



**INDIAN MARITIME UNIVERSITY  
MUMBAI PORT CAMPUS**

**TENDER FOR "SUPPLY, INSTALLATION AND AMC OF VIBRATION LAB  
EQUIPMENTS"**

**at IMU Mumbai Port campus, Hay Bunder Road**

**TENDER NO – IMU-MPC/PUR/2020-21/V. Lab./17**

**VOLUME - I**

**TECHNICAL BID**

|                                    |                                       |
|------------------------------------|---------------------------------------|
| <b>Issue of Tender Document</b>    | <b>: 31.03.2021</b>                   |
| <b>Pre-Bid Meeting</b>             | <b>: 1200 Hrs on 09.04.2021</b>       |
| <b>Last Date for Submission</b>    | <b>: up to 1700 Hrs on 19.04.2021</b> |
| <b>Opening of Technical Bid</b>    | <b>: 1530 Hrs on 20.04.2021</b>       |
| <b>Earnest Money Deposit (EMD)</b> | <b>: NIL</b>                          |
| <b>Estimated Cost</b>              | <b>: 7 Lakhs</b>                      |

[Bidders are advised to study the Tender Document (including all Sections, Schedules and Annexure etc.,) carefully. Submission of Tender shall deem to have been done after careful study and examination of the Tender Document with full understanding of its implications.]

All bidders are requested to visit IMU Mumbai Campus website : [www.imumumbaiport.ac.in](http://www.imumumbaiport.ac.in) & [www.imu.edu.in](http://www.imu.edu.in) for regular updates.

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**INDIAN MARITIME UNIVERSITY**  
**(A central University, Govt. of India)**  
**Mumbai Port Campus,**  
**Mumbai - 400033**

**TENDER NO. IMU-MPC/PUR/2020-21/V. Lab./17**

**TENDER FOR "SUPPLY, INSTALLATION AND AMC OF VIBRATION LAB  
EQUIPMENTS" AT IMU MUMBAI PORT CAMPUS**

**1. OBJECTIVE:-**

IMU Mumbai Port Campus is inviting open tenders from qualified bidders for providing "**SUPPLY, INSTALLATION AND AMC OF VIBRATION LAB EQUIPMENTS**" at IMU Mumbai Port Campus, Hay Bunder Road, Mumbai – 400033.

**2. PRE-QUALIFICATION CRITERIA:-**

The eligible bidder has to satisfy the following condition

| <b>Sr. No.</b> | <b>Qualification Criteria</b>   | <b>Supporting Documents</b>  | <b>Bidder Confirmation with Page No.</b> |
|----------------|---|--|--|
| 2.1.           | The bidder should possess valid trade license, PAN and GST Registration Certificate   | Copy of trade license, PAN, GST Certificates should be submitted with application.   |  |
| 2.2.           | Bidder should be a Manufacturer or an authorized dealer.  | In case of bidder is an authorized dealer, letter of authorization from OEM shall be submitted and in case of manufacturer BIS certificate should be submitted.  |  |
| 2.3.           | The bidder should have average annual turnover of Rs. <b>1.8 Lakhs</b> during the last 03 financial years (i.e. 2017-18, 2018-19, 2019-20). | 1. Copy of Profit & Loss Account of the company for each of the 3 years authenticated by a Chartered Accountant.<br>2. Copy of Income Tax return for each of the 3 years authenticated by a Chartered Accountant |  |

**3. EARNEST MONEY DEPOSIT (EMD):-**

Every bidder shall submit a bid security declaration in the attached format as Annexure III.

**4. Security Deposit:-**

- 4.1. Within 07 days of the successful bidder's receipt of notification of award from IMU - MPC, the Bidder shall furnish a Security Deposit at the rate of 03% of the contract value in the form of an A/C Payee Demand Draft drawn in the name of Indian Maritime University - Mumbai Port Campus, payable at Mumbai towards due compliance of contract obligations to the satisfaction of the IMU - MPC and to make good any loss or damage caused to the IMU - MPC owing to acts in pursuance/violation of terms herein.

## **5. GENERAL INSTRUCTION:-**

5.1. **Sale of Documents:** The Tender document can be downloaded free of cost from the IMU website [www.imu.edu.in](http://www.imu.edu.in) and [imumumbaiport.ac.in](http://imumumbaiport.ac.in).

