

New Model Series StrainMatic® M4

Quality is Measurable

Imaging polarimeter systems for the automatic and objective measurement of stress birefringence in glass and plastics

The breaking resistance and processability of glass and plastic products are heavily determined by the contained residual stress which depends on the stages of forming and annealing. Through the effect of stress birefringence the residual stress also has an influence on the polarization of light. Therefore, constant testing of residual stress is a very important part of quality control.

With the development of the StrainMatic® product series, **ilis gmbh** based in Erlangen, Germany, has been successful in identifying stress in a medium on time.

„Even minimum mechanical stress in material can affect the polarization of light, which is an undesirable effect especially when there is an optical demand which has to meet the highest precision“ explains Henning Katte, Managing Director of ilis.

The new **StrainMatic® M4** has been specially developed for the optical industry. In comparison with StrainMatic® M2 and M3, the M4 type offers a higher measuring accuracy and parallel light paths over the whole measuring area.

The first **StrainMatic® M4/300** with a measuring field size of $240 \times 180 \text{ mm}^2$ has made possible the fast and exact examination of stress in large sized optical raw glass at SCHOTT AG, Advanced Optics in Mainz, Germany.

The equipment works according to the photoelastic principle: Linear polarized light is non-destructively conducted through the object and the alteration of the polarization angle is measured automatically. A large telecentric lens captures the internal stress distribution from the center to the border uniformly. The instrument realizes a lateral resolution of less than 1 mm, enabling a fast and two-dimensional measurement of the stress birefringence in large specimens. The result is displayed graphically color-coded which enables a quick overview of the residual stress distribution and makes a detailed analysis possible.

At SCHOTT, the method is primarily applied for materials and components used in industrial optics, especially related to astronomy, microlithography and laser optics.



StrainMatic® M4/300

Another model of the M4 series, the **StrainMatic® M4/50 Inline** with 40 x 30 mm² measuring field size is available in the market since December 2007. Its modular and robust design allows its easy integration into existing production and testing lines. A typical application is a continuous process control in production of tube glass and pharmaceutical packages. Besides the Inline variant a laboratory version with a closed housing is also available.

The Company

ilis gmbh, based in Erlangen/Germany, develops, manufactures and distributes software, measurement technology and automatic testing equipment for quality assurance in the glass and optics industry. With the measuring and testing instruments of the **StrainMatic®** series the company designs imaging polarimeter systems for the automatic and objective measurement of the stress birefringence in glass and plastics. With **BatchMaker®** and **PRISMA** ilis offers standardized software solutions to the glass industry which permit the fast and reliable calculation of batch recipes and glass properties, as well as the measurement of transmittance and color.



StrainMatic® M4/50