

**DEPARTMENT OF MECHANICAL ENGINEERING**  
**INDIAN INSTITUTE OF SCIENCE (IISc), BENGALURU, INDIA**

**Global Tender Notification for 6-Axis robot**

**(Last Date for Submission: October 10<sup>th</sup> , 2024)**

**GTE Approval No.: IISc- GTE-2024-372**

***Tender Notification Ref No.: ME/ENQ-GL-TNDR/KV/24-25/01***

***Date: 19.09.2024***

This is a **Request for Quote (RFQ)** for supply including Installation, Commissioning, and training at site for the “**6-Axis robot**” at the **Department of Mechanical Engineering Indian Institute of Science, Bengaluru**. 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 should reach us, duly signed on or before **10<sup>th</sup> October 2024 on or before 1700 hrs**. The bids should be addressed to:

The Chairperson  
Attn: Dr. Koushik Viswanathan  
Department of Mechanical Engineering  
Indian Institute of Science  
Bengaluru  
Karnataka 560012,  
India.

*Direct all questions concerning the acquisition to addresses to Dr. Koushik Viswanathan at: [koushik@iisc.ac.in](mailto:koushik@iisc.ac.in)*

**The scope of the supply includes Installation, Commissioning and Training at site for the “6 – Axis robot”.**

**Tender Summary**

1	Tender number	<b><i>ME/ENQ-GL-TNDR/KV/24-25/01</i></b>
2	Tender Date	<b><i>19.09.2024</i></b>
3	Item Description	<b><i>6 – Axis robot</i></b>
4	Tender Type	Two Bid System: (a) Technical Bid (Part A) (b) Commercial Bid (Part B)
5	Place of Tender submission	Dr. Koushik Viswanathan Assistant Professor, Department of Mechanical Engineering, Indian Institute of Science, Bangalore - 560012
6	Last date & Time for submission of tender	<b><i>10<sup>th</sup> October 2024 @ 5.00 P.M</i></b>

## **General Terms and Conditions:**

1. The bid should be submitted in 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.
2. In the commercial bid, the price should be inclusive of all discounts.
3. The lead time for the delivery of the items should not be more than 16 weeks from the date of receipt of our purchase order. It should be clearly mentioned in the technical and commercial bids.
4. All the quotations must be valid for at least 90 days at the time of submission.
5. List of customers and references: It is preferable for the Bidder should have supplied similar equipment in centrally Funded Technical Institutes (IITs, IISC, IISER, NIT). Please provide the details and contact information.
6. The Bidder must not be blacklisted/banned/suspended or have a record of any service- related dispute with any organization in India or elsewhere. A declaration to this effect should be provided.
7. Items in addition to those listed in the technical table that you would like to bring to the attention of the committee, such as data sheets, technical plots etc. can be listed at the end of the compliance table.
8. Vendors are encouraged to highlight the advantage of their product over comparable products from the competitors.
9. If needed, a meeting for any technical clarifications can be scheduled with the undersigned by sending an email.
10. 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.
11. After the award of purchase order, the vendor must provide an Order Acknowledgement within 30 days from the receipt of the Purchase Order.

The tender documents can be sent at the following address:

The Chairperson  
Attn: Dr. Koushik Viswanathan  
Department of Mechanical Engineering  
Indian Institute of Science,  
Bengaluru, Karnataka 560012, India

## Technical requirements

Please note that the requirements listed below are only guidelines. It does not disbar bids that do not meet the criteria listed. Vendors are requested to quote for equipment that meet the criteria to the best extent possible and list deviations. Deviations are NOT an automatic reason for disqualification. They will be discussed by the technical committee prior to making an informed decision.

### 6 – Axis robot specification

Sl. No.	Parameters	Values
1.	Number of axes	6
2.	Number of controlled axes	6
3.	Rated payload	30 kg
5.	Maximum reach	> 1800 mm
6.	Protection rating	IP65 and IP67 (wrist)
9.	Mounting position	Floor (preferred)
10.	Footprint (base)	(550-650) mm x (450-500) mm
11.	Position accuracy	±(0.03-0.05) mm

Range of motion for 6 axes and their velocities

Axes	Motion range	Range of Speed with rated payload
Axis-1	±(180-200) °	170-200 °/s
Axis-2	-(180-200) °/ (50-70) °	160-200 °/s
Axis-3	-(100-140) °/ (160-180) °	170-200 °/s
Axis-4	±(180-200) °	200-250 °/s
Axis-5	±(100-150) °	200-250 °/s
Axis-6	±350 °	350-400 °/s

Loads bearing requirement at end link (Axis-6)

Parameters	Value
Axial force	900-1000 N
Radial force	1250-1350 N
Torque about Axis-6	300-350 Nm
Torque about perpendicular to Axis-6	500-600 Nm

Note:

- Deploy an HMI interface that acts as a unified control base for both the robot and the drumspace.
- The desired path and trajectory will be fed into the system and will be sent to the Controllervia Duplex Communication using RS45 protocol.
- The designated controller will perform the FKP and IKPs and perform the feedback control.Real-time monitoring of the system will be carried out in the HMI.