### **5.2. Submission:**

5.2.1. The Tender shall be submitted in tender box which will be placed at the Main Gate of IMU-MPC, addressed to **THE DIRECTOR, INDIAN MARITIME UNIVERSITY, MUMBAI PORT CAMPUS, HAY BUNDER ROAD, MUMBAI-400033 up to date mentioned in cover page.**

5.2.2. The tenderer's shall seal the Technical-Bid and Price-Bid in separate envelopes (Cover-1 and Cover-2) duly marking the envelopes as "**Cover-1-Technical Bid**" and "**Cover-2-PriceBid**". The two envelopes along with the covering letter, EMD, Power of Attorney, if any shall then be sealed in an outer envelope.

5.2.3. The main envelope shall contain the following:

#### **Outer Envelope**

- (a) Covering Letter;
- (b) Earnest Money Deposit Demand Draft;
- (c) Sealed Cover – 1; and
- (d) Sealed Cover – 2

#### **Cover-1 – Technical Bid**

- a. Duly filled in Tender-Document with relevant details and complete in all respects. (Except price bid)
- b. Documents in support of pre-qualification criteria as mentioned in para 2.1 to 2.3
- c. Annexure – I (Compliance matrix to be filled and signed)
- d. Annexure – II (Mandate Form)
- e. Annexure – III

#### **Cover –2 – Price Bid**

**PRICE BID/COVER** duly filled in (both in figures and words).

5.2.4. The IMU-MPC, in exceptional circumstances, and at its sole discretion, may extend the tender due date by issuing a corrigendum.

5.2.5. The tenders will be opened in the presence of the representatives of the tenderers who choose to attend the tender opening (The maximum number of representatives attending the technical bid opening to be limited to 01 person).

5.2.6. The financial bids of the bidders who are technically qualified will be opened. The Bidders are requested to visit IMU Mumbai port Campus website [www.imu.edu.in](http://www.imu.edu.in) and [www.imumumbaiport.ac.in](http://www.imumumbaiport.ac.in) for updates.

5.2.7. IMU reserves the right to cancel or withdraw the tender any time. IMU also reserves the right to reject any or all tenders without assigning any reason.

5.2.8. The bidder shall read and understand the contents of the tender documents, carefully. Failure to comply with the requirements of tender submission will render the tender liable for rejection. Tenders, which are not responsive to the requirements of the tender conditions, will be rejected.

## **6. Validity:**

The offer will remain valid for a period of 120 days from the date of opening of tender. If required, the validity shall be extended for further period by mutual consent.

## **7. Evaluation of Bids:**

### **7.1. Technical Bid Evaluation:**

- 7.1.1. The information furnished by the bidder in Cover - I in the prescribed format supplied by IMU- MPC will form the basis for the technical evaluation.
- 7.1.2. In exceptional cases IMU- MPC or his representative reserves the right to obtain any clarifications from any of the bidder without vitiating the tendering process.
- 7.1.3. After satisfying that all / or some of the bidders have attained the minimum qualifying criteria as detailed above, bids of only the technically qualified bidders who fulfill all the pre-qualification / eligibility criteria, will be considered for further evaluation.

### **7.2. Financial Bid Evaluation:**

- 7.2.1. The bidder may place their bids for any or both lab equipments/AMC
- 7.2.2. The Bidder who are placing their bids for one lab equipment should write NOT APPLICABLE in the bid for the other equipment.
- 7.2.3. The bidder quoting price for any Lab equipment has to quote for its AMC as well, else the bid will be rejected.
- 7.2.4. The price bid will be reviewed for each equipment separately or both cumulatively for all items at the discretion of IMU-MPC i.e. IMU-MPC may declare L1 for each equipments separately or cumulative.
- 7.2.5. The L1 for each item will be calculated as per formula [Rates quoted for items + Average of two years AMC rates quoted]

## **8. Inspection & Rejection:**

The supply may be subject to inspection by IMU-MPC and IMU's decision to the acceptance of any equipment or rejection of any equipment/goods as not conforming to specification shall be final and binding on the successful bidder. Such of the equipment / goods which are rejected shall be removed by the successful bidder at their own expense and replaced by fresh ones within a time, as determined by IMU.

