Improvements
WM | Quartis R2019-1

Update Information

Improvements WM | Quartis R2019-1

At a glance

WM | Quartis R2019-1 offers a wide range of improvements for special applications and areas of use.

WM | Quartis R2019-1 contains the functionality of the new **WM | I++ DME Server**. This allows WENZEL coordinate measuring machines to be operated with third-party software. The WM | I++ DME Server supports the WENZEL WPC 2030 and WPC 2040 controllers with all configurable probe heads, trigger probes and scanning probe systems. The calibration of probe heads, sensors, probe changers, rotary tables, etc. is carried out with the familiar WM | Quartis functionality.

WM | Quartis R2019-1 works with the integrated 3D line scanner **WENZEL Shapetracer II**. With the optical sensor automated multi-sensor measurement sequences are possible. The part can be precisely aligned with a tactile probe such as TP20, TP200 or SP25. The same sensors can be used to measure internal geometries and features with tight tolerances. Afterwards the optical sensor WENZEL Shapetracer II can be loaded from the change rack and a scan of the external geometry can be made in order to evaluate the required profile tolerance. The deviations can be displayed in color-coded graphical reports.

WM | Quartis R2019-1 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 R2019-1 and require additional, chargeable modules. These are described in the document "Products and Modules WM | Quartis R2019-1".

WM | I++ DME Server

WM | I++ DME Server allows to operate WENZEL coordinate measuring machines with third-party software. The prerequisite is that the third-party software can be operated as an I++ DME Client and the I++ DME interface is tuned and verified for the corresponding application with our WM | I++ DME Server.

WM | I++ DME Server supports the I++ DME specification version 1.7. Currently all configurations with WENZEL WPC 2040 and WENZEL WPC 2030 controllers are supported.

I++ DME work window and ribbon

In the work window "I++ DME tools" the communication between I++ DME client and server is visible. The filter suppresses the output of the current machine position (live display).

The function "Clear" resets pending errors so that I++ DME Server can receive commands from the connected I++ DME Client again.
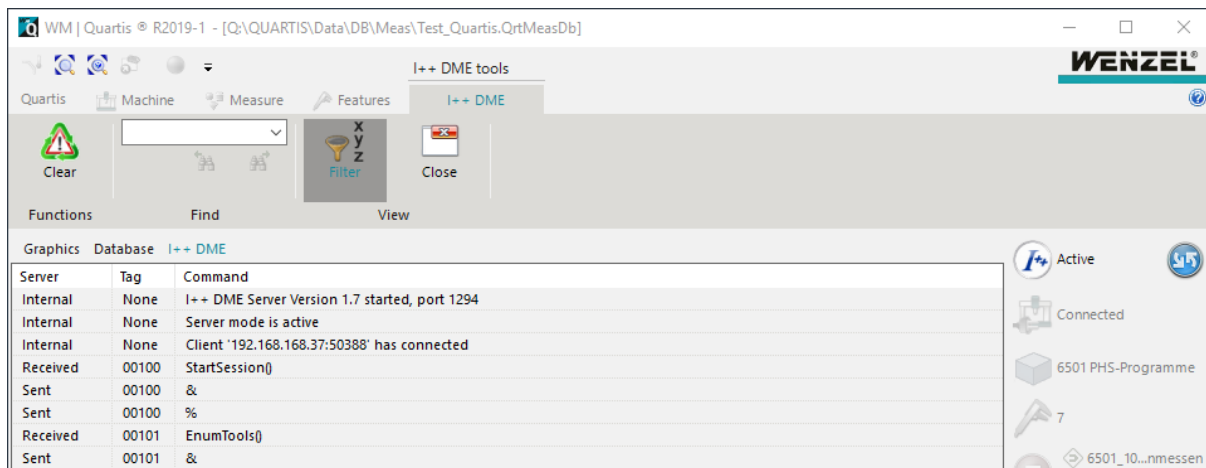
I++ DME status / switch I++ DME mode

I++ DME status is displayed with two icons.
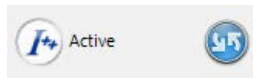
I++ DME mode is active, only I++ DME commands can be executed. The WM | Quartis function groups are deactivated. By clicking on the left icon, the mode is switched.

I++ DME mode is inactive, all WM | Quartis functions can be executed. In this mode, the probe systems can be calibrated, for example.

■ Highlights

- WM | I++ DME Server for the operation of WENZEL coordinate measuring machines with third-party software
- WM | I++ DME Server supports the WENZEL WPC 2030 and WPC 2040 controls with all configurable probe heads, trigger probes and scanning probe systems
- WM | Quartis functionality for calibration of probe heads, sensors, changers, rotary tables, etc.

Laser Scanner WENZEL Shapetracer II

You want to use tactile as well as optical sensors on your WENZEL coordinate measuring machine.

With the integration of the 3D line scanner WENZEL Shapetracer II in WM | Quartis automated multi-sensor measurement sequences are now possible.

