Improvements
WM | Quartis R2019-2

Update Information

Improvements WM | Quartis R2019-2

At a glance

WM | Quartis R2019-2 offers a wide range of improvements for special applications and areas of use.

WM | Quartis R2019-2 contains the new **Position tolerance according to ISO GPS and ASME Y14.5**, which has been fundamentally revised, updated and modernized. You benefit from numerous improvements when evaluating the position tolerance. Operation is convenient via the ribbon. In the 3D graphics you can see the reference system, the tolerance zone and the tolerance utilization as a live preview.

WM | Quartis R2019-2 allows **optical high-speed scanning on WENZEL CORE machines**. You program the measuring sequences with the usual user-friendly functions. The CORE controller ensures that the axes, including the rotary table and the optical sensors, move optimally and simultaneously. All WM | Quartis functions for measuring, evaluating and creating reports are available.

WM | Quartis R2019-2 supports the new **WENZEL WM | MMA measuring arms** and the measuring arms from KREON Technologies. You complement your stationary WENZEL coordinate measuring machine with a mobile measuring arm, also from WENZEL.

WM | Quartis R2019-2 operates with the **line scanner WENZEL WM | LS**. With the optical sensor, automated multi-sensor measurement sequences are possible. The deviations can be presented color-coded in descriptive measurement reports.

WM | Quartis R2019-2 controls the **Renishaw Equator gauging system** and provides user-friendly tailored functionality for the process steps of calibration, mastering and testing.

WM | Quartis R2019-2 increases productivity with **Renishaw REVO 5-axis measuring systems**. The REVO sweep scan allows precise scanning of surfaces at high speed. Further improvements scale up the field of application and increase the quality of the measurements.

WM | Quartis R2019-2 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 WM | Quartis R2019-2 and require additional, chargeable modules. These are described in the document "Products and Modules WM | Quartis R2019-2".

Position Tolerance (ISO / ASME) Updated and Modernized

The position tolerance has been fundamentally revised, updated and modernized.
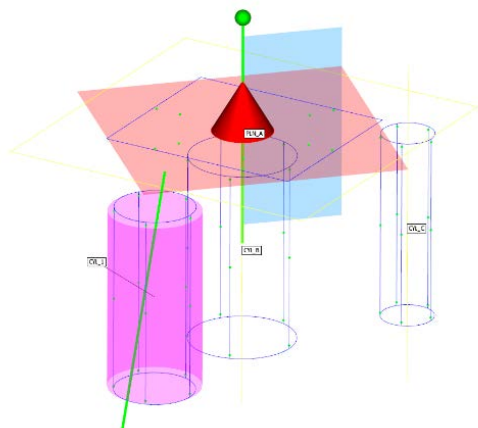
You benefit from numerous improvements when evaluating the position tolerance. Regardless of whether the drawings are created according to the current ISO GPS or ASME Y14.5 standards.
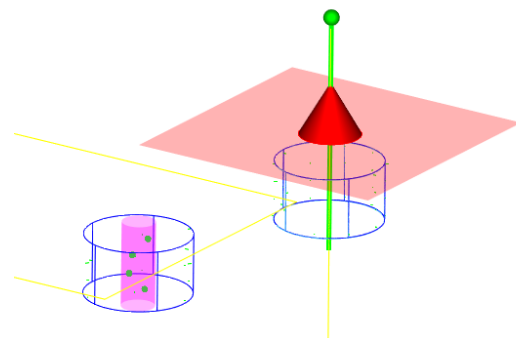
Operation is convenient via the ribbon.

You specify the tolerance zone, the tolerance value, the calculation type and the reference system in the same way as you know it from the construction drawing.

In the 3D graphics you can see the reference system, the tolerance zone and the tolerance utilization as a live preview.
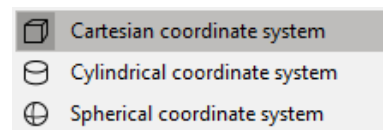
You can also define and apply reference systems with open degrees of freedom.

You can enter the TED either in cartesian or in cylindrical or spherical coordinates.

By using expressions in the input fields, you can also use the position tolerances in loop programs, which saves you programming effort and time.

Cartesian coordinate system
Cylindrical coordinate system
Spherical coordinate system

■ Highlights

- Ribbon operation
- Live preview in 3D graphics
- Calculation of the position deviation according to current standards (ISO GPS / ASME)
- Tolerance zones can be selected in form, position and extension (orientation, projected tolerance zone, effective length, limiting elements).
- Selectable specification elements for the calculation method: with form, G, C, N, X
- Material condition for toleranced element and on references
- Reference systems according to ISO 5459 or ASME Y14.5, both also with open degrees of freedom
- Expressions for loop programming
- Detailed help with overview of the reference systems

Additional Machines, Sensors and Extended REVO Functions

You want to use WM | Quartis on all coordinate measuring machines. With the WENZEL CORE, the WENZEL measuring arm WM | MMA as well as the Renishaw Equator gauge you have three additional measuring instruments at your disposal.