## **9. Payment Terms:**

### **9.1. New Equipment:**

- 9.1.1. No advance payment will be made.
- 9.1.2. The Supplier shall be paid 100% of payment against Supply, Installation, Commissioning, Acceptance Testing, Training and putting in to operation of equipments at designated place against the invoice. IMU will, after verification of the claim for its correctness, make payment within Thirty days after the date of receipt of the claim, complete and correct in all respects, from the supplier.
- 9.1.3. Up to 30% of total payment may be considered against supply of complete material prior to installation on case to case basis. Additional up to 30% payment may be considered after completion of installation. Balance payment after Commissioning, Acceptance Testing, Training and putting in to operation of equipments at designated place against the invoice.

### **9.2. Annual Maintenance Contract:**

- 9.2.1. In respect of AMC, AMC charges will be paid at the end of each AMC period.

- 9.3. The Tax Invoice raised by the supplier must be in compliance of relevant GST acts, rules & notifications made there under and should bear the IMU MPC GST

Registration no. 27AAAI2610K2ZW. The rate and amount of CGST, SGST, IGST and GST (Compensation to state) cess, related to supply of goods, shall be shown separately in tax invoice for each item of supply.

**10. Clarification /Information:**

A bidder requiring any clarification regarding the tender documents may notify in writing to the address mentioned in the invitation of tenders or E-Mail to **procurement.mumbaiport@imu.ac.in** with a copy to **director.mumbaiport@imu.ac.in**. IMU-MPC will respond to any valid request for clarification, raised during the pre-bid meeting or received one week prior to the last date for submission of tenders. IMU-MPC’s decision is final and binding with regard to interpretation of terms used or other tender contents.

**11. Scope of Work:**

11.1. Supply, Installation and AMC of Vibration LAB equipment as mentioned in the table below: -

| Sl. No. | Name of the Equipment                              | Qty     |
|---------|--|---------|
| 1       | Vibration Lab. Apparatus, (VIBLAB APPARATUS):      | 02 Unit |
| 2       | Cam & Follower Analysis Apparatus                  | 02 each |
| 3       | Free and damped torsional vibrations Trainer       | 01 Unit |
| 4       | Fluke RLD2 UV Refrigerant leak Detector Flashlight | 01 Unit |
| 5       | Stroboscope  | 01 Unit |
| 6       | Vibration analyzer                                 | 01 Unit |
| 7       | Hand Held Vibration meter                          | 01 Unit |

11.2. **Supply of Equipment:** The supply shall include complete set of equipment including accessories, spares and consumables as described in the subsequent paragraphs of the “Technical Specification” along with the pedestal for easy accessibility for the trainees **(Annexure - I)**.

**11.3. Installation, Demonstration and User Acceptance Testing:**

11.3.1. The supplier is required to supply the items within 30 days of the issuance of the work order and do the installation and demonstration of the equipment within 15 days of the arrival of materials at the IMU’s site of installation; otherwise the penalty clause will be the same as per the supply of materials.

11.3.2. The successful Bidder shall depute their Service Engineer for demonstration or calibration of the equipment. The Service Engineer shall demonstrate operation of equipment to the satisfaction of IMU-MPC Campus. IMU-MPC may request to demonstrate the functioning of the equipment, after installation, by asking to perform a few experiments and verification of the results either by theoretical or other practical means.

11.3.3. In case of any mishappening /damage to equipment and supplies during the carriage of supplies from the origin of equipment to the installation site, the supplier has to replace it with new equipment/supplies immediately at his own risk. IMU will not be liable to any type of losses in any form.

11.3.4. The acceptance tests for supplied goods shall be carried out at IMU by the supplier with the participation of concerned personnel from IMU-MPC.

