

NOTICE INVITING QUOTATION

Date: 30-09-2011

Due date: 21-10-2011

NIQ Ref. No.: IITD/NRF/2011-12/Maskless-lithography

General description: A **maskless exposure and lithography system** to make micron size patterns on various transparent and opaque substrates such as semiconductors, plastics, metals, glass, sapphire and quartz without using a photomask. The samples/wafers could be circular or rectangular or with any arbitrary shape.

ITEM DETAILS WITH TECHNICAL SPECIFICATIONS:

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Exposure Optics

- **Light Source:** Mercury arc lamp with 200W power or better
- Light source lamp lifetime: >1000 hours
- **Available wavelengths** at substrate from mercury arc lamp.
 - >510 nm for Alignment and Substrate Viewing
 - 365 nm +/- 5 nm
 - 435 nm +/- 5 nm
- **Broadband exposure mode:** Should be possible to expose broadband from 350 – 550nm in a single exposure.
- **Minimum feature size** obtainable from the system should be $\leq 1\mu\text{m}$.
- Integrated filter wheel to allow optical filters to be used during exposure.
- It should be possible to use **photomask as well as maskless** for patterning of substrates.
- It should be possible to pattern an area of 150 mm x 150 mm using an XY stage motion.
- Single in line camera for both substrates viewing and focusing.
- **Substrate:** The system should be able to produce patterns on transparent and opaque substrates such as semiconductors, plastics, metals, glass, sapphire and quartz (circular, square and arbitrary shape wafers/samples). The samples/wafers could be circular or rectangular or with any arbitrary shape. The substrate size could vary from about 10x10 mm² to 150-mm diameter. The sample thickness could vary from 100 to 1000 μm .

Integrated hardware and Software Functions

- **Software** compatible with the system for ease of use, modification, and integration with other systems, should be provided along with the system

- Features such as Autofocus, Field calibration of optics/stage and Program storage/retrieval should be included
- Personal computer must be supplied and integrated with system. All required software must be included and running on this computer.
- **Automated level to level alignment** feature should be provided. The **alignment accuracy** should be at least **1 μm** or better for the **1 μm** feature size.

Automated Stage Assembly

- Stage or holder for 150 mm square/circular substrates. Full exposure over 150mm x 150mm area should be available. The other details about the samples/substrates that the system should handle are also given above.
- Conventional Stage
 - X and Y Movement
 - Total travel: 150 mm or higher
 - Accuracy: +/- 1 micron over entire length of travel per axis or better
 - Repeatability: +/-300nm per axis or better
 - Resolution: 5nm per axis or better
 - Z Movement
 - Total travel: 25 mm
 - Accuracy: +/- 1 micron or better
- Theta Movement for Level to Level Alignment
 - Total travel: 360 degrees
 - Accuracy: +/-3 arc min or better
- 4 Axis Controller with open digital interface
- Universal vacuum chuck to support 150 mm x 150 mm substrates

Camera

- Imaging device 1/2" progressive scan CCD
- Sensing area: 6.4 mm x 4.8 mm or better
- 1392 x 1024 pixel array or better
- Pixel size 5.0 micron x 5.0 micron or better
- Suitable video output
- Camera must be fully compatible and integrated with rest of the system

Other Essential items

- **Vibration isolation table** with suitable size and characteristics for the appropriate functioning of the equipment should be provided as an option.
- Minimum **one year warranty** for the equipment should be provided. Additional annual maintenance contract (**AMC**) for three years could be provided as an option.

Optional accessories for future upgradation of the sytem

- Custom bandpass and energy control filters
- Spare lamp assemblies

- Upgrade X and Y stage travel to larger sizes
- Microfluidics research platform for stage area
- Rotational stage for cylindrical substrate patterning

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TERMS and CONDITIONS:

1. The quotation, in sealed envelope marked as “Ref: **IITD/NRF/2011-12/Maskless_Lithpgraphy**” should reach the undersigned on or before **5 pm on 21-10-2011**.
2. The prices quoted should be on **F.O.B.** basis.
3. **Technical and financial bids should be enclosed in separate sealed envelopes and clearly marked.**
4. Institute reserves the right to accept/ reject all/ any quotation without assigning any reason thereof.
5. The delivery period should be clearly indicated in the quotation.
6. Submitted quotations should clearly mention the validity period, preferably for a minimum of **3 months**.
7. Incomplete and conditional submitted quotations would be summarily rejected.
8. The mode of payment should be clearly indicated. The preferred mode of payment is through irrevocable LC.
9. Necessary certificate should be enclosed by the vendor in case of proprietary nature of the quoted items.
10. In case the quotation is being submitted by authorized agent of the principal manufacturing company, the AUTHORISED SALES AGENCYSHIP certificate from the PRINCIPALS should be furnished along with the quotation. Quotations without this authorization certificate will be rejected.
11. Special discount/rebate wherever admissible keeping in view that items are being procured for educational purpose in respect of Public Institution of national importance may please be indicated.
12. Vendors should attach the relevant brochure/leaflet for the models/options quoted.
13. The vendor should provide a list of users (with address) in India and outside countries of the model for which they have quoted.
14. The vendors should provide the compliance chart in their technical bid.
15. The installation and training of the equipment at IIT Delhi should be provided by the vendor.

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