see figure at right). The selected sensor sequentially measures the indicated points and the measured element is displayed in the feature tree and graphic window. The time-consuming teach-in process of the measurement is optimized.</p>	<p>Button "Point distribution mode"</p>  <p>Calculated element in graphic window</p>  <p>Point distribution tool</p>
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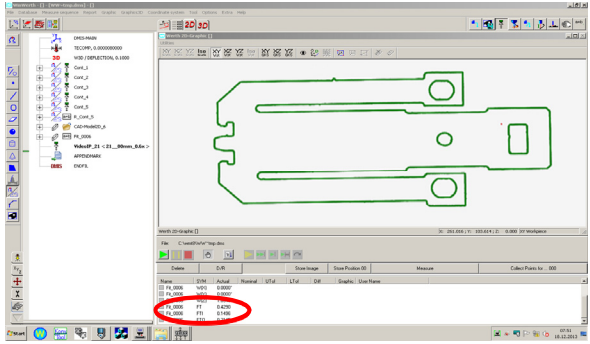
<p><b>WinWerth</b> Standard</p>	<p><b>Loops</b></p> <p>By using the loop programming, as many identical features of a measuring object and / or any number of similar measuring objects can be measured (the number is limited only by the measuring range). The loop programming can be roughly divided into loops for repetitive features and loops for the palette measurement of components.</p> <p><b>New:</b> Now, connections between single elements within the loops are also possible (see figure at right).</p>	  <p>Connection between certain loop elements (e.g.: first and fourth element)</p>
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<p><b>WinWerth</b> Standard</p>	<p><b>3D Graphic Window</b></p> <p><b>The 3D graphics supports the:</b></p> <ul style="list-style-type: none"> <li>- Visualization of measured, calculated and manually entered 3D standard geometric elements</li> <li>- Selection of elements or their flags. The selected elements are also highlighted in the feature tree. Similarly to the 2D graphics, integrations of elements can also be calculated here.</li> <li>- Display of form deviations of standard geometric elements.</li> </ul> <p><b>New:</b> The 3D display of standard geometric elements is now standard.</p>	 <p>Color-coded presentation of form deviations</p>
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<p><b>WinWerth</b> Standard</p>	<p><b>Element Image</b></p> <p>The element Image (see figure at right) has been integrated in WinWerth as a new element. In contrast to simple video image (WinWerth video functions), which is used solely for documentation purposes, the corresponding calibration data are stored with the image element. Thus an image is available for evaluation any time. For the element image, the measurement strategies "raster scanning" and "measure image" are available. The measured images can be evaluated by WinWerth later on (see illustration at right).</p> <p><b>Using the image element:</b></p> <ul style="list-style-type: none"> <li>- Images recorded with the coordinate measuring machine can be evaluated offline.</li> <li>- Images can be loaded again within a measuring program and geometric elements can be measured.</li> <li>- Geometric elements from different image elements can be connected.</li> <li>- Automatic measuring programs with similar image elements on other workpieces can be generated by copy-paste.</li> </ul>	  <p>Feature tree with image element</p>
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<p><b>WinWerth</b> Standard</p>	<p><b>AutoMeasure – Now Teachable Offline</b></p> <p>The AutoMeasure option creates an overall image of the workpiece in the corresponding measuring range and an automatic alignment. The contours of the workpiece are aligned to a specified 2D CAD file.</p> <p><b>New:</b> The AutoMeasure function can now also be used offline. It can be integrated later on into the inspection routine.</p>	 <p>Dialog box "AutoMeasure"</p>
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<p><b>WinWerth</b> Standard</p>	<p><b>Alignment Subroutine</b></p> <p>The coarse position of the workpiece in the measuring volume is defined by a pre-alignment before teaching an automatic program, so WinWerth is able to find the features required for the final alignment.</p> <p><b>New:</b> The pre-alignment can now be saved as a subroutine, which enables repetitive measurement when changing the position of the workpiece. Thus, the actual measurement program can be edited subsequently, even if the workpiece has been removed from the CMM. Newly recorded measuring elements are automatically included in the current workpiece coordinate system.</p>	 <p>In the feature tree labeled subprogram for the alignment</p>
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<p><b>WinWerth</b> Standard</p>	<p><b>Line and Surface Profile Shape</b></p> <p>When fitting data to a 2D or 3D CAD model, the maximum deviation between the nominal part and the actual part inside (FTI-form deviation inside) and outside (FTO-form deviation outside) and the standardized value for the line and surface profile form (FT-form deviation) are now automatically displayed.</p>	
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<p><b>WinWerth</b> Standard</p>	<p><b>Integrate Runtime in the Measurement Report</b></p> <p>The time from the start of an automatic program until the end of the program can be automatically recorded in the measuring report.</p>	
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<p><b>WinWerth</b> Standard</p>	<p><b>Non-Modal DMIS Dialogs</b></p> <p>Modal dialogs DMIS expect an operator input to continue the measuring process. After confirmation, the dialogues are not visible anymore during the following measuring processes.</p> <p><b>New:</b> Non-modal dialogs remain visible while the program is executed. This allows, for example, to display program status or to change parameters. The operator can choose between modal and non-modal dialogues.</p>	
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**WinWerth**

