

# Requirements Report

## Summary:

This document is a Limited Tender Enquiry issued by Maulana Azad National Institute of Technology (MANIT) Bhopal, an Institution of National Importance, for the procurement of a Cascade Refrigeration Cycle Test Rig. The tender number is MANIT/ME/2025:002, dated 14/08/2025, with an estimated cost of Rs. 501,500.00. Bidders must submit their proposals offline by 03/09/2025 at 12:00 hours, with bids opening on 04/09/2025 at 15:00 hours. The tender is valid for 60 days from the technical bid opening.

The scope of supply includes one Cascade Refrigeration Cycle Test Rig with specific components like a stainless steel evaporator (0.35m x 0.35m x 0.35m) with bare tube copper coils and PUF insulation, ethylene glycol-water mixture (45 litres), two hermetically sealed reciprocating compressors (high-pressure side with R600a, 2-2.5 kW cooling capacity; low-pressure side with R290, 1.5-2 kW cooling capacity), an air-cooled condenser, a cascade condenser (tube and tube/plate type), two thermostatic expansion valves, HP/LP cut-outs, service valves, rotameters, and a comprehensive control panel. The control panel features on/off switch, provisions for varying temperatures/pressures, digital energy meters, digital pressure and temperature measurement with data logger (Labview-based software), a computer interface with Data Acquisition Card and sensors, and an instruction manual.

Bidders must meet eligibility criteria, including being operational for at least three years, having supplied similar goods to government/public listed companies in the last three years, and achieving an annual turnover double the estimated cost of the tender. An Earnest Money Deposit (EMD) of 2% of the tender value (for values between 2.5 to 25 lakhs) is required, payable to "Director MANIT Bhopal" (Bank A/c No: 10020150107, State Bank of India). Performance Security Deposit (PSD) of 5% (for values between 2.5 to 25 lakhs) is also required. Payment will be made within 30 days of successful supply and installation. A penalty of 0.50% per week (up to 20 weeks) applies for delayed delivery. Purchase preference will be given to "Make in India" products with specified local content and Micro and Small Enterprises (MSEs). The purchaser is registered with DSIR for custom duty exemption.

## Requirements Table:

REQUIREMENT	DETAILS
Institute Status	An Institution of National Importance under MoE, Govt. of India
Goods/Items	Cascade refrigeration cycle test rig
Tender Date	14/08/2025
Location of Supplies & Installation	Mechanical Engineering Department, MANIT Bhopal
Submission Method	Duly completed tender document to be downloaded and submitted offline to Deputy Registrar (Stores & Purchase), MANIT Bhopal-462003
Date & Time of Opening of Bids	04/09/2025, at 15:00 hours
Delivery/Supply Period	04 to 06 weeks from the date of issue of Supply Order
Director's Right	Reserves the right to accept or reject any or the entire tender in full or in part without assigning any reason

REQUIREMENT	DETAILS
Technical Details	Bidder must supply illustrated leaflet with technical details of Goods/Item.
Purchase Preference (Make in India)	Applicable as per PP-LC Policy. Local Content (LC) less than or equal to 20% treated as "Non Local Supplier". Bidder to submit undertaking for mandatory minimum LC. Local content certificate from practicing Cost Accountant/Chartered Accountant, submitted with each invoice.
Sample Request	Bidder may be asked to supply sample before bulk quantities.
Warranty/AMC Specification	Warranty/AMC required must be specified.
Transit Damage Responsibility	Bidder responsible for any damage during transit.
Bidder Type	Company/Partnership firm/Proprietary firm/Agency
Past Experience	Supplied Goods/Items in last three years to Central/State government/Quasi-Government organization/Public listed company in India. Copies of one same/similar product/Equipment Purchase Order (PO) without erasing Consideration Price required.
Mandatory Documents	Earnest Money Deposition slip/proof of payment, GST Number & Income PAN both, OEM Authorization Letter (if applicable).
EMD Submission Form	DD/FDR/RTGS/NEFT/BG/Bank deposition slip.
EMD Return	Unsuccessful bidders: Soon after order placement. Successful bidder: After material supply.
Performance Security Deposit (PSD)	NIL for order/contract value < 2.50 Lakhs. 5% of Tender Value (rounded off to nearest 100 rupees) for order/contract value between 2.50 Lakhs to 25.00 Lakhs.

REQUIREMENT	DETAILS
PSD Period	Warranty period plus two month extra.
PSD Return	Returned without interest after completion of warranty period.
Custom Duty Exemption	Purchaser registered with DSIR (GoI Notification No. 51/96-Customs dated 23 July 1996) for custom duty exemption. Bidder to quote prices considering this. Certification will be provided if needed.
Discounts	No separate discount to be indicated; merged with quoted unit prices.
Vague Terms	Avoid "Extra as applicable"; such offers treated as non-responsive.
Payment Terms	Payment within 30 days by purchaser after supply and installation of Goods/Items.
Jurisdiction	Legal matters subject to jurisdiction of Bhopal court only.
Tax	GST Number and Income Tax PAN.
Past PO	Copy of Purchase Order (PO) received from government (must be attached).
BOQ	BOQ Annexure-I duly filled and signed.
Quantity	01 No
Inner Dimensions	0.35 m x 0.35 m x 0.35 m
Sheet Thickness	Inner and outer Stainless sheets: 1.25 mm
Access	Top-opening door with compatible gasket
Location	To be kept inside evaporator tank
Volume	45 litres

REQUIREMENT	DETAILS
Type	Hermetically sealed reciprocating type
Evaporator Temperature	-5 C
Refrigerant	R600a (as per schematic diagram)
Quantity	01 No
Cooling Capacity	1.5 kW to 2kW (approx.)
Condenser Temperature	0 C
Make	Danfoss, Emerson, Bitzer or Tecumseh
Type	Air-cooled condenser with copper fins
Quantity	01 No.
Heat Rejection Capacity	2 kW to 2.5 kW
Configuration	01 Each for high Temperature and low temperature side
Quantity	01 No. Each for high Temperature as well as low temperature side
**10. Service valves**	As per the requirement
Main Switch	Standard make on/off switch with mains indicator
Cascade Condenser Control	Provision for varying condenser temperature/pressure in cascade condenser in low temperature side
Energy Meters	Digital Energy meters in high temperature as well as low temperature side for electricity consumption measurement
Data Logger Software	Labview based data logging software

REQUIREMENT	DETAILS
Documentation	Instruction manual with experimental procedures and block diagram
MANIT Website	www.manit.ac.in
MANIT Fax No	0755-2670562
Contact Person (Query 1) Name	Rakesh kumar Singh
Contact Person (Query 1) Tel No	09893144171
Contact Person (Query 2) Designation	Professor
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