The part can be precisely aligned with a tactile probe system such as TP20, TP200 or SP25. The same sensors can be used to measure internal geometries and features with tight tolerances. Afterwards the optical sensor can be loaded from the change rack and a scan of the external geometry can be made in order to evaluate the required profile tolerance. The deviations can be displayed in color-coded graphical reports.

It is a trend that more and more constructing engineers are specifying the outer geometry with profile of a surface tolerance. This is easier and more efficient, especially for plastic parts. This application is exactly what the first integration of the WENZEL Shapetracer II is designed for.

Probing mode

For the WENZEL Shapetracer II the new probing mode "line scan" is available.

Sensor image and sensor settings

The exposure time can be adapted to the surface characteristics of different parts in the ribbon of the "Sensor image" working window. The laser line is displayed in the preview graphic. The correct sensor setting can be checked live there.
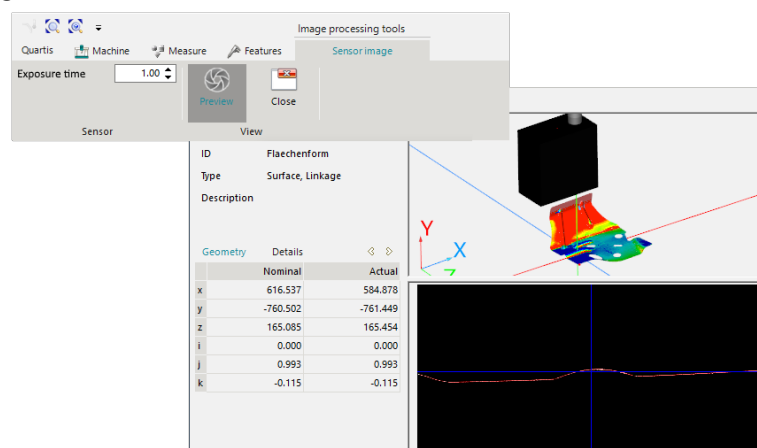
WENZEL Shapetracer II sensor calibration and administration

For calibration and administration of the WENZEL Shapetracer II sensor as probe system, the usual WM | Quartis functionality can be used.

- The WENZEL Shapetracer II can be calibrated both semi-automatically and automatically (e.g. via the matrix).

- The calibration of the WENZEL Shapetracer II can be recorded in a program.

- The calibrated probe system is stored uniformly in the WM | Quartis system database.

- The WENZEL Shapetracer II can be automatically loaded and unloaded via Renishaw ACR3.

Measure surface

The WENZEL Shapetracer II sensor moves at ideal working distance along the scan path defined on the CAD model. The points recorded by the sensor are projected onto the previously marked CAD surfaces. The number of points is influenced by the set point distance. Depending on the application, more or fewer points are useful.

Before measuring the surface, additional areas can be defined on the CAD model. Points that lie outside the defined areas are not projected onto the CAD surfaces. This can be used, for example, to leave out clamps of a fixture or to restrict areas of a large CAD surface.

Geometric 3D elements such as planes, cylinders, cones or spheres can be calculated from the captured surfaces using the appropriate "construct" function.

Evaluate surface element and create report

For the surfaces measured with WENZEL Shapetracer II sensor, the usual evaluation functions are available.

The surface profile tolerance represents the deviation from the nominal surface (to the CAD model) in a numerical value.

The graphic views with color-coded display of the deviations are descriptive and easy to understand.

The deviation of individual regions can be shown in point boxes.

Fuel cap			
	Nominal value	Actual value	Dev
	0.000	0.998	0.998

0.400

-0.499
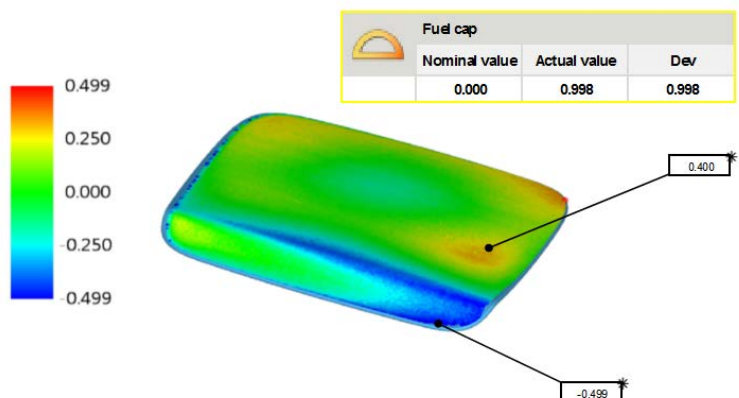
Point cloud export

The point clouds captured by WENZEL Shapetracer II sensor can optionally be exported automatically to an ASCII file. The entire point cloud is saved without thinning out and without considering the defined limitations. The exported point clouds can be further processed with WM | Pointmaster, for example.

