



**INDIAN MARITIME UNIVERSITY
MUMBAI PORT CAMPUS**

**TENDER FOR "SUPPLY, INSTALLATION AND AMC OF REFRIGERATION AND
AIR-CONDITIONING LAB"**

at IMU Mumbai Port campus, Hay Bunder Road

TENDER NO – IMU-MPC/PUR/2020-21/Refri. Lab./10

VOLUME - I

TECHNICAL BID

Issue of Tender Document	: 25.03.2021
Pre-Bid Meeting	: 1100 Hrs on 07.04.2021
Last Date for Submission	: up to 1700 Hrs on 16.04.2021
Opening of Technical Bid	: 1030 Hrs on 19.04.2021
Earnest Money Deposit (EMD)	: NIL
Estimated Cost	: 06 Lakhs

[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 & 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/Refri. Lab./10
TENDER FOR "SUPPLY, INSTALLATION AND AMC OF REFRIGERATION AND AIR-CONDITIONING LAB" 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 REFRIGERATION AND AIR-CONDITIONING LAB"** at IMU Mumbai Port Campus, Hay Bunder Road, Mumbai – 400033.

2. PRE-QUALIFICATION CRITERIA:-

The eligible bidder has to satisfy the following condition

Sr. No.	Qualification Criteria	Supporting Documents	Bidder Confirmation with Page No.
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. 1.8 Lakhs 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. 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. Security Deposit will be refunded / returned without any interest only 90 days after successful completion of AMC period. The refund or return of Security Deposit is subject to the complete fulfillment of the contract obligation by the supplier to the satisfaction of IMU and after adjustment of dues to IMU or penalty imposed by IMU.

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 and 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-Documents 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) **at the INDIAN MARITIME UNIVERSITY, MUMBAI PORT CAMPUS, HAY BUNDER ROAD, MUMBAI- 400033.**
- 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 and 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 opening of financial bids.

7.2. Financial Bid Evaluation:

- 7.2.1. The bidder quoting price for Lab equipment has to quote for its AMC as well, else the bid will be rejected.
- 7.2.2. The L1 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.

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 Refrigeration Lab equipment as mentioned in the table below: -

Sl. No.	Name of the Equipment	Qty
1	Vapour Compression Refrigeration Cycle Test Rig Unit	01 Unit
2	Air-Conditioning Test Rig Unit	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 / calibration/ conduct of demo experiments of the equipment.

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

11.3.4. The supplier shall provide necessary consumables till the completion of acceptance testing, without any additional cost.

11.3.5. All parts and equipment should be brand new and unused. Refurbished items shall not be accepted.

11.3.6. 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 as applicable.

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. 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 13.2, 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 AMC 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.	Vapour Compression Refrigeration Cycle Test Rig	1 Unit	<input type="checkbox"/> General: A fully instrumented refrigerant R-134a or - R-22 Vapour Compression Refrigerator Cycle Test Rig with belt driven compressor, electrically heated evaporator, thermostatic expansion valve and water cooled condenser.	
			<input type="checkbox"/> Operating Parameters: To be controlled by varying compressor motor speed, condenser cooling water flow rate and electrically heated evaporator load supply voltage & varying any other parameter included in the design of the unit.	
			<input type="checkbox"/> Instrumentation: System should be capable of measuring all temperatures at the relevant points, condenser pressure, evaporator pressure, refrigerant & cooling water flow rates, compressor power, evaporator heater power, compressor motor speed.	
			<input type="checkbox"/> Refrigerant: R-134a or R-22	
			<input type="checkbox"/> Refrigeration Rate: 1,400 W (max.) or equivalent.	
			<input type="checkbox"/> Evaporating Temperature: - 40°C to + 10°C (approx.)	
			<input type="checkbox"/> Condensing temperature: 50°C max. (approx.)	
			<input type="checkbox"/> Compressor: Hermetically Sealed Compressor of matching capacity. With variable speed Range & speed control unit.	
			<input type="checkbox"/> Condenser: Shell and Coil type with matching heat transfer area.	
			<input type="checkbox"/> Condenser Cooling: By controlling flow rate of water for matching the cooling capacity.	
<input type="checkbox"/> Evaporator: Compact once through concentric tube with refrigeration load supplied by separate electrical heating				

