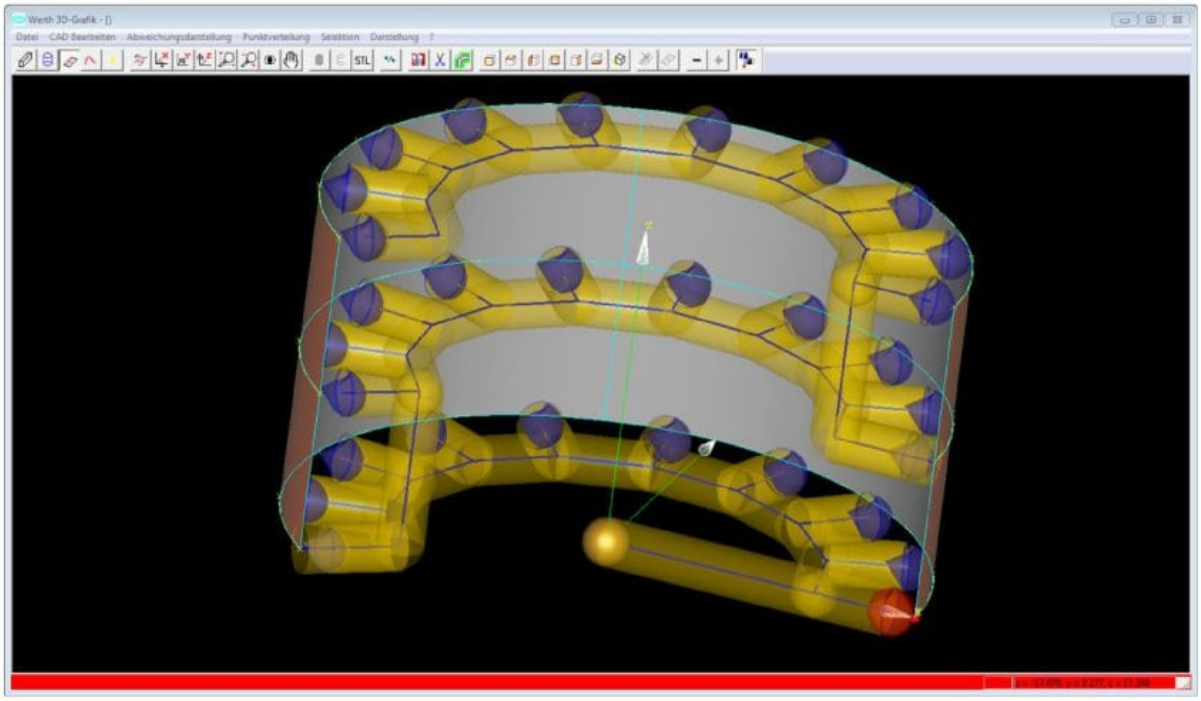
WinWerth® 8.35

Expanded Scan Path and Point Distribution Modes for Tactile and Optical Sensors

The scan path and point distribution function allows interactive, automated measurement of geometric elements. The software automatically distributes the measurement points or scan lines across the selected geometric elements. As before, the geometric element can be input by selecting it on the CAD model, or by interactively measuring the minimum number of points to define the geometric element. In addition, this can also now be defined in the "Scan path and point distribution" tool by entering parameters.



Circular Point Distribution in a bore hole

In the new version, the number of available strategies for distributing the lines or points has been greatly expanded. The user can select from a wide range of strategies. For planes, the selection includes raster, polyline, circle, or star. For cylinders, it includes circles, outer cylinder surface lines, or helical distributions. For the sphere and torus elements, circles or stars are available. The selected strategy is shown as a preview in the "Scan path and point distribution" tool. For each strategy, either the quantity or spacing of both the paths and the measurement points on each path can be adjusted. In the expert dialog, the range over which the measurement points are distributed on the template element can also be defined. The 3D graphics window can show a preview with various types of representation. The standard shows the starting point, travel paths of the sensor, including the probe sphere, the scan lines on the geometric element, search directions, contact vectors and measurement points.

All simulations can also be shown individually or in any desired combination; for example, the travel paths only can be selected to make the image clearer when there are a large number of measurement points. All tools for operation are included in a single, clearly arranged software window. Direct editing in the 3D graphics window is also possible by clicking on the scan lines or points on the geometric element.