- ✚ Should have proven record of successful installations within Indian education/research institutes. Proof of such installation must be enclosed.
- ✚ The OEM/Supplier should have trained service engineers stationed in India for any on-site service requirement, details to be provided in the offer.
- ✚ OEM/supplier should have requisite stock of necessary spare parts in India.
- ✚ Company should have an annual turnover of at least 100 Cr.

### TERMS AND CONDITIONS

#### 1. Supplier Credibility:

- a. The Bidder/Vendor Must have supplied minimum 3 similar orders to reputed Government Organizations in INDIA in the past 3 years. Copies of Purchase Orders to be enclosed along with the Technical Bid as proof.
- b. Supplier should compulsorily indicate details of facilities / expertise/ qualification of support staff in India. Factory trained engineer/s should be available in India for complete product support
- c. Please enclose User list in INDIA.
- d. Minimum 3 Reference letters of similar system supplied in INDIA need to be submitted for further consideration.

#### 2. Publications:

- a. As our Research Work is of critical nature, Vendors need to enclose reference publications/application note on the usage of "Laser wire deposition head" to show expertise of the product being offered.
- b. As a scope of future work, we intend to use planar measurements on the same set- up. Vendors can provide reference publications of using "6- Axis robot" (from same OEM).

#### 3. Institute reserves the right for final selection of items.

#### 4. Only the Original Equipment Manufacturer or their authorized representatives shall participate in the bid.

#### 5. The order will be placed only on the bidder who participated in the bid.

#### 6. Vendors may quote for any other items/accessories separately as "Optional Items".

#### 7. Company should have an annual turnover of at least 100 Cr.

#### 8. Cancellation of Tender: Notwithstanding anything specified in this tender document, the purchase committee, 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.

9. Warranty: 1 Year

10. Annual Maintenance Contract: AMC is not required

11. Delivery, Installation and Training: The bidder shall provide the lead time to delivery, installation and made functional at IISc, Bangalore from the date of receipt of purchase order. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and inspection of all the items and features/capabilities tested by the IISc, Bangalore. After successful installation and inspection, the date of taking over of entire system by the IISc, Bangalore shall be taken as the start of the warranty period. No partial shipment is allowed. The bidder should also arrange for technical training to the local facility technologists and users.

12. Payment Terms: The payments to non domestic vendors will be through a Letter of Credit and milestone of the payment will be determined after the mutual discussions with the successful bidder. As per GFR no advance payment can be made to domestic vendors, unless an equal amount of bank guarantee is provided.

13. Statutory Variation: Any statutory increase in the taxes and duties subsequent to bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc, Bangalore subject to the claim being supported by documentary evidence. However, if any decrease takes place the advantage will have to be passed on to IISc, Bangalore.

14. Disputes and Jurisdiction: Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Bangalore, India.

For queries or clarifications, please contact:

*Dr. Koushik Viswanthan at [koushik@iisc.ac.in](mailto:koushik@iisc.ac.in)*

### **Annexure-I**

Note: Compliance Certificate must be enclosed with the Technical bid. Non submission of Compliance Certificate will lead to disqualification of the bidder.

### **6 – Axis robot specification**

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Axis-3	$-(100-140)^\circ / (160-180)^\circ$	170-200 $^\circ/s$
Axis-4	$\pm(180-200)^\circ$	200-250 $^\circ/s$
Axis-5	$\pm(100-150)^\circ$	200-250 $^\circ/s$
Axis-6	$\pm 350^\circ$	350-400 $^\circ/s$

Loads bearing requirement at end link (Axis-6)

Parameters	Value
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Note:

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- The desired path and trajectory will be fed into the system and will be sent to the Controller via Duplex Communication using RS45 protocol.
- The designated controller will perform the FKP and IKPs and perform the feedback control. Real-time monitoring of the system will be carried out in the HMI

**Annexure-1:**

**Details of the Bidder**

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

**Details of the Bidder**

Sl. No	Items	Details
1.	Name of the Bidder	
2.	Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed)	
3.	Registration No/ Trade License, (attach attested copy)	
4.	Registered Office Address	
5.	Address for communication	
6.	Contact person- Name and Designation	
7.	Telephone No	
8.	Email ID	
9.	Website	
10.	PAN No. (attach copy)	
11.	GST No. (attach copy)	

Signature of the Bidder

Name  
Designation, Seal

Date:

Annexure-2:

Declaration regarding experience

To,  
The Chairperson,  
Attn: Dr. Koushik Viswanathan  
Mechanical Engineering  
Department Indian Institute  
of Science Bangalore –  
560012, India

Ref: Tender No:  
XXXXXXXXXX Dated:  
XXXXXX

Supply and installation of 6-Axis robot at Mechanical Engineering Department,  
IISc Bangalore.

