BIREFRINGENCE MEASUREMENT

EXICOR® HD

PRODUCT BULLETIN

Hinds Instruments' Exicor HD is the heavy duty platform of the Exicor® birefringence measurement system family of products. This system is suitable for inspection and testing of semiconductor wafers and photomasks. Its design and intuitive automated scanning software make it well-suited for routine evaluation of semiconductor wafers and photomasks.

LEADING EDGE SENSITIVITY AND REPEATABILITY

Using Hinds Instruments' patented Photoelastic Modulator (PEM) technology, the system provides the highest levels of birefringence sensitivity available today. In addition, the PEM provides high-speed operation, modulating at a 50kHz rate. Leading edge sensitivity and repeatability easily provide subnanometer levels of birefringence measurement, critical to many applications.

DESIGNED FOR SIMPLE, STRAIGHT FORWARD OPERATION

Samples can be characterized via manual or automatic imaging and graphical display. Once the specimen is placed on the testing stage, the intuitive software guides the operator through the step-by-step measurement process. The user interface software calculates the retardation value and fast axis angle displaying them in various formats. The software also provides file management and calibration capabilities.

Applications

- Semicoductor Wafer Inspection:

Performs full-field birefringence distribution measurementson silicon wafers and silicon carbide (SiC) wafers. Effectively identifies stress-induced birefringence charactieristics from processes like cutting, grinding, and epitaxial growth, helping evaluate material lattice integrity and process stability

- Photomask Quality Assessment

Conducts high-resolution birefringence uniformity scans for photomasks of all kinds. Detects optical performance deviations caused by material defects or processing stress,contributing to photolithographic pattern transfer accuracy.

Significant Features

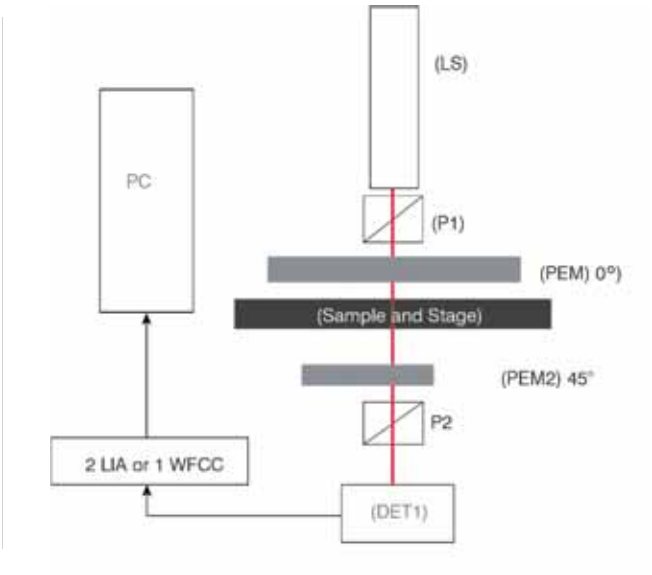
- Unprecedented sensitivity in low-level birefringence measurement
- Simultaneous measurement of birefringence magnitude and angle
- Precision repeatability
- High-speed measurement
- No moving parts in the optical system
- Automatic mapping
- Photoelastic modulator technology
- Simple, user-friendly operation

EXICOR
Birefringence Measurement System

EXICOR HD

FOR RETARDANCE MEASUREMENT IN GLASS BLOCKS UP TO 11,75000LBS/5,400KG

The newly designed Exicor® HD system is a heavy-duty sample measurement system based on Exicor's core low-level birefringence measurement technology and precision automated motion control elements. The design of the Exicor HD utilizes an all steel base to support samples This brings the Exicor birefringence measurement system family to a new level of efficiency and improved robustness to accommodate samples.



MODEL	SYSTEM SIZE (MM)		SAMPLE DIMENSIONS (MM)		MAXIMUM WEIGHT
	X/Y	Z	X/Y	Z	lbs / kg
400HD	1265 x 1414	2050	400 x 400	400	450 / 205
600HD	1465 x 1614	2050	600 x 600	600	1,100 / 500
800HD	1663 x 1814	2050	800 x 800	500	1,910 / 865
1000HD	1865 x 2014	2050	1000 x 1000	500	2,910 / 1,320
1500HD	2366 x 2662	2050	1500 x 1500	500	6,600 / 3,000
2000HD	2790 x 3162	2050	2000 x 2000	500	11,750 / 5,400

SPECIFICATIONS

Retardation Range:	0.005 to 300+ nm
Retardation Resolution /Repeatability[1, 2]:	0.001 nm / ± 0.015 nm or <0.8% for RET>1nm
Angular Resolution /Repeatability[3]:	0.01° / ± 0.07°
Measurement Rate / Time[4]:	15 samples/sec (at 1nm spacing)
Light Source Wavelength[5]:	633 nm
Measurement Spot Diameter[6]:	Between 1 mm & 3mm
Measurement Units:	nm (retardation), ° (angle)

1 Typical performance at 5 nm retardation

2 Up to 2nm, 1% thereafter

3 Typical performance at 10nm retardation

4 Maximum data collection speed. Sample XY scan time dependent on stage movement parameters.

5 Custom wavelengths available

6 Spot sizes of less than 1 mm require optional high resolution detector module

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