Indian Institute of Science Bangalore

Dr. Hardik J Pandya
Assistant Professor
Department of Electronic Systems Engineering
Indian Institute of Science Bangalore
560012, Bangalore, Karnataka, India

Inquiry Number: DESE/JK/HJP/005/2019-20
Dated: 01/05/2019

Request for Quote for the procurement of a Table top Mask Aligner System for Microfabrication lab

Indian Institute of Science, Bangalore
(Last Date for submission of tenders: May 31, 2019)

Dear Sir/Madam,

Kindly send your best quotation for the following item with various accessories on C.I.P. Bangalore basis to the undersigned. Your quotation should clearly indicate the terms of delivery, delivery schedule, entry tax, payment terms, etc.

The tender should also include mode of payment. The tender should be submitted in two separate sealed envelopes - one containing the technical bid and the other containing the commercial bid, both of which s**hould reach the undersigned, duly signed on or before 1700 hours (IST) by due date.**

The technical bid must include all details of technical specifications of the equipment along with the commercial terms and conditions (masking only the price component), the bill of materials, printed technical brochure and any other supporting document. **Please enclose a compliance certificate, printed on your letter head, along with the technical bid.**

Procedure:

1. Vendors will be required to submit a technical proposal and a commercial proposal in **two separate sealed envelopes**.
2. The deadline for submission of proposals is **Friday, 31st of May 2019, 5 PM**. The proposals should arrive at the office of the Department of ESE (Handover to Ms. Annapoorni M), Indian Institute of Science, India, 560012 by the above deadline.
3. The technical proposal should contain a compliance table with 4 columns in addition to the ones in the technical requirements table that has been included with this RFQ below. The compliance table should include all the items and in the same order. In addition, you should submit a soft copy in MS Excel ".xls" format (via email). The first column should describe your compliance in a "Yes" or "No" response. If "No" the second column should state the extent of deviation. The "third" column should state the reasons for the deviation if any. The fourth column can be used to compare your equipment with that of your competitors or provide details as requested in the technical requirements table below.
4. Items in addition to that listed in the technical table that you would like to bring to the attention of the committee can be listed at the end of the compliance table.
5. Vendors are encouraged to highlight the advantages of their equipment over comparable solutions from the competitors.

The commercial bid must include the price of the item in Indian / Foreign currency, indicating the following separately:

a. FOB price
b. Freight and Insurance
c. Agency commission in Indian rupees for any presale work, installation, commissioning and warranty
d. Post warranty maintenance charges
e. Total

The quotation should address to:

Professor Joy Kuri
Chairman, ESE
Attention: Dr. Hardik J Pandya
Department of Electronic Systems Engineering, Division of EECS,
Indian Institute of Science, Bangalore 560 012, India

E-mail : hjpandya@iisc.ac.in
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I. Technical Specifications of Mask Aligner

1. General Description of Mask Aligner

- Basic System is to be used for photolithography process with UV (λ ~ 365 nm) and DUV (λ ~ 250 nm) with top side and bottom alignment for the fabrication of electronic, photonic and MEMS devices
- Capable to do positive, negative and SU-8 photoresist (thickness 0.3 µm-200µm) lithography
- The system should run 220V-230 V /50 Hz power supply

2. Wafer chuck size

- Chuck size :2", 3" and 4"
- Irregular shaped substrate will be used
- Thickness of substrate will be 200 µm to 1 mm
- The chucks (2", 3" and 4") suited for backside alignments application

3. Mask holder

- Mask holders for 5"x5" with 4" dia. opening
- Mask holders for 4"x4" with 3" dia. opening
- Mask holders for 3"x3" with 2" dia. opening
- All maskholders must have alignement pins for masks

4. Resolution

- Vacuum Contact: 1 µm
- Hard Contact: 1.5 µm
- Soft contact: 2.5 µm
- With 20 µm Proximity: 5 µm

5. Alignment stage

- Chuck Motions should have X=±5 mm i.e. total horizontal movement: 10 mm, Y=±5 mm i.e. total vertical movement: 10 mm, THETA=±5° i.e. total angular movement: 10^{o} and Z motions for adjustment to mask and wafer thickness but up to max. 6 mm.
- Mechanical resolution in X, Y = 0.1µm and theta = $4x10^{-5}$

6. Top Side Alignment Microscope

- Manual alignment with split field microscope.
- Objective: 5X and 20X
- The gap between objectives: 30 mm -100 mm
- Should be concurrently able to show image in real time on screen using CCD camera and showed in TFT monitor.
- Eyepieces of 10X
- Manual X ,Y and θ movement of objectives
- Maginification ≥ 500X
- Alignment accuracy for top side: ≤1 µm
- It should have brightfield illumination system for microscope

7. Bottom side alignment with imaging technique

- Working as split field viewing.