- 11.3.5. In case of the acceptance tests are not concluded to the satisfaction of IMU the supplier shall repair or replace, at the supplier's cost, the whole or any part of the equipment as may be necessary for conclusion of the acceptance tests to the satisfaction of IMU within the reasonable period agreed by IMU. Demonstration of performance of the equipment should be done after such repair / replacement for acceptance of IMU.
  - 11.3.6. IMU reserves the right to accept the delivered items with deviations, provided the supplier agrees to rectify the deviations within the stipulated delivery and installation period. Regarding the acceptance date, decision of IMU would be final.
  - 11.3.7. The supplier shall provide necessary consumables till the completion of acceptance testing, without any additional cost.
  - 11.3.8. All parts and equipment should be brand new and unused. Refurbished items shall not be accepted.
  - 11.3.9. The equipment shall be robust for academic use and shall have to produce results with accuracy, as determined reasonable by IMU.
- 11.4. **Documentation:**
- 11.4.1. The successful bidder shall provide IMU with necessary documents including the following:
    - 11.4.1.1. Operational and Maintenance Manuals of equipment.
    - 11.4.1.2. Equipment serial numbers and models.
    - 11.4.1.3. Test Certificates, Licenses if any.
    - 11.4.1.4. Acceptance test results and acceptance status.
    - 11.4.1.5. Training Material.
    - 11.4.1.6. Full documentation with the software. (if applicable)
  - 11.4.2. Two sets of hardcopy of the above shall be handed over to nominated personnel of IMU. Soft copy of the documents shall also be provided where applicable. Handing over of documents to IMU by supplier is a pre-requisite for Acceptance.
  - 11.4.3. Manuals for the instruments are to be supplied with respect to operation, maintenance, ordering spares / technical services.
  - 11.4.4. A video clip on the operation of equipment shall be made available.
- 11.5. **Site Preparation:** The supplier must provide complete details regarding space and all the other infrastructural requirements needed for the equipment, which IMU should arrange before the arrival of the equipment to ensure its timely installation and smooth operation thereafter. The supplier shall visit the IMU Campuses and see the site where the equipment is to be installed and may offer his advice and render assistance regarding specification, material and associate fittings/ fixtures required for preparation of the site and other pre-installation requirements, to bring the equipments at the stage of operation, within One week of issuance of order.
- 11.6. **Acceptance of Equipment:**
- 11.6.1. The activity shall deem to have been completed with the completion of Supply, Installation, Servicing, Repairs and putting in to operation of equipments at IMU MPC. However, the supply shall be complete only upon certification to this effect issued by IMU-MPC.
  - 11.6.2. Upon completion of Supply / work and after successful completion of

other prerequisites like acceptance testing, Training etc., as prescribed in this document, IMU shall receive a written undertaking from the supplier that the supply / works have been completed and accordingly a certificate of completion would be issued in respect of the supply/works. The warranty period for the supplied system would commence from the date of Acceptance by IMU separately for each Campus.

- 11.7. **Replacement of Defective Equipment:** If any of the equipment supplied by the supplier is found to be substandard, refurbished, un-merchantable or not in accordance with the description/specification or otherwise faulty, the IMU will have the right to reject the equipment or its part. The prices of such equipment shall be refunded by the supplier with 18% interest per annum if such payments for such equipment have already been made. All damaged or unapproved goods shall be returned at suppliers cost and risk and the incidental expenses incurred thereon shall be recovered from the supplier. Defective part in equipment, if found before installation and/or during warranty period, shall be replaced within 30 days on receipt of the intimation from this office at the cost and risk of supplier including all other charges. In case supplier fails to replace above item as per above terms & conditions, IMU may consider 'Banning' the supplier and any other remedies, as deemed fit by IMU-MPC.

## **12. Comprehensive Onsite warranty:**

- 12.1. A comprehensive onsite warranty for the supplied equipment shall be provided by the supplier for a minimum of **Three year** from the date of final acceptance of the equipment by IMU. The supplier will be notified of any defect or claim arising under this warranty and the warranty support shall be provided at site of IMU Campuses.
- 12.2. If the supplier having been notified fails to remedy the defect immediately as per 17.2, IMU may proceed to take such remedial action as may be necessary at the supplier's expense. The period that the equipment is out of commission / operation as a result of supplier's failure to remedy the defects notified shall result in extension of the warranty period correspondingly and imposition of penalty (Rs.2,000/- (Rupees Two Thousand only) per instance which will be adjusted from the Security Deposit or any other dues to the supplier).

