



Application Notes:

Dimensional Control for Climate Testing

Innovation

Dimensional control in climate chambers can be challenging. The extreme hot or cold conditions make the task of reliable 3D data collection difficult. The revolution of EZ3D is that with a single snapshot, the operator obtains in real time accurate flush, gap and sheer data from a collection of points on the assemblies. The data will show the drift or change of the fit and finish throughout all cycles.

“Obtain a 3D measurement by simply taking a picture.”



Application

Vehicles often face very punishing climates and due to these conditions, some parts or materials will expand or contract. These dimensional drifts will have a direct impact on the fit, finish and potentially even the function of a vehicle. This is especially critical when parts or materials of different properties are mixed. Climate testing chambers simulate climate extremes which causes the inspection process to be a strenuous experience. Classic measuring methods have struggled to achieve accuracy, until now.

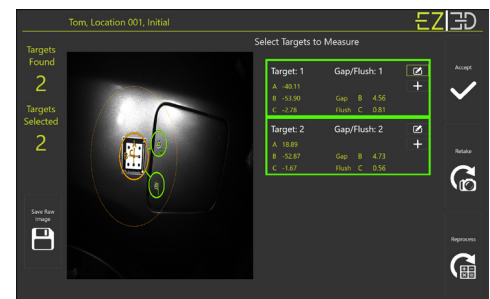


EZ3D can be utilized in a variety of environmental chambers including:

- Low Temperature Chambers
- High Temperature Chambers
- Solar/Photovoltaic Chambers

Technology

EZ3D offers a quick, reliable and mobile measurement solution for almost any environmental situation. EZ3D optional measurement tool docks to a rugged PC tablet and is designed to operate in harsh environments. All operations are controlled via the tablet and results are displayed in real time to provide the necessary feedback to the user. Simplicity is the essence of the EZ3D concept. Within a matter of minutes, anyone can operate the system and obtain accurate results.



First Step: Initial Condition

The measurement session can be prepared at room temperature. Adhesive labels are applied to the part, often pairs of a reference and a point target. 3D inspection points are determined between the local reference and one or more surrounding target stickers. An initial picture is taken of each location to determine the initial locations. If so desired, the 3D measurement can also be reduced to a simple 2D flush and gap dimension.

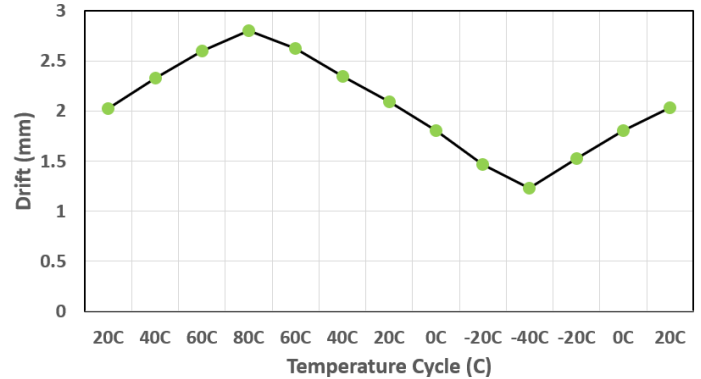
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Next Step: Repeat Cycle at New Climate Exposure

After the initial cycle, the parts can be subjected to a multitude of elements or conditions. Throughout each cycle, the same measurement can be repeated. While in these conditions, a simple snapshot of the points is all that is required. After all cycles, each data point will have a drift curve in function of temperature. Each location and measurement can be viewed on the tablet as well as a graph showing the displacements.



“When using EZ3D, there is no limit on how many cycles or how many points can be recorded throughout the measurement process.”

Report: 3D or Flush & Gap

In some cases, the requirement is to report a change in flush & gap, not as a 3D position. To prepare for this type of reporting, the definition of flush and gap can be established during the initial cycle. All consecutive cycles will take this initial configuration into account. The final report will only contain flush & gap dimensions over time.

Interior or Exterior Assemblies

EZ3D can be used for both body and trim or interior assemblies. Interior tests will often fall back on smaller references and targets to accommodate the smaller parts and higher detail. Exterior assemblies can benefit from larger labels and by doing so will cover larger volume or include multiple points in a single picture.



Reporting

All data recorded is registered and saved into the database. With the click of a button, a standard excel-compatible report is then generated which includes the dimensional information, flush & gap drift and pictures of each measurement point for optimal understanding.

For more details, please visit our **EZ3D** product page at www.ezmetrology.com.

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