



Application Notes:

Dimensional Control for Load Testing

Innovation

Dimensional control to document deformation of parts and assemblies under load are essential to the conclusion of a test. The setup and complexity of a test stand combined with the requirement for 3D data can result in a challenging task. Classic gauges require time to set up and calibrate. EZ3D is designed so that with a single snapshot, the operator obtains in real time accurate deformation data from a collection of points on the assembly. The data will show the drift, displacement or deformation in function of the different load cases.



Application

Parts or assemblies are designed to perform under certain load conditions. This can be in the form of a force being applied or a constraint in the form of durability. When a part is set up for load testing, EZ3D can be used to register its initial shape. During the consecutive tests, the drift, deformation in 3D can be measured. The result will show the displacements of each of the measurement points.



Some examples of EZ3D Load Testing Applications:

- Sagging of doors
- Displacement of pedals or handles under specific loads
- Flexing of panels
- Deformation of spring elements
- Body torsion
- Pressurized parts

Technology

EZ3D offers a quick, reliable and mobile measurement solution for a wide variety of situations. EZ3D optical measurement tool docks to a rugged PC tablet and is designed to operate in a testing environment. All operations are controlled via the tablet and results are displayed in real time to provide the necessary feedback to the user. Simplicity is part of the concept and within a matter of minutes anyone can operate the system and obtain accurate results.

First Step: Initial Condition

In no time, the measurement session can be prepared. 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 shape.

Next Steps: Different load applied, number of cycles...

After the initial cycle, the parts can be subjected to a multitude of loads, gradually increasing or in case of durability, subjected to thousands of cycles. In these conditions, a simple snapshot of the points is all that is required to register the deformation. After all cycles, each data point will have a drift curve in function of load. Each location and measurement can be viewed on the tablet and a graph showing the displacements. There is no limit on how many cycles or how many points can be recorded.

Reporting

As all data is registered and saved in the database, a standard excel compatible report can be obtained including the dimensional information and pictures of each measurement point for optimal understanding.

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