The new version of automatic point distribution is available for all sensors. For conventional scanning probes, the WFP/S and 3D-WFP Werth Fiber Probes, the WLP, WCP, CFP, LLP distance sensors and Autofocus measurement can be done in both single point and scanning mode. Analogous point distribution modes are available for the image processing sensor for measuring circles, lines and curves.

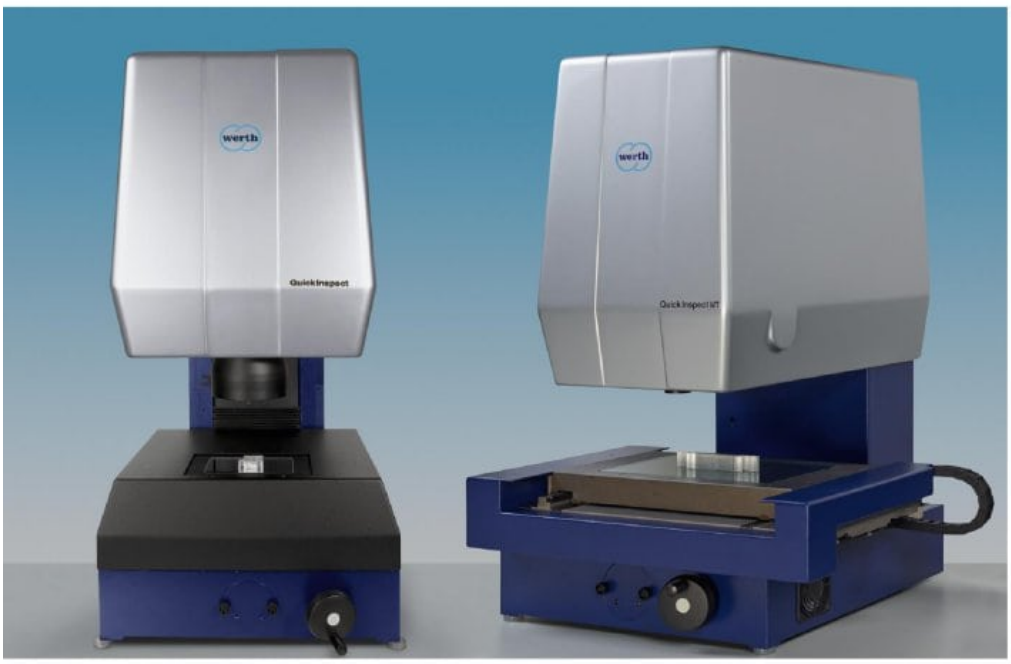
Measurement "At a Glance"

Werth QuickInspect MT with Custom Measurement Range

Capturing an entire workpiece in one image ensures easy operation and short measurement times. For smaller workpieces, the measuring machine acts like a classical profile projector and uses the field of view of the optics as the measurement range. This principle has been implemented for various measurement ranges in the classical QuickInspect machines (on the left). For larger measurement ranges, the resolution and thus the precision of measurement is limited by the number and size of pixels. For greater requirements of the measurement range, resolution, and measurement uncertainty, the same ease of operation is implemented with the new QuickInspect MT (on the machine raster scans workpieces in seconds "On-TheFly" at the push of a button. This produces high-resolution images with nearly any number of pixels and high precision (patent). Even especially small or high-precision features on larger objects (up to 250 mm length as standard) can be visualized and accurately measured. In automatic mode, the measured object is detected fully automatically after raster scanning and the matching CNC measurement program is started.

To ensure comparability to conventional coordinate measuring machines, the machines are specified to ISO 10360 and VDI/VDE 2617 and are traceable to the length standard of the German National Metrology Institute. Depending on the optics selected, measurement deviations of fractions of a micron or a few microns can be achieved. For most QuickInspect models (0.037x to about 1x), it is no longer necessary to adjust the focus, due to the telecentric configuration.

For high magnification, setting the focus is simple with an easy-to-use focus function in the image processing software. This shows the user the position at which the workpiece is focused to produce the optimal conditions for measuring. Temperature compensation is also integrated for measurements in the manufacturing environment.



Werth QuickInspect and QuickInspect MT250 2D-CNC