Sir,

I've carefully gone through the Terms & Conditions contained in the  
above referred tender. I hereby declare that my company / firm has  
----- years of experience in  
supplying and installing 6-Axis robot.

(Signature of the  
Bidder) Printed  
Name Designation,  
Seal Date:



Annexure-3:

Declaration regarding track

record To,  
The Chairperson,  
Attn: Dr. Koushik Viswanathan  
Mechanical Engineering  
Department Indian Institute  
of Science Bangalore –  
560012, India

Ref: Tender No:  
XXXXXXX Dated:  
XXXXXX

Supply and installation of 6 Axis- robot at Mechanical Engineering Department,  
IISc Bangalore.

Sir,  
I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company/ firm is not currently debarred / blacklisted by any Government / Semi Government organizations / institutions in India or abroad. I further certify that I'm competent officer in my company / firm to make this declaration.

Or

I declare the following

Sl.No	Country in which the company is Debarred /blacklisted / case is Pending	Blacklisted / debarred by Government / Semi Government/Organizations /Institutions	Reason	Since when and for how long

(NOTE: In case the company / firm was blacklisted previously, please provide the details regarding period for which the company / firm was blacklisted and the reason/s for the same).

Yours faithfully  
(Signature of the Bidder)

Name  
Designation,  
Seal

Date:

Annexure – 4:

Declaration for acceptance of terms and

conditions To,  
The Chairperson,  
Attn: Dr.Koushik Viswanathan  
Mechanical Engineering  
Department Indian Institute  
of Science Bangalore –  
560012, India

Ref: Tender No:  
XXXXXX Dated:  
XXXX

Supply and installation of a 6-Axis robot at Mechanical Engineering Department,  
IISc Bangalore.

Sir,

I've carefully gone through the Terms & Conditions as mentioned in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I'm an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name

Designation, Seal

Date:

**Annexure – 5:**

**Details of items quoted:**

- a. Company Name
- b. Product Name
- c. Part / Catalogue number
- d. Product description / main features
- e. Detailed technical specifications
- f. Remarks

**Instructions to bidders:**

1. Bidder should provide technical specifications of the quoted product/s in detail.
2. Bidder should attach product brochures along with technical bid.
3. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.

**Section 6 – Commercial Bid**

**The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned under:**

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total
1.	Essential items noted in the technical specification				
1.a	... (details of essential items)				
1.b	...				
2.	Optional items noted in the technical specification				
2.a	... (details of essential items)				
2.b	...				
3.	Accessories for operation and installation				
4.	All Consumables, spares and software to be supplied locally				
5.	Warranty (3 years)				
6.	AMC 2 years beyond warranty				
7.	Cost of Insurance and Airfreight				
8.	CIP/CIF IISc, Bengaluru				

**Any additional items**

S.No	Description	Cat. Number	Quantity	Unit Price	Sub total

Addressed to

The

Chairperson,  
Attn: Dr. Koushik Viswanathan  
Mechanical Engineering  
Department Indian Institute  
of Science Bangalore –  
560012, India

## **Section 7 – Checklist**

(This should be enclosed with technical bid- Part A)

The following items must be checked before the Bid is submitted:

### **1. Sealed Envelope “A”: Technical Bid**

1. Section 5- Technical Bid (each page signed by the authorized signatory and sealed) with the below annexures:
  - a. Annexure 1: Bidders details
  - b. Annexure 2: Declaration regarding experience
  - c. Annexure 3: Declaration regarding clean track record
  - d. Annexure 4: Declaration for acceptance of terms and conditions
  - e. Annexure 5: Details of items quoted
2. Copy of this tender document duly signed by the authorized signatory on every page and sealed.

### **2. Sealed Envelop “B”: Commercial Bid**

**Section 6: Commercial Bid**

**Your quotation must be submitted in two envelopes: Technical Bid (Envelope A) and Commercial Bid (Envelope B) super scribing on both the envelopes with Tender No. and due date and both of these in sealed covers and put in a bigger cover which should also be sealed and duly super scribed with Tender No., Tender description & Due Date.**