		elements.	
		<input type="checkbox"/> Expansion Valve: Thermostatic expansion valve, controlled by the superheat at the evaporator outlet.	
		<input type="checkbox"/> Dimmer Switch: To control power supply to heater.	
		<input type="checkbox"/> Cooling medium: Water.	
		<input type="checkbox"/> Energy Meter: Suitable energy meter to allow measurement of power input to compressor, evaporator heater.	
		<input type="checkbox"/> Filter/drier: To be provided wherever required.	
		<input type="checkbox"/> Heater: Immersion type electric heater.	
		<input type="checkbox"/> Pressure Gauge: 2 Bourdon tube pressure gauges to indicate high pressure and low pressure measurement on Condenser & Evaporator side respectively.	
		<input type="checkbox"/> Rota meter: 2 Variable Area Type Flow meter for (a) Refrigerant flow rate measurement & (b) Condenser cooling water flow measurement.	
		<input type="checkbox"/> Service Valve: Hand Shut Off type wherever necessary.	
		<input type="checkbox"/> Solenoid Valve: to be provided where ever necessary.	
		<input type="checkbox"/> Thermocouples: Set of 6 to 9 thermocouples with Digital Temperature Indicator.	
		<input type="checkbox"/> HP-LP Cutout: Make Danfoss or Equivalent.	
		<input type="checkbox"/> Switches: To be provided for compressor, condenser water pump, solenoid valve & evaporator heater.	
		<input type="checkbox"/> Voltmeter: 0 – 250 V.	
		<input type="checkbox"/> Ammeter: 0 – 15 A	
		<input type="checkbox"/> Thermostat: To be provided of reputed make.	
		<input type="checkbox"/> Power Supply: 230V/440V, A.C., 50 Hz.	
		<input type="checkbox"/> Safety: Condenser pressure and evaporator heater temperature limited by automatic high pressure cut out and high temperature cut out. All electrical components to be connected to common earth. Unit protected by	

			miniature circuit breaker and residual current circuit breaker.	
			<input type="checkbox"/> Optional: Any other additional component like pressure transducers, water tank, pumping system etc. if necessary for the proper functioning of the unit.	
			<input type="checkbox"/> A complete instruction manual to be provided along with the apparatus describing the apparatus, its applications, detailed experimental procedure, typical test results with sample calculations. Safety precautions.	
			<input type="checkbox"/> Hands on practical training to be given by the supplier..	
			<input type="checkbox"/> The use of the apparatus is for the educational training purpose only.	
			<input type="checkbox"/> Panel: Anodized aluminum or mild steel structure, panels in painted steel. Diagram in front of panel which is similar to the elements in real unit.	
			<input type="checkbox"/> Dimensions (Nominal): 2.0 m (L) x 1.5 m (W) x 1.0 m (H) (Approx.)	
			<input type="checkbox"/> A complete instruction manual to be provided along with the apparatus describing the apparatus, its applications, detailed experimental procedure, typical test results with sample calculations, safety precautions.	
			<input type="checkbox"/> Hands on practical training be given by the supplier.	
			<input type="checkbox"/> The use of the apparatus is for the educational training purpose only.	
			<input type="checkbox"/> The Vapour Compression Refrigeration Cycle Test Rig Unit is to be supplied as one single Unit.	
2	Air-Conditioning Test Rig Unit		<ul style="list-style-type: none"> Refrigeration or Air Conditioning Capacity: 	
			0.75 TR to 1 TR capacity at rated test condition.	
			Refrigerant either R134a or R22.	
			<ul style="list-style-type: none"> Anodized aluminium frame and panels made of powder coated/painted mild steel or stainless steel. 	