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- The gap between objectives: 30 mm -100 mm
- IR/visible backside illumination for alignment with back side patterns.
  - If it is suitable for IR, provide detailed optical components for IR imaging along with cameras with video system with TFT monitor.5x objective- IR
    OR
  - In case of imaging technique-based back side alignment, detailed optical components along with cameras with video system with TFT monitor.5X objective
- Adjustable objective separation in X and Y direction
- Alignment accuracy ≤ 2 µm
- Magnification ≥ 200X

8. Wedge Error Compensation

- For bringing wafer and mask parallel to each other during alignment /proximity exposure.
- The alignment gap adjustable from 10 to 50 µm

9. Exposure mode

- Vacuum contact
- Hard Contact
- Soft Contact
- Proximity contact –separation is adjustable between 1 to 20 µm or better Resolution at 20 µm –Please specify

10. UV Exposure system

- Universal Lamp Housing for Hg 350W lamp (1 no.)
- HgXe 500W lamp (1 no.)
- Please provide all necessary suitable sockets cables connection for 350W and 500W lamps.
- Suitable optics for 250 nm, 356 nm and 405 nm wavelength.
- There should be a uniform beam size over at least 5.0" diameter with ≤ 5% variance. Enhanced and stabilized illumination with highest uniformity possible. Updated technology with Telecentric illumination and stable light source without lamp adjustment position and with flexible illumination shaping to have better results in different application. Give detailed information on illumination shaping.
- Beam Intensity 25-30 mW/cm^2 at 405 nm of 350W Hg lamp and 5-6 mW/cm^2 at 240 nm

11. Vacuum pump

- Suitable oil free vacuum pump with tubes and connections

12. Suitable vibration free table

- The table should suitable for mask aligner (Provide specifications details)

13. Other necessities

- Intensity meter with 240nm, 365nm and 405 nm measuring probes

14. Warranty

- One-year standard warranty with parts and additional two years warranty with and without spares must be quoted.

II. Optional Items: (list the cost and discount separately)

1. Extra lamp 350 W and 500W

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III. Additional Items (Must be added to compliance certificate as well):

1. Support: Please provide details of support provided within the warrantee period
2. Shipping: The cost of shipping up to IISc Bangalore should be included in the quote. IISc Bangalore will help with customs clearance at Bangalore Airport.
3. Installation: Please list a set of acceptance tests for on-site (vendor) inspection and after installation at IISc Bangalore.
4. Other Options: Necessary spare parts should be quoted as an option.
5. Please include any other options currently available that can be added on in the future.
6. Training: Please state if training is required to operate this instrument, and if yes, please highlight the extent of training provided as part of this purchase and for how many days.

All of the above-mentioned technical specifications are highly desired. However, lower technical specifications may be considered if the above-mentioned specifications are found to be unsuitable in financial terms. The Institute reserves the right to go for lower specifications taking into consideration its technical preferences and financial constraints. Vendors are encouraged to highlight the advantages of their tools over comparable tools from the competitors.

Terms and conditions (should be included in compliance certificate):

1. Necessary training to operate the procured setup and required literature support should be provided without additional cost.
2. In principle onsite installation should be free of cost. If it bears some cost, it must be included in the quote as a separate item. The amount of time / day committed by the engineer during installation must be clearly stated.
3. Software upgrade, if any, must be free of cost for next 5 years.
4. The vendor must assure that there are no bugs and glitches with the integration. In case of glitches or bugs at the time of installation, vendor must fix the issues in less than three days from the start date.
5. In case of hardware/software issues or support, vendor should be able to provide required solution within three days.
6. All equipment must be well calibrated before and after installation.
7. Additional quote for an annual maintenance contract should be included for the next 5 years.
8. The vendor should have a good track record of delivering such equipment at universities/research institutions (please furnish the details).
9. Please provide list of customers who have procured your equipment in last 5 years. At least 3 similar systems must be installed in India. Attach the list of all customers in India using similar system.
10. The vendor should be able to repair and maintain the equipment, once it is installed in India. No travel claims must be made by vendor for servicing during the warrantee/guarantee period.
11. The lead time for the delivery of the equipment should not be more than 1 month from the date of receipt of our purchase order. The smallest lead time will be appreciated. Our expectation is shipment immediately after PO and full or part payment post installation.
12. On all systems the payment terms will be specified in the commercial proposal and is subject to negotiation.
13. The validity period of the quotation should be 90 days at least.
14. Please provide details of the number of trained personnel in India, who can service the machine.
15. Highlight the system/computer requirement to integrate the setup, if any other than specified in the specifications above.

Sincerely,

Dr. Hardik J Pandya
Assistant Professor
Department of Electronic Systems Engineering
Indian Institute of Science
Bangalore, Karnataka 560012
India
Phone: +91-8860 255 254
(On Behalf of Purchase Committee)