

## **Tender notification for the procurement of “High-precision x-y-z translation stages with a gantry system” from domestic (India-based) manufacturers**

Ref:PH/SBM/512/2021-22

Date: 02/12/2021

This is a notice inviting domestic tenders for the procurement of “High-precision x-y-z linear translation stages with a gantry system” that will be utilized for building a *femtosecond laser-writing* (also known as *fs laser direct-write*) facility at IISc Bangalore. The required technical details including terms and conditions are provided below. The last date of reaching the quotation to us [by post or in-person] is mentioned below.

With respect to this tender, the rules laid out by the Government of India in order No. P45021/2/2017-PP (BE-II) issued by the Public Procurement Section, Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, dated 04th June 2020, will be followed. Per this order, the government has defined a ‘Class-I local supplier’ as “a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%”. A ‘Class-II local supplier’ is “a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%”. Only ‘Class-I’ and ‘Class-II’ local suppliers are eligible to participate in this open domestic tender. Any ‘Non-local supplier’, i.e., “a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%” is ineligible to participate in this tender.

### **Specifications:**

1. Hysteresis- and backlash-free nanometre-scale three-dimensional motion with excellent velocity stability and software-based tracking capabilities.  
Maintenance free long-term performance is required.
2. Maximum translation in x-y (i.e., in the horizontal plane):  $\geq 150$  mm
3. Maximum translation in z (i.e., along the vertical direction):  $\geq 5$  mm
4. Resolution i.e., minimum incremental motion in x, y and z:  $\leq 2$  nm
5. Speed: At least up to 75 mm/s. During *fs laser-writing*, the stages should move along a well-defined three-dimensional path with a given speed.
6. Accuracy:  $\pm 0.3$  micrometre or better along x, y and z
7. Repeatability:  $\pm 0.1$  micrometre or better

8. Load on stages: At least up to 3 kg
9. In position stability: approximately 1 nm.
10. Speed stability: As good as possible. Please furnish the details. While moving at a speed of approx. 75 mm/s with a payload of approx. 1 kg, the fluctuation of velocity is preferred to be less than +/- 5% of its max value.

**11. System integration and gantry system:**

- a) The vendor/company should provide a complete factory set integrated system – i.e., all components (e.g., drive, controller, and stages) should be integrated as one unit. Testing and documentation should be done using the complete system i.e., after assembling all components. The vendor/company may be asked to perform fs laser-writing of complicated waveguide networks for quality checks.
- b) Integration Type: Test as System
- c) The above specifications 2-10 should be valid for the complete integrated system.
- d) Layout of the stages: All three stages should be built as one unit *on top of each other*.
- e) Concrete base & gantry: Stages should be mounted on and attached to a thick (>4 inches) granite base. A robust granite gantry (with M6 screw holes) should be attached to the base for mounting optical components.  
**The base, gantry and the stages should be assembled as one unit in the factory.** System drawings will be confirmed before placing the order.

**12. Include pictures of the exact system being offered**

13. Mode of operation: Software controlled; compatible with G-codes
14. The vendor/company should provide software-based motion controllers, compatible with its motion development interface. The software should be user-friendly and capable of tracking motion paths, speed, acceleration, etc. Please furnish the details.
15. Please quote separately for a rackmount PC compatible with the system.
16. Please quote separately for on-site installation.
17. All accessories such as necessary software, connectors, adapters, cables etc. required for the independent operation of the system should be included.
18. Operating voltage, frequency: 220 VAC, 50 Hz

19. Warranty: 1 year. Please quote for extending the warranty period for an additional one (i.e., total of two) as well as two (i.e., total of three) years.

**Terms and conditions:**

1. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
2. The bid should be submitted in a two-cover system, i.e., technical bid and commercial bid separately in sealed covers. The technical bid should contain all commercial terms and conditions, **except the price**.
3. The technical bid must contain a point-by-point technical compliance document. The technical proposal should contain a compliance table that should describe your compliance in a "yes" or "no" response against each specification. If "no" the second column should mention the extent of the deviation. The third column should state the reason for the deviation, if any. The fourth column can be used to compare your tool with that of your competitors or provide details as requested in the technical requirement table below. **Tender documents without technical compliance documents will not be considered.**
4. In the commercial bid, the price should be inclusive of all discounts.
5. The vendor/company should have a track record of having previously supplied **at least ten similar equipment** (i.e., high-precision linear stages) in India in the past five years (please furnish the details). It would be desirable to provide two reference letters from customers in India.
6. The vendor/company should have supplied similar *high-precision linear stages with a gantry system* for the purpose of *fs laser-writing of optical waveguides* in well-known national/international institutes/universities (please furnish the details e.g., published articles in reputed international journals [with impact factor > 3.0] mentioning that a similar product has been used for fs laser-writing of optical waveguides).
7. The vendors quoting should ideally be registered with IISc, and the quote should ideally carry the vendor registration number in the bid.
8. The covering letter in the bid should clearly mention whether the vendor is a 'Class I' local supplier or a 'Class II' local supplier, failing which the vendor will be automatically disqualified. The vendor should indicate the percentage of

the local content and provide self-certification that the items offered meet the minimum local content requirement. They should also give details of the location(s) at which the local value addition was made.

9. Lead time should be clearly mentioned in the technical and commercial bids.
10. The offer shall be valid at least 90 Days from the date of opening of the commercial bid.
11. The vendor/company should have existence for a minimum of 3 years. (Enclose Company Registration Certificate).
12. The vendor/company must not be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere.
13. The quotations should be on FOR-IISc Bangalore basis in INR only
14. The Institute reserves the right to accept or reject any bid, or to annul the bidding process and reject all bids, at any time prior to the award of contract without thereby incurring any liability of the affected bidder or bidders.
15. Notwithstanding anything specified in this tender document, IISc Bangalore, in its sole discretion, unconditionally and without having to assign any reason, reserves the rights:
  - a. To accept OR reject lowest tender or any other tender or all the tenders.
  - b. To accept any tender in full or in part.
  - c. To reject the tender, offer not confirming to the tender terms.
16. The tender documents can be sent at the following address by post or in-person, and the document should reach us on/before 01 January 2022.

The Chairman

Department of Physics

Indian Institute of Science,

Bangalore 560012, Karnataka, India

Attention: Seababrata Mukherjee