		<ul style="list-style-type: none"> • Air-Conditioning Laboratory Test Rig Unit along with control panel should be mounted on a single fabricated rigid structure with castor wheels to facilitate its mobility. 	
		<ul style="list-style-type: none"> • Main metallic elements made of powder coated or painted mild steel/stainless steel. 	
		Diagram on front panel with distribution of elements similar to the real one. Psychrometric chart & Enthalpy diagram of R134a or R22 to be fixed on the front panel.	
		<ul style="list-style-type: none"> • Tunnel/Duct: Rectangular cross section. 	
		Material: Powder coated/painted mild steel or stainless steel.	
		<ul style="list-style-type: none"> • Dimensions: 300 x 300 x 1800 to 2000 mm (approx.) 	
		<ul style="list-style-type: none"> • The Tunnel includes,: 	
		a. Axial Fan/Blower: With speed range and speed regulation to control the flow rate to be compatible & matching with the other components of the test rig unit.	
		b. Heating Elements: 2 No. placed along the length of the tunnel. One (Pre-heater), extended fin electric heating elements situated at evaporator inlet, power: 2000 W (1000 W + 1000 W) (approx.) or equivalent.,	
		Other: (Re-heater), extended fin electric heating elements situated at the evaporator outlet: power	
		1000W, (500 W + 500 W) (approx).	
		c. Hygrometers: 4 No., placed along the tunnel/duct length, each formed by two temperature sensors (Wet and dry -bulb).	
		d. Steam Lines: Two steam pipe lines placed at suitable position to inject the steam coming from a steam generator/boiler (placed	

		outside the tunnel) in to the tunnel to modify the air characteristics/properties.	
		e. Evaporator: A finned radiator through which the coolant flows. Evaporator coils carrying refrigerant fixed in the air duct and the air passing through the duct comes in contact with the coils and gets cooled.	
		f. Any other unit/component can suitably be added to optimize the performance of the Air-Conditioning Test Rig Unit.	
		g. Windows: (Optional). One or two of size 200 x 300 mm (approx) at suitable locations be added to visualize the tunnel inside.	
		• Coolant Circuit: It includes,	
		a. Compressor: Hermetically sealed, variable - displacement compressor of the suitable capacity matching with the refrigeration tonnage & compatible with the refrigerant used. The compressor should be belt driven with the electromagnetic clutch, driven by a variable frequency (speed) drive motor to cover the whole range of speed required for the experiment.	
		b. Condenser: Air cooled condenser made out of copper pipe/tube & of suitable matching capacity. Condenser cooling by Aluminium fins of matching capacity with fan cooling. Provision for condensate drain & condensate measurement to be made.	
		c. High Pressure Cut Off: To switch off the compressor when the exit pressure of the compressor reaches a fixed high pressure.	
		d. Expansion Valve: Thermostatic expansion valve with appropriate	

		control circuit to be provided.	
		e. Coarse & fine filters to be provided at appropriate locations.	
		f. Temperature Sensors: 12 No.,	
		Four temperature sensors (dry bulb) and four -	
		temperature sensors (wet bulb) to form four hygrometers.	
		1 st hygrometer: At blower fan.	
		2 nd hygrometer: Before Evaporator.	
		3 rd hygrometer: After Evaporator.	
		4 th hygrometer: After Re-heater.	
		Four temperature sensors in the cooling/refrigeration circuit: Two temperature sensors at the inlet and outlet of the evaporator and two temperature sensors at the inlet and outlet of the condenser at the appropriate location/position for the optimum performance of the test rig unit.	
		<ul style="list-style-type: none"> Note: The test rig compressor used must be of matching capacity & compatible with the tonnage rating of the test rig unit & also with R-134a or R-22. The other components i.e. condenser, evaporator, expansion valve and other controlling components must be of suitable matching size compatible to the compressor used. 	
		<ul style="list-style-type: none"> Suitable receiver with two service valve, gas charging valve, filter/drier and solenoid valve provided wherever necessary at the optimum positions. 	
		<ul style="list-style-type: none"> Boiler/Steam Generator: Externally placed, electrically fired small boiler/steam generator to inject steam for maintaining humidity of air, with two 2 KW (approx.) immersion heater and one 1 KW (approx.) immersion heaters, main water inlet 	