## **13. Comprehensive On-site AMC:**

- 13.1. Comprehensive maintenance for **Two years** is to commence immediately after the expiry of the comprehensive Three years warranty period for items mentioned in "Annexure - I".
- 13.2. The supplier shall provide necessary comprehensive preventive and corrective maintenance on site i.e., by sending the engineer to the IMU Campuses for attending the maintenance requirements of the supplied equipment. In case of intimation of breakdown, the successful bidder should respond within 48 hours of reporting during the period of AMC. All spares which need replacement during the period of onsite maintenance are to be replaced without any additional cost. The conditions specified for warranty will be applied by during AMC period and vice-versa.
- 13.3. In addition to above, support should also be available by phone, e-mail to solve the problem as soon as possible during the period of Warranty and Annual Maintenance Contract. He shall have facilities with sufficient service engineers trained to provide support services. The Bidder shall also have sufficient spares on hand for providing the uptime as indicated in this tender.



**TECHNICAL SPECIFICATION AND COMPLIANCE MATRIX**

| Sl. No.  | Name of the Equipment                               | Qty     | Specifications  | Compliance to Specification YES/NO |
|--|---|---------|---|------------------------------------|
| 1.   | <b>Vibration Lab. Apparatus, (VIBLAB APPARATUS)</b> | 01 Unit | <ul style="list-style-type: none"> <li>Frame: VIBLAB APPARATUS is to be provided as a single unit on a heavy, sturdy and rigid frame work.</li> </ul>   |                                    |
|  |   |         | <ul style="list-style-type: none"> <li>Pendulum experiments unit: The unit is to be provided with the attachment to perform the following experiments,</li> </ul>   |                                    |
|  |   |         | a. Oscillations of simple pendulum.   |                                    |
|  |   |         | b. Oscillations of compound pendulum.   |                                    |
|  |   |         | c. Radius of gyration of bi-filar suspension  |                                    |
|  |   |         | <ul style="list-style-type: none"> <li>Spring-Mass System Unit: An arrangement to study vibrations of different springs with different loads to find time, deflection and spring stiffness. Should include different masses and three different springs.</li> </ul>           |                                    |
|  |   |         | <ul style="list-style-type: none"> <li>Free and Forced Vibration Unit: An arrangement to study free and forced vibrations in beam and spring system. Includes a long steel beam and supports, Different springs and masses. A damping dashpot and a drum recorder.</li> </ul> |                                    |
|  |   |         | a) Free vibrations of helical coiled spring.  |                                    |
|  |   |         | b) Free vibrations of spring mass system.   |                                    |
|  |   |         | c) Forced damped vibrations of a spring mass system.  |                                    |
|  |   |         | <ul style="list-style-type: none"> <li>Lateral Vibration Unit : An arrangement to study lateral (transverse) vibrations in a beam. Includes a long steel beam and supports. A spring and masses. A damping dashpot.</li> </ul>  |                                    |
|  |   |         | a) Lateral vibrations of simply supported beam.   |                                    |
|  |   |         | b) Verification of Dunkerley's rule   |                                    |
| <ul style="list-style-type: none"> <li>Torsional Oscillations Unit: An arrangement to study oscillations (simple harmonic angular motion)</li> </ul> |   |         |   |                                    |

|  |  |  |   |  |
|--|--|--|---|--|
|  |  |  | in twisting of a shaft. Include three different shafts, two different flywheels and inertia weights, shaft clamps.  |  |
|  |  |  | a) Undamped torsional vibrations of a single rotor system.  |  |
|  |  |  | b) Damped torsional vibrations of a single rotor system.  |  |
|  |  |  | c) Undamped torsional vibrations of double rotor system   |  |
|  |  |  | <ul style="list-style-type: none"> <li>• Damped Torsional Oscillations Unit: Arrangement to clamp the elastic shaft gripped in chuck in bracket. Arrangement to clamp bracket to the upper beam of main frame, steel flywheel, damping drum, oil drum, arrangement to vary depth of immersion of damping drum. Arrangement for the recording drum, Arrangement for recording oscillations with the descending piston unit carrying the attachment for fixing the recorder pen.</li> </ul> |  |
|  |  |  | <ul style="list-style-type: none"> <li>• Imbalance Exciter to be provided.</li> </ul>   |  |
|  |  |  | <ul style="list-style-type: none"> <li>• Exciter control unit to be provided.</li> </ul>  |  |
|  |  |  | <ul style="list-style-type: none"> <li>• The unit is to provided with mechanical oscillations recorder and digital indicator for indicating forcing frequency.</li> </ul>   |  |
|  |  |  | <ul style="list-style-type: none"> <li>• A stop watch is to be provided to measure the time period.</li> </ul>  |  |
|  |  |  | <ul style="list-style-type: none"> <li>• A technical practical manual is to be provided along with the unit.</li> </ul>   |  |
|  |  |  | <ul style="list-style-type: none"> <li>• The unit to be supplied with, 6 pendulums, 2 bars, 3 springs, 1 exciter control unit, 1 imbalance exciter, 1 damper, 2 recording devices, 1 experiment instructions manual. Any additional component if found necessary.</li> </ul>  |  |
|  |  |  | <ul style="list-style-type: none"> <li>• Electrical Services: 230 V, 15A, AC electric supply with earthing connections.</li> </ul>  |  |
|  |  |  | <ul style="list-style-type: none"> <li>• The VIBLAB Apparatus is for the educational training purpose only.</li> </ul>  |  |
|  |  |  | <ul style="list-style-type: none"> <li>• The VIBLAB APPARATUS should be designed as a Single Unit to perform and verify the principles involved in the study of vibrations. It should have a rigid frame and various components and sub-assemblies designed for</li> </ul>  |  |