WENZEL CORE: Optical High Speed Scanning

The connection of the WENZEL CORE D and CORE M measuring instruments including the rotary table and the optical sensors enables optical high-speed scanning at the highest level. All WM | Quartis functions for measuring, evaluating and creating reports are available.

You program the measuring sequences with the usual user-friendly functions. The WENZEL CORE controller ensures that the 5 or 6 axes move optimally and simultaneously.

WENZEL Measuring Arm WM | MMA: Mobile Measuring Made Easy

You complement your WENZEL coordinate measuring machine with a mobile measuring arm.

Now WM | Quartis also supportes the WENZEL WM | MMA measuring arms and the measuring arms from KREON Technologies.

You can measure all geometry and free form elements available in WM | Quartis. The elements can be measured with single points and scanning.

WENZEL Line Scanner WM | LS Supported

With the WENZEL line scanner WM | LS another optical sensor is supported. You have the same range of functionality as with the WENZEL Shapetracer 2.

- Automated multi-sensor measurements
- Impressive measurement reports with color-coded display of surface form deviations
- Export of the point cloud for optional further processing with WM | Point Master

Renishaw Equator Gauging System with WM | Quartis

You monitor and control production by comparing the production parts with a reference part. To do this, you use Renishaw Equator systems.

WM | Quartis now offers you the user-friendly tailored functionality for the process steps calibration, mastering and testing.

The calibrated, absolute accuracy of your WENZEL LH or SF coordinate measuring machine is transferred to the production area, thus ensuring traceability.
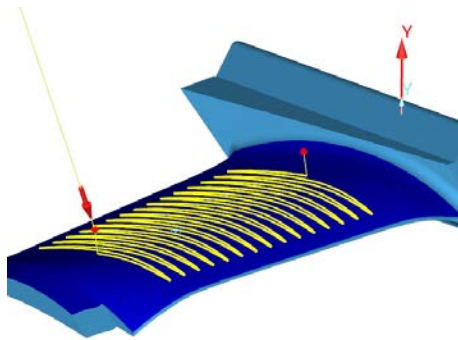
Higher Productivity with Renishaw REVO 5-Axis Systems

You use WM | Quartis with a Renishaw REVO-2 or PH20 5 axis probe head. Numerous improvements simplify and speed up your workflows.

Sweep Scan for Measuring Surfaces

The REVO Sweep scan allows you to scan surfaces precisely at high speed. The REVO probe head with RSP2 probe measures the surface by quickly moving (wipe) the probe back and forth. The CMM itself moves in one direction at a constant speed. This minimizes the dynamic inaccuracies of the CMM structure that occur at extremely high scanning speeds.
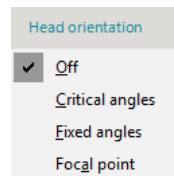
You define the scan paths by simply clicking on the surfaces to be measured on the CAD model and enter the wavelength. The probe then aligns itself automatically and scans the surface.

The measured point data can be further processed and used, among other things, for impressive measurement reports with color-coded display of surface form deviations.

The Sweep scan is particularly suitable for the measurement of blade surfaces.

Scanning with Fix REVO Probe Head Angle

You work with Renishaw REVO RSP2 probes and you have applications in which the 5-axis movements are hindering and undesired. The automatic head orientation can now be switched off and can thus be used to scan with fixed A/B probe head angles.

Measuring with Distribution Method «Circle»: Constant Scan Direction

You measure with Renishaw REVO RSP2 probe external cylinder with circular paths. For optimal results and maximum accuracy, it is advantageous when the probe is always "pulled". All elements for which the distribution method "circles" is available can now be measured with alternating scan direction or constant scan direction. These are the elements plane, cylinder, cone and sphere.

Measuring Inner Cone from the Tip of the Cone

You want to use a 5-axis measuring system to measure an inner cone in the opposite element direction, i.e. from the tip of the cone. With REVO RSP2 and PH20 this is now possible.
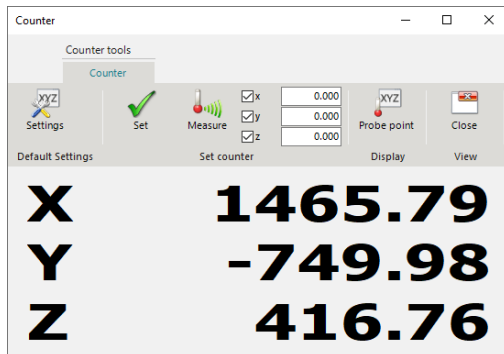
Optionally Record A/B Angle or Direction in Program

Depending on the application, when recording a 5-axis intermediate point or a 5-axis CNC positioning, you want to be able to set whether the probe head swivels to the recorded A/B angle of the swivel head or to the recorded direction (relative to the workpiece coordinate system) when executing the program sentence. This is now possible.

Further Improvements Make Daily Work Easier

Work Window "Counter" Helps with Alignment, Marking Out and Adjustment

You measure manually on column machines or with mobile measuring arms. A large display of the current coordinates (live display) is useful for various measuring tasks.

The new "Counter" work window is useful for marking out sheet metal parts and measuring points, e.g. in crash tests. You can see the coordinate values from large distance. The coordinate values can be set to zero or to a specific value for each axis. The last touch point can also be displayed for the adjustment of devices.
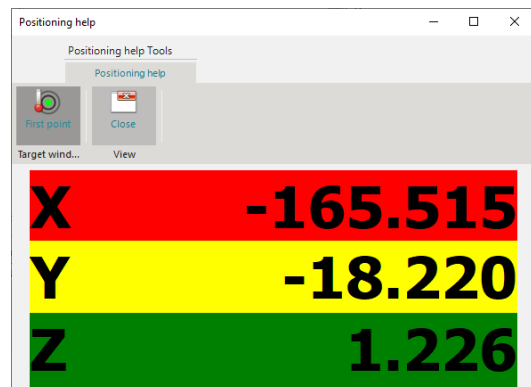
Work Window "Positioning Aid" Accelerates Manual Measurement

You measure on manual measuring machines and want to approach the position of the points in the measuring program quickly, easily and targeted.
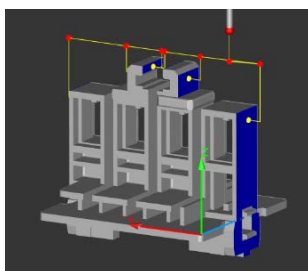
The new work window "Positioning aid" shows the relative distance to the next probe point per axis.

The distance-dependent background colors let you see immediately which axis has to be moved furthest.

Optionally, the probe point is only accepted if you have moved all axes into the green area.

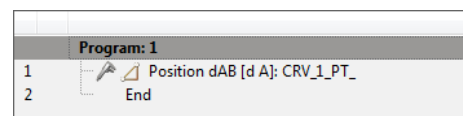### Security Plane for Points with Different References Saves Programming Time

You often use the option "Repeat / Manual" when measuring points.

The security plane can now be defined independently of the reference that is used for the probe radius correction.

This allows the clicked points to be measured collision-free in many applications without manually inserted intermediate points.

Evaluating Points of a Curve or Surface as Feature "Position dAB"

You scan curves with few points and you need the numerical deviation values. The feature "Position dAB" can now also be applied to elements of the type "Curve" or "Surface".

The spatial deviation "d" and the deflection "A" can be selected as components.

New and Actualized CAD Interfaces

WM | Quartis R2019-2 supports the following CAD interface formats:

- CATIA V4   (4.1.9 to 4.2.4)
- CATIA V5   (R8 to **R2019**)
- CATIA V6   (to **R2019**)
- DXF   (2000/2002 and R12)
- IGES   (to 5.3)
- Inventor   (V11 to 2019)
- Parasolid   (9 to 31)
- Creo, ProEngineer (16 to Creo5.0)
- Siemens NX   (NX1 to NX12)
- Solid Edge   (18 to **ST11**)
- SolidWorks   (2003 to **2019**)
- STEP   (AP203, AP214, AP242)
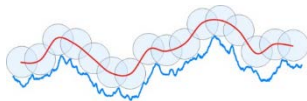- VDA   (1.0 and 2.0)

The changed formats compared to WM | Quartis R2019-1 are shown in **bold** in the above list. You also benefit from general improvements and error corrections for the other CAD interface formats.

Remote Control / Automation Interface

You are using the WM | Quartis for automation. The parts are positioned on the machine via robots or handling systems. The cell control software starts the corresponding parts measuring program.

This is comfortably done via the MQTT interface of WM | Quartis. WM | Quartis is set to remote control mode.

Virtual Measurement with Simulated, Morphological Filter

Source: https://guide.digitalsurf.com/de/leitfaden-filtertechniken.html

You evaluate CT data from parts with porous surfaces. Now a morphological filtering can be simulated during virtual measurement with WM | PointMaster R2019-1, just as it is done when probing with a probe ball on a real CMM.

Further improvements

- DMIS programs: Extended range of supported functions and commands
- Program command Loop: new with display of start value, end value and step size
- Probe management: Adopting configuration, changing system and group
- WM | Quartis as I++ DME Client: Generic I++ DME command
- Use expression editor in further input fields of the features
- Construction Input: Keep nominal values when entering actual values (no update)
- Create report: minimum paper size adapted for label printers
- Report graphics view: more convenient alignment of selected data boxes
- Report: Updated templates
- Backup of database: maximum number of backup copies increased.
  New default setting: backup on; number of copies =5.