

StrainMatic® M4/160

Quality is measurable

Fast and high-resolution measurement of stress birefringence in optical materials and components

In industrial optics, especially in the field of microlithography, highly homogeneous optical materials are used. Residual stresses in the material affect the imaging properties of the manufactured components, which is undesirable in many applications. Therefore, constant testing of stress birefringence is a very important part of quality control.

The StrainMatic® M4/160 imaging polarimeter system automates the measurement and evaluation of the stress birefringence. Fully automatic stitching enables the fast and exact measurement of large-sized specimens such as lens blanks made of SiO_2 und CaF_2 .



Your Benefits

Objective and reliable results

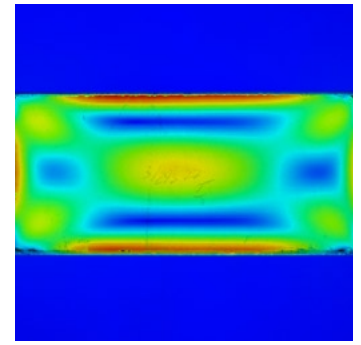
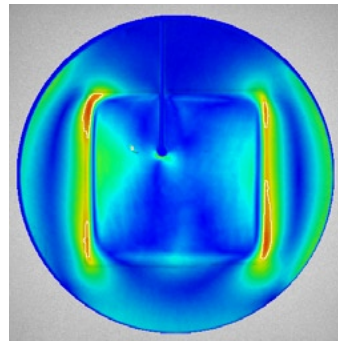
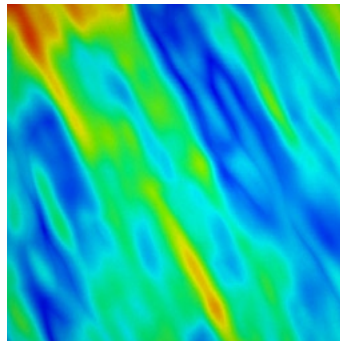
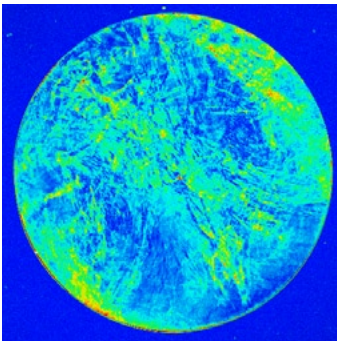
Fast and easy operation

Improvement in quality by on-site measurement

Traceability by automatic archival of all results

Cost reduction by optimizing the production process





StrainMatic[®] M4/160.42 stepper

Technical Data

Operation	integrated PC with pivoting operating station
Sample size (incl. support)	max. 500 x 400 x 400 mm (H/W/D), max. 100 kg
Sample positioning	XY table (horizontal/vertical) with automatic stitching
Illumination	collimated ($\pm 0.5^\circ$) or divergent (5°)
Image acquisition	matrix camera (2048 x 2048 pixels) with telecentric lens (160 mm aperture)
Depth of focus (max.)	approx. 100 mm (depending on iris setting)
Measuring field size (max.)	approx. 112 x 112 mm
Spatial resolution	0.06 mm (pixel distance), > 300 pixels/mm ²
Measuring area	variable rectangular, circular, elliptical or polygonal
Measuring results	Polarization angle ($^\circ$) optical retardation (nm) normalized optical retardation (nm/cm, nm/mm)
Measuring range	approx. -68 to +68 nm (standard) ca. -270 to +270 nm (uni- or multi-directional)
Repeatability (SBR)	± 0.005 nm (RMS), $\sigma < 0.05$ nm (individual pixels)
Repeatability (azimuth)	$\pm 0.05^\circ$ (RMS), $\sigma < 1^\circ$ (individual pixels with SBR > 1 nm)
Measuring time (typical)	approx. 90 s (> 45.000 measuring points/s)
Interfaces	Ethernet (1000 MBit/s), USB 2.0, DVI
Power supply	100-240 V AC / 45-65 Hz / 1000 VA
Dimensions	approx. 1850 x 1800 x 1500 mm (H/W/D), without operating station
Weight	approx. 450 kg

Application Examples

Optical materials (e.g. i-line glass, fused silica, CaF₂, BaF₂)

Optical components (e.g. optical windows, display glass)

Custom adaptations and special versions are possible on request. No responsibility is taken for the correctness of the information. All information is subject to change without prior notice.

Product website: www.ilis.de/en/strainmatic.html
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