Standard

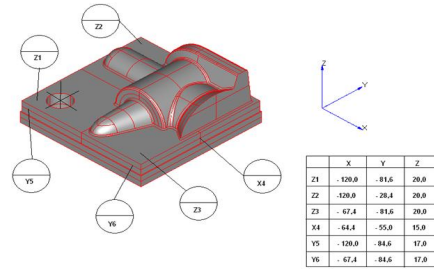
**Multi-Point Alignment (MPA)**

MPA is also known as RPS (Reference Point System) or MCP (Master Control Points) or similar nomenclature in the automotive and aerospace industries.

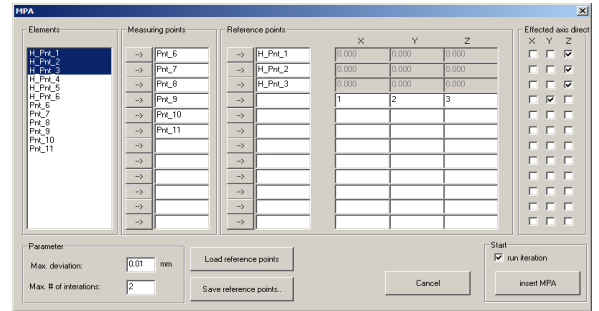
Multi-point alignment uses at least 6 specified points that have different "effective directions" with respect to the alignment. They are clearly defined by drawing notations. The specified points and the points measured on the workpiece are iteratively fitted.

**New:**

The operation has been simplified considerably (see figure on the right – MPA dialog box).



The letters X, Y, Z indicate the effective direction for the point labels



**NEW:** MPA dialog box

**WinWerth**

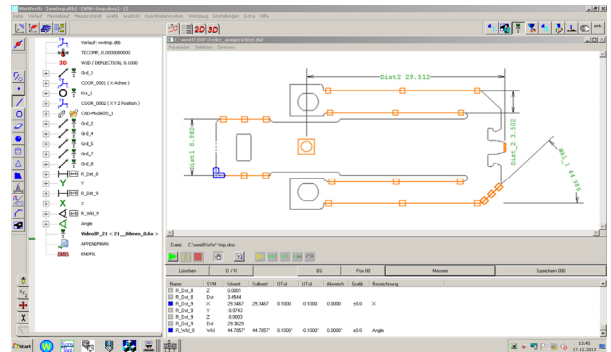
Option

**2D CAD Online**

When using 2D CAD Online programming the measuring machine is not controlled by clicking on the elements in the CAD drawing, instead of using the joystick.

**New:**

- After alignment, the coordinate systems are automatically synchronized when importing the CAD drawing.
- 2D-CAD Online programming now works in the TeachEdit mode.



Programming with CAD data

**WinWerth**

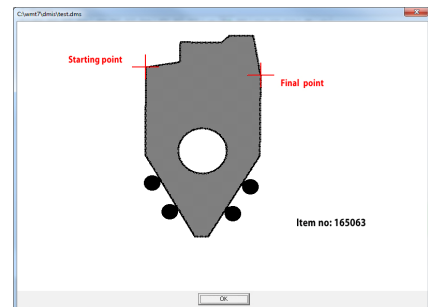
Standard

**Graphic in DMIS**

An automatic program can be interrupted to enable the operator to change the workpiece. After confirmation by the operator, the automatic program can continue.

