

**WENZEL**



Improvements  
Metro**soft** *QUARTIS*<sup>®</sup> R5

# Improvements Metrosoft QUARTIS R5

## At a glance

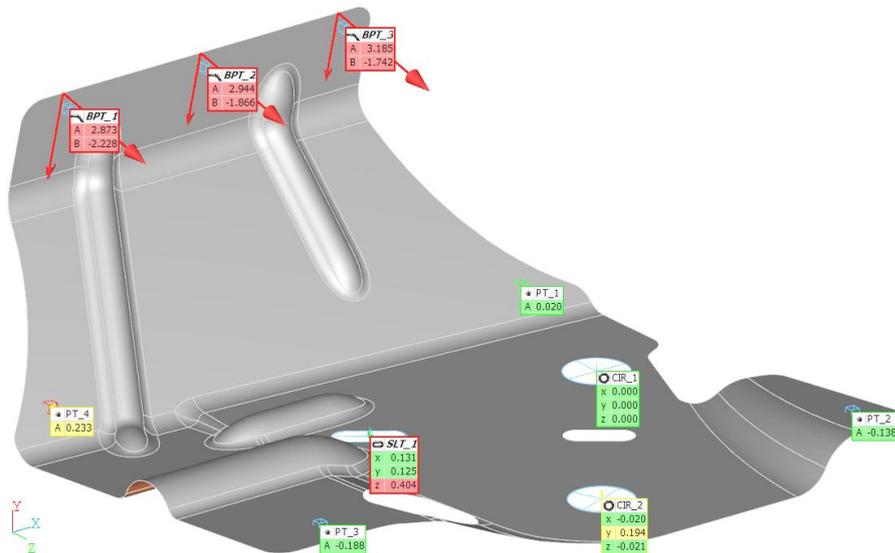
Metrosoft QUARTIS R5 is ready for the most important challenges in the field of free-form measurement. Measuring against nominal CAD data is seamlessly integrated into the existing environment. This reduces the learning effort, as already known processes for measuring and evaluating geometrical elements can also be used for free-form.

Metrosoft QUARTIS R5 can be adapted to your specific measuring tasks. With user defined properties you can extend the database with the information you need. Specific evaluations can be calculated with the help of a user specific feature.

Metrosoft QUARTIS R5 also offers in other areas interesting improvements and enhancements. Learn more about this in the following remarks.

## Measure and evaluate free-form surfaces against CAD data

You want to measure and evaluate surfaces and trimming edges against nominal CAD data. To do so, we created the element "Surface" and the feature "Surface Profile". The profile tolerance of any surface can either be evaluated with or without reference as well as with four different tolerance zones. The elements point and edge point can be measured with fix nominal values or with projection onto the CAD model. The evaluation is executed in both cases using the regular position features. Besides deviations in X, Y and Z, the spatial deviations as well as the deviations in relation to the reference plane (deflection) and in the reference plane (trimming edge) are evaluated. The position deviation of dynamic features is automatically recalculated and updated after changing the alignment, e.g. after a Bestfit. During the measurement and evaluation as well when creating a report, no difference is made between free-form and geometry. Metrosoft QUARTIS provides application engineers with a homogeneous user interface for free-form and geometry.



### ■ Highlights

- Measure surface, point and edge point against nominal CAD data
- Measure trimming edges and profiles with automatic point distribution
- Mirroring of programs and CAD models
- Bestfit alignment using position and probe points of geometrical and free-form elements
- Automatic update of the position deviation of dynamic features after Bestfit
- Display position deviations with arrows in the graphics
- Position deviation output in info labels directly during the measurement
- Features belonging to each other are combined in one label in the report
- Evaluate line profile with bilateral, unequal distributed tolerance zone
- Evaluate surface form with and without reference as well with different tolerance zones

# Improvements Metrosoft QUARTIS R5

## Traceable data due to freely expandable database

You want to add company or assembly specific information to your measuring data in the database. The freely expandable database allows you to create user defined properties, such as order number, serial number, material batch, mold cavity, color, weight, etc. When creating a new work piece or measurement the defined fields are queried. The entered data is stored in the database. They can automatically be output in tables, labels and text fields in the report and also be used in the file name. This will keep your measuring result and reports perfectly organized, safely saved and traceable at any time.

Work piece 20 / Measurements				
ID	Date ▲	PO Nr.	Material charge	Operator
 1	06.07.2011 15:30:01	4711-0815-A	Lot 654321	John Tester
 2	06.07.2011 16:03:24	4711-0816-B	Lot 654321	John Tester
 3	06.07.2011 16:27:49	2256-1235-A	Lot 789123	Dave Checker

### ■ Highlights

- Freely expandable database fields
- Save user defined properties in database
- Output of user defined properties in reports via labels, tables and text fields
- Use user defined properties in file name of saved reports
- Perfectly organized and secure data storage in a database
- Trace back measurements results at any time

## Efficient measurement and evaluation

You want to measure fast and simple and expect the measuring software to help you to do so. Metrosoft QUARTIS R5 offers you the needed functionality. Thus, for example, bores can be automatically measured even without CAD model by positioning the probe above the bore and use the current machine position as start value. If the defined measuring and retraction distance is too large in relation to the dimension of the element and the probe sphere diameter, the distances are automatically reduced. In order to keep the overview in the graphics with a lot of elements, one can display or hide the measured and constructed elements.