|    |   |        |   |  |
|----|---|--------|---|--|
|    |   |        | quick changeover and easy assembly of number of experiments in vibrations. A speed controller unit is to be provided for forced vibration experiments.  |  |
| 2. | <b>Cam &amp; Follower Analysis Apparatus</b>        |        | <ul style="list-style-type: none"> <li>• Cams: 1 each. Tangent, Eccentric, Circular Arc. Made of hardened alloy steel.</li> </ul>   |  |
|    |   |        | <ul style="list-style-type: none"> <li>• Followers: 1 each, Roller, Knife Edge, Mushroom, made of hardened alloy steel.</li> </ul>  |  |
|    |   |        | <ul style="list-style-type: none"> <li>• Weights: 1 each. 1 Kg. 500 gm, 200 gm &amp; 100 gm.</li> </ul>   |  |
|    |   |        | <ul style="list-style-type: none"> <li>• Compression Spring: 2 No. to be provided.</li> </ul>   |  |
|    |   |        | <ul style="list-style-type: none"> <li>• Motor: Variable speed DC Motor with speed controller.</li> </ul>   |  |
|    |   |        | <ul style="list-style-type: none"> <li>• To be designed ingeniously and schematically arranged on a powder-coated rigid structure</li> </ul>  |  |
|    |   |        | <ul style="list-style-type: none"> <li>• Control Panel: Standard make On/Off Switch, Mains Indicator etc. Speed Control Unit to be provided. Electricity supply: 220 V DC, Single Phase, 0.5 KW. Digital Stroboscope to be provided to view Jump Phenomenon.</li> </ul> |  |
|    |   |        | <ul style="list-style-type: none"> <li>• Digital Tachometer to be provided to measure the speed of rotation.</li> </ul>   |  |
|    |   |        | <ul style="list-style-type: none"> <li>• The Cam &amp; Follower Analysis Apparatus is for the educational training purpose.</li> </ul>  |  |
|    |   |        | <ul style="list-style-type: none"> <li>• A technical practical manual is to be provided along with the unit.</li> </ul>   |  |
| 3. | <b>Free and damped torsional vibrations Trainer</b> | 1 Unit | <ul style="list-style-type: none"> <li>• Learning Objectives / Experiments: <ul style="list-style-type: none"> <li>- natural frequency of a rotary oscillator</li> <li>- influence of torsional stiffness, mass and damping</li> </ul> </li> </ul>                      |  |
|    |   |        | <b>Specification:</b>   |  |
|    |   |        | <ul style="list-style-type: none"> <li>• Supplementary experiment for torsional vibrations for the TM 150 and TM 155 vibration trainers</li> </ul>  |  |
|    |   |        | <ul style="list-style-type: none"> <li>• 3 torsion bars with different diameters, freely selectable effective length</li> </ul>   |  |
|    |   |        | <ul style="list-style-type: none"> <li>• 3 different mass disks with</li> </ul>   |  |

|    |   |        |   |  |
|----|---|--------|---|--|
|    |   |        | clamping chuck  |  |
|    |   |        | <ul style="list-style-type: none"> <li>• 3 with ball bearings and clamping chuck</li> </ul>   |  |
|    |   |        | <ul style="list-style-type: none"> <li>• oil damper for damped vibrations</li> </ul>  |  |
|    |   |        | <ul style="list-style-type: none"> <li>• recorder for recording the vibrations in TM 150/TM 155</li> </ul>  |  |
|    |   |        | <b>Technical Data:</b><br>Torsion bars, stainless steel<br>- Ø 3mm, 5mm, 6mm<br>- length: 800mm<br>Mass disks<br>- small: Ø 150mm approx. 2,7kg<br>- large: Ø 228mm approx. 4,8kg<br>Clamping chuck: Ø 0,5...8,0mm  |  |
|    |   |        | <b>Dimensions and Weight:</b><br>LxWxH: 480x240x1180mm<br>Weight: approx. 33kg  |  |
| 4. | <b>Fluke RLD2 UV Refrigerant leak Detector Flashlight</b> | 1 Unit | 6 UV LEDs(395 nm Wavelength) and 3 LED Flashlight Compact UV flashlight uncovers refrigerant leaks instantly. The RLD2 combines leak detection ability with a bright flashlight to illuminate dark areas along with a laser pointer to pinpoint a leak. Instantly highlights leak detection eyes. White LED light with 100,000 hour life. Leak detection made easy. |  |
| 5. | <b>Stroboscope</b>  | 1 Unit | Display - 6-digit numeric and 5-digit alphanumeric LCD  |  |
|    |   |        | Brand - Monarch   |  |
|    |   |        | Model - PBL   |  |
|    |   |        | Flash Range - 30-500,000 FPM/RPM  |  |
|    |   |        | Accuracy/Resolution - 0.004% of setting or +/- 1 Isd/0.01 FPM   |  |
|    |   |        | Light Source - 12 LED array   |  |
|    |   |        | Color Temperature - Approx. 6200 deg K  |  |
|    |   |        | Tachometer Mode - 5-500,000 RPM (use with optional remote sensor)   |  |
|    |   |        | Phase Delay - 0.1 to 359.9 degrees  |  |
|    |   |        | Time Delay - 0.01 to 1000 msec  |  |
|    |   |        | Weight - 860 gm   |  |
|    |   |        | Body Size - 229 x 93 x 90 mm  |  |
|    |   |        | Reflector Housing Diameter - 122 mm   |  |
|    |   |        | Handle Length - 108 mm  |  |
| 6. | <b>Vibration analyser</b>                                 |        | Model Name/Number - 9080  |  |
|    |   |        | Frequency Range - 2 Hz to 1kHz (ISO)<br>1 kHz to 10 kHz (BOU)   |  |
|    |   |        | Weight - 280 gm (not including magnet)  |  |

|           |                                  |  |   |  |
|-----------|----------------------------------|--|---|--|
|           |                                  |  | Brand - TPI   |  |
|           |                                  |  | Country of Origin - Made in India                         |  |
|           |                                  |  | Environmental Operating Temperature - 0 deg C to 50 deg C |  |
|           |                                  |  | Environmental Storage Temperature- 20 deg c to 70 deg C   |  |
|           |                                  |  | Power Supply - 2 x AA batteries                           |  |
|           |                                  |  | Dynamic Range - 96 dB (0.01g resolution)                  |  |
|           |                                  |  | Size - 200 x 60 x 26 mm                                   |  |
|           |                                  |  | Environmental Water - IP67 Waterproof                     |  |
| <b>7.</b> | <b>Hand Held Vibration meter</b> |  | Model Name/Number - S908                                  |  |
|           |                                  |  | Brand - Measure   |  |
|           |                                  |  | Country of Origin - Made in India                         |  |
|           |                                  |  | Velocity - 0.1-199.9mm/s (or 20 in/s) true RMS            |  |
|           |                                  |  | Acceleration - 0.1-199.9m/s <sup>2</sup> (or 20 g) Peak   |  |
|           |                                  |  | Overall Accuracy - +5%                                    |  |
|           |                                  |  | Temperature Range - 0 - 40 deg C                          |  |
|           |                                  |  | Frequency Response Displacement - 10-500 Hz               |  |
|           |                                  |  | Dimensions - 13 x 6 x 2.3 cm                              |  |
|           |                                  |  | Weight - 200 g  |  |
|           |                                  |  | Battery - 9V 6F22, 25 hours of continuous operation       |  |

**MANDATE FORM**

**(Account/s Information form)**

**REAL TIME GROSS SETTLEMENT (RTGS)/ NATIONAL ELECTRONIC TRANSFER (NEFT) / INTRA BANK ACCOUNT TRANSFER FACILITY FOR RECEIVING PAYMENTS FROM IMU.**

**A. DETAILS OF ACCOUNT HOLDER:**

NAME OF ACCOUNT HOLDERER / FIRM

COMPLETE CONTACT ADDRESS

MOBILE NUMBER / PH NO

E.MAIL:

PAN :

**B, BANK ACCOUNT DETAILS:**

**ACCOUNT NAME** (Name appearing in your Cheque Book)

BRANCH NAME WITH COMPLETE ADDRESS,

TELEPHONE NO

BRANCH CODE

**Note: Please attach a Cancelled Cheque along with the account information form.**

**COMPLETE BANK ACCOUNT NUMBER (Please note that the Bank Account must be in the name of the Firm as appeared in the bill. In case of other Beneficiaries (Non-vendor) the Account name must be in the name of Applicant)**

IFSC CODE

TYPE OF ACCOUNT (SB/CURRENT/CASH CREDIT)

MICR CODE OF BANK

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information I would not hold the IMU responsible.

( ..... )

Signature of Beneficiary

Date:

**Mandatory for Vendors/suppliers/Contractors etc., Payment:**

Certified that the particulars furnished above are correct as per our records.

(Bank's Stamp with Date & Place)

( ..... )

Signature of Bank Manager

**FORMAT OF BID SECURITY DECLARATION**

I/We-----

----- hereby states and understand that, if I/We -----

-----

-----withdraw/modify our tender during the period of validity of the tender, The Indian Maritime University, Mumbai Port Campus would suspend the bidder from participation in any future tenders of Indian Maritime University for a period of Six (06) months.

Signature \_\_\_\_\_

Name \_\_\_\_\_

Date

Capacity in which signed \_\_\_\_\_

Place

Seal of the firm to be affixed.



**INDIAN MARITIME UNIVERSITY  
MUMBAI PORT CAMPUS**

**TENDER FOR "SUPPLY, INSTALLATION AND  
AMC OF VIBRATION LAB EQUIPMENTS"**

**at IMU Mumbai Port campus, Hay Bunder Road**

**TENDER NO – IMU-MPC/PUR/2020-21/V. Lab./17**



## PRICE BID

*[On the Letter head of the Bidder and to be put in sealed cover]*

### SUPPLY, INSTALLATION AND AMC OF VIBRATION LAB EQUIPMENT

(Amount in Rs.)

| Sl. No. | Name of the Equipment   | Make & Model | Qty.    | Price of the equipment | AMC Charges for 1 <sup>st</sup> year after Warrantee | AMC Charges for 2 <sup>nd</sup> year after Warrantee | Total       |
|---------|---|--------------|---------|------------------------|--|--|-------------|
|         |   | 1            | 2       | 3                      | 4  | 5  | 6 = (3+4+5) |
| 1       | Vibration Lab. Apparatus, (VIBLAB APPARATUS)  |              | 02 Unit |                        |  |  |             |
| 2       | Cam & Follower Analysis Apparatus   |              | 02 each |                        |  |  |             |
| 3       | Free and damped torsional vibrations Trainer  |              | 01 Unit |                        |  |  |             |
| 4       | Fluke RLD2 UV Refrigerant leak Detector Flashlight  |              | 01 Unit |                        |  |  |             |
| 5       | Stroboscope   |              | 01 Unit |                        |  |  |             |
| 6       | Vibration analyzer  |              | 01 Unit |                        |  |  |             |
| 7       | Hand Held Vibration meter   |              | 01 Unit |                        |  |  |             |
|         | <b>Total:</b>   |              |         |                        |  |  |             |
|         | (Total in _____ <b>WORD</b> )   |              |         |                        |  |  |             |
|         | <b>The rates quoted above should be only the unit price (i.e. inclusive of basic price, transportation and any other charges) and exclusive of GST and any cess on GST.</b> |              |         |                        |  |  |             |

**Date:**

**Stamp & Signature of Bidder**

**Place:**