WENZEL
Metromec

Improvements
Metro*soft QUARTIS* ® **R8**

Improvements Metrosoft QUARTIS R8

At a glance

Metrosoft QUARTIS R8 increases the benefit for users that measure free-form surfaces and curves. Points can be quickly and easily distributed automatically on CAD surfaces to measure the shape as complete as possible. Curve deviations can be properly calculated and represented based on the assembly . Evaluating intersection points between CAD surfaces and lines completes the additional free-form functionality.

Metrosoft QUARTIS R8 also offers users, who measure geometric components, additional functionality. Circles can now be measured on conical or spherical surfaces, for example, to check the roundness of a valve seat. The position of a threaded hole in a sheet metal part can be determined in a time saving manner. Also the cone-cone transition can be calculated faster. Finally several enhancements in the relative measurement increase the safety, as they effectively avoid collisions with component deviations.

Metrosoft QUARTIS R8 makes it possible to write structured measurement programs. The new program command 'Branch' evaluates conditions and executes, depending on the result, the appropriate sections of the program. Together with the new program function 'Jump to marker', it is now possible to easily program iterative alignments, such as those often used in the automotive industry in DMIS programs.

Metrosoft QUARTIS R8 extends the possibilities in graphical reports. The results of several measurements can be displayed in statistics labels. The statistical parameters contained therein as well as a bar graph or trend line chart show the viewer quickly and clearly the quality of the components.

Metrosoft QUARTIS R8 simplifies the migration from Metrosoft CM to Metrosoft QUARTIS. Calibrated probe system can be automatically exported and then be used in Metrosoft CM 3.100 without any recalibration.

Metrosoft QUARTIS R8 also offers many other useful enhancements and extensions. More information on the following pages.

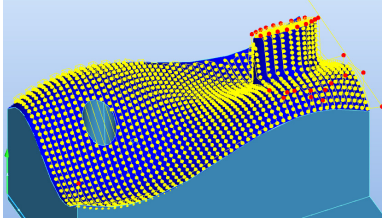
Notice:

Some improvements are not included in the standard product Metrosoft QUARTIS R8 and require additional, chargeable modules. These are described in the document 'Products and Modules Metrosoft QUARTIS R8'.

Enhancements for free-form and curves

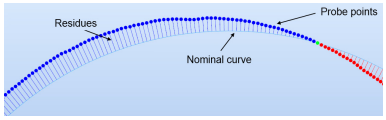
Mesh type point distribution on CAD surfaces

You measure form deviations of free-form surfaces and thereby want to measure the shape as complete as possible. Points can now be automatically distributed on CAD surfaces fast and easily. With the mesh type distribution the options 'Number of points ' and 'Distance points' are available.

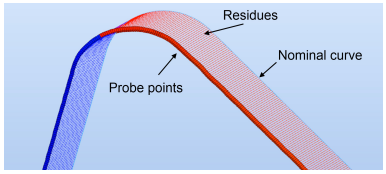


Evaluate curves in accordance with the application

You measure curves and want to calculate and display the deviations component specific. The calculation methods are now selectable:



- '2D direct' for components with evenly or slightly curved curves.

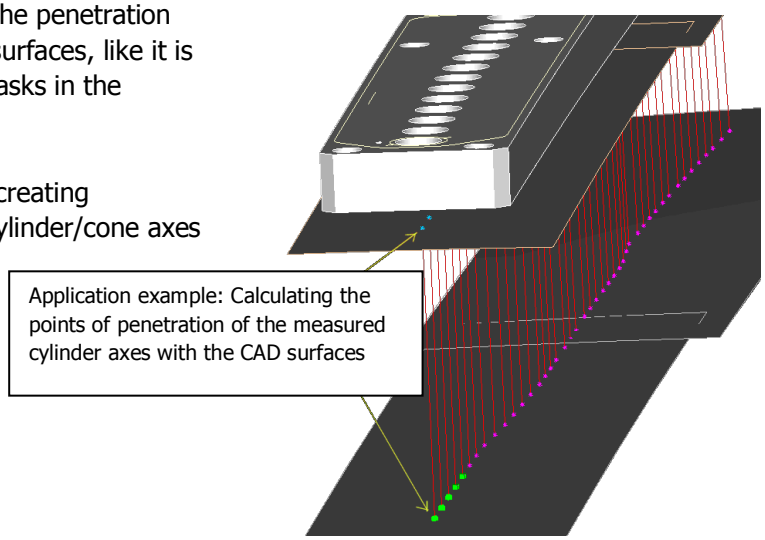


- '2D transformed' for components with highly curved or closely spaced curves and large position deviation.

Intersect lines and axes with CAD surfaces

You have to evaluate the position of the penetration points of cylinder axes with the CAD surfaces, like it is required, for example, in measuring tasks in the aerospace industry.

The intersection function now allows creating intersection points between lines or cylinder/cone axes and CAD surfaces.

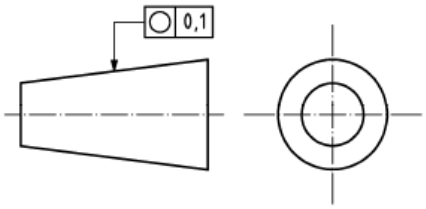


■ Highlights

- Measure surfaces with automatic distribution in triggered probing mode
- Distribute points repeatedly with mesh type distribution on CAD surfaces
- Curves with selectable calculation method (direct/transformed)
- Calculate intersection point from line and CAD surface

Enhancements for geometry

Measure roundness on cones and spheres



You check the valve seat of a cone or sphere valve and therefore need to evaluate the roundness.

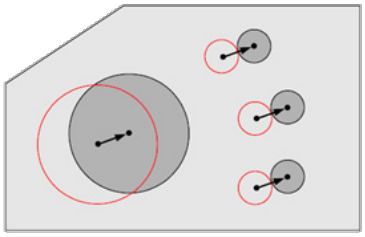
Circles can now also be measured on conical or spherical surfaces. The deviations arising from the non cylindrical surface and the systemic leaving of the circle-plane are mathematically corrected.

Quickly measure the position of a threaded hole on a sheet metal

You measure sheet metal components and have to evaluate the position of threaded holes. To do so, it is now possible to measure a circle spirally. Besides the significant time savings in programming and measurement, the spiral measurement of a circle on sheet metal components in predefined direction is even more accurate than if the measurement task would be solved using a cylinder - plane - intersection.

Relative measurement avoids collisions

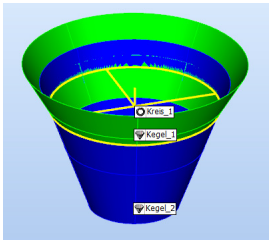
You measure points, edges and cutouts in components with relatively large deviations. This can now be done without collisions via input or measurement of a relative reference, as the complete measuring sequence is shifted and twisted relatively. By doing so, one gets faster and easier to the expected measuring results without any local alignments.



In addition, lines can now also be measured relative to the projection reference so, for example, erroneous probing on deflected sheet metal parts can be avoided.

Determine cone-cone transition

It is now possible to create an intersection circle out of two cones using the intersection construction. For example, the position and diameter of the transition between two cones can now be calculated fast and easily without any complex constructions.



Highlights

- Measure circles on conical or spherical surfaces
- Measure circle spirally
- Measure point, circle, rectangle, slot, edges with relative reference
- Define offset via input
- Measure line relative to selected reference element
- DMIS: Relative measurement (RMEAS), measure reference (VECBLD)
- Create intersection circle out of two cones

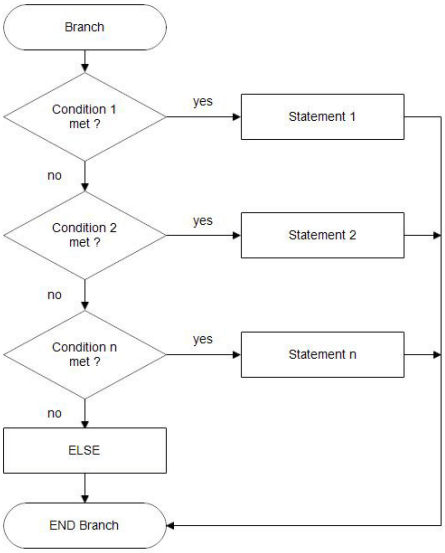
Control the sequence of measurement programs

Conditional execution via branch

You write structured measuring programs. The new program function 'Branch' evaluates conditions to flexibly execute one or the other program section.

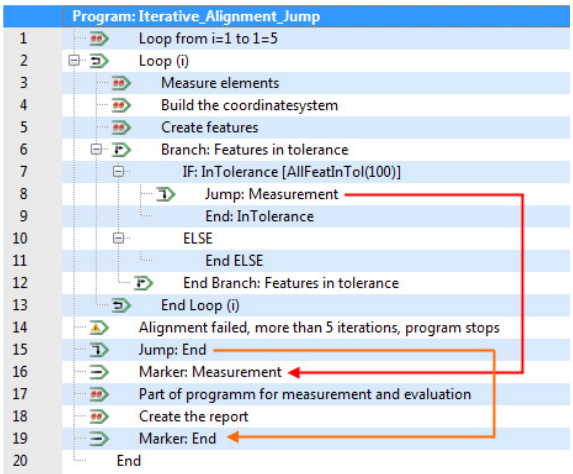
The branch in Metrosoft QUARTIS offers more possibilities than a simple IF-THEN-ELSE command.

You can use statistics or feature functions and select the logical operators directly in the expression editor to define the conditions for the flexible execution of program sections.