		valve & water level controller.	
		<ul style="list-style-type: none"> Refrigerant Flow meter: Refrigerant meter (glass tube rotameter) to measure coolant/refrigerant flow, range: 5-60 l/hr or of compatible matching capacity to be provided. 	
		<ul style="list-style-type: none"> Air Flow Measurement: By orifice at the exit & inclined tube manometer, range: 0 to 1" or 25.4 mm of water column (approx.). 	
		<ul style="list-style-type: none"> Pressure gauges: 4 analog/Bourdon pressure gauges (Units- bar) with the accuracy of +/- 0.1 bar for the measurement of pressure at (1) suction of compressor, (2) discharge of compressor, (3) discharge/exit of condenser, (4) exit of expansion valve (optional). 	
		<ul style="list-style-type: none"> Psychrometric chart and enthalpy diagram of R-134a or R-22 to be provided along with the unit. 	
		<ul style="list-style-type: none"> Electrical, Electronic & Control Console: 	
		Metallic box type.	
		Temperature sensors connector.	
		Selector for temperature sensors.	
		On/Off controller for the compressor.	
		On/Off controller for the blower/fan.	
		Blower/fan speed controller.	
		Heating element controller.	
		Cables and accessories for normal operation.	
		HP/LP cut-out.	
		Indicator lamps: To be provided for compressor, heater and if additionally required.	
		Energy-meter: Provided for measurement of compressor power, heating coil power & if additionally required.	
		Digital voltmeters and ammeters of standard make to measure power of compressor and heaters.	
		Temperature selection switch for	

		displaying temperature at various points and LCD display showing temperatures and pressures values at various locations of the unit.	
		Switches: For compressor, condenser, blower/fan, dehumidifier heater, boiler & if additionally required.	
		Provision for controlling the parameter variations required to perform the experiments.	
		Supply 220-240V A.C., 50 Hz, single phase. Power & rated current of matching capacity.	
		Proper electrical & thermal insulation to be provided using elastomeric foam wherever required.	
		<ul style="list-style-type: none"> • A complete instruction manual to be provided along with the apparatus describing the apparatus, its applications, detailed experimental procedure, typical test results with sample calculations, safety precautions. 	
		<ul style="list-style-type: none"> • Hands on practical training be given by the supplier. 	
		<ul style="list-style-type: none"> • The use of the apparatus is for the educational training purpose only. 	
		<ul style="list-style-type: none"> • The Air-Conditioning Laboratory Test Rig Unit is to be supplied as one single Unit. 	

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.

Date
Place

Signature _____
Name _____
Capacity in which signed _____

Seal of the firm to be affixed.



INDIAN MARITIME UNIVERSITY

MUMBAI PORT CAMPUS

**TENDER FOR "SUPPLY, INSTALLATION AND AMC OF REFRIGERATION AND AIR-
CONDITIONING LAB"**

at IMU Mumbai Port campus, Hay Bunder Road

TENDER NO – IMU-MPC/PUR/2020-21/Refri. Lab./10

VOLUME - II

FINANCIAL BID

[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 & www.imu.edu.in for regular updates.

PRICE BID

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

SUPPLY, INSTALLATION AND AMC OF REFRIGERATION AND AIR-CONDITIONING LAB

(Amount in Rs.)

Sl. No.	Name of the Equipment	Qty.	Price of the equipment	AMC Charges for 1 st year after Warrantee	AMC Charges for 2 nd year after Warrantee	Total
		1	2	3	4	6 = (2+3+4)
1	Vapour Compression Refrigeration Cycle Test Rig	01 Unit				
2	Air-Conditioning Test Rig Unit	01 Unit				
	Total:					
(Total in _____ WORD)						
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.						

Date:

Stamp & Signature of Bidder

Place: