WENZEL

Metromec

Improvements
Metro*soft QUARTIS* ® **R12**

Improvements Metrosoft QUARTIS R12

At a glance

Metrosoft QUARTIS R12 offers a wide range of improvements for all users and significantly contributes to optimize daily metrology work.

Metrosoft QUARTIS R12 offers significant improvements for users that measure sheet metal and plastic parts. Points can be distributed curvature based on intersection curves, CAD curves or CAD boundaries. Furthermore, points can be automatically distributed with a defined offset to CAD curves or CAD boundaries and then be measured. Finally, the material thickness compensation is available for special application cases involving points, planes and circles.

Metrosoft QUARTIS R12 offers decisive advantages for users that measure curves. Plane curves are correctly measured due to the 3D probe radius correction even on inclined work piece surfaces. Several optimizations for the measurement, construction and evaluation of curves sum up the functionality and allow new application cases.

Metrosoft QUARTIS R12 offers new and improved functions for the evaluation if inspection features. Distance features are easily evaluated using the ribbon. Line and surface profile features have been revised, simplified and adapted to new standards. The circularity can be evaluated using a limited evaluation range. The automatic use of Chebyshev compensation ensures the standardized evaluation of circularity and cylindricity. Finally, the perpendicularity of a plane in relation to a cylinder can now be evaluated with consideration of the form deviation.

Metrosoft QUARTIS R12 offers higher accuracy and time savings during the calibration for users that use scanning probe systems. The pre- and post-scan distance can be ignored during scanning.

Metrosoft QUARTIS R12 offers offline programmers the possibility to calibrate additionally needed angle positions in offline mode.

Metrosoft QUARTIS R12 offers decisive advantages for user within the automotive industry when handling CAD models. For example, CAD origins can be relocated and individual models of an assembly group can be loaded easily and fast or also be removed from the memory.

Metrosoft QUARTIS R12 offers, besides the updated CAD interfaces, many additional improvements and extensions. You find more information on the following pages.

Note:

Some improvements are not included in the standard product Metrosoft QUARTIS R12 and require additional, chargeable modules. These are described in the document „Products and Modules Metrosoft QUARTIS R12".

Measure points and curves

Curvature based point distribution with offset

You measure free-form parts, whose boundary or bearing surfaces are tolerated and are to be measured using point measurements.
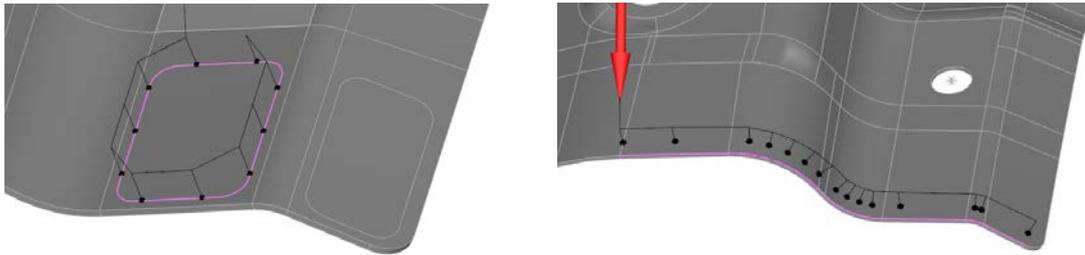
Now, the repetition method „Curvature-based" is available for the automatic distribution of points on intersection curves, CAD curves or boundary curves. This ensures, that enough points are distributed in areas with large curvatures (radii). Using the additional distribution parameter „offset", points are distributed along an assembly edge or CAD surface boundary fast and easy.

Measure plane curves using 3D probe radius correction

You measure plane curves on work piece surfaces that are not perpendicular to the curve plane.

The 3D probe radius correction takes the local inclination of the work piece surface into consideration for each point on the curve.
The deviation vectors are still displayed within the plane so that they are displayed correctly with correct length in the two dimensional curve representation in the report.
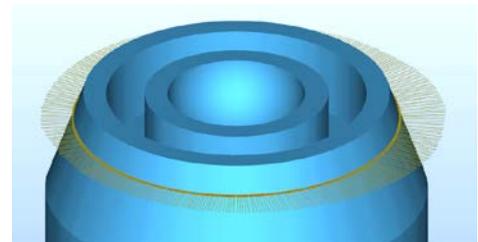
Material thickness compensation

You measure sheet metal parts with CAD models that are not constructed as a volume model. If only one side of the sheet metal (inside or outside face) is available in the CAD model, one can compensate the material thickness (sheet metal thickness) during the measurement. Additional application cases are: Measurement before or after surface coating, compensation of gauge clearance or spark gaps, and so on.

■ Highlights

- Curvature-based point distribution on intersection curves or CAD boundaries

- Distribute points with a defined offset to CAD curves or CAD boundaries

- Measure curves correctly even on inclined work piece surfaces

- Optimized measurement, construction and evaluation of curves:
  - New calculation method „Spline" for curves without nominal values
  - Curves with the distribution method „Direct" are re-projected when changing the CS
  - Unknown plane curves (Spline) can be linked

- Material thickness compensation for points, planes and circles

Evaluate standard and form features

Advantageous, unified operation in the ribbon

The feature „Distance" is now also evaluated using the ribbon. This results in several significant advantages for the measurement, programming and editing.
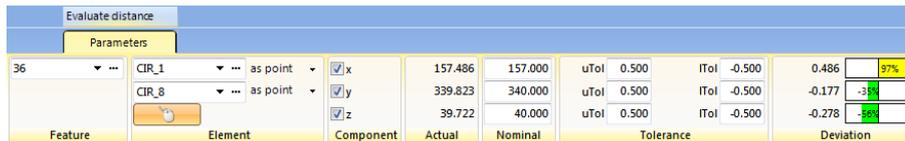
The use of the ribbon for the line and surface profile tolerance has been revised, simplified and adapted to the new standards.

With unequally disposed tolerance zones, one can choose if the displacement is defined according to ISO or according to ASME. The input fields on the Metrosoft QUARTIS user interface correspond with the drawing specifications thus simplifying its use and minimizing erroneous inputs.
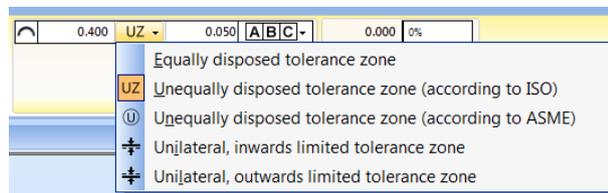
Roundness with limited evaluation range

Roundness tolerances can be calculated using limited evaluation ranges. This type of tolerancing is, for example, often used with sealing surfaces.

Tolerancing with limited evaluation range can be indicated individually or combined on the drawing. To comply with the drawing specification, one can either select one or both check boxes in Metrosoft QUARTIS:

For the evaluation of the roundness or cylindricity, a Chebyshev compensation element is calculated, independent from how the tolerated element has been measured. This ensures the standardized evaluation according to ISO 1101.

■ Highlights

- Evaluate distance features via the ribbon
- Line and surface profile tolerances revised and adapted to new standards
- Evaluate roundness with limited evaluation range
- Automatic, standardized evaluation of roundness and cylindricity via Chebyshev compensation
- Evaluate the perpendicularity of a plane in relation to a cylinder under consideration of the form deviation

Calibrate probe systems

## Calibrate probe system via the ribbon

You frequently calibrate your probe systems. The new ribbon simplifies the calibration due to unified operation for manual, semi-automatic and automatic calibration.
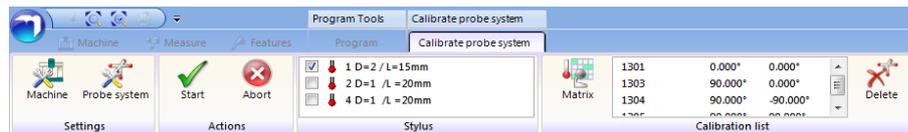
Calibrate probe systems in offline mode

You program on offline workstations and thereby require additional probe positions that are not yet available in the system database. These additional angle positions can now easily be created (calibrated) in offline mode. This simplifies offline programming considerably.

The probe systems calibrated in offline mode can subsequently be easily and fast calibrated on the machine via the matrix.

Calibrate scanning probe system with higher accuracy in less time

You want to spend less time during the calibration of scanning probe systems? Use the new setting „Time optimized calibration for scanning probe systems".
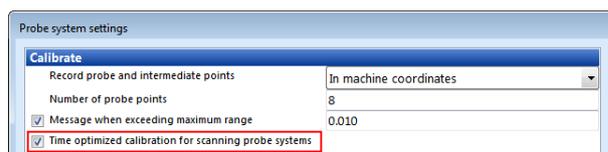
If this option is activated, the characteristic lines of the probe system are not re-determined. No scan paths are scanned on the reference sphere, but the stylus position and diameter is determined right away.

When calibrating via the matrix, Metrosoft QUARTIS decides for itself, if the time optimized calibration is possible.

The higher accuracy with the calibration of scanning probe system is achieved by additionally probing the reference sphere which corresponds with the current specifications from Renishaw.

■ Highlights

- Easier probe system calibration via the ribbon

- Calibrate additional angle positions comfortably in offline mode

- Time savings with the calibration of scanning probe systems

- Higher accuracy with the calibration of scanning probe systems

- Pre and post-scan distance when scanning with scanning probe systems

Additional improvements

The following useful functions have been added in Metrosoft QUARTIS R12:

- The following CAD interfaces have been updated to the current version:
  - Parasolid   (versions 10 – 27)
  - Pro/ENGINEER, Creo   (versions 16 – Creo3.0)
  - Solid Edge   (versions V18 – ST7)

- When aligning using Bestfit, one can choose if the coordinate system is to be calculated on basis of the target values (center of tolerance) or on basis of the nominal values.
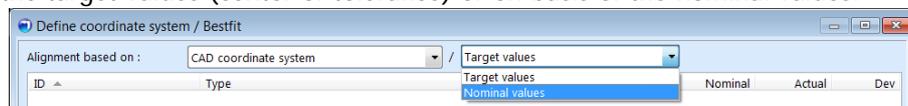
- The alignment function „CAD Model" has been enhanced with the option „ Use coordinate system as CAD model coordinate system". It is now possible to use CAD models even if the alignment has been executed with converted Metrosoft CM alignment programs (without nominal values).

- You want to output the deviation of measuring points in relation to the CAD model with different alignments in a report (vehicle and local coordinate system). It is now possible to also output the measurement results of dynamic features in different coordinate systems in a report. The corresponding pallet and work piece coordinate systems are saved with the report objects. This functionality is available for graphics view with feature, statistical, element and point labels as well as for tables.
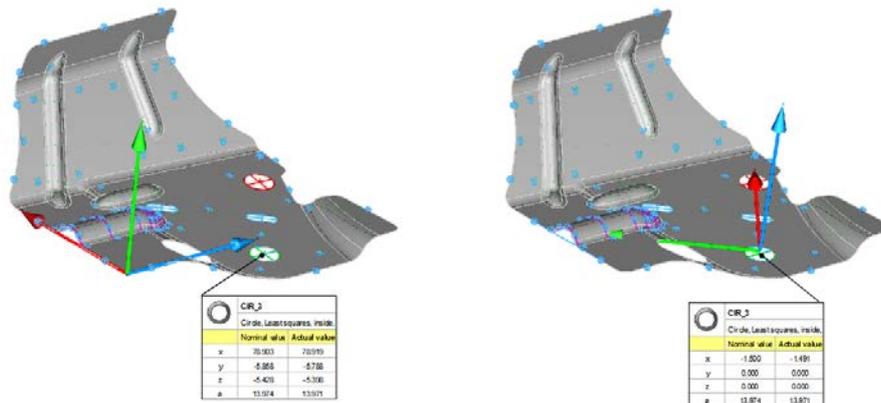
- You want to output the program running time in a report. This can be easily achieved using two small programs delivered in the folder „Examples".

- When executing a program in a loop and the function „Increase measurement", the entered user specific properties are automatically transmitted to the next measurement, respectively adopted when increasing the measurement from the previous measurement.

- You want to avoid waiting times when opening work pieces including the contained (linked) CAD models and save memory space. The CAD models included in a work piece can now be optionally loaded when „Open work piece".
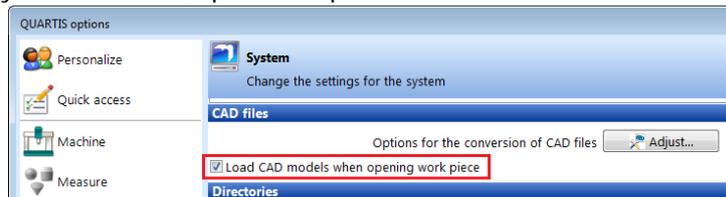

  Furthermore, the user can individually load and unload the CAD models linked in a work piece.

- You want to relocate the origin of an assembly group CAD model. The CAD model translation is accessible in the „Assembly group dialog" used for the CAD model import (conversion).
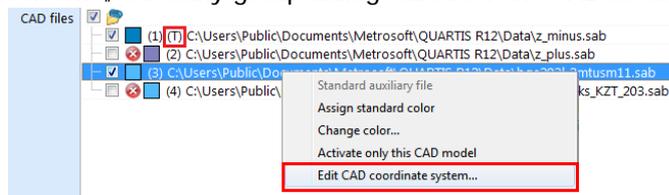

- The active machine is now also displayed in the status window when using the multiple machine network (MMN) mode. To the right, the status of the „Collision control of machine" is displayed.

  A click on the icon opens the collision control settings.

- The Renishaw REVO roughness sensor SFP1 can now also be moved lateral, thus enhancing the application possibilities. Until now, the roughness sensor has been dragged along the stylus shaft direction.
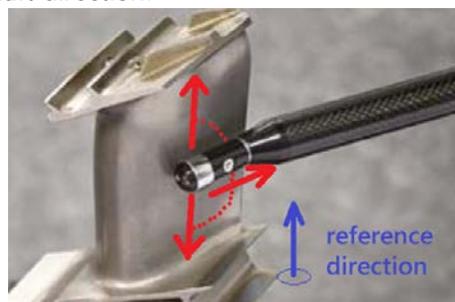
- The processing speed (performance) has been improved. This performance increase is especially noticeable when several thousand measurements or elements are present in the current work piece.