Program function: Jump

In connection with the function 'Branch' it is possible to program conditional jumps to a marker. By doing so, it is possible to program, for example, an iterative alignment as it is often used in DMIS applications in the automotive industry:



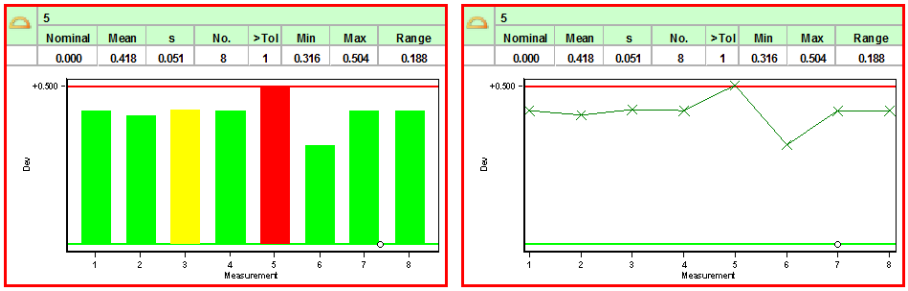
■ Highlights

- Program function: Branch, with any number of conditions
- Program function: Jump to marker
- Expanded functions in expression editor:
  - Statistics functions (COUNTIF, MEAN, MN, MX, SUM)
  - Feature functions (AllFeatInTol, InTol)
  - Relational operators (>, <, >=, <=, =, <>)
  - Logical operators (AND, OR, NOT, TRUE, FALSE)

Create meaningful reports

Statistics labels display trend

You display the results of multiple measurements in a graphical report.



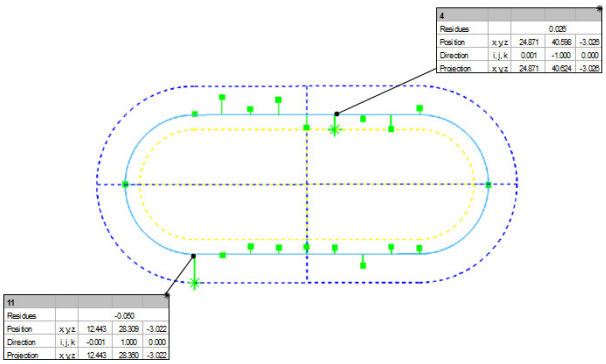
Statistical parameters such as mean value, standard deviation, Min/Max values as well as diagrams can be output in a statistics label. The diagram displays the deviations of features over the different measurements in a bar or line trend diagram.

The statistics label layout can be defined freely and saved as template.

Min/Max points of an element display extreme values

You want to recognize at a glance where turning points of a measured elements are positioned and see their values.

Points with the largest and smallest deviation can now be output comfortably in a graphical report.



Highlights

- Output of statistics labels in report
- Output Min/Max points of an element in report
- Layout of statistics label and Min/Max labels freely definable

Simplified migration from Metrosoft CM to QUARTIS

You use Metrosoft CM parallel to Metrosoft QUARTIS in order to execute existing programs. Probe systems calibrated in Metrosoft QUARTIS can now automatically exported and then be used in Metrosoft CM without recalibration.

Highlights

- Adopt probe system configuration from Metrosoft CM 3.110
- Use calibration data from Metrosoft QUARTIS in Metrosoft CM 3.100 / 3.110

Addition improvements

The following useful functions have been added in Metrosoft QUARTIS R8:

- New CAD interface for CAD data in Autodesk Inventor Format (Version V11 – 2012)
  Notice: The Solid Edge CAD interface is not available anymore.
- The following CAD interfaces have been updated to the most current version:
  - CATIA V5 (version R6 – R22)
  - ProEngineer (version 16 – Creo 2.0)

  Notice: Some CAD interfaces do not support older versions anymore.
- Faster display of probe points and deviations in the graphics, significant performance increase with large point numbers (Scanning)
- Polygon distributions on planes have been optimized so that points are distributed evenly
- When measuring cylinders, the distribution is created independent from the direction (sign) contained in the CAD in such a way that collisions are avoided
- DMIS range of commands expanded with relative measurement (RMEAS) and measure reference (VECBLD)
- Auto feature ID's are automatically adjusted when editing the element ID in the program
- REVO and PH20 head orientation optimized for the measurement of planes with method 'Critical angles'
- When measuring with REVO and the method 'Fixed angles', the current head orientation can be easily adopted into the input fields
- For the calculation of a user defined feature, one can now use element as well as feature data
- Elements of the type 'Curve' are now also available in the function Alignment/Bestfit
- Message when exceeding maximum range during calibration can be activated/deactivated
- It is now possible to confirm messages, for example when exceeding the maximum range, during the execution of measuring programs with 'Ignore and continue'
- A user with the user role 'Program executor' can open quick selection tables directly via the Metrosoft button
- When opening a measurement, the last active PCS/PLCS is automatically loaded; therefore saving time and enhancing safety
- Data bases can automatically be compressed when they are closed. This enhances the performance
- When saving reports in text or CSV format, the contents of text fields are now also written into the file
- The display of feature deviations can now optionally depend on the target value (center tolerance) or on the nominal value
- The zoom range automatically set per element in the element graphics has been optimized
- QUARTIS help available in Italian and French

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