**New:**

Analogous to displaying text elements, graphics are now also displayed (e.g. for operator instructions when replacing parts) (see figure at right).



Graphics for operator instructions when changing parts

## WinWerth

Option

### 3D-Patch

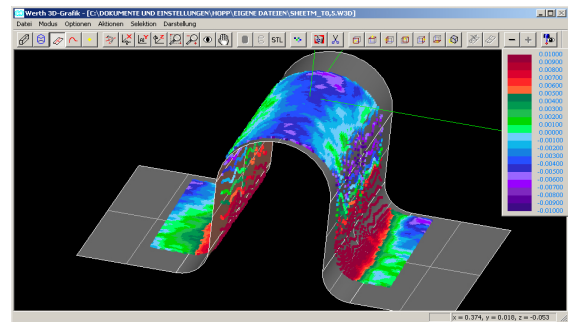
With a new, patent-pending method for focus variation, Werth 3D-Patch now makes it possible to measure topographies over an even greater dynamic range. Dark and light areas of the same region of the object can be captured simultaneously with optimal lighting and used to calculate the measurement point cloud. WinWerth software can then be used to convert the calculated points into STL format and compare them directly with the CAD data.

The new 3D-Patch allows even the offline evaluation of existing image stacks, e.g. with different filters.

The function is available for both Werth coordinate measuring with a standard camera, as well as for machines with the HiCam.



Measuring strategy "3D-Patch"



Color-coded deviation from the CAD model on the flanks of a hob

## WinWerth

Option

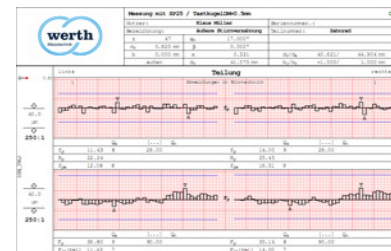
### Gear Measurement with WinWerth GearMeasure

The functions for gear measurements have now been completely integrated in the WinWerth measurement software. With WinWerth GearMeasure, all involute gears – including spur gears, helical gears, worm gears and worm wheels – can be measured and analyzed.

For the data collection, any of the available sensors on Werth coordinate measuring machines can be used, such as trigger and scanning probes, fiber probe, laser, chromatic focus probe, image processing and X-ray sensor.

The evaluation of gear parameters is based on international standards including DIN 3960, DIN 5480, DIN ISO 286, BS 436, BS 7172, ISO/R 1122, ISO 1101, ISO 1328.

Entering nominal data



Gear measuring protocol with all gear parameters such as profile deviation, pitch and runout

## WinWerth

Option

### User Management

The User Management option allows the WinWerth administrator to assign different access levels to different users in WinWerth. So even employees with lower skills can work with measuring programs.

#### New:

Using the "Extra" menu, the administrator can allow a user with a limited access level to activate a desired function or application. These are then activated in the Extra menu.

Dialog box "User management"



**3D CAD Module**

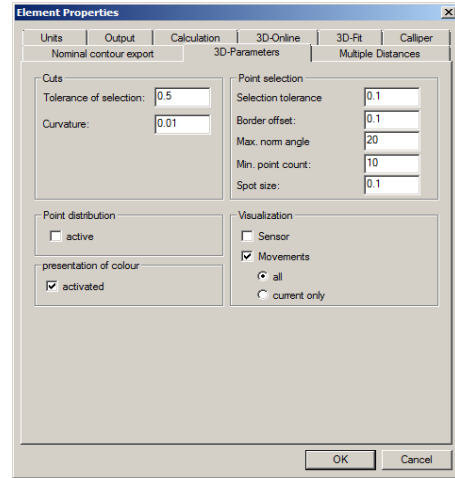
**Maximum Normal Vector**

Standard

To evaluate large point clouds, a geometric element can be calculated after a fine fitting to the CAD model by selecting a patch.

**New:**

The selection of the measuring points, belonging to a standard element geometry, can now be much better predefined. In addition to the selected tolerance and edge distance, the maximum deviation of the normal vectors are considered.