■ Highlights

- Automated multi-sensor measurement processes with 3D line scanner WENZEL Shapetracer II
- Seamless integration of the optical sensor WENZEL Shapetracer II in WM | Quartis
- Calibration and administration of WENZEL Shapetracer II sensor with comfortable WM | Quartis functionality
- Descriptive measurement reports with color-coded display of surface profile tolerances
- Export of point clouds for optional further processing with WM | Pointmaster

Further improvements simplify daily work

WM | Quartis as I++ DME Client starts up faster

You are using WM | Quartis with Renishaw UCC Server because you are using a 5 axis probe head Renishaw REVO or PH20. When starting up WM | Quartis, the probe systems are now loaded faster from I++ DME Server, which significantly reduces the starting time.

New machine mode: Single mode with coupling
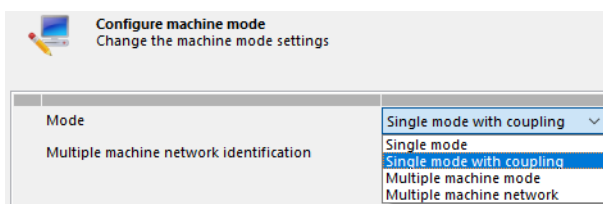
The I++ DME Server is responsible for coupling the individual carriages within multiple machine measuring systems. So that the "Couple machine" function can also be used in single mode, the mode "Single mode with coupling" is now available in Quartis configuration program.

Work window "Feature data": TEXT/OUTFIL,'text' output

In DMIS programs, "TEXT/OUTFIL" statements are used to write information into the output files. These texts are often used to structure and document the output. This information can now also be displayed in the Feature data window.

```
855  DMESW  / COMAND, 'PROTONEW'
856
857  TEXT/OUTFIL,''
858  TEXT/OUTFIL,''
859  TEXT/OUTFIL,'RPS 4 Fz (AR:B)'
860  OUTPUT/F(MRGHA1001_UDCA),T(MRGHA1001_UDCAX),T(MRGHA1001_UDCAY),T(MRGHA1001_UDCAZ)
861  OUTPUT/FA(MRGHA1001_UDCA),TA(MRGHA1001_UDCAX),TA(MRGHA1001_UDCAY),TA(MRGHA1001_UDCAZ)
862
863
864  TEXT/OUTFIL,'RPS 102 fz'
865  OUTPUT/F(MRVTU1001_UDCA),T(MRVTU1001_UDCAX),T(MRVTU1001_UDCAY),T(MRVTU1001_UDCAZ)
866  OUTPUT/FA(MRVTU1001_UDCA),TA(MRVTU1001_UDCAX),TA(MRVTU1001_UDCAY),TA(MRVTU1001_UDCAZ)
867
868  DMESW  / COMAND, 'PROTOCHECK'
```

RPS 102 fz

Feature	MRVTU1001_UDCAX/ - Position [x]			
Elements	MRVTU1001_UDCA			
	Actual value	Nominal value	UTol	LTol	Deviation
x	2159.8	2160.5	1.0	-1.0	-0.7

Feature	MRVTU1001_UDCAY/ - Position [y]			
Elements	MRVTU1001_UDCA			
	Actual value	Nominal value	UTol	LTol	Deviation
y	756.3	758.0	1.0	-1.0	-1.7

Feature	MRVTU1001_UDCAZ/ - Position [z]			
Elements	MRVTU1001_UDCA			
	Actual value	Nominal value	UTol	LTol	Deviation
z	-98.0	-98.0	0.2	-0.2	0.0

New and adapted CAD interfaces

WM | Quartis R2019-1 supports the following CAD interface formats:

- CATIA V4   (4.1.9 to 4.2.4)
- CATIA V5   (R8 to R2018)
- CATIA V6   (to R2018)
- 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 ST10)
- SolidWorks   (2003 to 2018)
- STEP   (AP203, AP214, AP242)
- VDA   (1.0 and 2.0)

The changed CAD interface formats compared to WM | Quartis R2018-2 are shown **bold** in above list. You may also benefit from general improvements and error corrections in the other CAD interface formats.

WENZEL Shop Floor SF 87 available as machine model

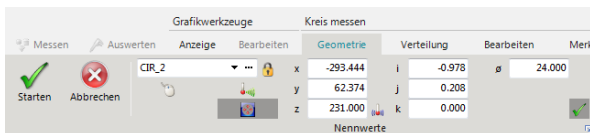The new WENZEL SF 87 can be configured for the representation in the 3D graphics.
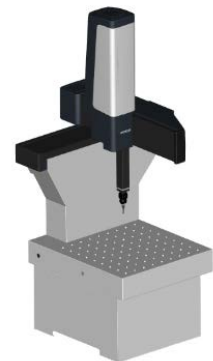
Input fields: values calculated by expressions displayed in color
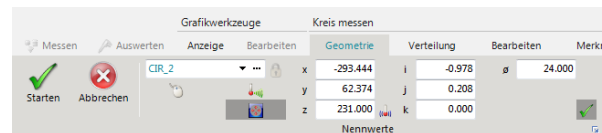
You use the expression editor to define IDs and values with expressions in the input fields. In the ribbon, the values and characters calculated from expressions are now displayed in color.

The color coding is particularly helpful when programming. It reduces the risk of accidentally overwriting an expression.

CIR_2 as plain text:

CIR_2 as result of an expression: