

Series 30 Flood Exposure Components

Features

- Near and Deep UV (220 - 436nm)
- Large diameter sources available (5" To 20")
- Intensity uniformity within $\pm 5\%$
- Highly collimated to less than 2.4° high angle
- Constant intensity control $\pm 2\%$
- Dual wavelength monitoring
- Adaptable to Wafer Spin Tracks
- Vibration free lamp cooling

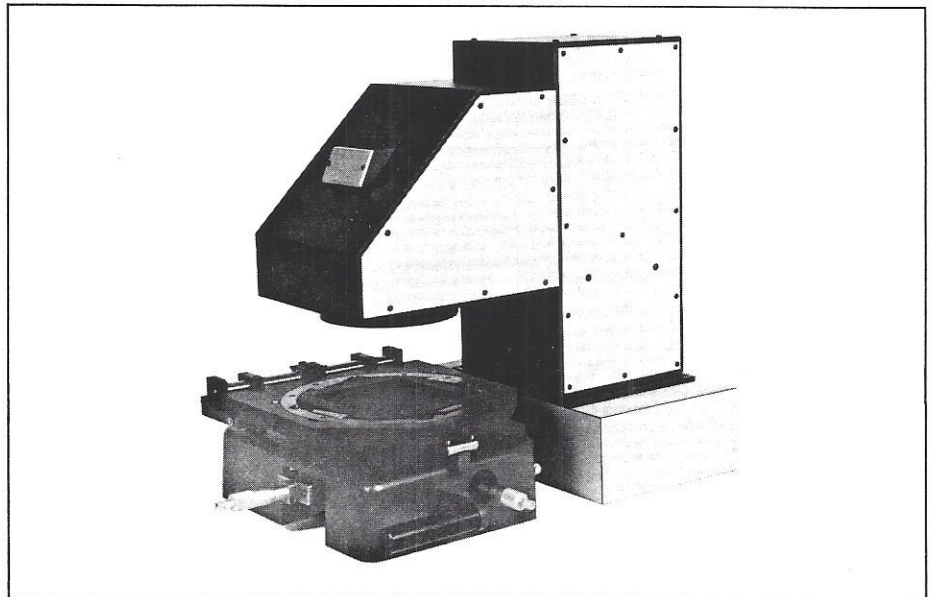
The OAI Free-Standing Flood Exposure System comprises a Deep UV or Near UV Lightsource, Constant Intensity Controller, Dual Wavelength Sensing, and Exposure Timer. It provides the user with flexibility as a stand-alone source, can be mounted to a wafer spintrack, or configured in a variety of light path orientations using one or two lamp housings.

High resolution photoresist systems, single or multi-level, can be processed in the DUV with optics peaked at 220, 260, or 310 nanometers using a XeHg or CdXe lamp. Hg arc lamps up to 2000 watts are used in the 365 to 436 nm range.

The light source emits energy from a high pressure arc lamp to a primary (dielectric) mirror which selects and reflects the desired energy wavelength, and transmits the undesired energy spectrum including IR (heat).

The adjustable Optical Integrator is fixed at the next focal point which enhances the energy uniformity and improves divergence. The Optical Integrator can be adjusted to provide a smaller, more intense exposure area if desired.

Next, the secondary mirror reflects approximately 95% of the energy to the collimating lens where it is uniformly distributed to $\leq 5\%$, and collimated to less than a 2.4° half angle at the wafer plane. The 5%



energy transmitted by the secondary mirror is collected by a band-pass tuned photo-feedback detector mounted in the lamp housing and sends that information to the Constant Intensity Controller.

The Constant Intensity Controller, in series with the closed loop photo-feedback sensor mounted in the lightsource, precisely controls the light intensity within $\pm 2\%$ at the wafer plane, regardless of lamp aging and power line fluctuations. The sensor detects any change in intensity, signaling a change in power from the controller, instantly adjusting lamp power to maintain a constant intensity. The Dual Channel Controller is capable of measuring the UV output at two different wavelengths when two sensors are mounted in the lightsource.

The Exposure Timer is accurate to $<1\%$ and can be programmed in 0.1 second intervals ranging from 0.1 to 99.99 seconds, or 1 second intervals ranging from 1 to 999 seconds.

The system can be easily converted from one wavelength output to

another, and OAI offers a complete line of band-pass mirror sets. To measure light intensity at the wafer plane with NBS traceability, OAI also offers a complete line of UV measurement instruments and probes tuned to your specific spectral output requirement.

Custom Design

OAI has provided the industry with a large number of custom, built to specification light sources for stand-alone and wafer spin track applications. Please inquire about your specific requirements.

Applications:

- Mult-level resist processing
- Image Reversal
- Wafer Spin Track In-Line processing
- Multimate Thick-Film
- Flat Panel Displays
- High Density, Printed Circuit Boards
- Thin Film Magnetic Recording Heads
- Numerous other UV Flood-Exposure Needs

Specifications

Series 30 Flood Exposure Components

Lightsource

Lens Diameter: in. (cm)

Working Area

Diameter: in. (cm)

Square: in. (cm)

Uniformity ($\pm\%$)

5 (12.7)	7 (17.8)	10 (25.4)	13 (33)	16 (40.6)	20 (50.8)
4 (10.2)	6 (15.2)	8.5 (21.6)	11 (28)	14 (35.6)	18 (45.7)
2.8 (7.1)	4.2 (10.7)	6 (15.2)	8 (20.3)	10 (25.4)	12.8 (32.5)
5	5	6	6	6	7

Spectral Peak

(Specify)

Near UV: 365, 400, 436 nm

Deep UV: 220, 260, 310 nm

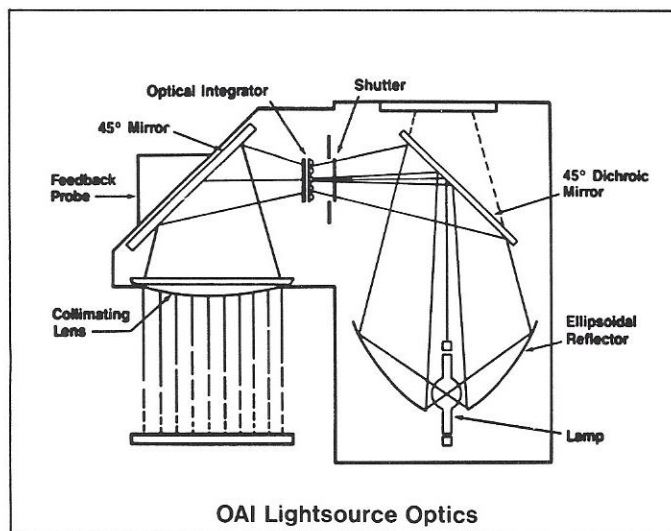
Lamp Output

(Specify)

200, 350, 500, 1000, 2000 watts

Collimation (half angle)

<2.25%



Intensity Controller

(Option)

Holds intensity to pre-set value within $\pm 2\%$, throughout the life of the lamp and with lamp voltage variations of 15 VAC, maximum. (See the OAI Constant Intensity Controller Spec. sheet for greater detail)

Shutter Timer (Model 150)

Timer Range

1 to 999 seconds (1 second intervals)

.1 to 99.9 seconds (.1 second intervals)

Accuracy

<1%

Facilities

Electrical 110 or 220 VAC (according to power supply)

Exhaust 200 cfm @ 1½" H₂O (for DUV light source)

Optical Associates Inc.

1425 McCandless Drive

Milpitas, CA 95035

(408) 263-4944

TELEX 35-2071, OAI SNTA