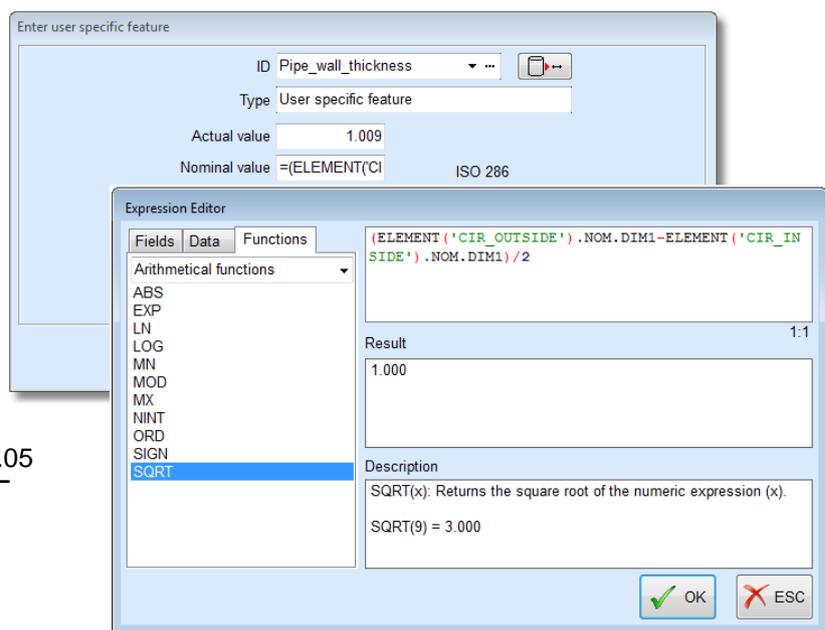
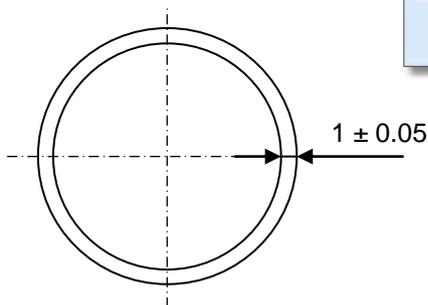
## ■ Highlights

- Taking over the current position of the measuring machine for automatic measurement
- Automatic reduction of measuring and retracting distance when measuring inside elements
- Display/Hide elements in graphics
- Load elements into the element window with a mouse click
- Evaluate circle distance of slots
- Evaluate position of line, plane and cylinder

## Calculate and evaluate user specific features

You want to evaluate a specific feature. Calculate a user specific feature out of the data of measured or constructed elements. To do so a wide variety of mathematical functions are available. Thus, for example, a pipe wall thickness, a clear area, a difference in diameter or the largest distance between two circles can be calculated and displayed as a feature. Complex calculations are easily solvable with the refined expression editor.

Example:  
Pipe wall thickness  
calculation



## ■ Highlights

- Calculate and evaluate user specific features
- Arithmetic, trigonometric and vector functions
- Access to all element data, fields and user defined properties

# Improvements Metrosoft QUARTIS R5

## Fast head probing with PH20 5-axis touch trigger system

With the PH20, Renishaw introduced to the market a continuously variable 5-axis touch trigger system to increase the efficiency of coordinate measuring machine.

PH20's unique "Head touch" method (head probing) allows measurement points to be taken by only moving the head rather than the CMM structure. Using only the rapid rotary motion of the head, points can be taken faster, and with improved accuracy and repeatability. Furthermore, 5-axis motion eliminates time spent indexing the head. Furthermore all calibration procedures are eliminated.

All together, the speed increase typically results in a 3-fold improvement in throughput over conventional systems.



The new WENZEL Liberty guarantees the perfect cooperation of the highly accurate LH and XO coordinate measuring machines with the PH20 5-axis touch trigger system from Renishaw and the measuring software Metrosoft QUARTIS – and all in an exclusive design.

### ■ Highlights

- Enhanced measurement throughput by "Head Touch" (head probing) and fast 5-axis positioning
- Improved repeatability due to small moving masses
- Optimal alignment of the probe in relation to the element to be measured considering the work piece coordinate system
- Measurement in any angle position after stylus calibration in only one position
- Minimal probe changes due to infinite positioning possibilities of the PH20
- Programs can be executed without re-recording with our without head probing
- Seamless integration of new sensor technology in QUARTIS R5

## Additional improvements and enhancements

The following additional functions have been added in Metrosoft QUARTIS R5:

- WENZEL XOrbit machines can be selected and displayed in the graphics
- Scanning probe SP600 from Renishaw is supported
- Scanning probe system calibration can be recorded into a program
- Spanish is available as an additional language
- The following CAD interfaces were updated to the latest version:
  - Solid Edge (up to v20 and ST3)
  - SolidWorks (1999 up to 2011)
- The transformation matrix (TMAT) is additionally also output in the CAD coordinate system with the VDA export. This S1TCAD matrix is used for the alignment transfer to WENZEL exaCT Analysis or WENZEL PointMaster.

### **Notice:**

Some improvements are not included in the standard product Metrosoft QUARTIS R5 and require additional modules. These are described in the document "Products and Modules Metrosoft QUARTIS R5".

**WENZEL Metromec AG**

Rheinfelsstrasse 1  
CH-7007 Chur / Schweiz  
Telefon: +41 81 257 07 00  
Fax: +41 81 257 07 01  
E-Mail: [metromec@metromec.ch](mailto:metromec@metromec.ch)  
Web: [www.metromec.ch](http://www.metromec.ch)

**WENZEL Group GmbH & Co. KG**

Werner-Wenzel-Strasse  
D-97859 Wiesthal / Deutschland  
Telefon: +49 6020 201-0  
Fax: +49 6020 201-1999  
E-Mail: [info@wenzel-group.com](mailto:info@wenzel-group.com)  
Web: [www.wenzel-group.com](http://www.wenzel-group.com)

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