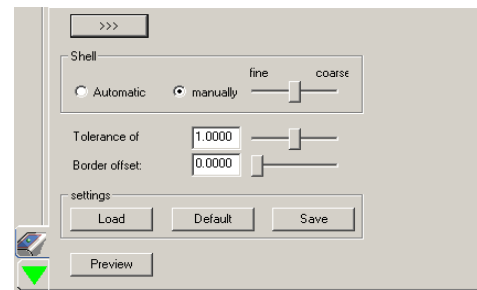
Dialog box "Adjustments Element"

**3D CAD Module**

**Dimensional Analysis of Point Clouds without CAD Models – "Segmentation"**

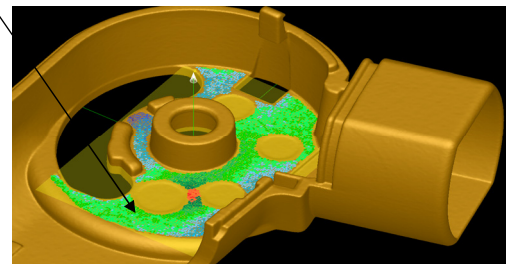
Standard

Using the WinWerth Segmentation function, point clouds can be measured easily and quickly, even without a corresponding CAD model. The algorithm determines all the associated points after simply clicking on a measuring point. This function allows reliable measurement of surfaces even with form deviations that are not included in the CAD model, such as ejector pin depressions on plastic parts.



Segmentation tool

Point cloud



Plane measured using automatic segmentation

**3D CAD Module**

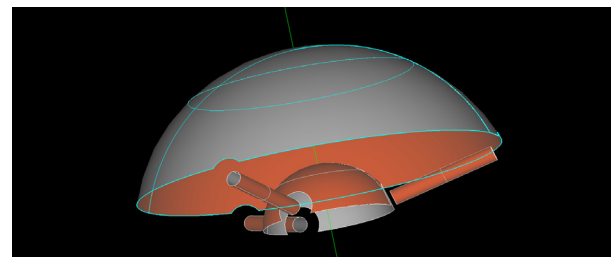
**Generate CAD Patches**

Standard

To select a patch, CAD data are no longer necessary. Alternatively to the segmentation function, CAD patches can be generated by converting standard geometric elements.

**Advantages:**

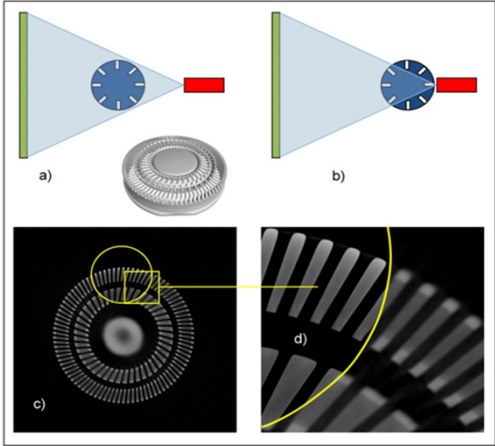
- Generation of CAD models as "hand elements" from point clouds for simple automatic measuring point distribution and for CAD Offline/Online programming,
- Trimming the existing CAD model to the real component,
- Parameterization of evaluation programs which are based on point clouds (e.g. CT data).



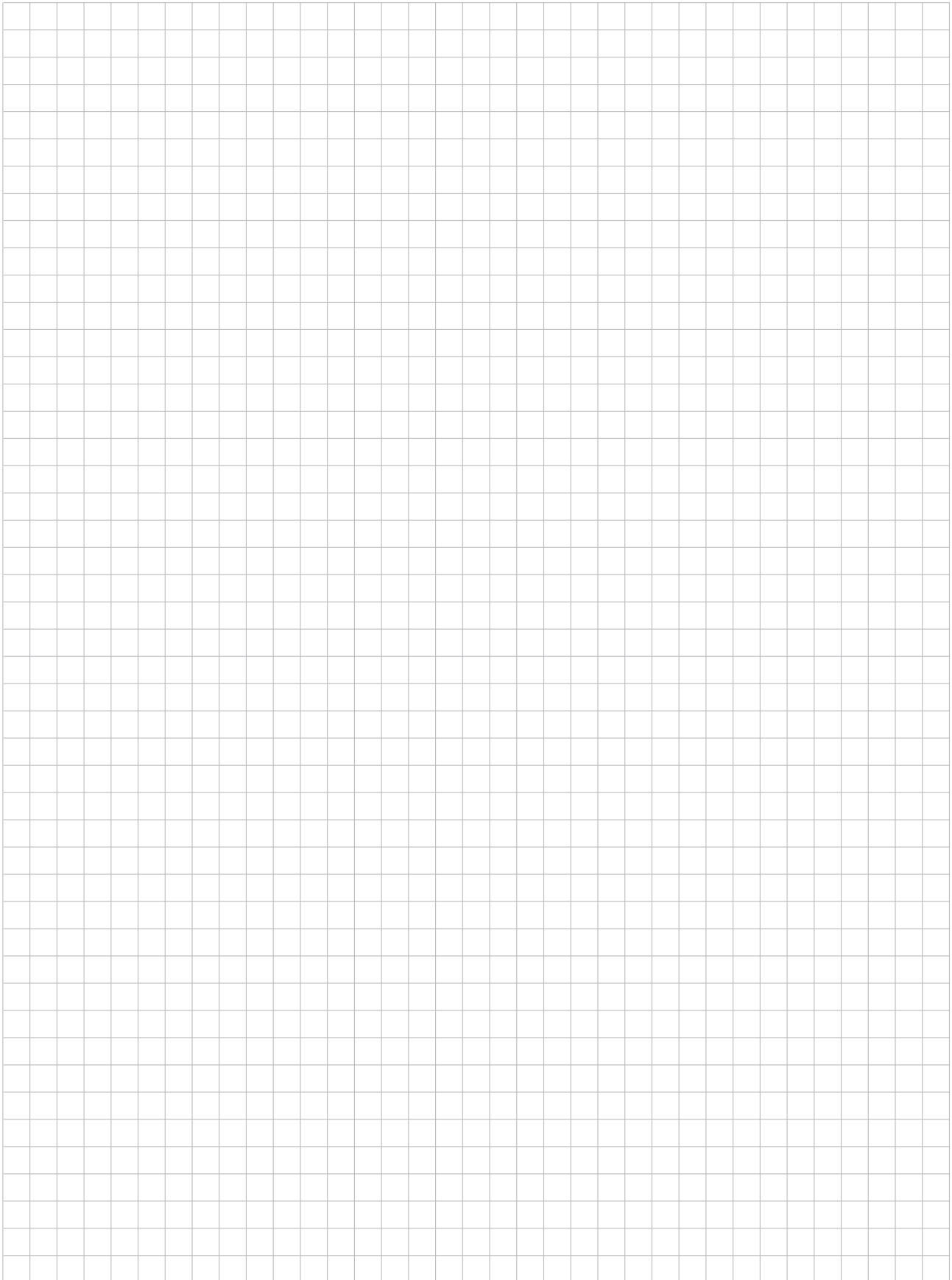
CAD model generated out of parameter data

<p><b>Computer Tomography</b></p> <p>Standard</p>	<p><b>Speed-Optimized Tomography</b></p> <p>The speed for the tomography process was enhanced by improved data handling. A measuring time reduction up to 70% can be achieved for many applications.</p>	
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<p><b>Computer Tomography</b></p> <p>Standard</p>	<p><b>Tomography in RAW Images</b></p> <p>It can now be selected whether the reconstruction is performed immediately in real time or if the data are stored in the form as a RAW file.</p> <p><b>Advantage:</b> This allows to perform the reconstruction on the file multiple times for example to test various parameters.</p>	
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<p><b>Computer Tomography</b></p> <p>Option</p>	<p><b>Eccentric ROI CT / Section CT</b></p> <p>When performing ROI (Region Of Interest) tomography the center of the ROI needed to be in the axis of rotation.</p> <p><b>Advantage of the Eccentric ROI CT / Section CT:</b> The eccentric ROI now allows the measurement in a selectable ROI area, which can also be eccentric to the axis of rotation. In addition, various ROI measurements within a volume can be connected.</p>	 <p>Rapid, high resolution measurement of partial areas of the measured object:</p> <ul style="list-style-type: none"> <li>a) Capturing the entire object</li> <li>b) Capturing the Region Of Interest</li> <li>c) Measurement result for the entire object</li> <li>d) Measurement result for the high resolution area</li> </ul>
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# Notes





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## New Features



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