



ONE TECHNOLOGY - ANY MEASUREMENT

DPA

Deformation analysis in a climate chamber

Climatic tests are carried out for the evaluation of environmental influences on new production materials. In order to determine 3D deformations arising during the tests, the mobile 3D industrial measurement system AICON 3D Studio DPA is the ideal tool. The results of a large number of measuring points are available within minutes, and graphical output options make the interpretation of deformations much easier.

Temperature reaction tests are a must

During the development phase, for example when testing new materials and parts, the survey and evaluation of environmental influences with the help of a climatic test are part of the standard routine.



Climate chamber

A climate chamber is used to simulate climatic conditions in order to assess special characteristics of tested objects, such as deformation or expansion.



Image capture at 180° C

Measurement of geometric deformations under extreme climatic conditions

Climatic tests provide you with essential information about the geometric deformation of the testing object in correlation with the surrounding conditions. This requires a complete 3D measurement of the tested objects.



Testing object

Due to the continuously growing demand for rapid measurement of a large number of precise measuring points within the shortest time, the measurement system has to fulfil the following requirements:

- It has to be a non-contact measurement to avoid a geometric change of the object during the measurement process.



DPA Measuring System

- It must be possible to use the measuring system inside the climate chamber. Consequently, the system must also be reliable under extreme climatic conditions.
- The time for capturing the measurement must be minimized as it is presumed that the object remains unchanged during the measurement.
- The process for evaluation of measurements and calculation of 3D co-ordinates should be automated in order to minimize evaluation time for the continued measurements.
- It must be possible to visualize the results for an easy understanding and for the documentation of the test.

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Non-contact measurement with AICON 3D Studio and DPA

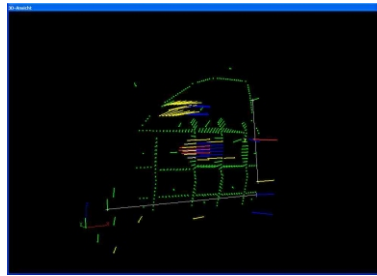
For the measurement of the geometric deformation of test samples in a climatic chamber, AICON 3D Studio in combination with the mobile industrial measurement system DPA is the ideal tool. With a high resolution digital camera, the test sample will be captured according to an optimized individual recording principle.



Signalization with targets

For this purpose, with the help of the software Codemaker, the user prints target points on a material which is especially applicable in these climatic conditions.

The applied camera can be used under extreme climatic conditions in a climatic chamber. If necessary, a special camera housing is available for protection. The time for capturing the object is very short and the required series of measurements can be performed easily.



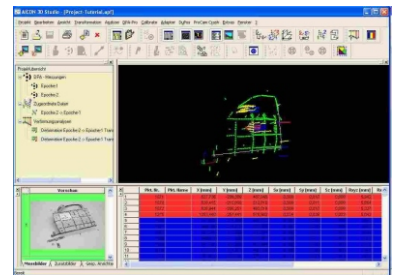
3D View with deformation vectors

Automated calculation of 3D co-ordinates in minimum time

The evaluation software DPAPro takes not more than a view minutes for evaluating the images and calculating the 3D object co-ordinates.

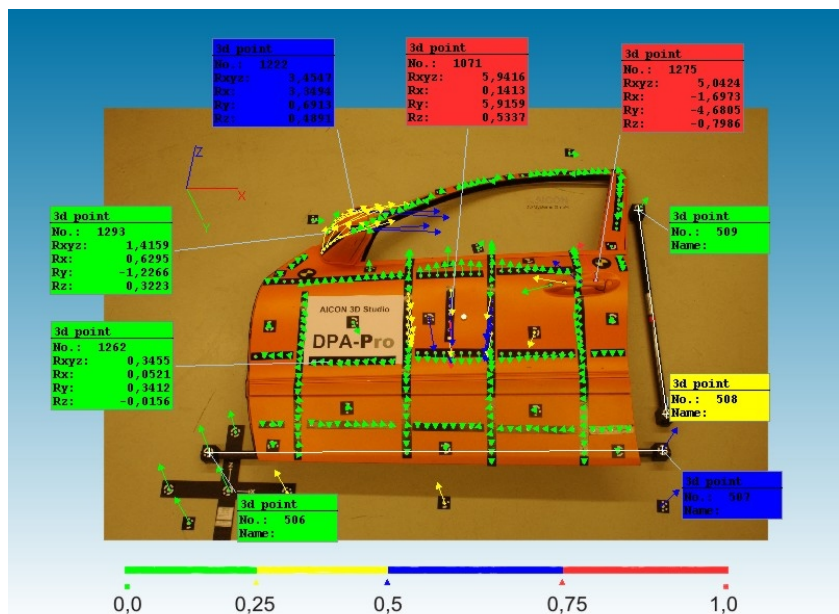
With AICON 3D Studio, a comparison of the results of the measurement series is easily possible. The visualization of the deformation vectors makes the interpretation very comfortable. Thanks to the integrated info pins the user gets additional information about the

exact deformation value of certain points. The required measurement reports are produced with software support. All results can be integrated into Windows user programs with the help of the drag and drop function.



Analysis in AICON 3D Studio

The results, together with the AICON 3D viewer, can be handed over to others who are then able to use the complete report and export functionalities of AICON 3D Studio and who can examine the results with the graphic presentation tools of the software.



Documentation image with deformation vectors