

DST DIMENSIONAL STABILITY TESTER

Our dimensional stability testers are automated testing instruments for optical evaluation of in-plane as well as out-of-plane deformations across a specimen surface.

The DST concept enables detailed analysis of dynamic displacement across a specimen surface exposed to changes in moisture, temperature or tension.

Models

Test systems

- DST1200 : in-plane only
- DST1230 : in-plane and out-of-plane

Climate chambers

- DST1210 : single specimen
- DST1250 : five specimens

Concept

A speckle pattern is applied on the test specimen, which is then positioned under a pixel-synchronous CCD video camera capturing an image. The specimen is then exposed to a different level of humidity, temperature or tension.

After the requested conditioning time, a second image is captured and the two images are compared to calculate the dynamic in-plane displacements across the specimen surface. A full test involves the comparison of a sequence of two or more captured images at different conditions.

For evaluation of out-of-plane displacements, two pixel-synchronous CCD cameras are used to view the same specimen area from a perpendicular angle. This eliminates the distortion characteristic for stereoscopic systems with angled camera. The 3D approach can be used to describe the static shape of a cockled or curled surface as well as the dynamic deformation caused by moisture, temperature or tension.



Features

- Optical non-contact evaluation of in-plane as well as out-of-plane displacements
- Detects in-plane displacements down to one micron across a 50 x 50 mm large sample
- Allows dynamic visual and statistical evaluation
- 3D-system measures out-of-plane shape as well as dynamic deformation
- Automatic testing of in-plane hygroexpansion with optional desktop climate chamber

*Cardboard, Non-wovens, Packaging, Paper,
Plastics, Printing Inks, Pulp, Textile*

Physical specifications

Dimensions

DST1200/1210/1250 34 x 37 x 37 cm (WxDxH)
DST1230(3D) 33.5 x 28.5 x 115 cm “

Net Weight

All models ± 13 kg

Options

- Desktop climate chamber :
for evaluation of hygroexpansion. Once the test is defined in the database, the climate chamber is operated automatically from the computer. Neat, clean and simple to use, the chamber runs time-consuming experiments by itself.
- Speckle gun :
projects speckles for out-of-plane measurements.

Performance data

Humidity control

For DST1210/1250 10-90 ± 2% rh

Drying response time

For DST1210/1250 < 3 min for 80-20 % rh
@ 50 % rh

Moisturizing response time

For DST1210/1250 < 3 min for 20-80 % rh
@ 50 % rh

Field of view

For DST1200/1210/1250 50 x 50 mm
For DST1230(3D) 125 x 125 mm

Image resolution

For DST1200/1210/1250 1 µm in-plane
For DST1230(3D) 2 µm in-plane
8 µm out-of-plane

Pixel size

11 x 11 µm

Power supply

100-120 / 220-240 V, 50/60 Hz

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