



ChamberCam

Component testing in climate chamber

Revolutionary approach for measuring dynamic stability in climate chambers.

It's a true dilemma: On the one hand, new components have to be tested under extreme climatic conditions in order to analyze their stability. On the other hand, no measuring device on the market would acquire data in real time inside the environmental chamber – until now! The answer to this problem is ChamberCam, an innovative technology developed by AICON and launched by the company DIS.



Challenge environmental chamber

The initiative for this project originally came from DIS (Dynamic Intelligent Solutions, from Clinton Township, Michigan, USA). Searching for ways to offer more value to its customers, DIS had a vision to seek out a technology to measure components and systems while they were subjected to extreme climatic conditions. An innovative process such as this had not been automated before and would ultimately revolutionize the testing industry.

“Until now, manufacturers could only measure a product before and after it was exposed to a predetermined temperature and humidity profile, making it difficult to know exactly how much and when a part might change under various conditions,” confirms Larry Arnone, vice president of DIS. “Our company is a provider of measurement services, so we were regularly facing this problem. One day we came up with the idea of finding a partner who could procure us with the necessary technology to measure inside the environmental chamber during the test – and we fortunately found this partner in AICON.”



—→ MoveInspect cameras

AICON's reply: MoveInspect Technology

ChamberCam is based on AICON's MoveInspect Technology. However, to endure the extreme temperatures that can occur in environmental chambers, AICON modified the system significantly: AICON's engineers developed a special housing for the cameras being resistant to temperatures from - 50° C up to + 150° C. Concurrently the team worked on the framing to mount the cameras on to, on changes in the software, and on an environmental management system.

Precise measurement results under extraordinary conditions

The result is a precise measuring system, reducing development time and providing detailed data about the stability of a component. No matter how long the test lasts – from several minutes to several days – the user can clearly see at what point of time, and under which temperature, a structural damage occurs. Dimensional data are captured at hundreds of points on the part, up to 15 times per second. Of course, the operator gets a comprehensible measuring report, too. For DIS as a service provider this report function is very important as customers ask for a clear documentation of the test.

Since the measuring system is light-weight, it can easily be carried to another test facility, while the setup merely takes a few minutes.

Jim Arnone, president of DIS, summarizes the utility of ChamberCam with the following words: “Once visitors understand what dynamic data acquisition is, that they can capture points as they move, a light bulb turns on their heads.”

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